

4.4 GLOBAL CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

This section provides a discussion of Global Climate Change (GCC), existing regulations pertaining to GCC, and an analysis of greenhouse gas (GHG) emissions associated with implementation of the proposed Sustainable Santee Plan: The City’s Roadmap to Greenhouse Gas Reductions (“Sustainable Santee Plan” or “proposed project”). This analysis examines the proposed project’s consistency with applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of greenhouse gases.

4.4.1 Scoping Process

The Initial Study (IS) prepared for the proposed project indicated that implementation of the proposed project could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases and further analysis is required in an EIR.

The IS determined implementation of the proposed project would reduce the generation of greenhouse gas emissions, either directly or indirectly and therefore would not have a significant impact on the environment. Therefore, these topics are not analyzed further in this EIR. Please refer to Appendix A, IS/NOP, for additional discussion.

The City distributed the NOP for the EIR from August 17 to October 2, 2017. Fifteen comment letters were received in response to the NOP. One letter addressed issues related to global climate change and greenhouse gas. However, the letter was addressing these issues as they relate to the Sustainability Plan, not the environmental analysis, and will therefore not be addressed here. The comments in the letter will be forwarded to the City for review and consideration.

4.4.2 Methodology

The recommended approach for GHG analysis included in the State of California Governor’s Office of Planning and Research’s (OPR) June 2008 Technical Advisory is to (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance.¹ The June 2008 Technical Advisory provides some additional direction regarding planning documents as follows: “CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews” (June 2008 Technical Advisory, pages 7–8).

A Draft CEQA and Climate Change Advisory was published by OPR in December 2018 which updates the 2008 Technical Advisory to reflect current regulations and case law. This advisory notes the Lead Agency’s discretion in choosing a model or methodology it considers most appropriate to

¹ State of California Governor’s Office of Planning and Research, Technical Advisory, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review (June 19, 2008).

enable decision makers to intelligently take into account a projects incremental contribution to climate change (p.6). In addition, the draft advisory reiterates the Legislature’s intent to use a greenhouse gas reduction plan to streamline analysis of individual projects (p.17).

The current (2019) Appendix G Checklist of the *CEQA Guidelines* suggest that the project be evaluated for the following impacts:

- Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

4.4.3 Existing Environmental Setting

Global climate change refers to alterations in weather, which occur across the Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). These gases allow solar radiation (sunlight) into the Earth’s atmosphere, but prevent radiative heat from escaping, thus warming the Earth’s atmosphere. Global climate change attributable to anthropogenic (human) emissions of greenhouse gases (primarily CO₂, CH₄, and N₂O) is currently one of the most important and widely debated scientific, economic, and political issues in the United States.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases, analogous to a greenhouse effect. Greenhouse gases are emitted by both natural processes and human activities. The accumulation of greenhouse gases in the atmosphere regulates the Earth’s temperature. Without these natural greenhouse gases, the Earth’s temperature would be about 61 degrees Fahrenheit cooler. Emissions from human activities, such as vehicle, natural gas, electricity usage, and water usage have elevated the concentration of these gases in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:¹

- CO₂
- CH₄
- N₂O
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

Greenhouse gases have varying Global Warming Potential (GWP), which is a measure of how much a given mass of greenhouse gas is estimated to contribute to global warming. It is a relative scale that compares the gas in question (e.g., N₂O and CH₄) to that of the same mass of carbon dioxide. CO₂ is

¹ The greenhouse gases listed are consistent with the definition in Assembly Bill (AB) 32 (Government Code 38505), as discussed later in this section.

considered to be a reference gas with a GWP of 1 and is the baseline unit with which all other greenhouse gases are compared. The carbon dioxide equivalent (CO₂e) is most appropriate method of assessing emissions because it gives weight to the GWP of the gas. Table 4.6.A presents a summary of the atmospheric lifetime and GWP of selected gases. The other main greenhouse gases that have been attributed to human activity—methane and nitrous oxides—have GWPs of 21 and 310 million metric tons (MMT)¹ of carbon dioxide equivalent (MMT CO₂e), respectively.

Table 4.4.A: Global Warming Potential of Selected Gases

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide	50-200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11700
HFC-134a	14.6	1300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF ₄)	50000	6500
PFC: Hexafluoromethane (C ₂ F ₆)	10000	9200
Sulfur Hexafluoride (SF ₆)	3200	23900

Source: Environmental Protection Agency, 2008.

4.4.3.1 Inventory

This section summarizes the latest information on global, United States, California, and local GHG emission inventories.

Global Emissions. Worldwide emissions of CO₂e totaled 25 billion metric tons (MT) in 2012.² Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

United States Emissions. In 2014, the United States emitted approximately 6,870 million MT of CO₂e. Total U.S. emissions have increased by 7.4 percent from 1990 to 2014, and emissions increased from 2013 to 2014 by 1 percent. The increase from 2013 to 2014 was due to year-to-year changes in prevailing weather, and an increase in on-road vehicles miles traveled. Since 1990, U.S. emissions have increased at an average annual rate of 0.31 percent.³

State of California Emissions. California’s gross emissions of GHGs decreased by approximately 8 percent from 478.4 MMT CO₂e in 2001 to 440.4 MMT CO₂e in 2015, with a maximum of 489.2 MMT CO₂e in 2004. During the same period, California’s population grew by 9 percent from 34.5 to 38.9

¹ One teragram (Tg) is equal to one million metric tons. (A metric ton is approximately 1.1 tons).

² Total of Annex I Country CO₂e emissions, excluding LU/LUCF. UNFCCC, 2013. *Greenhouse Gas Inventory Data*. http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php

³ United States Environmental Protection Agency (EPA). Archived website snapshot from January 19, 2017. The U.S. Greenhouse Gas Inventory Report: 1990–2014. https://19january2017snapshot.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014_.html (accessed September 2017).

million people¹. As a result, California’s per capita GHG emissions have decreased over the last 14 years from 14 to 11.3 tonnes of CO₂e per person.² In 2015, emissions continued to decrease for the electric power sector. Emissions from all other sectors remained relatively flat or increased slightly from 2014.³

The ARB estimates that transportation was the source of approximately 37 percent of the State’s GHG emissions in 2015, followed by industrial sources at 21 percent, and electricity generation (both in-state and out-of-state) at 19 percent. The remaining sources of GHG emissions are residential and commercial activities at 9 percent, agriculture at 8 percent, high GWP gases at 4 percent, and recycling and waste at 2 percent.⁴

The ARB staff has projected statewide Business as Usual (BAU) GHG emissions for 2020, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions, at 509.4 MMT CO₂e.⁵ GHG emissions from the transportation and electricity sectors as a whole are expected to be approximately 36 percent and 20 percent of total CO₂e emissions, respectively. The industrial sector consists of large stationary sources of GHG emissions, and the percentage of the total 2020 emissions is projected to be 18 percent of total CO₂e emissions. The remaining sources of GHG emissions in 2020 are high GWP gases at approximately 6 percent, residential and commercial activities at 10 percent, agriculture at 7 percent, and recycling and waste at 2 percent.⁶

City of Santee Emissions. The Sustainable Santee Plan (Sustainability Plan) includes a GHG baseline inventory that identifies sources and levels of GHG emissions produced by residents and businesses within the community and municipal operations. The 2005 and 2013 inventories address the following emission sectors: on-road transportation, residential energy, commercial energy, solid waste, water use, off-road sources, and wastewater treatment. Government-related GHG emissions, which include energy use in government buildings and facilities, vehicle fleets and equipment, solid waste, streetlights, employee commutes, and water pumping, are a subset of the communitywide emissions inventory.

