4.8 Greenhouse Gas Emissions

This section describes and identifies greenhouse gas (GHG) impacts of the Project. This section also describes the environmental setting, regulatory setting, identifies the applicable significance thresholds for impacts, assesses potential impacts of the Project, and recommends measures to mitigate any significant impacts, if applicable. The section also provides a discussion of cumulative impacts. Alternatives are discussed in Chapter 5.0, Alternatives.

As described in Chapter 2.0, Project Description, the Project would include the demolition of aboveground infrastructure and remediation of the site, followed by soil stabilization or revegetation of disturbed areas, with some minor long-term operations associated with remediation.

Emission calculations and modeling results are included in Appendix C.

4.8.1 Environmental Setting

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicate that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) developed several emission projections which attempted to estimate quantities of global GHGs that, if stayed at or below, would potentially result in stabilization of global temperatures, with the intent of minimizing global climate change impacts from human activities. The 2023 IPCC report concluded that a stabilization of GHGs at 400 to 450 parts per million (ppm) carbon dioxide-equivalent concentration is required to keep global mean temperature warming below two degrees Celsius (°C), which is assumed to be necessary to avoid additional climate change.

Potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (i.e., heat rash and heat stroke). In addition, climate sensitive diseases may increase, such as those spread by mosquitoes and other disease carrying insects. Those diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture, which would have negative consequences. Drought in some areas may increase, which would decrease water and food availability. Global climate change may also exacerbate air quality problems from increased frequency of exceeding criteria pollutant ambient air quality standards.

GHGs are defined as any gas that absorbs infrared radiation in the atmosphere, including water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), and

fluorocarbons. GHGs lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the "greenhouse effect". The accumulation of GHGs in the atmosphere regulates the earth's temperature.

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere. Since GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of gas emissions, referred to as the "CO_2 equivalent" (CO_2e). The GWP is used to quantify GHG emissions by multiplying the different GWP of each GHG pollutant by the mass of that pollutant to arrive at a CO_2e mass. The GWP of CO_2 is defined as one, whereas the GWP of CH_4, for example, is 25 (meaning that CH_4 absorbs 25 times as much heat, and therefore has a 25 times greater impact on global warming per pound of emissions, as CO_2), and the GWP of nitrogen dioxide is 298 (as per IPCC).

Water vapor is the most abundant and variable GHG in the atmosphere and maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves (AEP 2007).

Carbon dioxide is an odorless, colorless GHG. Natural sources of CO_2 include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic (human-caused) sources of CO_2 include burning of fuels, such as coal, oil, natural gas, and wood. The atmospheric global average CO_2 concentration in 2022 was 417.1 ppm with levels increasing from 401 ppm in 2015 and 369 ppm in 2000 with a growth rate of between two to three ppm per year since 2012 (NOAA 2023).

Methane gas is the primary component of natural gas used in homes; as discussed above, it has a GWP of approximately 25. Natural sources of CH_4 arise from the decay of organic matter and from geological deposits known as natural gas fields, from which CH_4 is extracted for fuel. Sources of decaying organic material include landfills and manure.

Nitrous oxide is a colorless gas with a GWP of approximately 298 and is produced by microbial processes in soil and water, including reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_2O. It is used in rocket engines, as an aerosol spray propellant, and in race cars. During combustion, NO_x (NO_x is a generic term for mono-nitrogen oxides, NO and NO_2) is produced as a criteria pollutant (see above) and is not the same as N_2O. Very small quantities of N_2O may be formed during fuel combustion by reaction of nitrogen and oxygen (API 2004).

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with either chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. CFCs destroy stratospheric ozone (O_3); therefore, legal production was stopped under the Montreal Protocol. Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs in automobile air conditioners and refrigerants. Perfluorocarbons (PFCs) are used in aluminum production and in the semiconductor manufacturing industry. In general, fluorocarbons have a GWP of between 12 and 14,800.

Sulfur hexafluoride is an inorganic, odorless, colorless, nontoxic, nonflammable gas which has the highest GWP of any gas at 22,800. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Ozone is a GHG; however, unlike the other GHGs, O_3 in the troposphere is relatively short-lived and therefore is not global in nature. According to the California Air Resources Board (CARB), it is difficult to make an accurate determination of the contribution of O_3 precursors (NO_x and volatile organic compounds [VOCs]) to global warming (CARB 2006).

Table 4.8.1 shows a range of gases that contribute to GHG warming with their associated GWP. The table also shows their estimated lifetime in the atmosphere and the range in GWP over 100 years.

Table 4.8.1 Global Warming Potential of Various Gases

Gas	Life in the Atmosphere (years)	100-year GWP (average)
Carbon Dioxide (CO_2)	50–200	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	120	298
HFCs	1.5–264	12–14,800
Sulfur Hexafluoride (SF_6)	3,200	22,800
Others (CFCs, PFCs, HFEs, HCFEs, Other Fully Fluorinated GHGs, Fluorinated Formates, Fluorinated Acetates, Carbonofluoridates, Fluorinated Alcohols, HCFCs, Ethers, Aldehydes, Ketones, Fluorotelomer Alcohols	Varies	0.004–17,700

Note: HFEs = hydrofluoroethers; HCFEs = hydrochlorofluoroethers; and HCFCs = hydrochlorofluorocarbons.
Source: U.S. EPA 2021

Impacts of GHG Emissions

Global climate change is a change in the average climate variability of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that dramatic temperature changes have occurred in the past, such as during previous ice ages. Data indicates that the current temperature record differs from previous climate changes in both rate and magnitude (IPCC 2023; the most recent IPCC Assessment Report [AR6]). These changes in climate could lead to alterations in weather phenomena and melting of land ice, resulting in an increase of sea levels leading to coastal flooding. Human activities, principally through emissions of GHGs, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850–1900 in 2011–2020 (IPCC 2023). Global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years. The issue of how best to respond to climate change and its effects is currently one of the most widely debated economic and political issues in the United States.

