4.7 GREENHOUSE GAS EMISSIONS

4.7.1 EXISTING CONDITIONS

Global Climate Change and Greenhouse Gases

Climate change is a recorded change in the Earth's average weather measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. The year 2022 ranked as Earth's fifth hottest year on record. Overall, Earth's average temperature has risen more than 2 degrees Fahrenheit since the 1880s. Continuing the planet's long-term warming trend, the year's globally averaged temperature was 1.6 degrees Fahrenheit (0.89 degrees Celsius) warmer than the baseline 1951–1980 mean. The last seven years have been the warmest seven years on record, typifying the ongoing and dramatic warming trend (NASA 2023a).

The global atmospheric concentration of carbon dioxide (CO_2), the most abundant greenhouse gas (GHG), has increased from a pre-industrial value of about 280 parts per million (ppm) in 1750 to a seasonally adjusted 418.94 ppm in June 2021. The National Oceanic and Atmospheric Administration Annual Greenhouse Gas Index (AGGI) in 2020 was 1.47, which means the warming influence of GHGs has increased 47 percent since 1990. It took about 240 years for the AGGI to go from zero to one, and 30 years to increase by another 47 percent (ESRL 2022a).

Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat GHGs are global pollutants and are therefore unlike criteria air pollutants such as ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants (TACs), which are pollutants of regional and local concern (see Section 4.2, Air Quality, of this Draft EIR). While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. Therefore, GHG effects are global, as opposed to the local and/or regional air quality effects of criteria air pollutant and TAC emissions, which are analyzed in Section 4.2, Air Quality.

Although the exact lifetime of any particular GHG molecule depends on multiple variables, more CO_2 is currently emitted into the atmosphere than is sequestered. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and dissolution, respectively. These are two of the most common processes of CO_2 sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, Northern Hemisphere forest regrowth, and other terrestrial sinks

within a year, whereas the remaining 46 percent of human-caused CO_2 emissions is stored in the atmosphere.[1]

GHGs, as defined under California's Assembly Bill (AB) 32, include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6.). Prominent GHGs that naturally occur in Earth's atmosphere are water vapor, carbon dioxide (CO_2), methane (CH_4), oxides of nitrogen (NO_X), and ozone. Anthropogenic (human-caused) GHG emissions include releases of these GHGs plus releases of human-made gases with high global warming potential (ozone-depleting substances such as chlorofluorocarbons [CFCs][2] and aerosols, hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]).

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, CH_4 and N_2O are approximately 28 and 265 times (respectively) more powerful than CO_2 (CO_2 has a GWP of 1) in their ability to trap heat in the atmosphere. The GWP of each GHG is multiplied by the amount of each gas to calculate the total CO_2 equivalent (CO_2e). CO_2e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP.

The primary human processes that release GHGs include the burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high GWP gases. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing Earth's capacity to remove CO_2 from the air and altering Earth's albedo, or surface reflectance, thus allowing more solar radiation to be absorbed. Specifically, CO_2 emissions associated with fossil fuel combustion are the primary contributors to human-induced climate change. CO_2, methane, and nitrous oxide emissions associated with human activities are the next largest contributors to climate change.

General Environmental Effects of Global Climate Change

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. A cumulative discussion and analysis of Project impacts on global climate change is presented in this Draft EIR because, although it is unlikely that a single project could contribute significantly to climate change, cumulative emissions from many projects affect global GHG concentrations and the climate system.

Executive Order (EO) S-3-05 mandates the preparation of biennial science assessment reports on climate change impacts and adaptation options for California. EO S-13-08 directs the California Natural Resources Agency (CNRA) to develop a State Climate Adaptation

[1] Seinfeld, J.H. and S.N. Pandis. 1998. Atmospheric Chemistry and Physics from Air Pollution to Climate Change. Hoboken, NJ: John Wiley & Sons.

[2] CFCs destroy stratospheric ozone. The Montreal Protocol on Substances That Deplete the Ozone Layer prohibited CFC production in 1987.

Strategy and to provide State land use planning guidance related to sea level rise and other climate change impacts. Reports resulting from these directed actions include the Climate Action Team Report to the Governor and Legislature and the California Climate Adaptation Strategy (CalEPA 2010a; CNRA 2009a). These studies report that global warming in California is anticipated to impact resources including, but not limited to, those discussed below.

- **Public Health.** Many Californians currently experience the worst air quality in the nation, and climate change is expected to make matters worse. Higher temperatures would increase the frequency, duration, and intensity of conditions conducive to air pollution formation. If global background O_3 levels increase as predicted under some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by more frequent wildfires, which emit fine particulate matter that can travel long distances. Rising temperatures and more frequent heat waves would increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress. Climate change may also increase asthma rates and the spread of infectious diseases and their vectors, as well as challenge food and water supplies. Children, the elderly, people with chronic heart or lung disease, outdoor workers, people who exercise outdoors and the economically disadvantaged would be particularly vulnerable to these changes. In addition, more frequent extreme weather events could also result in increased injuries and deaths from these phenomena.
- **Energy.** Increasing mean temperature and more frequent heat waves will drive up demand for cooling in summer; this new energy demand will only be partially offset by decreased demand for heating in winter. Hydropower, which currently provides 15 percent of in-State energy generation, would be threatened by declining snowpack, which serves as a natural reservoir for hydropower generation in the spring and summer. Winter storms, earlier snowmelt, and greater runoff may combine to cause flooding, which could, in turn, damage transmission lines and cause power outages.
- **Water Resources.** Rising temperatures, less precipitation, and more precipitation falling as rain instead of snow could severely diminish snowpack. Because the Sierra Nevada snowpack provides most of California's available water, this potential loss would increase the risk of summer water shortages and would hamper water supplies and hydropower generation. Rising sea levels would push saltwater into California's estuaries, wetlands, and groundwater aquifers, threatening the water quality and reliability in the Sacramento/San Joaquin River Delta—a major California freshwater supply. Extreme precipitation and flooding could also damage water quality by creating sudden increases in runoff. Moreover, warming would increase evapotranspiration rates from plants, soil, and open water surfaces, which would result in greater demand for irrigation. Overall, climate change would reduce California's water supplies even as its growing population requires additional resources.
- **Sea Level and Flooding.** Sea level at California's coasts is expected to rise by 11 to 18 inches above 2000 levels by 2050 and by 23 to 55 inches by 2100. If realized, these

increases would create more frequent and higher storm surges; would erode some coastal areas; and would increase pressure on existing levees. These increases would create a greater risk of flooding in previously untouched inland areas. Consequently, continued development in vulnerable coastal areas would put more people and infrastructure at risk.

- **Agriculture.** Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, in the long-term, climate change would reduce the quantity and quality of agricultural products statewide. As temperatures rise, farmers will face greater water demand for crops and a less reliable and smaller water supply, as well as increased competition from urban water users. Sea level rise may cause saltwater intrusion in the Delta region, making it difficult to raise certain crops. Rising temperatures will likely aggravate O_3 pollution, interfering with plant growth and making plants more susceptible to disease and pests. In addition, warming would reduce the number of colder hours needed for fruit and nut production; would shift pest and weed ranges; would alter crop pollinator timing; and would increase the frequency of droughts, heat waves, and floods. Higher average temperatures would also increase mortality and decrease productivity in livestock.
- **Forestry.** California timber production has declined over the past few decades due, in part, to warming and increased wildfires. While further warming may increase production for some species in some locations, climate change is expected to reduce overall forest growth. Increasing average temperatures and drought frequency would result in more wildfires and greater burned areas, while less frequent and more intense rainfall would increase soil erosion and landslides. Higher temperatures and less water would force many tree species to shift their ranges; those that run out of livable habitat may die out. Pests, diseases, and invasive species may also colonize new areas, further challenging forest health and biodiversity.
- **Ecosystems.** Rising average temperatures would subject plants and animals to greater thermal stress, causing some species to adapt or shift their ranges, while others may face extinction. Invasive species may also shift their ranges, threatening native species. Changing temperatures would also alter the timing of plant flowering and insect emergence, damaging species' ability to reproduce. Changing precipitation patterns would impact aquatic and riparian ecosystems by reducing snowpack, stream flow, and groundwater, while increasing the frequency of droughts, floods, and wildfires. As sea levels rise, some coastal habitats may be permanently flooded or eroded, and saltwater intrusion into freshwater resources may threaten terrestrial species. Changes in ocean circulation and temperature, ocean acidification, and increased runoff and sedimentation would threaten pelagic species. In sum, continued global warming would alter natural ecosystems and threaten California's biological diversity.