Communitywide GHG emissions were also projected for the years 2020, 2030, and 2035 under a BAU scenario. The BAU scenario assumes that historical data and trends are representative of future year consumption rates for energy, water, and waste. A summary of the City’s 2013, 2020, 2030, and 2035 BAU emissions is provided in Table 4.4.B. Assuming that the same type of current

¹ California Department of Finance. 2017. E-4 Population Estimates for Cities, Counties, and the State 2011–2017 with 2010 Census Benchmark. Website: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2010-17/> (accessed September 05, 2017).

² California Air Resources Board. 2017. California GHG Emission Inventory. Website: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2015/ghg_inventory_trends_00-15.pdf.

³ California Air Resources Board. 2017. California Greenhouse Gas Emissions for 2000 to 2015 – Trends of Emissions and Other Indicators. https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2015/ghg_inventory_trends_00-15.pdf, accessed August 2017.

⁴ Ibid.

⁵ California Air Resources Board. 2014. 2020 Business-as-Usual (BAU) Emissions Projection: 2014 Edition. Website: <https://www.arb.ca.gov/cc/inventory/data/bau.htm> (accessed August 30, 2017).

⁶ California Air Resources Board. 2014. 2020 BAU Forecast, Version May 27, 2014. Website: https://www.arb.ca.gov/cc/inventory/data/tables/2020_bau_forecast_by_scoping_category_2014-05-22.pdf (accessed August 30, 2017).

emissions-generating practices continue to occur within the City, GHG emissions are anticipated to increase by 7.6 percent in 2020 over 2013 levels, by 21 percent in 2030 over 2013 levels, and by 28 percent in 2035 over 2013 levels.

Table 4.4.B: City of Santee Baseline GHG Emissions and Percent Contributions

Emissions Sector	Baseline MT CO ₂ e (percent of total emissions)				
	2005	2013	2020	2030	2035
On-Road Transportation	181,812 (53%)	242,499 (60%)	264,162 (61%)	298,992 (62%)	318,334 (62%)
Commercial Energy Use	37,697 (11%)	48,025 (12%)	49,467 (11%)	56,486 (12%)	60,362 (12%)
Residential Energy Use	63,544 (19%)	78,651 (20%)	83,753 (19%)	91,986 (19%)	96,401 (19%)
Solid Waste	16,376 (4.8%)	11,151 (2.8%)	11,861 (2.7%)	12,651 (2.6%)	13,066 (2.5%)
Water & Wastewater	12,313 (3.6%)	7,549 (1.8%)	8,029 (1.9%)	8,565 (1.8%)	8,845 (1.7%)
Off-Road Sources	28,230 (8.3%)	14,699 (3.7%)	15,710 (3.6%)	17,490 (3.6%)	18,454 (3.6%)
Total	339,972 (100%)	402,574 (100%)	432,982 (100%)	486,170 (100%)	515,462 (100%)
Estimated Population	54,370	55,033	59,488	62,145	63,518
Estimated Employment	15,782	16,630	16,949	19,354	20,682
GHG Emissions per Service Population ^a	4.85	5.62	5.66	5.97	6.12

Note:^a Service Population is the sum of population plus employment.
Source: City of Santee, Draft *Sustainable Santee Plan*, February 2019.

Transportation emissions are the largest portion of GHG emissions (with the exception of Residential Energy Use in 2020 forecast). The magnitude of GHG emissions increases from 2008 to 2020, 2030, and 2035 is due primarily to anticipated future population growth (and related consumption) in the City. Although the trends for each projection show an increase in GHG emissions, emission reductions are anticipated due to programs and regulations applied at the federal and State levels, such as vehicle fuel efficiency standards, low carbon fuel standards, and renewable energy portfolio requirements. These actions at the federal and State levels are not considered in the 2020, 2030, and 2035 projections.

Table 4.4.C summarizes municipal baseline emissions.

Table 4.4.C: City of Santee Baseline Municipal Emissions

Emissions Sector	Baseline MT CO ₂ e (percent of total emissions)				
	2005	2013	2020	2030	2035
Fleet & Equipment	359 (22%)	396 (21%)	404 (21%)	416 (21%)	421 (21%)
Buildings & Facilities	275 (17%)	346 (18%)	353 (18%)	363 (18%)	368 (18%)
Solid Waste	210 (13%)	247 (13%)	252 (13%)	259 (13%)	263 (13%)
Employee Commute	208 (13%)	188 (10%)	192 (10%)	197 (10%)	200 (10%)
Outdoor Lights	586 (35%)	702 (37%)	716 (21%)	737 (21%)	747 (21%)
Water Pumping	19 (1.1%)	30 (1.6%)	31 (1.5%)	31 (1.6%)	32 (1.5%)
Total	1,657 (100%)	1,909 (100%)	1,948 (100%)	2,003 (100%)	2,031 (100%)

Source: City of Santee, Draft *Sustainable Santee Plan*, February 2019.

4.4.3.2 Effects of Global Warming

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather 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. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such 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. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution. Table 4.4.D lists greenhouse gases, the effects of each greenhouse gas, and sources for each of the greenhouse gases.

Table 4.4.D: Greenhouse Gas Properties, Effects, and Sources

Constituent	Description and Physical Properties	Health Effects	Sources
Water Vapor	Water vapor (H ₂ O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization.	There are no health effects from water vapor. When some pollutants come in contact with water vapor, they can dissolve and then the water vapor can be a transport mechanism to enter the human body.	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.
Carbon Dioxide	Carbon dioxide (CO ₂) is an odorless, colorless natural greenhouse gas.	Outdoor levels of carbon dioxide are not high enough to result in negative health effects.	Carbon dioxide is emitted from natural and anthropogenic (human) sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Methane	Methane (CH ₄) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10–12 years) compared to other greenhouse gases.	There are no health effects from methane.	Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other

Table 4.4.D: Greenhouse Gas Properties, Effects, and Sources

Constituent	Description and Physical Properties	Health Effects	Sources
			anthropocentric sources include fossil-fuel combustion and biomass burning.
Nitrous Oxide	Nitrous oxide (N ₂ O), also known as laughing gas, is a colorless greenhouse gas.	Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses it is harmless. In some cases, heavy and extended use can cause Olney's Lesions (brain damage).	Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 ppb. Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars.
Chloro-fluorocarbons	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C ₂ H ₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface).	In confirmed indoor locations, working with CFC-113 or other CFCs is thought to have resulted in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.	CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.
Hydro-fluorocarbons	Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant.	None.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Table 4.4.D: Greenhouse Gas Properties, Effects, and Sources

Constituent	Description and Physical Properties	Health Effects	Sources
Per-fluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF ₄) and hexafluoroethane (C ₂ F ₆).	None.	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
Sulfur Hexafluoride	Sulfur hexafluoride (SF ₆) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 ppt.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.	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.
Aerosols	Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols.	Similar health effects associated with particulate matter.	Sulfate aerosols are emitted when fuel containing sulfur is burned. Another source of aerosols (in the form of black carbon or soot) is the result of incomplete combustion or the incomplete burning of fossil fuels. Although particulate matter regulation has been lowering aerosol concentrations in the United States, global concentrations are likely increasing as a result of other sources around the world.