CARB (2017) notes that a warming California climate would contribute to wildfires, coastal erosion, disruption of water supply, threats to agriculture, spread of insect-borne diseases, and

continuing health threats from air pollution. With exposure to warm temperatures and sunlight, anthropogenic ozone reacts more readily with ozone-forming pollutants, NO_X, and volatile organic compounds (VOCs). Therefore, an increase in the number of warmer days and average temperatures results in higher levels of ozone. The risk of wildfire is dependent on a variety of factors, including presence and flammability of vegetation, soil moisture content, and temperature, all of which are directly or indirectly tied to climate variability—i.e., warmer days mean less rain and drier soils and vegetation. Furthermore, warmer and drier conditions allow fire to spread rapidly, making containment more difficult and resulting in hazardous air conditions. Continuing increases in global GHG emissions at business-as-usual (BAU) rates would result, by late in the century, in California losing 90 percent of the Sierra Nevada snowpack, sea level rising by more than 20 inches, and a three- to fourfold increase in heat wave days.

In the Findings and Declarations for Assembly Bill (AB) 32, the State legislature found that:

> *The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other health-related problems.*

Warming of the climate system is unequivocal, and many of the changes now being observed from the 1950s to present day are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen (IPCC 2023). The linear warming trend over the years from 1951 to 2012 (0.2 degrees Fahrenheit [ºF] per decade) is nearly twice that for the 100 years from 1906 to 2005. Over the period 1901 to 2018, global mean sea level increased by eight inches (IPCC 2023).

The IPCC studies indicate that:

> *In order to stabilize the concentration of GHGs in the atmosphere, emissions would need to peak and decline thereafter. The lower the stabilization level, the more quickly this peak and decline would need to occur.*

The studies also found that stabilization of atmospheric CO_2 concentrations at less than 450 ppm would limit temperature rise to less than 3.6 ºF by the year 2100 and would require global anthropogenic CO_2 emissions to drop below year 1990 levels within a few decades (by 2020). If GHG emissions, and atmospheric CO_2 levels, were to be kept to this "low" or "Category 1" level, impacts to gross domestic product (GDP) would be projected to "*produce benefits in some places and sectors while, at the same time, imposing costs in other places and sectors*" (IPCC 2007, 2014). Higher levels of CO_2 could cause a reduction in global GDP of more than five percent, with substantially higher regional losses. Scenarios that are likely to maintain warming at below 3.6 ºF are characterized by a 40 to 70 percent reduction in GHG emissions by 2050, relative to 2010 levels, and an emissions level near zero or below in the year 2100.

Therefore, stabilizing GHG emissions levels at 1990 levels over the next two decades and reducing GHG emissions by 50 to 85 percent by the year 2050 would reduce the impacts of climate change

to "Category 1" levels that would produce nominal changes in global average GDP and would be less than significant.

4.8.1.1 Regional Setting

Fossil fuel combustion is responsible for the vast majority of GHG emissions in the United States, with CO_2 being the primary GHG. In 2021, U.S. GHG emissions totaled 6,348 million metric tons of carbon dioxide equivalent ($MMTCO_2e$). This 2021 total represents a 2.0 percent decrease since 1990. GHG emissions peaked at 7,351 $MMTCO_2e$ in 2007. From 2019 to 2020, there was a sharp decline in emissions largely due to the impacts of the coronavirus (COVID-19) pandemic on travel and other economic activity. Between 2020 and 2021, the increase in total GHG emissions was driven largely by an increase in CO_2 emissions from fossil fuel combustion due to economic activity rebounding after the COVID-19 pandemic (U.S. EPA 2023).

To quantify the emissions associated with electrical generation, the resource mix for a particular area must be determined. The resource mix is the proportion of electricity that is generated from different sources. Electricity generated from coal or oil combustion produces greater GHG emissions than electricity generated from natural gas combustion due to the higher carbon content of coal. Electricity generated from wind turbines, hydroelectric dams, or nuclear power is assigned zero GHG emissions. Although these sources have some GHG emissions associated with the manufacturing of the wind generators, the mining and enrichment of uranium, and the displacement of forest areas for reservoirs, these emissions have not been included in the lifecycle analysis for wind turbines, hydroelectric dams, and nuclear power because they are assumed to be relatively small compared to the electricity generated.

Pacific Gas and Electric Company (PG&E), which supplies electricity to the Project area, receives 38 percent of electricity from renewables, 8 percent from large hydro, and 49 percent from nuclear (PG&E 2023). As per CalEEMod, the GHG emission rate of PG&E is 206 lb CO_2e/MWh.

Statewide Greenhouse Gas Emissions

With a population of approximately 39 million (U.S. Census Bureau 2022), California is the most populous state in the United States. In 2020, California produced 369 $MMTCO_2e$ of GHG emissions (CARB 2023). Table 4.8.2 delineates California's GHG emissions for the years 2014 through 2020.

County of San Luis Obispo Greenhouse Gas Emissions

The County of San Luis Obispo (County) EnergyWise Plan 2016 Update (County 2016) provides information on communitywide GHG emissions and government operations GHG emissions. These are summarized in Table 4.8.3.

4.8.1.2 Historical Emissions from Refinery Operations

Historical Santa Maria Refinery (SMR) activities and operations have produced impacts associated with GHG emissions, criteria pollutant emissions (see Section 4.3, Air Quality) and emissions of toxic materials (also Section 4.3).

Table 4.8.2 California GHG Emissions Inventory ($MMTCO_2e$ per Year)

Source Category	2014	2015	2016	2017	2018	2019	2020
Transportation	157.7	161.5	165.2	166.6	165.3	162.4	135.8
Electric Power	89.8	86.0	70.4	64.2	65.0	60.2	59.5
Industrial	85.2	83.2	81.6	81.7	81.9	80.4	73.3
Commercial & Residential	35.6	36.3	37.2	37.6	37.4	40.5	38.7
Agriculture	33.9	32.6	32.2	31.7	32.2	31.4	31.6
High GWP	17.7	18.6	19.4	20.1	20.5	20.7	21.3
Recycling & Waste	8.3	8.4	8.5	8.6	8.7	8.8	8.9
Total	428.2	426.6	414.5	410.5	411.0	404.4	369.1

Notes: High global warming potential gases are primarily HFC and SF_6.
HFC = hydrofluorocarbons; $MMTCO_2e$ = million metric tons of carbon dioxide equivalent; SF_6 = sulfur hexafluoride
Source: CARB 2023