Climate and Topography

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place. For a detailed discussion of existing regional and Project Site climate and topography, see Section 4.2, Air Quality.

Existing GHG Emissions

California GHG Inventory

As the second largest emitter of GHG emissions in the U.S. and the 12th to 16th largest GHG emissions emitter in the world, California contributes a large quantity (369.3 million metric tons [MMT] CO_2e in 2020) of GHG emissions to the atmosphere.[3] Emissions of CO_2 are byproducts of fossil fuel combustion and are attributable in large part to human activities associated with transportation, industry/ manufacturing, electricity and natural gas consumption, and agriculture. In California, the transportation sector is the largest emitter at 38 percent of GHG emissions, followed by industry/ manufacturing at 23 percent of GHG emissions.[4]

Existing GHG Emissions from the Project Site

Because the Project Site is primarily undeveloped with no current buildings or other active uses, there are no existing GHG emissions from the Project Site assumed in this analysis.

4.7.2 REGULATORY SETTING

International

International organizations such as the ones discussed below have made substantial efforts to reduce GHGs. Preventing human-induced climate change will require the participation of all nations in solutions to address the issue.

Intergovernmental Panel on Climate Change

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

[3] California Air Resources Board (ARB). 2022. California Greenhouse Gas Emission Inventory – 2020 Edition. Website: https://ww2.arb.ca.gov/ghg-inventory-data. Accessed November 24, 2023.

[4] Ibid.

United Nations Framework Convention on Climate Change (Convention)

On March 21, 1994, the United States joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol

In 1988, the United Nations established the IPCC to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The Climate Change Action Plan currently consists of more than 50 voluntary programs for member nations to adopt. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. Some have estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced an estimated 5 percent from 1990 levels during the first commitment period of 2008-2012. Notably, while the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments. In December 2009, international leaders from 192 nations met in Copenhagen to address the future of international climate change commitments post-Kyoto.

Paris Climate Change Agreement

Parties to the UNFCCC reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a 4-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review. The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or "COP 21." Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees.
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them.
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review.

- Commit all countries to submit new NDCs every 5 years, with the clear expectation that they will "represent a progression" beyond previous ones.
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too.
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025.
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation."
- Require parties engaging in international emissions trading to avoid "double counting."
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC.[10]

On June 1, 2017, former President Trump announced the decision for the United States to withdraw from the Paris Agreement.[11] However, on January 20, 2021, President Biden signed the instrument to bring the United States back into the Paris Agreement that same day.[12] Nonetheless, California remains committed to addressing climate change through programs aimed to reduce GHGs.[13]

Federal

U.S. Environmental Protection Agency Findings

In *Massachusetts et al. v. EPA* (Supreme Court Case 05-1120, 2006) the U.S. Supreme Court held that United States Environmental Protection Agency (EPA) has authority to regulate GHG emissions from motor vehicles as air pollutants under the Clean Air Act (CAA). The Court concluded that the EPA must decide whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare—or provide a reasonable explanation why it cannot or will not make that decision (i.e., the science being too uncertain to make a reasoned decision).

On December 7, 2009, the U.S. Environmental Protection Agency (USEPA) Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act.

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

The findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite for implementing GHG emissions standards for vehicles (USEPA 2021a) by triggering USEPA's duty under CAA Section 202(a) to promulgate emission standards for new motor vehicles, which are discussed below.

Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. The USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) have been working together on developing a National Program of regulations to reduce GHG emissions and to improve the fuel economy of light-duty vehicles. A light-duty vehicle is defined as any motor vehicle with a gross vehicle weight of 6,000 pounds or less (CARB 2021a). On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking establishing standards for 2012 through 2016 model year vehicles. On October 15, 2012, the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. The rules require these vehicles to meet an estimated combined average emissions level of 295 grams of CO_2 per mile by 2012, decreasing to 250 grams per mile by 2016, and finally to an average industry fleet-wide level of 163 grams per mile in model year 2025. The 2016 standard is equivalent to 35.5 miles per gallon (mpg) and the 2025 standard is equivalent to 54.5 mpg if the levels were achieved solely through improvements in fuel efficiency. The agencies expect, however, that a portion of these improvements will occur due to air conditioning technology improvements (i.e., they will leak less) and due to the use of alternative refrigerants, which would not contribute to fuel economy. These standards would cut GHG emissions by an estimated 2 billion metric tons and 4 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2017–2025). The combined USEPA GHG standards and NHTSA Corporate Average Fuel Economy (CAFE) standards resolve previously conflicting requirements under both federal programs and the standards of the State of California and other states that have adopted the California standards (USEPA and NHTSA 2012a).

On September 19, 2019, NHTSA and the USEPA issued a final action entitled the "One National Program Rule" to enable the federal government to provide nationwide uniform fuel economy and GHG emission standards for automobile and light duty trucks. This action finalizes critical parts of the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule that was first proposed in August 2018. In this proposal, the agencies proposed new and amended GHG and CAFE standards for model year 2021 to 2026 light duty vehicles (USEPA and NHTSA 2019a).

In this action, USEPA withdrew the Clean Air Act waiver that had been granted to the State of California in January 2013 for the State's Advanced Clean Car program with respect to GHG and Zero Emission Vehicle (ZEV) elements. In November 2019, California, 21 other states, the District of Columbia, and four California cities filed a petition for the USEPA to reconsider SAFE-1. A petition for reconsideration was also filed by several environmental groups.

On April 28, 2021, USEPA published a Notice of Reconsideration: California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Opportunity for Public Hearing and Public Comment. The public comment period closed July 6, 2021 (USEPA 2021a). In December 2021, NHTSA repealed the SAFE Vehicles Rule, Part One, regarding EPCA's preemption of State GHG standards (86 Federal Register 74236). In March 2022, the EPA reinstated California's waiver authority under the CAA to implement its own GHG emission.

In 2021, the EPA finalized new GHG emissions standards for passenger cars and light trucks for MYs 2023 through 2026. These standards, which are the strongest vehicle emissions standards ever established for the light-duty vehicle sector, set the light-duty vehicle GHG program on track to provide a strong launch point for the EPA's next phase of standards for MY 2027 and beyond. The EPA is planning to initiate a separate rulemaking to establish multi-pollutant emission standards under the CAA for MY 2027 and later that will speed the transition of the light-duty vehicle fleet toward a zero-emissions future, consistent with President Biden's Executive Order 14037, Strengthening American Leadership in Clean Cars and Trucks, which set a nonbinding target of making 50 percent of passenger cars and light-duty trucks ZEVs by 2030.

Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground level ozone, CO, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants, because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards.[5] The federal standards are called NAAQS. The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO2)
- Lead
- Particulate matter (PM10 and PM2.5)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect public health.

[5] United States Environmental Protection Agency (EPA). 2023. Clean Air Act Requirements and History. Website: https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history. Accessed February 9, 2024.

National Regulations for Greenhouse Gas Emissions from Commercial Trucks and Buses

The EPA and NHTSA issued rules for the first national standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty trucks and buses. The Phase 1 Greenhouse Gas Rule, issued in 2011, set GHG emissions and fuel economy standards for medium- and heavy-duty trucks manufactured in MYs 2014–2018.

In October 2016, the EPA and the NHTSA jointly finalized Phase 2 standards for medium- and heavy-duty vehicles through MY 2027 that will improve fuel efficiency and cut carbon pollution to reduce the impacts of climate change while bolstering energy security and spurring manufacturing innovation.[6]

In 2021, EPA announced plans to reduce GHG emissions and other harmful air pollutants from heavy-duty trucks through a series of rulemakings over the next 3 years. The first rulemaking of this Clean Trucks Plan was the recently finalized rule, Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicles Standards, signed on December 20, 2022. Two additional rulemakings, the Phase 3 greenhouse gas proposal for heavy-duty vehicles and the multi-pollutant emissions standards for light-duty and medium-duty vehicles, have been proposed.[7]

California Waiver

The State of California has received a waiver from the EPA to have separate, stricter Corporate Average Fuel Economy Standards. California is the only state allowed to set its own air emissions standards for motor vehicles. California was granted an exception under the CAA because the State had already implemented standards in 1966 to address its critical smog problem and had established the California Air Resources Board (ARB) to oversee them. The CAA states that the EPA shall grant a waiver if California's standards are necessary to meet compelling circumstances and are at least as stringent as federal standards. Other states may choose to adopt California's vehicle emissions standards without EPA approval. Seventeen states and the District of Columbia, making up about 40 percent of U.S. auto sales, currently follow at least some of California's vehicle emissions standards.