Source: LSA, November 2011

Additionally, according to the 2006 California Climate Action Team Report,¹ the following climate change effects, which are based on trends established by the United Nations Intergovernmental Panel on Climate Change (IPCC), can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the state’s water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased electricity demand, particularly in the hot summer months; and
- Increased ground-level ozone formation due to higher reaction rates of ozone-precursors.

¹ California Environmental Protection Agency, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006.

Changes in climate have the potential to affect fire regimes, especially in areas where climate, and not fuel, tends to be the limiting factor. A number of studies have been conducted on the likely effects of climate change on present-day fire regimes. In temperate regions, including the western United States, there is a possibility that increased temperature would extend typical fire seasons, with more fires occurring earlier and later in a given year. There is also a possibility that global warming would foster the creation of faster, hotter fires that would be more difficult to contain and therefore affect larger areas potentially leading to an increase in both the annual area burned and the number of potential catastrophic fires. Although the effects will vary considerably among different ecosystem types, the total area burned will likely increase in some regions. Other factors such as levels of carbon dioxide in the atmosphere may do more than change regimes through weather effects. Greater carbon dioxide availability may also lead to changes in plant growth and decomposition, which can have an impact on fire. However, it is important to realize that a single major fire event can have far greater consequences than small changes in temperature or rainfall over a period of decades. Similarly, the year-to-year and seasonal variations can be far greater than the small gradual changes of long-term climate change.

Climate change also leads to a rise in average global temperature, changes in frequency and distribution of precipitation, and variations in the pattern and occurrence of droughts, floods, and sea level rise. Specifically, it is thought that global climate change impacts to the southwest region of the U.S. would result in an increased frequency of intense precipitation events and the increased risk of flash floods. However, many of the existing hydrologic modeling systems have significant data gaps or are designed to achieve specific accounting goals. As a result, many of the modeling procedures and modeling data are fragmented, poorly integrated, and unable to meet the predictive challenges of a rapidly changing climate.

Without reliable data to assess impacts of flooding associated with global climate change to any degree of specificity, it is not possible to discern the extent to which the flooding area would change or the frequency at which flooding would occur. Regardless of the potential for an increase in flood events, development in the existing flood areas are already designed to limit impacts to flood related events. These design features include the use of materials resistant to flood damage, the placement of drainage paths around structures to guide floodwaters around and away from proposed structures, and the placement of the lowest floor of any structure at or above the base flood elevation.

4.4.4 Regulatory Setting

4.4.4.1 Federal Regulation of Climate Change

The U.S. Supreme Court ruled in *Massachusetts v Environmental Protection Agency*, 549 U.S. 497, 127 S.Ct.1438 (2007), that carbon dioxide and other GHGs and pollutants must be regulated under the CAA if the EPA determines they pose an endangerment to public health and welfare. At this time, however, no federal legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. On December 7, 2009, the EPA Administrator signed a final action with two distinct findings regarding greenhouse gases under Section 202(a) of the CAA:

- The Administrator is proposing to find that the current and projected concentrations of the mix of six key greenhouse gases—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threatened

the public health and welfare of current and future generations. This is referred to as the endangerment finding.

- The Administrator is further proposing to find that the combined emissions of CO₂, CH₄, N₂O, and HFCs from new motor vehicles and motor vehicle engines contributed to the atmospheric concentrations of these key GHGs and hence to the threat of GCC. This is referred to as the cause or contribute finding.

This EPA action does not impose any requirements on industry or other entities. However, these findings are a prerequisite to finalizing the greenhouse gas emission standards for light-duty vehicles noted below.

On April 1, 2010, the EPA and the Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012–2016 light-duty vehicles that would reduce GHG emissions and improve fuel economy. The EPA is finalizing the first-ever national GHG emissions standards under the CAA, and NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. The EPA GHG standards required these vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile in model year 2016, equivalent to 35.5 mpg.¹ By model year 2014, many program goals were being achieved, with the average new vehicle fuel economy at 30.7 mpg.²

4.4.4.2 State Regulation of Climate Change

California Air Resources Board. The ARB is part of the California EPA and is responsible for coordination and administration of State and federal air quality programs in California. The main goals of the ARB include protecting the public from toxic air contaminants, providing solutions for complying with air pollution rules and regulations, and attaining and maintaining healthy air quality for the State. The ARB defines emissions standards for vehicles, as well as other commercial equipment, and several consumer products within the State. The ARB also works with both the federal government and local air quality districts to develop California’s SIP.

In the 2017 Climate Change Scoping Plan Update, the ARB proposes strategies for achieving the California 2030 GHG target, established by Senate Bill 32 (SB 32). For local governments, such as the City of Santee, the update recommends a communitywide goal of no more than 6 MT CO₂e per capita by 2030, and no more than 2 MT CO₂e per capita by 2050. These goals are consistent with the 2030 Target Scoping Plan and the State’s long-term goals.

Assembly Bill 1493. In a response to the transportation sector’s significant contribution to California’s CO₂ emissions, AB 1493 (Pavley) was enacted on July 22, 2002. AB 1493, now Health and

¹ United States Environmental Protection Agency. *EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks*. Available at: <http://www.epa.gov/otaq/climate/regulations/420f10014.pdf>, last accessed February 2012.

² United States Environmental Protection Agency. 2016. Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022–2025. Website: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF> (accessed August 30, 2017).

Safety Code Section 43018.5, requires the ARB to set GHG emission standards for passenger vehicles and light-duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. The ARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013–2016) standards will result in a reduction of approximately 30 percent.

Senate Bill 1078. Approved by Governor Davis in September 2002, Senate Bill (SB) 1078 established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20 percent of their power from renewable sources by 2010 (see SB 107) (see also Executive Order [EO] S-14-08).

Executive Order S-3-05. In June 2005, Governor Schwarzenegger established California’s GHG emissions reduction targets in EO S-3-05. This EO established the following goals for the State of California: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. The Secretary of CalEPA is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Representatives from several state agencies comprise the Climate Action Team (CAT). The CAT is responsible for implementing global warming emissions reduction programs. The CAT fulfilled its report requirements through the March 2006 CAT Report to Governor Schwarzenegger and the legislature (CalEPA 2006). As of the date of this EIR, subsequent CAT reports have been released for 2009 and 2010.