Table 4.8.3 2006 and 2013 County GHG Emissions by Source

Source Category	2006	2013	Difference	
			$MTCO_2e/yr$	Percent
Government Operations	19,106	19,124	18	0.1%
Solid waste	29,027	25,196	-3,831	-13.2%
Residential Energy	137,148	136,883	-265	-0.2%
Non-residential Energy	187,355	182,728	-4,627	-2.5%
Transportation and Mobile	1,530,827	1,412,580	-118,247	-7.7%
Total	1,903,463	1,776,511	-126,952	-6.7%

Note: $MTCO_2e/yr$ = metric tons of carbon dioxide equivalent per year
Source: County 2016

Santa Maria Refinery GHG Emissions

Historical operations at the SMR produced GHG emissions associated with a range of equipment types and operations, including:

- Combustion sources, including diesel pumps and compressors, heaters, boiler, generators, incinerators, and flares (emergency use only);
- Fugitive emissions of methane from pumps, valves, and connections;
- Fugitive emissions of methane from hydrocarbon tanks; and
- Other miscellaneous sources, including solvent use, oily water treatment, cooling towers, and sulfur pit vents.

The SMR reports emissions from these sources to the San Luis Obispo County Air Pollution Control District (SLOCAPCD) annually. Table 4.8.4 summarizes the emissions for these sources

for the operations of the SMR for the last five years prior to application submittal (see Chapter 2.0, Project Description).

Table 4.8.4 SMR Facility On-site Historical GHG Emissions

Data Year	N_2O	CH_4	CO_2	CO_2e
	Metric tons			
2017	0.8	9.0	234,622	235,089
2018	0.6	11.2	202,130	202,598
2019	0.7	11.2	208,044	208,539
2020	0.6	10.4	186,511	186,961
2021	0.5	9.3	152,742	153,138
Average 5 years	0.7	10.2	196,810	197,265

Source: SLOCAPCD CEIRS reports, as reported by Phillips 66

Off-site criteria emissions include the emissions from vehicles used to transport employees and from vehicles used to transport coke, sulfur, and other materials delivered to or exported by the SMR. These emissions include:

- Emissions from trucks and trains used to transport coke;
- Emissions from trucks used to transport sulfur;
- Emissions from trucks associated with normal materials shipments and employee duties;
- Emissions from trains moving materials; and
- Emissions from employee vehicles.

Estimated GHG emissions from off-site vehicle trips associated with direct Refinery operations, including trucks and rail trips within California, total 4,979 $MTCO_2e$ per year.

The SMR also uses electricity from the PG&E grid. Historical uses of grid electricity total about 88 percent of the electricity used at the SMR, with the remaining generated on site. Use of grid electricity produces about 3,346 $MTCO_2e$ per year using the CalEEMod GHG emission factors for PG&E.

4.8.2 Regulatory Setting

This subsection summarizes the international, federal, state, and local laws, regulations, and standards that address climate change and GHG emissions as applies to the Project.

4.8.2.1 International Regulations

Kyoto Protocol

The Kyoto Protocol is a treaty made under the United Nations Framework Convention on Climate Change (UNFCCC), which was signed on March 21, 1994. The UNFCCC was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions would be reduced by an estimated

five percent from 1990 levels during the first commitment period from 2008 until 2012. However, while the U.S. is a signatory to the Kyoto Protocol, Congress has not ratified it; therefore, the U.S. is not bound by the Protocol's commitments.

Paris Agreement
At the 2015 United Nations Conference of the Parties (COP21) in Paris, France, Parties to the UNFCCC reached an agreement to combat climate change. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century to below 2 °C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 °C. The Paris Agreement requires all Parties to put forward their best efforts through "nationally determined contributions". As of the end of 2019, 187 Parties have ratified the Agreement, out of the 197 Parties who attended the Convention. The U.S. withdrew from the Paris Agreement in November 2019; however, the U.S. rejoined the Paris Agreement in February 2021.

COP28 UAE 2023
The 28th Conference of the Parties of the United Nations Framework Convention on Climate Change, COP28 UAE, was held in 2023 in Dubai, United Arab Emirates. The conference addressed past and additional commitments to keep planet warming to less than 1.5 °C.

Climate Change Technology Program
In lieu of the Kyoto Protocol's mandatory framework, the U.S. has opted for a voluntary and incentive-based approach toward emissions reductions, known as the Climate Change Technology Program. This program is a multi-agency research and development coordination effort, led by the Secretaries of Energy and Commerce, who are charged with carrying out the President's National Climate Change Technology Initiative.

Intergovernmental Panel on Climate Change
The IPCC is the United Nations body for assessing the science related to climate change. They issue periodic detailed and extensive reports on climate change, including modeled estimates of temperature changes as a function of different climate change emission levels. Their most recently completed report is the Synthesis Report for the Sixth Assessment Report released in March 2023. The Synthesis Report is the last of the Sixth Assessment Report products. The Sixth Assessment Report, AR6 Climate Change 2021: The Physical Science Basis, was released in August 2021.

4.8.2.2 Federal Regulations

Clean Air Act
In the past, the United States Environmental Protection Agency (U.S. EPA) has not regulated GHGs under the Clean Air Act (CAA). However, in 2007 the U.S. Supreme Court held that the U.S. EPA can, and should, consider regulating motor-vehicle GHG emissions. In Massachusetts v. Environmental Protection Agency, 12 states and cities, including California, in conjunction with several environmental organizations sued to force the U.S. EPA to regulate GHGs as a pollutant pursuant to the CAA (U.S. Supreme Court No. 05-1120; 127 S.Ct. 1438 [2007]). The Court ruled that GHGs fit within the CAA definition of a pollutant and that the U.S. EPA's reason for not regulating GHGs was insufficiently grounded.

40 Code of Federal Regulations (CFR) Part 98 specifies mandatory reporting requirements for several industries including certain downstream facilities that emit GHGs and to certain upstream suppliers of fossil fuels and industrial GHGs. For suppliers, the GHG emissions reported are the emissions that would result from combustion or use of the products supplied. The rule also includes provisions to ensure the accuracy of emissions data through monitoring, recordkeeping, and verification requirements. The mandatory reporting requirements generally apply to facilities that produce more than 25,000 $MTCO_2e$ (or 10,000 $MTCO_2e$ for combustion and process source emissions).