United States Consolidated Appropriations Act (Mandatory Greenhouse Gas Reporting)

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became

[6] United States Environmental Protection Agency (EPA). 2016. Final Rule for Phase 2 Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles | US EPA, Website: https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-2-greenhouse-gas-emissions-standards, Accessed: June 29, 2023.

[7] United States Environmental Protection Agency (EPA). Clean Trucks Plan. Website: https://www.epa.gov/regulations-emissions-vehicles-and-engines/clean-trucks-plan. Accessed December 27, 2023.

effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 MT or more per year of GHG emissions are required to submit annual reports to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to EPA in 2011.

U.S. Clean Air Act Permitting Programs (New Greenhouse Gas Source Review)

The EPA issued a final rule on May 13, 2010, which establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Code of Federal Regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016. The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Cap and Trade

Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade. The Regional Greenhouse Gas Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008. The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are

California, British Columbia, Manitoba, Ontario, and Québec. Currently only California and Québec are participating in the cap-and-trade program.[16]

State

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of these legislative efforts.

Assembly Bill 1493 (Mobile Source Reductions) (Pavley Regulations and Fuel Efficiency Standards

AB 1493, adopted in July 2002, also known as Pavley I, requires the development and adoption of regulations by CARB to achieve the maximum feasible reduction of GHGs emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the United States District Court for the District of Columbia in 2011.[8] The standards were to be phased in during the 2009 through 2016 model years.[9]

The emission standards have become increasingly more stringent through the 2016 model year. California committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from 2020 model year vehicles (EVs) (CARB 2021b). Regulations to make California emissions standards for model year 2017 and beyond consistent with federal standards were adopted in 2012 and are discussed further below.

California Air Resources Board's Advanced Clean Cars Program

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low-Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. In January 2012, CARB approved the Advanced Clean Cars Program, an emissions-control program for model year 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-

[8] California Air Resources Board (ARB). 2013. Clean Car Standards—Pavley, Assembly Bill 1493. Website: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed June 30, 2023.

[9] California Air Resources Board (ARB). Advanced Clean Cars Summary. Website: https://ww2.arb.ca.gov/sites/default/files/2019-12/acc%20summary-final_ac.pdf. Accessed June 30, 2023.

forming emissions. The program also requires car manufacturers to offer for sale an increasing number of ZEVs each year, including battery electric, fuel cell, and plug-in hybrid electric vehicles. In March 2017, CARB adopted GHG standards for 2022 through 2025 model years and directed staff to begin rule development for 2026 and subsequent model years (CARB 2021c). The new rules will reduce pollutants from gasoline- and diesel-powered cars and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles (HEVs), and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.[10]

Advanced Clean Cars II was adopted in November 2022. The Advanced Clean Cars II regulations will rapidly scale down light-duty passenger car, pickup truck, and SUV emissions starting with MY 2026 through 2035. The regulations are two-pronged. First, they amend the ZEV Regulation to require an increasing number of ZEVs and rely on currently available advanced vehicle technologies, including battery electric, hydrogen fuel cell electric, and plug-in HEVs, to meet air quality and climate change emissions standards. These amendments support Governor Newsom's 2020 Executive Order N-79-20 (discussed below) that requires all new passenger vehicles sold in California to be zero-emissions by 2035. Second, the LEV regulations were amended to include increasingly stringent standards for gasoline cars and heavier passenger trucks to continue to reduce smog-forming emissions.

In October 2023, the CARB launched a new effort to consider potential amendments to the Advanced Clean Cars II regulations, including updates to the tailpipe GHG emission standard and limited revisions to the LEV and ZEV regulations. These would regulations rapidly scale down emissions of light-duty passenger cars, pickup trucks, and SUVs and require an increased number of ZEVs to meet air quality and climate change emissions goals.

Executive Order S-3-05 (Statewide GHG Targets)

On June 1, 2005, Governor Arnold Schwarzenegger signed EO S-3-05, which proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce snowpack in the Sierra Nevada Mountains; could further exacerbate California's air quality problems; and could potentially cause a rise in sea levels. To avoid or reduce the impacts of climate change, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

However, executive orders do not have the same status as a law because under California's constitution, it is the Legislature, not the Governor, who is entrusted with the role of making Statewide laws. The Legislature declined to include the EO's 2050 goal in AB 32 (discussed below), and again declined to use the EO's 2050 goal in adopting Senate Bill (SB) 375 (discussed below), nor has it incorporated it in any implementing legislation or applicable plans. Additionally, although CARB has the requisite authority to adopt whatever regulations

[10] California Air Resources Board (ARB). 2011. Status of Scoping Plan Recommended Measures. Website: https://calcarbondash.org/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed June 30, 2023.

are necessary beyond the AB 32 horizon year 2020 to meet the target set forth in S-3-05, the agency has not done so. Since the Legislature has never enacted EO S-3-05's 2050 target, and no expert agency has interpreted the California Environmental Quality Act (CEQA) to require it, the 2050 target has only the force and effect of an executive order issued by a former Governor. If the Legislature has delegated any of its authority to define CEQA's requirements, it delegated that authority to the Governor's Office of Planning and Research (OPR).

Senate Bill 97 and the State CEQA Guidelines

Pursuant to SB 97, OPR developed and CNRA adopted proposed amendments to the State CEQA Guidelines (CEQA Amendments) for the feasible mitigation of GHG emissions and their effects. The CEQA Amendments became effective on March 18, 2010.

The CEQA Amendments for Greenhouse Gas Emissions state in Section 15064.4(a) of the CEQA Guidelines that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

The CEQA Amendments note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (CNRA 2009b). Section 15064.4(b) of the State CEQA Guidelines provides that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment (CNRA 2009b):

- The extent a project may increase or reduce GHG emissions as compared to the environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
- 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.

All of these are considered in the impact analysis presented in this section, as noted below. The revisions to Appendix G, Environmental Checklist Form, of the State CEQA Guidelines, which is often used as a basis for lead agencies' selection of significance thresholds, do not prescribe specific thresholds. Rather, Appendix G of the State CEQA Guidelines asks whether the project would conflict with a plan, policy, or regulation adopted to reduce GHG emissions or would generate GHG emissions that would significantly affect the environment, indicating that the determination of what is a significant effect on the environment should be left to the lead agency. Accordingly, the CEQA Amendments do not prescribe specific methodologies for performing an assessment; they do not establish specific thresholds of significance; and they do not mandate specific mitigation measures. Rather, the CEQA Amendments

emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009b).

The CEQA Amendments indicate that lead agencies should consider all feasible means, supported by substantial evidence and subject to monitoring and reporting, of mitigating the significant effects of GHG emissions. As pertinent to the Project, these potential mitigation measures, set forth in Section 15126.4(c) of the State CEQA Guidelines, may include (1) measures in an existing plan or mitigation program for the reduction of GHG emissions that are required as part of the lead agency's decision; (2) reductions in GHG emissions resulting from a project through implementation of project design features; (3) off-site measures, including offsets, to mitigate a project's emissions; and (4) carbon sequestration measures (CNRA 2009b).

Among other things, the CNRA noted in its Public Notice for these changes that impacts of GHG emissions should focus on the cumulative impact on climate change. The Public Notice states (CNRA 2009a):

> While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable.

Thus, the CEQA Amendments continue to make clear that the significance of GHG emissions is most appropriately considered on a cumulative level. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an Environmental Impact Report (EIR) when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of when emissions are cumulatively considerable. Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b). In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions. CEQA emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines Section 15130(f)).

Assembly Bill 32 (Statewide GHG Reductions)

In furtherance of the goals established in EO S-3-05, the California Legislature adopted the public policy position that global warming is "a serious threat to the economic well-being, public health, natural resources, and the environment of California" (California Health and Safety Code, Section 38501). The public policy statements became law with the enactment

of the California Global Warming Solutions Act of 2006 (AB 32) in September 2006, after considerable study and expert testimony before the Legislature. The CARB is the State agency charged with monitoring and regulating sources of GHGs. The law instructed CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. AB 32 directed CARB to set a GHG emission limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The scoping plan is described further below.

Executive Order B-30-15 (Statewide Interim GHG Targets)

California EO B-30-15 (2015) set an "interim" statewide emission target to reduce GHG emissions to 40 percent below 1990 levels by 2030 and directed State agencies with jurisdiction over GHG emissions to implement measures pursuant to statutory authority to achieve this 2030 target and the 2050 target of 80 percent below 1990 levels. Specifically, the EO directed CARB to update the Scoping Plan to express this 2030 target in metric tons.