Senate Bill 107. Approved by Governor Schwarzenegger on September 26, 2006, SB 107 requires investor-owned utilities, such as Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric, to generate 20 percent of their electricity from renewable sources by 2010. Previously, State law required that this target be achieved by 2017 (see SB 1078).

Assembly Bill 32. California’s major initiative for reducing GHG emissions is outlined in AB 32, the “California Global Warming Solutions Act of 2006.” AB 32, now Health and Safety Code Section 38500 et seq., required ARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions;
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011; and
- Prepare a Scoping Plan outlining the State’s strategy to achieve the 2020 GHG emissions limit.

The ARB has established that the level of annual GHG emissions in 1990 was 427 MMT of CO₂e.¹ The emissions target of 427 MMT of CO₂e/year requires the reduction of 80 MMT from the State's projected BAU 2020 emissions of 507 MMT² (i.e., the 1990 levels are approximately 30 percent below BAU). BAU is a forecast of the California economy in 2020 without implementation of any of the GHG reduction measures identified in the Scoping Plan.

The Scoping Plan was approved by the ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.³ More specifically, the Scoping Plan includes aggressive energy efficiency goals and methods for increasing renewable energy use. Meeting the goals in the Scoping Plan will require expanded utility-based energy efficiency programs, more stringent building and appliance standards, green building practices, waste reduction, and innovative strategies that go beyond traditional approaches. The Scoping Plan also relies on expanded efforts by the California Energy Commission (CEC) and California Public Utilities Commission (CPUC).

In August 2011, the Scoping Plan was reapproved by the ARB and included the Final Supplement to the Scoping Plan Functional Equivalent Document (FED). Emission reductions projected to result from the recommended measures in the Scoping Plan were sufficient to attain the emissions goal of 427 MMT of CO₂e by 2020. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, which must be updated every five years, was first updated in February 2014, and approved by the Board on May 22, 2014.⁴

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed the ARB and the CAT⁵ to identify a list of "discrete early action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed EO S-1-07, further solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. This EO sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs the ARB to consider the Low Carbon Fuel Standard as a discrete early action measure. The ARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to replace 20 percent of the fuel used in motor vehicles with alternative fuels by 2020.

¹ California Air Resources Board. California 1990 Greenhouse Gas Emissions Level and 2020 Limit. Available at: <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>, last accessed February 2012.

² California Air Resources Board. Greenhouse Gas Inventory – 2020 Emissions Forecast. Available at: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>, last accessed February 2012.

³ California Air Resources Board. 2008. *Climate Change Proposed Scoping Plan: a Framework for Change*. October 2008.

⁴ California Air Resources Board. 2017. *AB 32 Scoping Plan*. Website: <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm> (accessed August 30, 2017).

⁵ The CAT is a consortium of representatives from State agencies that has been charged with coordinating and implementing GHG emission reduction programs that fall outside of the ARB's jurisdiction.

In June 2007, the ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The ARB adopted an additional six early action measures in October 2007.¹ These measures relate to truck efficiency, port electrification, reduction of PFCs from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF₆ reductions from the non-electricity sector. The combination of early action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT.²

Senate Bill 1368. In September 2006, Governor Schwarzenegger signed SB 1368 (now Public Utilities Code Section 8340), which requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help to protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and requiring that the standards be developed and adopted in a public process.

Senate Bill 97. To assist public agencies in analyzing the effects of GHGs under *CEQA Guidelines*, SB 97 (Chapter 185, 2007) required the OPR to develop *CEQA Guidelines* on how to minimize and mitigate a project's GHG emissions. On December 30, 2009, the Natural Resources Agency adopted *CEQA Guideline Amendments* related to climate change. These amendments became effective on March 18, 2010. The amended guidelines establish several new *CEQA Guidelines* requirements concerning the analysis of GHGs, including:

- Requiring a lead agency to “make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project” (Section 15064(a))
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (Section 15064.4(a))
- Requiring a lead agency to consider the following factors when assessing the significant impacts from GHG emissions on the environment:
 - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.

¹ California Air Resources Board. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October 2007.

² California Air Resources Board. 2007. “ARB approves tripling of early action measures required under AB 32.” News Release 07-46. October 25. Available at: <http://www.arb.ca.gov/newsrel/nr102507.htm>, last accessed February 2012.

- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- 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. (Section 15064.4(b))
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (Section 15126.4(c)).

The amended guidelines also establish two new guidance questions regarding GHG emissions in the Environmental Checklist set forth in Appendix G to the *CEQA Guidelines*:

- Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

The adopted amendments do not establish a GHG emission threshold, and instead allow a Lead Agency to develop, adopt, and apply its own thresholds of significance or to apply those developed by other agencies or experts.¹ The Natural Resources Agency also acknowledges that a Lead Agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project’s GHG emissions.²

Senate Bill 375. Senate Bill 375, signed into law on October 1, 2008, is intended to enhance the ARB’s ability to reach AB 32 goals by directing it to develop regional greenhouse gas emission reduction targets to be achieved within the automobile and light truck sectors for 2020 and 2035. The targets are required to consider the emission reductions associated with vehicle emission standards (see Senate Bill 1493), the composition of fuels (see Executive Order S-1-07), and other ARB-approved measures to reduce GHG emissions. In late September 2010, the ARB announced greenhouse gas reduction goals for implementation by regional land use and transportation agencies. Table 4.4.E shows the 2010 reduction goals, as well as the ARB proposed updates from June 2017. These updated targets will take effect in 2018, if approved. As shown below, the regional emissions reduction goal for San Diego is 7 percent by 2020 and 16 percent (19 percent proposed) by 2035 compared to 2005 emissions levels.

¹ The *CEQA Guidelines* do not establish thresholds of significance for other potential environmental impacts, and SB 97 did not authorize the development of a statement threshold as part of this *CEQA Guidelines* update. Rather, the proposed amendments recognize a Lead Agency’s existing authority to develop, adopt and apply their own thresholds of significance or those developed by other agencies or experts.” *Final Statement of Reasons for Regulatory Action, Amendments to the CEQA Guidelines*, p. 84.

² “A project’s compliance with regulations or requirements implementing AB 32 or other laws and policies is not irrelevant. Section 15064.4(b)(3) would allow a Lead Agency to consider compliance with requirements and regulations in the determination of significance of a project’s greenhouse gas emissions.” *Final Statement of Reasons*, p. 100.