4.8.2.3 State Regulations

Assembly Bill 1493
In 2002, the California legislature declared in AB 1493 (the Pavley regulations) that global warming was a matter of increasing concern for public health and the environment in the state. It cited several risks that California faces from climate change, including reduction in the state's water supply; increased air pollution due to higher temperatures; harm to agriculture, and increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. Furthermore, the legislature stated that technological solutions for reducing GHG emissions would stimulate California's economy and provide jobs. Accordingly, AB 1493 required CARB to develop and adopt the nation's first GHG emission standards for automobiles. CARB responded by adopting CO_2-equivalent fleet average emission standards. The standards would be phased in from 2009 to 2016, reducing emissions by 22 percent in the "near term" (2009 to 2012) and 30 percent in the "mid-term" (2013 to 2016), as compared to 2002 fleets.

The legislature passed amendments to AB 1493 in September 2009. Implementation of AB 1493 requires a waiver from the U.S. EPA, which was granted in June 2009.

Additional measures passed by the Legislature, Resolution 18-35 in September 2018, in response to notices of intended rulemaking by the National Highway Transportation Safety Administration (NHTSA) and the U.S. EPA to weaken automobile fuel economy standards, adopted amendments to sections 1961.2 and 1961.3, Title 13 California Code of Regulations (CCR) to ensure continued implementation of the more stringent automobile standards through the year 2025.

Executive Order S-3-05
The 2005 California Executive Order S-3-05 established the following GHG emission-reduction goals for California:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Secretary of the California Environmental Protection Agency (CalEPA) is charged with coordinating oversight of efforts to meet these targets and formed the Climate Action Team to carry out the Executive Order. Emission reduction strategies or programs developed by the Climate Action Team to meet the emission targets. The Climate Action Team also provided strategies and input to the CARB Scoping Plan.

Assembly Bill 32
AB 32 codifies California's GHG 2020 emissions goal by requiring the state to reduce global warming emissions to year 1990 levels by 2020. It further directs CARB to enforce the statewide cap that began phasing by 2012. AB 32 was signed and passed into law by Governor Arnold Schwarzenegger on September 27, 2006. Key milestones of AB 32 include:

- June 20, 2007 – Identification of "discrete early action GHG emission-reduction measures";
- January 1, 2008 – Identification of the 1990 baseline GHG emissions levels and approval of a statewide limit equivalent to that level. Adoption of reporting and verification requirements concerning GHG emissions;
- January 1, 2009 – Adoption of a scoping plan for achieving GHG emission reductions;
- January 1, 2010 – Adoption and enforcement of regulations to implement the actions;
- January 1, 2011 – Regulatory adoption of GHG emission limits and reduction measures; and
- January 1, 2012 – GHG emission limits and reduction measures become enforceable.

Since the passage of AB 32, CARB published the Proposed Early Actions to Mitigate Climate Change in California. This publication indicated that the issue of GHG emissions in the California Environmental Quality Act (CEQA) and General Plans was being deferred for later action, so the publication did not discuss any early action measures generally related to CEQA or to land use decisions.

AB 32 addresses the results of these studies conducted by the IPCC (IPCC 2007, 2014, 2023) that examined a range of scenarios estimating an increase in globally averaged surface temperature and ocean rise by 2100 due to human causes.

Senate Bill 1368
In 2006, the California legislature passed Senate Bill (SB) 1368, which requires the California Public Utilities Commission (CPUC) to develop and adopt a "greenhouse gases emission performance standard" by March 1, 2007, for private electric utilities under its regulation. The CPUC adopted an interim standard on January 25, 2007, requiring that all new long-term commitments for base load generation involve power plants that have emissions no greater than a combined cycle gas turbine plant. That level was established at 1,100 lbs/MWh of CO_2. The California Energy Commission has also adopted similar rules.

Senate Bill 97 – CEQA: Greenhouse Gas Emissions
In August 2007, Governor Schwarzenegger signed into law SB 97 – CEQA: Greenhouse Gas Emissions with the purpose of expanding a coordinated policy for reducing GHG emissions under the CEQA framework by developing guidelines on how state and local agencies should analyze, and when necessary, mitigate GHG emissions. Specifically, SB 97 required the Office of Planning and Research (OPR), by July 1, 2009, to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. OPR would be required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to the California Global Warming Solutions

Act of 2006. SB 97 also identifies a limited number of types of projects that would be exempt under CEQA from analyzing GHG emissions.

On January 7, 2009, OPR issued its draft CEQA guidelines revisions pursuant to SB 97. On March 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the CCR. The Amendments became effective on March 18, 2010.

California Air Resources Board: 2008 Scoping Plan

On December 11, 2008, CARB adopted the Scoping Plan as directed by AB 32 which proposes a set of actions designed to reduce overall GHG emissions in California. Measures identified in the Scoping Plan are being implemented in phases with Early Action Measures that have already been implemented. Measures include a Cap-and-Trade Program, car standards, low carbon fuel standards (LCFS), landfill gas control methods, energy efficiency, green buildings, renewable electricity standards, and refrigerant management programs.

The 2008 Scoping Plan provides an approach to reduce emissions to achieve the 2020 target and to initiate the transformations required to achieve the 2050 target. The 2008 Scoping Plan indicated that a 29 percent reduction below the estimated "business as usual" levels would be necessary to return to 1990 levels by 2020 (CARB 2008).

Executive Order S-03-05 sets a goal that California emit 80 percent less GHGs in 2050 than it emitted in 1990. CARB's Scoping Plan, including the October 2013 Discussion Draft, provides additional direction and insight as to how it anticipates California would achieve the 2050 reduction goal in Governor Schwarzenegger's Executive Order S-03-05.

Office of Planning and Research Technical Advisory and Preliminary Draft CEQA Guidelines Amendments for Greenhouse Gas Emissions

Consistent with SB 97, on March 18, 2010, the State CEQA Guidelines were amended to include references to GHG emissions. The amendments offer guidance regarding the steps lead agencies should take to address climate change in their CEQA documents. According to OPR, lead agencies should: (1) determine if GHGs may be generated by a proposed project and, if so, quantify or estimate the GHG emissions by type and source; (2) assess if those emissions are cumulatively significant; and (3) consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. When assessing whether a project's effects on climate change are cumulatively considerable or not, even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects. Lastly, if the lead agency determines that the GHG emissions from a proposed project are potentially significant, it must investigate ways to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

The Amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. The Preliminary Amendments maintain CEQA discretion for lead agencies to establish thresholds of significance based on individual circumstances.