Senate Bill 32/Assembly Bill 197

SB 32, signed September 8, 2016, implements a goal of EO B-30-15. Under SB 32, in "adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions," CARB must ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. SB 32's findings state that CARB will "achieve the State's more stringent greenhouse gas emission reductions in a manner that benefits the State's most disadvantaged communities and is transparent and accountable to the public and the Legislature." AB 197, a companion to SB 32, adds two members to the CARB and requires measures to increase transparency about GHG emissions, climate policies, and GHG reduction actions.

California Air Resources Board Scoping Plan

On December 11, 2008, CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target; each sector has a different emission reduction target. CARB determined that achieving the 1990 emission level would require a reduction of GHG emissions of approximately 28.5 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business as usual"). The Scoping Plan evaluates opportunities for sector-specific reductions; integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities; identifies additional measures to be pursued as regulations; and outlines the role of a cap-and-trade program. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target included energy efficiency programs, renewable energy expansion, Cap-and-Trade, establishing targets for transportation-related GHGs, and a high GWP fee program.

First Update to the Climate Change Scoping Plan

CARB approved the final "First Update to the Climate Change Scoping Plan" on May 22, 2014. The First Update builds upon the Initial Scoping Plan with new strategies and recommendations. The First Update describes California's progress towards AB 32 goals, stating that "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32". Specifically, "if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050" (CARB 2014). Reducing the "business as usual" condition of 509 metric tons carbon dioxide equivalent ($MTCO_2e$) to the 1990 emissions level of 431 $MMTCO_2e$ will require a reduction of 78 $MMTCO_2e$, or approximately a 15.3 percent reduction (compared to a 28.5 percent reduction as set forth in the original Scoping Plan but not directly comparable because of the change in methodology).

Second Update to the Climate Change Scoping Plan

CARB prepared a second update to the Scoping Plan to reflect the 2030 target established in EO B-30-15 and in SB 32 (discussed above). The Final Proposed 2017 Scoping Plan was published in November 2017, and the third public Board Meeting for the Proposed Scoping Plan was held on December 14, 2017, where the Final Proposed 2017 Climate Change Scoping Plan (Second Update to the Climate Change Scoping Plan, or 2017 Scoping Plan Update) was adopted.

The 2017 Scoping Plan Update includes new statutory GHG reduction requirements that were not included in the prior Scoping Plan, including those set forth in SB 32 (discussed above), which set a 40 percent GHG reduction target below 1990 GHG levels to be achieved by 2030; SB 350, which set a 50 percent reduction in GHG emissions from electricity generation and other energy uses in existing structures, and a 50 percent renewable energy portfolio requirement; and SB 650, which established priority GHG reduction targets for designated types of GHGs, such as methane. The key elements of the 2017 Scoping Plan Update proposal call for further GHG reductions from the refinery sector specifically, further reductions from other stationary sources through either a renewed and expanded cap and trade or carbon tax program, further reductions from other sectors such as transportation technologies and services, water and solid waste conservation and management, and land uses in both open space and urban areas (CARB 2017).

Specifically, the main elements of the 2017 Scoping Plan to achieve the 2030 target are as follows:

1. SB 350

- Achieve 50 percent Renewables Portfolio Standard by 2030.
- Doubling of energy efficiency savings by 2030.

2. Low Carbon Fuel Standard

- Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).

3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)

- Maintaining existing GHG standards for light- and heavy-duty vehicles.
- Put 4.2 million Zero-Emission Vehicles (ZEVs) on the roads.
- Increase ZEV buses, delivery and other trucks.

4. Sustainable Freight Action Plan

- Improve freight system efficiency.
- Maximize use of near Zero-Emission Vehicles and equipment powered by renewable energy.
- Deploy over 100,000 zero-emission trucks and equipment by 2030. 5. Short-Lived Climate Pollutant Reduction Strategy
- Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
- Reduce emissions of black carbon 50 percent below 2013 levels by 2030. 6. SB 375 Sustainable Communities Strategies
- Increased stringency of 2035 targets.

7. Post-2020 Cap-and-Trade Program

- Declining capacities, continued linkage with Québec, and linkage to Ontario, Canada.
- The ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In fall 2016, the ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.

8. 20 percent reduction in GHG emissions from the refinery sector.

9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

<u>2022 Scoping Plan Update</u>

The 2022 Scoping Plan assesses progress towards achieving carbon neutrality by 2045 or earlier through the reduction of emissions by 85 percent below 1990 levels, and it outlines a technologically feasible, cost-effective, and equity-focused path for achieving this climate

target. The 2022 Scoping Plan takes an aggressive approach to decreasing fossil fuel use and decarbonization of every sector of emissions. Measures include moving to zero-emission transportation; phasing out the use of fossil fuel gas used for heating; reduction in the use of chemicals and refrigerants with high global warming potential; development of sustainable infrastructure that provides opportunities for walking, biking, and public transit to reduce reliance on automobiles; and development of renewable energy (CARB 2022).

Specifically, aspects of the 2022 Scoping Plan's scenario include:

- Rapidly moving to zero-emission transportation by electrifying cars, buses, trains, and trucks.
- Phasing out the use of fossil gas used for heating homes and buildings.
- Clamping down on chemicals, refrigerants, and other high GWP gases.
- Providing communities with sustainable options for walking, biking, and public transit to reduce reliance on cars.
- Continuing to develop solar arrays, wind turbine capacity, and other resources that provide clean, renewable energy.
- Scale up options such as renewable hydrogen and biomethane for end uses that are hard to electrify.

The ARB estimates that successfully achieving the outcomes called for by the 2022 Scoping Plan will reduce demand for liquid petroleum by 94 percent and total fossil fuel by 86 percent in 2045, relative to 2022. The 2022 Scoping Plan also emphasizes the role of natural and working lands and carbon capturing technologies to address residual emissions and achieve net negative emissions.

Executive Order S-01-07—Low Carbon Fuel Standard

The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandated that a Statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, ARB, University of California, and other agencies to develop and propose protocols for measuring the "lifecycle carbon intensity" of transportation fuels. The ARB adopted the LCFS in 2009.

The LCFS was subject to legal challenge in 2011. Ultimately, in 2013, the Fifth District Court of Appeal (California) ruled that the CARB failed to comply with California Environmental Quality Act (CEQA) and the Administrative Procedure Act when adopting regulations for LCFS. In a partially published opinion, the Court of Appeal directed that Resolution 09-31 and two executive orders of the CARB approving LCFS regulations promulgated to reduce GHG emissions be set aside. However, the Court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while the ARB complied with the procedural requirements it failed to satisfy.

To address the Court ruling, the CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The Final Rulemaking Package adopting the regulation was filed with the Office of Administrative Law (OAL) in 2015. The OAL approved the regulation the same year.[11]

Senate Bill 375 (Land Use Planning)

Signed September 30, 2008, SB 375 provides for a new planning process to coordinate land use planning and regional transportation plans (RTPs) and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires Metropolitan Planning Organizations, including the Southern California Association of Governments (SCAG), to incorporate a Sustainable Communities Strategy (SCS) in their RTPs that will achieve GHG emission reduction targets set by CARB. There are two mutually important facets to SB 375: reducing vehicle miles traveled and encouraging more compact, complete, and efficient communities for the future. SB 375 also includes provisions for exemptions from or streamlined CEQA review for projects classified as transit priority projects (SCAG 2016). See additional discussion of the SCAG plan under "Regional" regulations below.

Senate Bills 1078, 107, and SBX1-2 (Renewable Portfolio Standards)

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and again in 2011 under SBX1-2, California's Renewable Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. Initially, the Renewable Portfolio Standard provisions applied to investor-owned utilities, community choice aggregators, and electric service providers. SBX1-2 added, for the first time, publicly-owned utilities to the entities subject to RPS.

Senate Bill 350

SB 350, signed October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. SB 350 is the implementation of some of the goals of EO B-30-15. The objectives of SB 350 are as follows:

(1) To increase from 33 percent to 50 percent, the procurement of our electricity from renewable sources; and

(2) To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (CEC 2021a).