Table 4.4.E: ARB SB 375 Reduction Goals

Region	By 2020 (percent)		By 2035 (percent)	
	September 2010	October 2018	September 2010	October 2018
San Francisco Bay Area	7	10	15	19
San Diego	7	15	13	19
Sacramento	7	7	16	19
Central Valley/San Joaquin	5	5-13	10	13-16
Los Angeles/Southern California	8	8	13	19

ARB = California Air Resources Board
 SB = Senate Bill

The ARB will work with California’s 18 metropolitan planning organizations to align their regional transportation, housing, and land use plans and prepare a “Sustainable Communities Strategy” within the Regional Transportation Plan to reduce the number of vehicle miles traveled in their respective regions and demonstrate the region’s ability to attain its greenhouse gas reduction targets. If a Sustainable Communities Strategy is unable to achieve the greenhouse gas reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the greenhouse gas reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. Senate Bill 375 provides incentives for streamlining *CEQA Guidelines* requirements by substantially reducing the requirements for “transit priority projects,” as specified in Senate Bill 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy.

Executive Order S-13-08. In November 2008, Governor Schwarzenegger approved and signed Executive Order S-13-08, the Climate Adaptation and Sea Level Rise Planning Directive. This Order requires the California Natural Resources Agency, in coordination with local, regional, State, and federal public and private entities to develop a state Climate Adaptation Strategy. The report is developed to assess vulnerability and outline possible solutions for State agencies to address climate resiliency.

Senate Bill X1-2. On April 12, 2011, Governor Jerry Brown signed Senate Bill X1-2. This bill supersedes the 33 percent by 2020 Renewable Portfolio Standard (RPS), created by Executive Order S-14-08 that Gov. Arnold Schwarzenegger previously signed. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. A number of significant changes are made in Senate Bill X1-2:

- Senate Bill X12 extends application of the RPS to all electric retailers in the state, including municipal and public-owned utilities, and community choice aggregators.
- Senate Bill X1 2 creates a three-stage compliance period for electricity providers to meet renewable energy goals: 20 percent of retail sales must be renewable energy products by 2013, 25 percent of retail sales must be renewable energy products by 2016, and 33 percent of retail sales must be renewable energy products by 2020. The 33 percent level must be maintained in the years that follow.

- This three-stage compliance period requires the RPS to be met increasingly with renewable energy that is supplied to the California grid and is located within or directly proximate to California. Senate Bill X1 2 mandates that renewables from this category make up:
 - At least 50 percent for the 2011–2013 compliance period.
 - At least 65 percent for the 2014–2016 compliance period.
 - At least 75 percent for 2016 and beyond.
- Senate Bill X1 2 sets rules for the use of Renewable Energy Credits (RECs):
 - Establishes a cap of no more than 25 percent unbundled RECs going toward the RPS between 2011 and 2013, 15 percent from 2014 to 2016, and 10 percent thereafter.
 - Does not allow for the grandfathering of Tradable REC contracts executed before 2010, unless the contract was (or is) approved by the CPUC.
 - Allows banking of RECs for three years only.
 - Allows Energy Service Providers, CCAs, and IOUs with 60,000 or fewer customers to use 100 percent RECs to meet the RPS.

Senate Bill X1 2 also eliminates the Market Price Referent (MPR), which was a benchmark to assess the above-market costs of RPS contracts based on the long-term ownership, operating, and fixed-price fuel costs for a new 500 megawatt (mW) natural gas-fired combined cycle gas turbine. Using the MPR, the CPUC would provide above-market funds to cover contract costs that exceeded the MPR requires the CPUC to establish a cost limit for each IOU, and authorizes IOUs to stop procuring renewable energy beyond the cost limit. It also requires the CPUC to adopt a standard tariff for renewable projects up to 3 mW in size, with a 750 mW statewide cap on eligibility for the tariff.

Executive Order S-21-09. On September 15, 2009, Governor Schwarzenegger issued Executive Order S-21-09. This Executive Order directed the ARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. On September 23, 2010, the ARB adopted the Renewable Electricity Standard (RES) to require a 33 percent by 2020 renewable energy procurement mandate for most retail sellers of electricity in California.¹

California Code of Regulations Title 24. CCR Title 24, part 11 (California’s Green Building Standard Code) was adopted by the California Building Standards Commission in 2010 and became effective in January 2011. The Code applies to all new constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. CALGreen Code comprises Mandatory Residential and Nonresidential Measures and more stringent Voluntary Measures (TIERS I and II).

Mandatory Measures are required to be implemented on all new construction projects and consist of a wide array of green measures concerning project site design, water use reduction, improvement of indoor air quality, and conservation of materials and resources. The CALGreen Building Code

¹ California Air Resources Board. *News Release: California commits to more clean, green energy.* Available at: <http://www.arb.ca.gov/newsrel/newsrelease.php?id=155>, last accessed February 2012. Also refer to Title 17, Cal. Code Regs., § 97004(a).

refers to Title 24, Part 6 compliance with respect to energy efficiency; however, it encourages 15 percent energy use reduction over that required in Part 6. Voluntary Measures are optional. More stringent measures that may to be used by jurisdictions that strive to enhance their commitment towards green and sustainable design and achievement of Assembly Bill 32 goals are listed. Under Tiers I and II, all new construction projects are required to reduce energy consumption by 15 percent and 30 percent, respectively, below the baseline required under the CEC, as well as implement more stringent green measures than those required by mandatory code.

Senate Bill 32. On September 08, 2016, Governor Brown approved Senate Bill 32. The bill codifies the 2030 GHG emissions reduction target of 40 percent below 1990 levels, which was written into Executive Order B-30-15. The bill went into effect on January 1, 2017, and will require ARB to update the Scoping Plan to reflect the new target.¹

4.4.4.3 Regional Regulation of Climate Change

San Diego Association of Governments. SANDAG is the Regional Transportation Commission and federally designated MPO for the San Diego region. SANDAG builds consensus, develops strategic plans, obtains and allocates resources, and provides information on a broad range of topics pertinent to the region's quality of life. As a regional Council of Governments, voting members of the association consist of the County of San Diego and the 18 cities in the region.

Regional Comprehensive Plan. The Regional Comprehensive Plan (RCP) was adopted by the SANDAG Board of Directors in 2004 and serves as the long-regional planning framework for the San Diego region. It provides a broad context in which local and regional decisions can be made that move the region toward a sustainable future with more choices and opportunities for all residents of the region. It sets forth a regional strategy to promote smarter growth, focusing on locating higher-density and mixed-use development close to existing and planned transportation infrastructure. This strategy focuses particularly on elevating the role of public transit in people's daily lives. The RCP is based upon three themes:

- Improving the connections between land use and transportation plans by using smart growth principles;
- Using land use and transportation plans to guide decisions about environmental and public facility investments; and
- Focusing on collaboration and incentives to achieve regional goals and objectives.

The RCP better integrates local land use and transportation decisions, and focuses attention on where and how to grow. The RCP contains an incentive-based approach to encourage and channel growth into existing and future urban areas and smart growth communities. The RCP identifies certain areas in the region as Smart Growth Opportunity Areas (SGOA). Designation of these opportunity areas is intended to provide guidance to local governments, property owners, and service providers as to where smart growth development should occur from a regional perspective,

¹ California Legislative Information. 2016. SB-32 California Global Warming Solutions Act of 2006: emissions limit. Website: https://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml?bill_id=201520160SB32 (accessed September 5, 2017).

and focuses attention on these areas as local jurisdictions update their general plans and redevelopment plans. Once these areas are designated by local jurisdictions for development types, densities, and intensities consistent with the goals of this Plan, transportation facility improvements and other infrastructure will be targeted to these areas.