The guidelines developed by OPR provide the lead agency with discretion in determining what methodology is used in assessing the impacts of GHG emissions in the context of a particular project. This guidance is provided because the methodology for assessing GHG emissions is expected to evolve over time. The OPR guidance also states that the lead agency can rely on qualitative or other performance-based standards for estimating the significance of GHG emissions.

Senate Bill 375 Sustainable Communities and Climate Protection Act of 2008

SB 375 supports the state's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities.

Under the Sustainable Communities Act, CARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established these targets for 2020 and 2035 for each region covered by one of the state's metropolitan planning organizations (MPO). CARB will periodically review and update the targets, as needed.

Each of California's MPOs must prepare a Sustainable Communities Strategy (SCS) as a part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. The Sustainable Communities Act also establishes incentives to encourage local governments and developers to implement the SCS or an alternative planning strategy (APS). Developers can get relief from certain environmental review requirements under CEQA if their new residential and mixed-use projects are consistent with a region's SCS (or APS) that meets the targets (see Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28.).

The Southern California Association of Governments released the 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy in 2020. Goals of the RTP/SCS include 1) reduce GHG emissions and improve air quality; 2) support healthy and equitable communities; 3) adapt to a changing climate and support an integrated regional development pattern and transportation network; and 4) leverage new transportation technologies and data-driven solutions that result in more efficient travel.

Scoping Plan 2011 Re-Approved Scoping Plan

In August 2011, the initial Scoping Plan was re-approved by CARB and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. In the 2011 re-approved Scoping Plan, CARB updated the projected BAU emissions based on current economic forecasts (i.e., as influenced by the economic downturn) and GHG-reduction measures already in place. The BAU projection for 2020 GHG emissions in California was originally, in the 2008 Scoping Plan, estimated to be 596 $MMTCO_2e$. CARB subsequently derived an updated estimate of emissions in a 2013 Draft Discussion Document by considering the influence of the recent recession and reduction measures that are already in place. The revision estimates the 2020 emissions at 507 $MMTCO_2e$ (as the BAU estimate).

The 2011 Re-Approved Scoping Plan concluded that achieving the 1990 levels by 2020 meant cutting approximately 16 percent, compared to the original 2008 Scoping Plan that estimated a 29 percent reduction (CARB 2011). The 2011 Scoping Plan sets forth the expected GHG emission

reductions from a variety of measures, including the Pavley automobile standards and the Renewables Portfolio Standard (RPS), neither of which were assumed in the 2008 Scoping Plan.

Executive Order B-16-2012

The 2012 California Executive Order B-16-2012 directed that all state entities support and facilitate the rapid commercialization of zero-emission vehicles. The directive ordered state agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to achieve by 2015 that the state's major metropolitan areas would be able to accommodate zero-emission vehicles, each with infrastructure plans and streamlined permitting, and that by 2020:

- The state's zero-emission vehicle infrastructure would be able to support up to one million vehicles;
- The costs of zero-emission vehicles would be competitive with conventional combustion vehicles;
- Zero-emission vehicles would be accessible to mainstream consumers;
- There would be widespread use of zero-emission vehicles for public transportation and freight transport;
- Transportation sector GHG emissions would be falling as a result of the switch to zero-emission vehicles;
- Electric vehicle charging would be integrated into the electricity grid; and
- The private sector's role in the supply chain for zero-emission vehicle component development and manufacturing would be expanding.

And that by 2025:

- Over 1.5 million zero-emission vehicles would be on California roads, and their market share would be expanding;
- Californians would have easy access to zero-emission vehicle infrastructure;
- The zero-emission vehicle industry would be a strong and sustainable part of California's economy; and
- California's clean, efficient vehicles would annually displace at least 1.5 billion gallons of petroleum fuels.

The Executive Order directs that California target a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050; and that California's state vehicle fleet increase the number of its zero-emission vehicles through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles be zero-emission by 2015 and at least 25 percent of fleet purchases of light-duty vehicles be zero-emission by 2020.

SB 743 Transportation Impacts

SB 743 updates the way transportation impacts are measured in California for new development projects, making sure they are built in a way that allows Californians more options to drive less.

Starting in 2020, agencies analyzing the transportation impacts of new projects must now look at a metric known as vehicle miles traveled (VMT) instead of level-of-service (LOS). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roads. If the project adds excessive car travel onto roads, the project may cause a significant transportation impact.

California Air Resource Board Cap-and-Trade Regulation

CARB has implemented a cap-and-trade type program, as per the AB 32 directed Scoping Plan, applicable to specific industries that emit more than 25,000 $MTCO_2e$ annually. The AB 32 Scoping Plan identifies a Cap-and-Trade Program as one of the strategies California will employ to reduce GHG emissions. Under the Cap-and-Trade Program, an overall limit on GHG emissions from capped sectors would be established, and facilities subject to the cap would be able to trade permits (allowances) to emit GHG. The program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions from stationary sources. Beginning in 2013, the petroleum and natural gas systems sector is covered for stationary and related combustion, process vents and flare emissions if the total emissions from these sources exceed 25,000 $MTCO_2e$ per year. Suppliers of natural gas and transportation fuels were covered beginning in 2015 for combustion emissions from the total volume of natural gas delivered to a non-covered entity or for transportation fuels.

CARB's rationale for adopting a Cap-and-Trade Program was prominently noted by the Court of Appeals' opinion upholding the CARB Scoping Plan as follows:

The final scoping plan explains CARB's rationale for recommending a Cap-and-Trade Program in combination with the so-called "complementary measures" by citing the rationale outlined by the Market Advisory Committee and quoting from the report of the Economic and Technology Advancement Advisory Committee, in part, as follows: "A declining cap can send the right price signals to shape the behavior of consumers when purchasing products and services. It would also shape business decisions on what products to manufacture and how to manufacture them. Establishing a price for carbon and other GHG emissions can efficiently tilt decision-making toward cleaner alternatives. This cap-and-trade approach (complemented by technology-forcing performance standards) avoids the danger of having government or other centralized decision-makers choose specific technologies, thereby limiting the flexibility to allow other options to emerge on a level playing field... Complementary policies would be needed to spur innovation, overcome traditional market barriers...and address distributional impacts from possible higher prices for goods and services in a carbon-constrained world."(AIR 206 Cal.App.4th at p. 1499.)