[11] California Air Resources Board (ARB). 2015. Low Carbon Fuel Standard Regulation. Website: https://www.arb.ca.gov/regact/2015/lcfs2015/lcfs2015.htm. Accessed December 10, 2023.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, the 100 Percent Clean Energy Act of 2018. SB 100 requires renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers and 100 percent of electricity procured to serve State agencies by December 31, 2045. This policy requires the transition to zero-carbon electric systems that do not cause contributions to increase of GHG emissions elsewhere in the western electricity grid (CEC 2021b). SB 100 also creates new standards for the RPS goals established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030.

Executive Order B-55-18

On September 10, 2018, Governor Brown also signed California EO B-55-18, which sets a new Statewide goal of carbon neutrality as soon as possible, and no later than 2045, and achieve net negative emissions thereafter. EO B-55-18 was added to the existing Statewide targets of reducing GHG emissions, including the targets previously established by Governor Brown of reducing emissions to 40 percent below 1990 levels by 2030 (EO B-30-15 and SB 32), and by Governor Schwarzenegger of reducing emissions to 80 percent below 1990 levels by 2040 (EO S-3-05).

Executive Order N-79-20

On September 23, 2021, Governor Newsom announced that California will phase out the sale of new gasoline and diesel-powered cars to reduce GHG emissions. The EO directs the State to require that, by 2035, all new cars and passenger trucks sold in California be zero-emission vehicles. This would aid in reducing CO_2 emissions, half of which are from the transportation sector.

Small Off-Road Engine Regulations

California Executive Order N-79-20 also sets a goal to transition off-road vehicles and equipment operations to 100 percent zero-emission by 2035 where feasible and is the impetus for the Small Off-Road Engine Regulations. The CARB aims to achieve 100 percent zero-emissions from small off-road engine (SORE) entities by 2035. However, total smog-forming emissions from SORE already exceed emissions from light-duty passenger cars in California. A single lawn mower used for one hour emits as many pollutants as driving a new light-duty passenger car 300 miles, and a leaf blower for one hour emits as many pollutants as driving the same vehicle 1100 miles. The 2021 SORE amendments effectively ban the sale of carbon-emitting landscaping equipment to be sold in model year 2024.

Title 24 California Green Building Standards Code

The 2022 California Green Building Standards Code (24 CCR, Part 11), also known as the CALGreen code, contains mandatory requirements and voluntary measures for new residential and nonresidential buildings (including buildings for retail, office, public schools,

and hospitals) throughout California) (CBSC 2022a). The development of the CALGreen Code is intended to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the following construction practices: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental quality. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

Title 24 California Building Code: Energy Efficiency Standards for Residential and Non-residential Buildings

The Energy Efficiency Standards for Residential and Non-residential Buildings (24 California Code of Regulations [CCR], Part 11) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The currently applicable standards are the 2022 Standards, effective January 1, 2023 (CBSC 2022a). The 2022 standards focus on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa), residential and nonresidential ventilation requirements, and non-residential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources (CEC 2022a). The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Both natural gas and electricity use produce GHG emissions. The goal of the standards is to reduce energy use in new homes by more than 50 percent.

The California Energy Commission (CEC) adopted the 2008 changes to the Building Energy Efficiency Standards in order to (1) "Provide California with an adequate, reasonably-priced, and environmentally-sound supply of energy" and (2) "Respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its GHG emissions to 1990 levels by 2020". Additionally, it has been California policy that all new residential buildings will be zero net energy (ZNE) by 2020 and new commercial buildings will be ZNE by 2030, as described in the 2008 California Public Utilities Commission long-term energy efficiency strategic plan. The 2022 Title 24 Energy Efficiency Standards establish building design and construction requirements that move closer to achieving California's ZNE goals through encouragement of energy efficient heat pumps, electric-ready alternatives to use of natural gas, electric vehicle charging options, renewable energy generation and electricity storage, as well improving indoor air quality through ventilation standards. The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Both natural gas use and electricity generation result in GHG emissions.

California Code of Regulations Title 13: Motor Vehicles

California Code of Regulations, Title 13: Division 3, Chapter 10, Article 1, Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.[12]

This measure seeks to reduce public exposure to diesel particulate matter (DPM) and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines and alternative idle-reduction technologies to limit the idling of diesel-fueled commercial motor vehicles. Any person that owns, operates, or causes to operate any diesel-fueled commercial motor vehicle must not allow a vehicle to idle for more than 5 consecutive minutes at any location or operate a diesel-fueled auxiliary power system for greater than 5 minutes at any location when within 100 feet of a restricted area.

California Code of Regulations, Title 13: Division 3, Chapter 9, Article 4.8, Section 2449: General Requirements for In-Use Off-Road Diesel-Fueled Fleets.

This measure regulates NO_X, DPM, and other criteria pollutant emissions from in-use, off-road diesel-fueled vehicles. This measure also requires each fleet to meet fleet average requirements or demonstrate that it has met "best available control technology" requirements. Also, this measure requires medium and large fleets to have a written idling policy available to operators of the vehicles informing them that idling is limited to 5 consecutive minutes or less.

Title 20 Appliance Efficiency Regulations

California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California.

The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

Senate Bill 1368—Emission Performance Standards

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission (CPUC) to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy

[12] California Air Resources Board (ARB). Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Website: https://ww2.arb.ca.gov/our-work/programs/atcm-to-limit-vehicle-idling/about. Accessed December 10, 2023.

consumed in California by forbidding procurement arrangements of longer than 5 years for energy from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The CPUC adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to, publicly owned utilities, of 1,100 pounds CO_2 per megawatt hour (MWh).

Model Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The Bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with the 2020 mandate (SBX-7-7) are expected. Governor Brown's Drought Executive Order of April 1, 2015 (Executive Order B-29-15) directed the California Department of Water Resources to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance in 2015, which became effective the same year. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems.
- Incentives for graywater usage.
- Improvements in on-site stormwater capture.
- Limits on the portion of landscapes that can be planted with high water use plants.
- Reporting requirements for local agencies.

California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association (CAPCOA) is the association of Air Pollution Control Officers representing all 35 local air quality agencies throughout California. CAPCOA is not a regulatory body but has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues. The August 2010 CAPCOA publication entitled Quantifying Greenhouse Gas Mitigation Measures, A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures provides guidance on the quantification of project-level mitigation of GHGs associated with land use, transportation, energy use, and other related project areas. The guidance includes detailed procedures about the approaches to assessing and calculating the GHG emissions reductions associated with project design features and mitigation measures (CAPCOA 2010a). This publication's methods are used in the California Emission Estimator Model (CalEEMod) computer model that is used to calculate GHG emissions.

California Supreme Court GHG Ruling

In a 2015 ruling, the California Supreme Court, in *Center for Biological Diversity v. California Department of Fish and Wildlife* on the Newhall Ranch project, concluded that whether the project was consistent with meeting Statewide emission reduction goals is a legally permissible criterion of significance, but the significance finding for the project was not supported by a reasoned explanation based on substantial evidence. The Court offered potential solutions on pages 25-27 of the ruling to address this issue, as summarized below:

Specifically, the Court advised:

- **Substantiation of Project Reductions from BAU**. A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with Statewide goals (page 25).
- **Compliance with Regulatory Programs or Performance Based Standards**. A lead agency "might assess consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities" (page 26).
- **Compliance with GHG Reduction Plans or Climate Action Plans**. A lead agency may utilize "geographically specific GHG emission reduction plans" such as CAPs or GHG emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis (page 26).
- **Compliance with Local Air District Thresholds**. A lead agency may rely on "existing numerical thresholds of significance for greenhouse gas emissions" adopted by, for example, local air districts.

The California Supreme Court was concerned that new development may need to do more than existing development to reduce GHGs to demonstrate that it was doing its fair share of reductions.

Therefore, for purposes of this analysis and as discussed further below, consistent with CEQA Guidelines Appendix G, the three factors identified in CEQA Guidelines Section 15064.4 and the *Newhall Ranch* opinion, the GHG impacts would be considered significant if the Project would:

- Conflict with a compliant GHG Reduction Plan if adopted by the lead agency;
- Exceed the Air District GHG Reduction Threshold; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

As further discussed below, these thresholds are consistent with the Appendix G Environmental Checklist questions from the State CEQA Guidelines for GHG emissions.