Regional Transportation Plan and Sustainable Communities Strategy. The SANDAG Board of Directors adopted the 2050 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) on October 28, 2011. The 2050 RTP maps out a system designed to maximize transit enhancements, integrate biking and walking elements, and promote programs to reduce demand and increase efficiency. The RTP includes the SCS that integrates how we use land, develop housing, and plan transportation. Pursuant to SB 375, each MPO is required to adopt an SCS as part of its RTP and, using the most recent planning assumptions, demonstrate achievement of the targets for reduction of GHGs. The 2050 RTP/SCS outlines projects for rail and bus services, highways, local streets, bicycling, and walking, as well as systems and demand management. The 2050 RTP/SCS shows how the region will meet the GHG targets for passenger cars and light-duty trucks established by the ARB for 2020 and 2035 by using land in a way that makes development more compact, conserving open space, and investing in a transportation network that reduces VMT and gives residents alternative transportation options.

San Diego Forward: The Regional Plan. The SANDAG Board of Directors adopted the San Diego Forward plan on October 9, 2015. This plan updates of the Regional Comprehensive Plan for the San Diego Region (RCP), updates the Regional Transportation Plan and updates the Sustainable Communities Strategy and combines these documents into one plan. The plan identifies the general location of uses, residential densities, and building densities within the region. It sets forth a forecasted transportation network and development pattern. Goals for this plan include reduced GHG emissions and improved air quality by creating transportation alternatives to the car.

San Diego Air Pollution Control District. The SDAPCD is the agency principally responsible for comprehensive air pollution control in the SDAB. The SDAPCD addresses GHG emissions and climate change through the implementation of federal and State regulations such as the EPA GHG Tailoring Rule and Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills. The SCAPCD also participates in regional initiatives to address GHG emissions. The SDAPCD has participated in the Climate Initiative Vision Action Team to help catalyze comprehensive local action on climate change in the San Diego area, and in the development of SANDAG's SCS. The SDAPCD has also provided expertise to local governments developing Climate Action Plans (CAPs) including County of San Diego and City of San Diego.

Regional Air Quality Strategy. The RAQS was adopted by the SDAPCD Board in 1992, and was most recently revised in 2016. The RAQS relies on information from the ARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then establishes the strategies necessary for the reduction of emissions through regulatory controls. The ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of their general plans.

Air Quality Management Plan. The applicable air quality plans are the SIP and RAQS. As discussed above, the SIP includes strategies and tactics to be used to attain and maintain acceptable air quality in the SDAB. The RAQS is a separate document that contains a list of strategies to maintain acceptable air quality.

4.4.5 Proposed Sustainable Santee Plan Goals and Measures

The following proposed Goals and Measures are applicable to the analysis of global climate change and greenhouse gas emissions:

- *Community GHG Reduction Strategies and Emission Reductions.*
 - Goal 1: Increase Energy Efficiency in Existing Residential Units.
 - 1.1: Energy Efficiency Education and Best Practices
 - 1.2: Increase Community Participation in Existing Energy Efficiency Opportunities
 - 1.3: Home Energy Evaluations
 - 1.4: Residential Home Energy Renovations
 - Goal 2: Increase Energy Efficiency in New Residential Units.
 - 2.1: Energy Efficient Homes
 - Goal 3: Increase Energy Efficiency in Existing Commercial Units.
 - 3.1: Energy Efficiency Training, Education, and Recognition in the Commercial Sector
 - 3.2: Increase Business Participation in Existing Energy Efficiency Programs
 - 3.3: Non-Residential Energy Audits
 - 3.4: Non-Residential Retrofits
 - Goal 4: Increase Energy Efficiency in New Commercial Units.
 - 4.1: Energy Efficient Businesses
 - Goal 5: Increase Energy Efficiency through Water Efficiency.
 - 5.1: Water Efficiency through Enhanced Implementation of SB X7-7
 - 5.2: Exceed Water Efficiency Standards
 - Goal 6: Decrease Energy Demand through Reducing Urban Heat Island Effect.
 - 6.1: Tree Planting for Shading and Energy Efficiency
 - 6.2: Light-reflecting Surfaces for Energy Efficiency
 - 6.3: Carbon Sequestration through Preservation of Natural Lands
 - Goal 7: Decrease Greenhouse Gas Emissions through Reducing Vehicle Miles Traveled.
 - 7.1: Non-Motorized Transportation Options
 - 7.2: Implement Bicycle Master Plan to Expand Bike Routes around the City
 - 7.3: Ride Sharing Programs within Businesses
 - 7.4: Electrify the Fleet
 - 7.5: Complete Streets and Safe Routes to Schools Programs
 - 7.6: Reduce Vehicle Trips To/From School
 - Goal 8: Decrease Greenhouse Gas Emissions through Reducing Solid Waste Generation.
 - 8.1: Reduce Waste to Landfills
 - Goal 9: Decrease Greenhouse Gas Emissions through Increasing Clean Energy Use.
 - 9.1: Clean Energy
 - 9.2: Community Choice Aggregation Program
 - Goal 10: Decrease GHG Emissions from New Development through Performance Standards.

10.1: Screening Tables

- *Municipal GHG Reduction Goal and Measures.*
 - Goal M-1: Participate in Education, Outreach, and Planning Efforts for Energy Efficiency
 - M-1.1: Increase Energy Savings through the SDG&E Energy Efficiency Partnership
 - Goal M-2: Increase Energy Efficiency in Municipal Buildings
 - M-2.1: Conduct Municipal Energy Audit
 - M-2.2: Procurement Policy for Energy Efficient Equipment
 - M-2.3: Install Cool Roofs
 - M-2.4: Retrofit HVAC and Water Pump Equipment
 - Goal M-3: Increase Energy Efficiency in Community Buildings and Infrastructure
 - M-3.1: Traffic Signal and Outdoor Lighting Retrofits
 - M-3.2: Upgrade or Incorporate Water-Conserving Landscape
 - M-3.3: Plant Trees for Shade and Carbon Sequestration
 - Goal M-4: On-Road Energy Efficiency Enhancements; Employee Commute and Vehicle Fleet
 - M-4.1: Employee Carpools
 - M-4.2: Purchase of Hybrid or Electric Vehicles
 - M-4.3: Replace and/or Supplement Vehicle Fleet with Hybrid/Electric Vehicles
 - M-4.4: Install E-Vehicle Chargers
 - Goal M-5: Reduce Energy Consumption in the Long Term
 - M-5.1: Ongoing Actions and Projected Reductions

Potential Impacts

The project is a policy document designed to reduce GHG emission in the City of Santee. All the project's Goals and Measures are designed towards achieving GHG reductions.