Cap-and-trade is designed to reduce the emissions from a substantial percentage of GHG sources (approximately 80 percent of GHG emissions would come under the program) within California through a market trading system. The system would reduce GHG emissions by reducing the available GHG "allowances" over time in the original bill up until the year 2020. In December 2018, the legislature adopted amendments to the Cap-and-Trade Program that set major market rules after 2020 until 2030.

Facilities are required to obtain an "allowance," either through purchasing on auction or through freely allocated "industry assistance" allowances from CARB, for each $MTCO_2e$ of GHG they emit.

CARB issues the "industry assistance" allocations for free for a number of industries. These are based, in part, on a predefined "benchmark" of GHG emissions per unit of production. For the crude oil production sector, allowances are provided as a function of the amount of crude oil produced, thereby establishing, in effect, a level of efficiency in regard to GHG emissions for that sector. Other sectors are also allocated allowances based on their own respective activities.

If an operation within the sector operates less efficiently than the specified benchmark, thereby receiving an insufficient number of "free" allowances to cover their emissions, implementation of efficiency improvements or the purchase of additional allowances from the CARB auction would be required. Some availability of "offsets" is also included in the program, which can be obtained from specific, allowable offset programs, such as GHG reduction projects related to forestry, livestock, mine methane capture and ozone-depleting chemicals. Offsets outside of these options are not allowed at this time.

The first group of sectors began trading in allowances in 2012. That group includes the oil and gas sector and most stationary sources. A second group began the program in 2015, which included the transportation fuels sector.

For subsequent periods after the initial 2013 period, allowances are planned to be distributed freely through the "industry assistance" program or auctioned off. Industry assistance allowances would decrease each year in accordance with a "cap adjustment factor." The total allowances allowed to be allocated each year (either freely allocated or auctioned) are limited by the defined allowance budget, which decreases each year.

An operator is required to participate in the Cap-and-Trade Program if its facility emits more than 25,000 $MTCO_2e$ annually. Annual reporting of GHG emissions is required under the CARB Mandatory Reporting Regulation (MRR).

As only a limited number of allowances are issued, based on the original emissions estimates prepared by CARB, and because these allowances are reduced each year by a given percentage to achieve the goals, operators who commenced operations after the Cap-and-Trade Program went into effect are required to obtain allowances from the given limited pool. Any increase in GHG emissions at a facility would therefore be allowed through a reduction in GHG emissions at some other location, with the net GHG emissions statewide not increasing. This mechanism serves to ensure that the goals of AB 32 are achieved; that emissions statewide are reduced, even if local GHG emissions increase; and that, ultimately, emissions of GHG and atmospheric CO_2 concentrations are stabilized, thereby reducing impacts. This produces, in effect, mitigation for this cumulative impact.

Note that GHG emissions produce no immediate, local health effects (such as criteria pollutants or ozone); therefore, GHG emissions reduced in another county, for example, could be used to offset the GHG emissions occurring at a project site.

Scoping Plan 2014 First Update

AB 32 requires CARB to update the Scoping Plan every five years. CARB approved the first update to the Scoping Plan on May 22, 2014, with recommendations for a mid-term target (between 2020 and 2050) and sector-specific actions. The First Update addresses issues such as a

revision to the GWP for gases (to a 20-year instead of the 100-year timeframe), the establishment of a mid-term 2030 goal (of between 33–40 percent reduction over 1990 levels), and the development of post-2020 emissions caps related to cap-and-trade to reflect the establishment of a 2030 midterm target. This first revision also provides an update on climate science and a report on progress toward the 2020 target, including achievements of the 2008 and 2011 Scoping Plans, an update on the inventory of GHG emissions, and an update of the economy and its potential effect on future emissions' forecasting. It also addresses post-2020 goals, including Executive Order S-03-05. The 2014 Scoping Plan Update concluded that achieving the 1990 levels by 2020 meant cutting approximately 15.3 percent, compared to the original 2008 Scoping Plan that estimated a 29 percent reduction.

Executive Order B-30-15

Additionally, on April 29, 2015, Governor Brown issued Executive Order B-30-15 establishing "*a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030… in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.*"

Senate Bill 350

With the Clean Energy and Pollution Reduction Act (SB 350), signed into law on October 7, 2015, California expanded the specific set of objectives to be achieved by 2030, with the following:

- To increase the RPS from 33 percent to 50 percent for the procurement of California's electricity from renewable sources; and

- To double the energy efficiency savings in electricity and natural gas end uses by retail customers.

Senate Bill 32

SB 32 requires that there be a reduction in GHG emissions to 40 percent below the 1990 levels by 2030. The provisions of SB 32 were added to Section 38566 of the Health and Safety Code subsequent to the bill's approval. The bill went into effect January 1, 2017. SB 32 builds onto AB 32 which requires California to reduce GHG emissions to 1990 levels by 2020; SB 32 continues that timeline to reach the targets set in Executive Order B-30-15. SB 32 provides another intermediate target between the 2020 and 2050 targets set in Executive Order S-03-05.

Scoping Plan 2017 Update

CARB updated the Scoping Plan to address the strategy for achieving the 2030 GHG target in November 2017. The plan discusses economically and technically feasible actions for a reduction of 40 percent from 1990 levels of GHG emissions by 2030. The plan notes the path forward includes the ongoing and statutorily programs and the Cap-and-Trade Program along with AB 398 which clarifies the Cap-and-Trade Program including designating the program as the mechanism for reducing GHG emissions from petroleum refineries and oil and gas production in the Scoping Plan. The document concludes the Scoping Plan approach is to strengthen the major programs that have been successful to date and further integrate the efforts to reduce GHG emissions and improve air quality.