Regional

Southern California Association of Governments

As previously discussed, SB 375 specifically required Metropolitan Planning Organizations (MPOs), including SCAG, to incorporate an SCS in their RTPs that will achieve GHG emission reduction targets set by CARB. SCAG's current SCS is included in its 2024–2050 RTP/SCS Connect SoCal (SCAG 2024), which covers the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura.[13] On April 4, 2024, SCAG's Regional Council adopted the 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal). The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS includes a strong commitment to reduce emissions from transportation sources (including from vehicle miles traveled (VMT) in order to improve public health. The goals and policies of the RTP/SCS that reduce VMT focus on transportation and land use planning. These goals include but are not limited to building infill projects; concentrating on reducing sprawl; preserving open space; increasing access to important resources; enhancing resilience to climate change impacts; locating residents closer to where they work and play; and designing communities so there is access to high quality transit service.

South Coast Air Quality Management District

As previously discussed in Section 4.2, Air Quality, of this Draft EIR, air quality in Orange County is regulated by the South Coast Air Quality Management District (SCAQMD), the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin (SoCAB), which includes Orange County. To that end, the SCAQMD, a regional agency, works directly with SCAG, County transportation commissions, and local governments and cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. The Working Group was scheduled to meet once per month. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold of 10,000 $MTCO_2e$ per year ($MTCO_2e/yr$)[14] for industrial projects where the SCAQMD is the lead agency. In September 2010, the Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not yet been considered by the SCAQMD Board.

At Tier 1, GHG emissions impacts would be less than significant if the proposed project qualifies under a categorical or statutory CEQA exemption. At Tier 2, for projects that do not

[13] The 2024 RTP/SCS was approved in 2024 and it succeeds the 2020–2045 RTP/SCS.

[14] GHG emissions are commonly expressed as $MTCO_2e$. Larger quantities of emissions, such as on the world or State scale, are expressed in $MMTCO_2e$.

meet the Tier 1 criteria, the GHG emissions impact would be less than significant if the proposed project is consistent with a previously adopted GHG reduction plan that meets specific requirements.[15] At Tier 3, the Working Group proposed extending the 10,000 $MTCO_2e$/yr screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. For residential and commercial projects (that is, non-industrial projects), the Working Group proposed the following Tier 3 screening values: either (1) a single 3,000 $MTCO_2e$/yr threshold for all land use types or (2) separate thresholds of 3,500 $MTCO_2e$/yr for residential projects, 1,400 $MTCO_2e$/yr for commercial projects, and 3,000 $MTCO_2e$/yr for mixed-use projects. These screening values were developed from a survey of CEQA projects. It is estimated that projects with emissions above these values would produce 90 percent of the anticipated GHG emissions from residential/commercial projects and projects below the screening level would contribute 10 percent or less of the regional GHG emissions from land development. Therefore, a project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions. Projects with emissions greater than the Tier 3 screening values would be analyzed at Tier 4 by one of three methods:

1. **A Percent Emission Reduction Target.** This method is used by the Sacramento Metropolitan and San Joaquin Valley Air Districts and the City of San Diego. The SCAQMD Working Group made no recommendation relative to this method.
2. **Early Implementation of Applicable AB 32 Scoping Plan Measures.** The Working Group assumes implementation of AB 32 measures would be incorporated in method 3 below.
3. **Efficiency Targets.** On the project level, 2020 GHG emissions should not exceed 4.8 $MTCO_2e$/year per service population (SP) where SP is project residents plus employees. Further, 2035 GHG emissions should not exceed 3.0 $MTCO_2e$/year per SP (SCAQMD 2010).

The SCAQMD Working Group's interim Tier 1 criteria of 3,000 MTCO2e per year is used as the significance threshold for the Project. If the Project's GHG emissions exceed this criterion, GHG emissions would be considered potentially significant prior to the implementation of mitigation measures.

[15] The plan must (a) quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area; (b) establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable; (c) identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area; (d) specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level; (e) establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and (f) be adopted in a public process following environmental review (State CEQA Guidelines, Section 15183.5).

Local

City of Anaheim

General Plan – Green Element

The General Plan for the City of Anaheim was adopted in May 2004. While the City of Anaheim General Plan's Green Element, does not specifically address GHG emissions or climate change, it does address topics concerning conservation of natural resources, including vehicle emissions reduction; vehicle work trip reduction; expansion of transit trips; sound land use planning; efficient, clean-burning public transit; energy conservation; and building performance standards. The goals and policies from the Green Element relevant to this analysis are included in Table 4.10-1 of Section 4.10, Land Use and Planning, with a project consistency analysis.

Green Connection

The City of Anaheim Public Utilities Department (Anaheim Public Utilities) has established the Green Connection which functions as a centralized resource for Anaheim residents and businesses interested in conservation of energy and water resources. The Green Connection includes information regarding the City's Green Resolution and Green Building Program, both of which are discussed below, as well as tips for energy and water savings.

Green Resolution

In August 2006, the City adopted Resolution 2006-187, ". . .authorizing and directing the General Manager of the Anaheim Public Utilities Department to establish the green connection that accommodates the principles of environmental soundness and sustainability." The resolution sets the following goals to achieve environmental soundness and sustainable development:

- Increase purchases of renewable energy resources to 10 percent by 2010 and 20 percent by 2015;
- Develop a plan to reduce power plant and fleet emissions in accordance with California Environmental Protection Agency mandates;
- All City-owned projects over 10,000 square feet in building area that enter the design and construction phase shall meet U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) registration and certification, provided that the project is cost-effective over the life of the building;
- Encourage developers and builders to receive LEED™ registration and certification;
- First acquire all cost effective, reliable, and feasible energy efficiency and demand reduction resources before procuring other energy resources;
- Achieve an overall citywide goal of 20 percent reduction in energy use and 15 percent in water use by 2015;

- Accelerate the rate of fleet vehicle replacement with Alternative Fuel Vehicles so that 90 percent of Utilities light and medium vehicles are Alternative Fuel Vehicles by 2020;
- Replace 10 percent of the City's light, non-emergency vehicles with preferred low emission technologies as the vehicles are scheduled for normal replacement; and
- Provide community leadership as well as education in the principles of environmental soundness and sustainability to increase community awareness, responsibility, and participation.

Green Building Program

The Anaheim Public Utilities Department has developed the Green Building Program, which encourages achievement of the goals established by the Green Resolution through incentives and reward programs. Specifically, the Green Building Program identifies numerous ways to certify a building project as green, qualify for rebates and savings, and take advantage of other benefits including accelerated plan approval, waived plan check fees, and free technical assistance.

City of Anaheim Greenhouse Gas Reduction Plan

The most recent version of the City of Anaheim's Greenhouse Gas Reduction Plan, developed by Anaheim Public Utilities Department, was adopted in May 2020. The City's Greenhouse Gas Reduction Plan is a vision for the future of Anaheim's electric and water resources to be sustainable and environmentally friendly, while continuing to be affordable and reliable for the benefit of Anaheim Public Utilities Department residential and business customers. The plan outlines baseline metrics and goals for GHG reduction and establishes timelines that are consistent with state policies and SB 100. The Greenhouse Gas Reduction Plan identifies renewables portfolio targets for increasing the APU power supply generated from renewable sources up to 33 percent by year 2020, 60 percent by year 2030, and 100 percent by 2045. In 2020, 34,000 kilowatt (kW) of photovoltaic systems were installed in the City, 50,000 kW of photovoltaic systems are expected to be installed by 2030, and 75,000 kW of photovoltaic systems are expected to be installed by 2045. The GHGRP also establishes transportation-related goals for APU to convert its fleet vehicles to result in emissions reductions of 500 MTCO2e in 2020, 1,200 MTCO2e in 2030, and 32,000 MTCO2e in 2045.

The City's Greenhouse Gas Reduction Plan is not a qualified Climate Action Plan for the City (for purposes of streamlining CEQA review) but provides GHG reduction measures for key activities for the Anaheim Public Utilities Department and provides insight related to GHG emissions reductions for water and energy.

Anaheim Municipal Code

The 2022 California Energy Code (CCR Title 24 Part 6), which includes the Energy Efficiency Standards for Residential and Nonresidential Buildings, is adopted, with specified amendments, as Anaheim Municipal Code Section 15.03.080. The 2022 California Green

Building Standards Code (CCR Title 24 Part 11) is adopted, with specified amendments, as Anaheim Municipal Code Section 15.03.100.

4.7.3 THRESHOLDS OF SIGNIFICANCE

In accordance with the City of Anaheim's Environmental Checklist, the Project would result in significant impacts related to GHG emissions if it would:

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

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

4.7.4 IMPACT ANALYSIS

Methodology

Project emissions were calculated by using CalEEMod version 2022.1.1.20 (CAPCOA 2023a). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate criteria pollutant and GHG emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The Orange County database was used for the Project. The model calculates emissions of CO_2, CH_4, and N_2O and combines these emissions to calculate CO_2e. For this analysis, the results are expressed in $MTCO_2e$/year. Please see below and Section 4.2, Air Quality, of this Draft EIR, for discussion of the CalEEMod inputs, adjustments, outputs, and other characteristics.