4.4.6 Impact Significance Criteria

The following thresholds are based on Appendix G of the *CEQA Guidelines*. Based on these thresholds, implementation of the proposed project would have a significant impact related to global climate change if it would:

Threshold 4.4.1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

Threshold 4.4.2: Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The IS, provided in Appendix A, determined that the proposed project would not result in impacts associated with Thresholds 4.4.1. As a result, this threshold is not considered any further in the analyses of the potential impacts of the proposed project related to greenhouse gas.

4.4.7 Project Impacts

Threshold 4.4.2: *Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

Policies adopted for the purpose of reducing the emissions of greenhouse gases at the State level are discussed above, and include AB 32 and SB 375. The purpose of the Sustainability Plan is to reduce GHGs within the City. Implementation of the proposed project would not conflict with either of these policies. The proposed project includes baseline GHG emissions inventories for the years 2005 and 2013, emissions reduction targets for the years 2020, 2030, and 2035, forecast emissions inventories under a BAU scenario for 2020, 2030, and 2035, and reduced 2020, 2030, and 2035 inventory that demonstrates the emissions reductions achieved with the implementation of the statewide and local GHG reduction measures outlined in the proposed project. Appendix A of the Sustainability Plan contains the GHG Inventories, Long-Term Forecasts, and Target-Setting Report that supports the analysis below. Tables 4.4.F and 4.4.G detail the 2005 baseline communitywide and municipal emissions by sector. In 2005, communitywide emissions totaled 339,972 MT CO₂e and municipal emissions totaled 1,657 MT CO₂e. The largest source of communitywide emissions was on-road transportation, and the largest source of municipal emissions was SDG&E-owned streetlights.

Table 4.4.F: Community GHG Emissions by Sector for 2005

Sector	2005 Emissions (MT CO ₂ e)
On-Road Transportation	181,812
Residential Energy	63,544
Commercial Energy	37,697
Solid Waste	16,376
Water	11,354
Off-Road Sources	28,230
Wastewater	959
Total	339,972

Table 4.4.G: Municipal GHG Emissions by Sector for 2005

Sector	2005 Emissions (MT CO ₂ e)
Outdoor Lights–SDG&E-Owned	433
Fleet & Equipment	359
Buildings & Facilities	275
Solid Waste	210
Employee Commute	208
Outdoor Lights–City-Owned	153
Water Pumping	19.0
Total	1,657

AB 32 sets greenhouse gas reduction goals for the State. By 2020, emissions should be at or below 1990 levels, and emissions should be 80 percent below 1990 levels by 2050. To reach the 2020 target, a 15 percent decrease from 2005 levels is recommended in the AB 32 Scoping Plan. An interim goal for the City was created for 2030, which was to reduce emissions to 38 percent below 2005 levels. To put the City on a path toward reaching the State’s 2050 goal, an emission reduction of 49 percent below 2005 levels by 2035 is proposed. Tables 4.4.H, 4.4.I, and 4.4.J summarize the

2020, 2030, and 2035 BAU communitywide and municipal emissions inventories and outline the reduction targets for the City of Santee.

Table 4.4.H: 2020 Mass Emissions Reduction Targets for Community and Municipal Operations

	Community	Municipal
2020 Emissions Estimate (MT CO₂e)	432,982	1,948
2020 Target	15% below 2005 levels	
2020 Emissions Goal (MT CO₂e)	288,976	1,408
Amount to Reduce by 2020	144,006	540

Table 4.4.I: 2030 Mass Emission Reduction Targets for Community and Municipal Operations

	Community	Municipal
2030 Emissions Estimate (MT CO₂e)	486,170	2,003
2030 Target	40% below 2005 levels	
2030 Emissions Goal (MT CO₂e)	203,983	1,033
Amount to Reduce by 2030	282,187	970

Table 4.4.J: 2035 Mass Emission Reduction Targets for Community and Municipal Operations

	Community	Municipal
2035 Emissions Estimate (MT CO₂e)	515,462	2,031
2035 Target	49% below 2005 levels	
2035 Emissions Goal (MT CO₂e)	173,386	845
Amount to Reduce by 2035	342,076	1,186

The 2020, 2030, and 2035 BAU emissions inventory were estimated in the Sustainability Plan using data from regional planning scenarios developed by SANDAG and the City. The BAU inventories represent emissions based on projected growth in population and employment and do not consider policies that will reduce emissions in the future (i.e., policies and related efficiency levels in place in 2013 are assumed to remain constant through 2035). The 2020, 2030, and 2035 community BAU emissions are estimated to be 432,982 MT CO₂e, 486,170 MT CO₂e, and 515,462 MT CO₂e, respectively. These estimates are an increase from 2005 baseline community emissions, with an increase of 93,010 MT CO₂e in 2020, 146,198 MT CO₂e in 2030, and 175,490 MT CO₂e in 2035. The difference between the BAU-forecast community emissions and the established reduction targets for 2020, 2030, and 2035 is 144,006 MT CO₂e, 282,187 MT CO₂e, and 342,076 MT CO₂e, respectively. This is the amount the City of Santee must reduce its community emissions in order to reach its target and match the AB 32 reduction target.

The 2020, 2030, and 2035 municipal BAU emissions are estimated to be 1,948 MT CO₂e, 2,003 MT CO₂e, and 2,031 MT CO₂e, respectively. These estimates are an increase from the 2005 baseline municipal emissions, with an increase of 291 MT CO₂e in 2020, 346 MT CO₂e in 2030, and 374 MT CO₂e in 2035. The difference between the BAU-forecast municipal emissions and the established reduction targets for 2020, 2030, and 2035 is 540 MT CO₂e, 970 MT CO₂e, and 1,186 MT CO₂e, respectively. This is the amount the City of Santee must reduce its municipal emissions in order to reach its target and match the AB 32 reduction target.

The proposed project includes goals, measures, and actions that can be used at the municipal and community levels to meet the City’s mass emissions reduction targets identified above. Each goal contains measures to indicate the City’s commitment to meeting the goal, and within each measure there are one or more actions presented to indicate the steps the City can take to achieve the measure. Goals at the municipal level include:

- Participate in Education, Outreach, and Planning Efforts for Energy Efficiency;
- Increase Energy Efficiency in Municipal Buildings;
- Increase Energy Efficiency in Community Buildings and Infrastructure;
- On-Road Energy Efficiency Enhancements; Employee Commute and Fleet; and
- Reduce Energy Consumption in the Long Term.

Goals at the community level include:

- Increase Energy Efficiency in Existing and New Residential Units;
- Increase Energy Efficiency in Existing and New Commercial Units;
- Increase Energy Efficiency through Water Efficiency;
- Decrease Energy Demand through Reducing Urban Heat Island Effect;
- Decrease GHG Emissions through Reducing VMT;
- Decrease GHG Emissions through Reducing Solid Waste Generation;
- Decrease GHG Emissions through Increasing Clean Energy Use; and
- Decrease GHG Emissions from New Development through Performance Standards.