Assembly Bill 398 Amending California Global Warming Solutions Act of 2006
AB 398, approved July 17, 2017, amended The California Global Warming Solutions Act of 2006 and extends the Cap-and-Trade Program from January 1, 2012, to December 31, 2030, and provides for a price ceiling and other measures to improve and provide additional banking allowance rules.

Senate Bill 100 California Renewables Portfolio Standard Program
SB 100, introduced in January 2017, would revise the California RPS program to state that the goal of the program is to achieve a 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The bill states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to serve California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. The bill was signed by the Governor in September 2018.

Short-Lived Climate Pollutant Reduction Strategy
In March 2017 CARB released the Short-Lived Climate Pollutant Reduction Strategy which identified the need to immediately reduce emissions of short-lived climate pollutants (SLCPs), which include black carbon (soot), methane (CH_4), and fluorinated gases (F-gases, including hydrofluorocarbons, or HFCs). The plan outlines goals for reductions by 2030 for black carbon (50 percent), methane (40 percent), and HFCs (40 percent) and emission reduction actions that provide a wide array of climate, health, and economic benefits throughout the state.

Executive Order B-55-18
Governor Jerry Brown signed this Executive Order in September 2018 that sets a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal supplements the existing statewide targets of reducing GHG emissions.

Assembly Bill 1279
Approved in 2022, AB 1279 requires California to achieve "net zero greenhouse gas emissions" as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. It also requires that statewide anthropogenic GHG emissions be reduced to at least 85 percent below 1990 levels.

Scoping Plan 2022 Update
The CARB 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels; further reductions in short-lived climate pollutants; support for sustainable development; increased action on natural and working lands to reduce emissions and sequester carbon; and the capture and storage of carbon.

The 2022 Scoping Plan Update assesses progress toward the statutory 2030 target and is designed to meet the state's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities (CARB 2022).

Assembly Bill 1757
AB 1757 is a bill signed into law in 2022 and went into effect January 1, 2023. It calls for the Natural Resources Agency, in collaboration with specified entities including CARB and an expert advisory committee, to determine on or before January 1, 2024, an ambitious range of targets for natural carbon sequestration, and for nature-based climate solutions, that reduce greenhouse gas emissions for 2030, 2038, and 2045 to support state goals to achieve carbon neutrality and foster climate adaptation and resilience.

Status of California GHG Reduction Efforts
The state is required to monitor the effectiveness of the state programs on an annual basis. According to the state report card for 2021 (CalEPA 2021), the state achieved its 2020 GHG emissions reductions target of returning to 1990 levels four years earlier than mandated by AB 32. The state is currently implementing strategies in the Scoping Plan Updates to further reduce its GHG emissions by 40 percent below 1990 levels by 2030.

4.8.2.4 Local Regulations

County Climate Action Plan
The County adopted a Climate Action Plan (EnergyWise Plan) on November 22, 2011, as a blueprint for reducing GHG emissions. Additionally, a Green Building Ordinance to improve energy efficiency in new and existing development effective January 1, 2013. The CAP focuses on local actions to reduce GHG emissions through energy efficiencies, including retrofitting existing buildings; reversing rural sprawl; and increasing use of non-fossil fuels such as solar and wind energy (County 2011). The EnergyWise Plan was updated in 2016 (County 2016).

County General Plan, Conservation and Open Space Element
The County Board of Supervisors in 2010 adopted a comprehensive Conservation and Open Space Element with a focus on reducing GHG emissions, increasing energy efficiency, and using local renewable energy. The County's EnergyWise Plan (adopted in 2011 and updated in 2016) included an inventory of GHG. The EnergyWise Plan is required by the Conservation and Open Space Element of the General Plan. The Inventory found that community-wide emissions in 2006 were 1,884,358 $MTCO_2e$ and reduced to 1,757,387 $MTCO_2e$ in 2013.

SLOCAPCD
The SLOCAPCD initially adopted GHG thresholds on March 28, 2012, updated their CEQA Air Quality Handbook in April 2012, and in 2023 issued CEQA Greenhouse Gas Thresholds & Guidance (SLOCAPCD 2023) to incorporate revised thresholds. The County threshold of 10,000 $MTCO_2e$ for industrial sources remains applicable. The thresholds for residential, commercial, and mixed-use projects have been revised.

4.8.3 Thresholds of Significance

Thresholds are defined in two categories, land use development projects and industrial projects.

The thresholds for land use development are shown here for informational purposes. For land use development projects, the GHG threshold is dependent on the year of the proposed development, as described below:

- Annual emissions less than a bright line threshold depending on year, ranging from 930 $MTCO_2e$/year in 2024 to 150 $MTCO_2e$/year in 2045; or
- Annual emissions less than a specified amount based on service population (residents + employees) ranging from 4.2 $MTCO_2e$/service population/year in 2024 to 0.7 $MTCO_2e$/service population/year in 2045.

Land use development projects include residential, commercial, and public land uses and facilities. This includes amortization of the construction emissions over the life of the project.

For industrial projects, as is this Project, the threshold is 10,000 MT/year of CO_2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require a SLOCAPCD permit to operate. This threshold is applied to emissions within the County.

For construction, the GHG emissions from construction are amortized over the life of the project (50 years for residential projects and 25 years for commercial and industrial projects) and added to the operational GHG emissions.

The thresholds used in this document are those reflected in the SLOCAPCD 2023 Guidance and are listed below:

a. Does the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and

b. Does the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The GHG threshold is defined in terms of carbon dioxide equivalent (CO_2e), a metric that accounts for the emissions from various GHGs based on their global warming potential. If annual emissions of GHGs exceed these threshold levels, the Project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change (SLOCAPCD 2023).

Applicable plans, policies or regulations include the County Climate Action plan, San Luis Obispo Council of Governments Regional Transportation Plan/Sustainable Community Strategies, CARB Scoping Plan, and SB 743 (see above).

4.8.4 Impact Assessment Methodology

GHG emissions, similar to the criteria pollutant emissions estimates discussed in Section 4.3, Air Quality, are estimated utilizing computer models which incorporate a range of different inputs and emission factors. On-site construction emissions are estimated utilizing the CalEEMod computer model, which incorporates emission factors for equipment. In addition, the generation of waste

materials to be hauled off site by train and truck are calculated separate from the CalEEMod model using the EMFAC emission factor model to estimate emissions rates from on-road vehicles and the U.S. EPA for locomotive emission rates. Operational emissions are nominal and primarily related to only occasional vehicles commuting to the site and on site related to restoration monitoring, etc. The results of these analyses are detailed in Appendix C.