Construction-related GHG Emissions

Construction emissions, including emissions of criteria air pollutants and GHGs, can vary substantially from day to day, depending on the level of activity, the specific type of operation, and the type of construction equipment in use. Construction emissions result from both on-site and offsite activities. On-site emissions consist of exhaust emissions from the activity levels of heavy-duty construction equipment and motor vehicle operation. Off-site emissions result from motor vehicle exhaust from hauling and vendor trucks and worker traffic. Construction emissions are generally calculated as the product of an activity factor and an emission factor. The activity factor for construction equipment is a measure of how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or the amount of fuel consumed in a given amount of time. The emission factor relates the process activity to the amount of pollutant emitted. The operation of a piece of equipment is tempered by its load factor, which is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity. This analysis uses the CalEEMod default load factors for off-road equipment.

Operation-Related GHG Emissions

The operational-phase emissions are based on the anticipated typical operation of the Project. The modeling accounts for average daily vehicle trips, energy and water demand, and wastewater and solid waste generation.

Transportation

Mobile emissions were quantified using data from the Traffic Impact Assessment prepared by LLG and CalEEMod Version 2022.1.1.25[16].

Solid Waste Disposal

Indirect emissions from waste generation are based on the CalEEMod default solid waste generation rates, which are based on data from the California Department of Resources, Recycling, and Recovery (CalRecycle).

Water/Wastewater

GHG emissions from this sector are associated with the embodied energy used to supply water, treat water, distribute water, and then treat wastewater and fugitive GHG emissions from wastewater treatment. The Project's water consumption is based on CalEEMod default indoor water use rates.

Area Sources

Area sources are based on the CalEEMod defaults for use of consumer products and landscaping equipment. Additionally, the modeling accounted for the operation of 26 fireplaces during Project operations, 20 associated with the multifamily and 6 associated with the single family residential.

Energy

Emissions associated with energy usage are from natural gas and electricity use for space and water heating, lighting, and power needs.

Stationary Sources

Stationary sources are based on stationary source equipment, such as fire pumps or backup generators.

[16] As described in the Project Description, the non-residential amenity access would be limited to 200 memberships; as such, for purposes of AQ, GHG, and Energy, the ITE trip rate for "Recreational Community Center" (270.62/1000 members per day) was utilized, rather than the ITE trip rate for "Health Fitness Club" that was utilized in LLG's Transportation Impact Analysis.

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Significant and Unavoidable Impact.

Short-Term Construction Impacts

Construction activities would result in the temporary generation of GHGs through worker vehicles and off-road and on-road construction equipment. The Project would generate GHG emissions during temporary (short-term) construction activities such as site grading, demolition, operation of construction equipment, operation of on-site heavy-duty construction vehicles, hauling of materials to and from the project site, asphalt paving, and construction worker vehicle trips. On-site construction activities would vary depending on the level of construction activity. The details of phasing, selection of construction equipment, and other input parameters are described in Section 4.2, Air Quality.

Because construction activity impacts are short-term, they contribute a relatively small portion of the total lifetime GHG emissions of a project. In addition, GHG emission-reduction measures for construction equipment are relatively limited. Therefore, as proposed by the SCAQMD, construction emissions are amortized over a project lifetime (typically 30 years) so that GHG-reduction measures would address construction GHG emissions as part of the operational GHG-reduction strategies (SCAQMD 2008a). This approach to evaluating the Project is used in this analysis.

The results of the CalEEMod calculations for GHGs from construction of the Project are shown in Table 4.7-1, Estimated Construction Annual Greenhouse Gas Emissions for the Project. For the Project, construction would result in estimated GHG emissions of approximately 10,504 $MTCO_2e$, or annual GHG emissions of 350 $MTCO_2e$ when amortized over 30 years.

TABLE 4.7-1
ESTIMATED CONSTRUCTION ANNUAL
GREENHOUSE GAS EMISSIONS FOR THE PROJECT

Year	Emissions ($MTCO_2e$) (approx.)
Phase 1	
2024	2,444
2025	1,183
2026	1,547
2027	1,173
Total Phase 1	**6,346**
Phase 2	
2027	1,802
2028	538
2029	367
2030	4
Total Phase 2	**2,711**
Phase 3	
2029	994
2030	243
2031	210
Total Phase 3	**1,447**
Total Over All Phases	**10,504**
Annual Construction Emissions Amortized over 30 Years	**350**

$MTCO_2e$: metric tons of carbon dioxide equivalent

Source: CalEEMod outputs can be found in Appendix E, Air Quality and Greenhouse Gas Emissions Calculations.

Because construction emissions are amortized over a 30-year project lifetime, the level of significance for construction emissions related to the Project is included in the section on "Long-Term Operational Impacts", and a separate significance finding for construction emissions is not necessary.

Long-Term Operational Impacts

Long-term operational GHG emissions would result from Project-generated vehicular traffic, utilization of any landscaping equipment, off-site generation of electrical power over the life of the Project, use of energy required to convey water to and wastewater from the Project Site, hauling and disposal of solid waste from the Project Site, and any fugitive refrigerants from air conditioning or refrigerators.

Operational GHG emissions for the Project were calculated in accordance with the methods described above Mobile source input for trip generation was used from the Project's Traffic

Impact Analysis, which is provided as Appendix L of this Draft EIR (LLG 2024a). The results of the calculations of operational annual GHG emissions at planned Project buildout are shown in Table 4.7-2. CalEEMod data sheets are included in Appendix E of this Draft EIR.

TABLE 4.7-2
ESTIMATED PROJECT BUILDOUT OPERATIONAL ANNUAL GREENHOUSE GAS EMISSIONS FOR THE PROJECT WITH AND WITHOUT IMPLEMENTATION OF GHG MITIGATION MEASURES

Source	Emissions $MTCO_2e$/year (approx.)	Percent of Total
Unmitigated		
Mobile	3,566	72%
Area	28	1%
Energy	1,066	22%
Water	75	2%
Solid Waste	152	3%
Refrigerants	1	<1%
Stationary	44	1%
Total	4,932	100%
*Mitigated**		
Mobile	3,253	72%
Area	28	1%
Energy	967	21%
Water	75	2%
Solid Waste	152	3%
Refrigerants	1	<1%
Stationary	44	1%
Total	4,519	100%

$MTCO_2e$/year: metric tons of carbon dioxide equivalent per year.

Note: Totals may not balance due to rounding

*The mitigated scenario includes the implementation of mitigation measures **MM TRANS-1** through **MM TRANS-5** and **MM GHG-1** through **MM GHG-3.** However, GHG emissions reductions from **MM GHG-3** are not quantified given that green power may not be available.

Source: CalEEMod outputs can be found in Appendix E.

As shown in Table 4.7-2, the Project would result in a total of 4,932 $MTCO_2e$/year of emissions prior to the implementation of mitigation measures. With implementation of mitigation measures, the Project would result in 4,519 $MTCO_2e$/year of emissions. There are no established applicable quantitative federal, State, regional, or local CEQA significance criteria for GHG emissions for residential development projects in the SoCAB. The SCAQMD has proposed, but not adopted, a threshold of 3,000 $MTCO_2e$ per year for non-industrial land use projects. Prior to implementation of additional GHG-related mitigation measures, the estimated GHG emissions from the Project would be greater than this suggested threshold. Therefore, without implementation of mitigation measures, the Project would result in a

significant unavoidable impact related to this threshold, requiring additional mitigation to reduce GHG emissions as feasible.

The Project would implement VMT-related mitigation measures that would also result in GHG emission reductions from automobiles. As detailed in Section 4.15, Transportation, of this Draft EIR, the Project would implement **MM TRANS-1** through **MM TRANS-5**, which are based on CAPCOA measures. GHG reductions resulting from CAPCOA measures are discussed in more detail in the Project's VMT Memorandum which was prepared in accordance with the methodologies found within CAPCOA's Handbook for Analyzing GHG Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (LLG 2024b) (Appendix T).

Even with implementation of VMT-related mitigation measures consisting of **MM TRANS-1** through **MM TRANS-5** the Project as a whole would still result in a significant impact related to operational GHG emissions using the SCAQMD's 3,000 $MTCO_2e$ per year threshold. Therefore, additional opportunities to further reduce operational GHG emissions for the Project have been evaluated and included as feasible.