Implementation of these goals, and their associated measures and actions, would reduce communitywide GHG emissions by 3011 percent compared to the 2020 BAU emissions, and by 39 percent compared to 2035 BAU emissions. State and federal reduction measures would reduce the 2020 BAU emissions by an additional 19 percent, and would reduce the 2035 BAU emissions by 35 percent. Tables 4.4.K and 4.4.L outline the projected communitywide and municipal emissions inventories for the years 2020, 2030, and 2035 after implementation of these proposed local reduction strategies, and State and federal GHG reduction measures. Both communitywide and municipal targets will be met by 2020, 2030, and 2035 with implementation of goals in the proposed project and State and federal reduction measures.

Table 4.4.K: Community Emissions and Targets Comparison

	2005 MT CO ₂ e	2020 MT CO ₂ e	2030 MT CO ₂ e	2035 MT CO ₂ e
BAU Emissions	339,972	432,982	486,170	515,462
Reduction Target	—	288,976	249,596	173,386
State & Federal Reductions	—	80,876	146,656	178,919
Local Reductions excluding CCA	—	92,569	133,135	153,418
Local Reductions including CCA	—	259,537	206,379	183,125

Table 4.4.K: Community Emissions and Targets Comparison

	2005 MT CO ₂ e	2020 MT CO ₂ e	2030 MT CO ₂ e	2035 MT CO ₂ e
Total Adjusted Emissions excluding CCA	—	259,537	206,379	
Total Adjusted Emissions including CCA	—	220,836	160,057	132,993
Additional Reductions Needed without CCA	—	Target Met	Target Met	9,739
Additional Reductions Needed with CCA	—	Target Met	Target Met	Target Met

BAU = Business as Usual MT CO₂e = metric tons of carbon dioxide equivalent

Table 4.4.L: Municipal Emissions and Targets Comparison

	2005 MT CO ₂ e	2020 MT CO ₂ e	2030 MT CO ₂ e	2035 MT CO ₂ e
BAU Emissions	1,657	1,948	2,003	2,031
Reduction Target	—	1,408	1,033	845
State & Federal Reductions	—	337	346	350
Local Reductions	—	260	787	1,050
Total Adjusted Emissions	—	1,351	870	631
Additional Reductions Needed	—	Target Met	Target Met	Target Met

BAU = Business as Usual MT CO₂e = metric tons of carbon dioxide equivalent

SB 375 sets regional targets for the reduction of GHG emissions from passenger vehicles. The targets for the SANDAG region are a 7 percent decrease and a 13 percent decrease per capita from 2005 for the years 2020 and 2035, respectively. Table 4.4.M quantifies the BAU per capita emissions from passenger vehicles for 2005, 2020, and 2035 and associated reduction targets for the projected years for the City of Santee.

Table 4.4.M: Passenger Vehicle Emissions Reduction Targets

	2005	2020	2035
On-Road Transportation Emissions (MT CO₂e)	181,812	264,162	318,334
Santee Service Population ^a	70,152	76,437	84,200
BAU MT CO₂e per capita	2.59	3.46	3.78
Reduction Target	—	2.41 (7%)	2.25 (13%)

^a Service Population is the sum of population plus employment.

BAU = Business as Usual MT CO₂e = metric tons of carbon dioxide equivalent

The proposed project includes specific goals at the communitywide and municipal levels designed to reduce emissions from passenger vehicles. Community Goal 5, Decrease GHG Emissions through Reducing VMT, includes four measures to effectively achieve this reduction:

1. Encourage Non-Motorized Transportation Options
2. Implement the Bicycle Master Plan to Expand the Bicycle Routes around the City
3. Promote Ride-Sharing Programs within Businesses
4. Electrify the Fleet
5. Complete Streets and Safe Routes to Schools Programs
6. Reduce Vehicle Trips To/From School

Municipal Goal 4, On-Road Energy Efficiency Enhancement; Employee Commute and Vehicle Fleet, also contains four measures to aid in the reduction of passenger vehicle emissions within City operations. These measures are:

1. Encourage or Incentivize Employee Carpools.
2. Encourage or Incentivize Purchase of Hybrid or Electric Vehicles.
3. Replace or Supplement Vehicle Fleet with Hybrid/Electric Vehicles.
4. Install E-Vehicle Chargers.

Table 4.4.N outlines the emissions reduction potential from these measures. Implementation of these measures and their associated actions would reduce emissions from passenger vehicles within the City by 23 percent compared to the 2020 BAU on-road transportation emissions, and by 30 percent compared to the 2035 BAU on-road transportation emissions. State and federal reduction measures would reduce the 2020 BAU on-road transportation emissions by an additional 17 percent, and would reduce the 2035 BAU emissions by an additional 42 percent. Table 4.4.O outlines the adjusted on-road transportation emissions with these proposed local reduction strategies and State and federal GHG reduction measures. Per capita passenger vehicle emissions targets will be met by 2020 and 2035 with implementation of the goals in the proposed project and the State and federal reduction measures.

Table 4.4.N: Emissions Reduction Potential of Sustainable Santee On-Road Transportation Measures

	2020 reduction potential (MT CO ₂ e)	2035 reduction potential (MT CO ₂ e)
C5.1 Encourage Non-Motorized Transportation Options	438	373
C5.2 Implement Bicycle Master Plan to Expand Bike Routes around City	14,788	12,600
C5.3 Promote Ride Sharing Programs within Businesses	19,761	16,838
C5.4 Electrify the Fleet	3,341	47,414
C5.5 Complete Streets and Safe Routes to Schools Programs	5,477	4,667
C5.6 School Bus Program	16,431	14,000
Total	60,236	95,892

MT CO₂e = metric tons of carbon dioxide equivalent

Table 4.4.O: Adjusted On-Road Transportation Emissions

	2020	2035
SB 375 per capita passenger vehicle emissions target	2.41	2.25
State on-road transportation measures reduction	45,589	135,014
Adjusted on-road transportation Emissions	218,573	183,320
Adjusted on-road transportation Emissions with proposed measures	158,337	87,428
Adjusted MT CO₂e per capita with proposed measures	2.07	1.04

MT CO₂e = metric tons of carbon dioxide equivalent

With implementation of the proposed measures in the Sustainability Plan, reduction targets for the City of Santee for both AB 32 and SB 375 will be met by 2020 and 2035. In each case, the targets are exceeded by greater than 10 percent. Implementation of Sustainability Plan measures and actions would therefore not result in conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

4.4.8 Level of Significance Prior to Mitigation

All potential impacts related to GHG emissions would be less than significant.

4.4.9 Mitigation Measures

The proposed project would not result in any significant adverse impacts related to GHG emissions. No mitigation is required.

4.4.10 Level of Significance after Mitigation

There would be no significant unavoidable adverse impacts of the proposed project related to GHG emissions.

4.4.11 Cumulative Impacts

The analysis of GHG emissions is cumulative in nature, and no separate analysis is required.

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