4.8.5 Project-Specific Impacts and Mitigation Measures

Impacts related to GHG emissions levels or compliance with plans are discussed below.

Impact #	Impact Description	Residual Impact
GHG.1	Threshold a): Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment [based on the SLOCAPCD thresholds]?	Class IV

Emissions of GHG at the SMR site associated with the demolition and remediation and along the transportation routes would result from on-site activities (construction equipment, etc.), vehicles (truck deliveries of materials and hauling) and locomotives (to haul materials). Appendix C shows the GHG emissions associated with the Project, both within the County and within California. Total amortized GHG emissions (amortized over 25 years as per the SLOCAPCD Guidelines) total 938 $MTCO_2e$ per year within California (291 $MTCO_2e$ amortized within the County) associated with only the demolition and remediation activities. This includes emissions at the Project site as well as emissions from transportation of materials.

The operations of the SMR historically have produced a substantial amount of GHG emissions, being one of the largest contributors to GHG emissions within the County as indicated in the environmental setting discussion above. There would therefore be a net reduction in GHG emissions within the County compared to the baseline.

As GHG emissions have global implications, it is important to examine the implications of the range of projects. Within California, the GHG emissions associated with the demolition Project would be below the SLOCAPCD thresholds. However, activities at the Rodeo Refinery, which necessitated the closure of the SMR, would generate GHG emissions. The EIR prepared for the Rodeo Renewed Project (2021) indicates that "*relative to baseline emissions, the Project would result in decreases in annual GHG emissions and therefore have a beneficial impact with regard to GHG emissions.*" Therefore, emissions of GHG within California would be reduced producing a net reduction in GHG emissions. As the total GHG emissions associated only with the Project would not exceed the SLOCAPCD thresholds for GHG emissions, and would actually be a substantial net reduction, either within the County or within California associated with the Project, emissions of GHG would be a **beneficial impact (Class IV).**

Impact #	Impact Description	Residual Impact
GHG.2	Threshold b): Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Class III

The Project would involve the demolition and remediation of the Project site, and relative to baseline operations, there would be a net reduction in GHG emissions, within the County and within California. The Project impacts relative to selected California and local plans and policies are discussed below.

***Climate Change Scoping Plan*:** The Scoping Plan addresses various policies, including the expansion of bio-based transportation fuels and compliance with a number of programs, including Cap-and-Trade. The SMR demolition and remediation Project is part of a larger effort to reduce the reliance on fossil fuels associated with the Rodeo Renewed Project (Contra Costa County 2021). Therefore, the Project would be consistent with the Scoping Plan.

***Mandatory GHG emissions reporting regulations*:** The SMR historically complies with the MRR. Once the demolition and remediation Project commences, the net reduction in GHG emissions from the SMR would no longer require compliance with the MRR. Therefore, the Project would be in compliance with the MRR.

***Low Carbon Fuel Standard*:** The Project would not be a part of the LCFS itself but would be part of the larger effort to reduce the carbon content of transportation fuels by enabling the Rodeo Renewed Project (Contra Costa County 2021). Therefore, the Project would be compliant with the LCFS.

***California Cap-and-Trade Program*:** As the SMR is no longer generating GHG emissions, it would no longer be subject to the Cap-and-Trade Program allowances requirements. In addition, all diesel and gasoline fuel used by the Project would be subject to the Cap-and-Trade Program as part of the retail requirements for transportation fuels. Therefore, the Project would be compliant with the Cap-and-Trade Program.

***Executive Order S-3-05 Emission Reduction Goals*:** As the Project would be part of the larger effort to incorporate bio-based transportation fuels, it would be part of the effort to achieve the long-term targets for GHG reductions. Therefore, the Project would be compliant with the reduction goals program.

***The County Climate Action Plan and General Plan, Conservation and Open Space Element*:** The Climate Action Plan (CAP, EnergyWise Plan) focuses on local actions to reduce GHG emissions including increasing the use of non-fossil fuels. The General Plan Element has a focus on reducing GHG emissions. As the Project would be part of the larger effort to incorporate bio-based transportation fuels and would generate a net reduction in GHG emissions in the County, it would be consistent with the CAP and the General Plan.

San Luis Obispo Council of Governments Regional Transportation Plan/Sustainable Community Strategies: As the Project would not involve development and or an increase in vehicle traffic over the historical operations, there would be no impacts to the transportation plans.

SB 753 Transportation Impacts: The GHG analysis includes the use of autos and trucks emissions and their associated VMT in the generation of the GHG emissions estimates. Section 4.15, Transportation, addresses the VMT metric.

As the Project would be consistent with the above plans and policies, it would have a **less than significant impact (Class III).**

4.8.6 Mitigation Measure Impacts to Other Issue Areas

As no mitigation measures are proposed for GHG emissions, there would not be any impact from the mitigation measures on any other issue areas.

4.8.7 Cumulative Impacts

Cumulative projects are identified and discussed in Chapter 3.0, Cumulative Study Area. These cumulative projects are discussed below. As all GHG emissions are inherently cumulative, compliance with the thresholds implies a cumulatively less than significant impact.

Ongoing SMR projects, including the Slop Oil Spill and the Northern Inactive Waste Site (NIWS) remediation projects and the remaining facilities off-site projects (Summit Pump Station and Santa Maria Pump Station), would continue remediation efforts and would not have a cumulative impact for GHG emissions as they do not generate significant GHG emissions.

Other projects in the area, such as the Arroyo Grande Oil Field, Caballero Battery project, Monarch Dunes or the Dana Reserve development projects, or the Santa Barbara County projects, would entail development in the area and could contribute to increases in GHG emissions in the area. All of these other projects would be required to comply with the SLOCAPCD CEQA requirements. The Project also complies with the SLOCAPCD CEQA requirements by being below the thresholds. Therefore, a cumulative impact would not occur.

Roadway projects would not entail the use of large GHG emissions sources and would therefore not produce cumulative impacts.

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