To further reduce operational GHG emissions for the Project, the Project would implement **MM GHG-1**, which requires that the Project include natural gas lines only for the multiple-family residential building: (A) for all fire elements located (1) at the front entrance, (2) on the rooftop deck, (3) in all common areas, and (B) for each individual residential unit stove (but not for ovens or heating/cooling systems within each unit).

To further reduce GHG emissions from the Project, **MM GHG-2** would be implemented, which requires that the Property Owner/Developer install and maintain solar power generation on the Project Site to generate at least 15% of the Project's electrical demand on-site.

As required by **MM GHG-3**, the Property Owner/Developer shall enter into a Power Purchasing Agreement with Anaheim Public Utilities for the purchase of 60% "green power" for all of the Project's electricity demand that cannot be produced on-site, if available.

Table 4.7-4 below shows that with all of the VMT and GHG mitigation measures incorporated (**MM TRANS-1** through **MM TRANS-5** and **MM GHG-1** through **MM GHG-2; MM GHG-3** has not been quantified as reductions associated with this measure would depend on the availability of APU's green power), the total estimated annual GHG emissions for the Project would be approximately 4,890 $MTCO_2e$/year at build out, which is the sum of the amortized construction emissions and the mitigated operational emissions.

TABLE 4.7-3
ESTIMATED TOTAL PROJECT BUILDOUT
ANNUAL GREENHOUSE GAS EMISSIONS

Source	Emissions $MTCO_2e$/year
Construction (amortized) (from Table 4.7-1)	371
Operations Mitigated (from Table 4.7-2)*	4,519
Total Annual GHG Emissions	**4,890**
SCAQMD-recommended project-level screening threshold	3,000
Does the Project Exceed the Threshold?	***Yes***

$MTCO_2e$/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SCAQMD: South Coast Air Quality Management District.

Note 1: Totals may not balance due to rounding. * The "Operations Mitigated" total in this table includes the implementation of mitigation measures **MM TRANS-1** through **MM TRANS-5** and **MM GHG-1** through **MM GHG-2.** GHG emissions reductions from MM GHG-3 are not quantified given that green power may not be available.

Source: CalEEMod outputs can be found in Appendix E, Air Quality and Greenhouse Gas Emissions Calculations.

As mentioned above, there are no established applicable quantitative federal, State, regional, or local CEQA significance criteria for GHG emissions for residential development projects in the SoCAB. The SCAQMD has proposed, but not adopted, a threshold of 3,000 $MTCO_2e$ per year for non-industrial land use projects. As shown in Table 4.7-4, the Project would exceed this threshold with implementation of mitigation measures; therefore, the Project would result in a significant unavoidable impact related to GHG emissions.

Conclusion

Even with implementation of **MM TRANS-1** through **MM TRANS-5** and **MM GHG-1** through **MM GHG-3**, the Project would result in a significant unavoidable impact related to this threshold.

b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. The SCAQMD, the City of Anaheim, and the County of Orange have not adopted specific emission targets for the purpose of reducing GHG emissions. As discussed further above, under Section 4.7.2, Regulatory Setting, on June 1, 2005, the California Governor signed EOS-3-05, which calls for a reduction in GHG emissions to year 2000 levels by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The principal overall State plan and policy adopted for the purpose of reducing GHG emissions is AB 32 (California Global Warming Solutions Act of 2006). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020, through its 2008 Scoping Plan. In 2016, the Legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40

percent below 1990 levels. With SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan.

SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations. SB 375 requires an MPO to adopt a sustainable communities strategy or alternative planning strategy that will address land use allocation in their regional transportation plans. SB 375 is being addressed at the State and regional levels, and the principles of SB 375 have been incorporated in SCAG's RTP/SCS.

As discussed above the State policy and standards adopted for the purpose of reducing GHG emissions that are applicable to the Project are EO S-3-05, AB 32, and SB 32. The quantitative goal of these regulations is to reduce GHG emissions to 1990 levels by 2020 to 80 percent below 1990 levels by 2050, and for SB 32, to 40% below 1990 levels by 2030. As discussed above, there is a comprehensive regulatory framework in place continuing to evolve at the international, federal, state, regional and local levels to reduce GHG emissions globally. Statewide plans and regulations (such as, among others, GHG emissions standards for vehicles, the Low Carbon Fuel Standard, Cap-and-Trade, and renewable energy) are being implemented at the Statewide level.

Consistent with the *Newhall Ranch* Court decision, a project-specific analysis, based on substantial evidence in the record, has been prepared for the proposed Project that assesses "consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities." In addition to the quantitative analysis noted above, this Section conducts a qualitative consistency analysis to evaluate the Project's consistency with relevant goals, policies and actions of the 2022 Scoping Plan.. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020[17]. This goal is further supplemented by SB 32, which established a reduction target of at least 40 percent below 1990 emissions by 2030, and by EO B-30-15 and EO S-3-05, which sets an 80 percent reduction below 1990 emissions by 2050.

The 2022 Scoping Plan implements the reduction target adopted under SB 32 and seeks to reduce GHG emissions through a number of measures. Those measures from the 2022 Scoping Plan that are applicable to the Project include the following:

- Developing pedestrian infrastructure which promotes non-automobile transportation options
- Providing communities with sustainable options for walking, biking, and public transit to reduce reliance on cars.
- Developing infrastructure to support reliable refueling for transportation such as electricity refueling, and the expansion and completion of planned networks of high-quality active transportation infrastructure.

[17] The initial target date of 2020 has passed, but remains the initial target of AB 32 and is followed-up by other identified targets so remains relevant.

- Rapidly moving to zero-emission transportation by electrifying cars, buses, trains, and trucks.
- Phasing out the use of fossil gas used for heating homes and buildings.
- Continuing to develop solar arrays, wind turbine capacity, and other resources that provide clean, renewable energy.

As part of the Project, Deer Canyon Road would be built as a two-lane road with curb and gutter on each side of the road, a multi-use (pedestrian, bicycle, and equestrian) trail on the west side of the road, and a sidewalk on the east side of the road. The Project would also construct a new multi-use trail along Santa Ana Canyon Road between the two new proposed intersections. The Project proponent would offer for dedication a public access easement for the multi-use trails, which would ultimately connect to the City's Deer Canyon Park Preserve and would also include signage and entrance improvements for the Preserve at Santa Ana Canyon Road.

Additionally, the Project would involve the construction of approximately 81 Electric Vehicle (EV) chargers, with additional charging station stubbed for future EV use.

MM GHG-1 would require that the Project include natural gas lines only for the multiple-family residential building: (A) for all fire elements located (1) at the front entrance, (2) on the rooftop deck, (3) in all common areas, and (B) for each individual residential unit stove (but not for ovens or heating/cooling systems within each unit), **MM GHG-2** would require that the Property Owner/Developer install and maintain solar power generation on the Project Site to generate at least 15% of the Project's electrical demand on-site, and **MM GHG-3** would require that the Property Owner/Developer enter into a Power Purchasing Agreement with Anaheim Public Utilities for the purchase of 60% "green power" for all of the Project's electricity demand that cannot be produced on-site, as available. Overall, the Project would not conflict with CARB's Scoping Plan. Therefore, impacts would be less than significant. Additionally, as detailed above, the Project would be built and operated to meet the then-current applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (California CCR, Title 24, Part 6) and the applicable California Green Building Standards (24 CCR 11), and all other applicable laws and regulations designed to enhance conservation and energy efficiencies and reduce GHGs. The Project would be developed in compliance with the requirements of these regulations.

At a regional level, SCAG has adopted its 2024–2050 RTP/SCS Connect SoCal (SCAG 2024) Generally, the goals within Connect SoCal 2024 that are applicable to the Project would be to: produce and preserve diverse housing types in an effort to improve affordability, accessibility and opportunities for all households; improve access to jobs and educational resources; reduce sprawl; preserve open space; and locate residents closer to where they work and play.

The Project would develop both multiple-family and single-family residential units, in line with the RTP/SCS' goal of producing diverse housing types. Additionally, the Project involves the development of high density multiple-family residential units, reducing sprawl consistent with the goals of Connect SoCal. Moreover, the Project would preserve

approximately 43,22 acres of open space, consistent with the goals of SCAG's RTP/SCS. The Project would also develop on-site commercial and residential land uses in addition to residential amenities, such as the on-site fitness center, in line with SCAG's goal of locating residents closer to where they work and play. In summary, the Project would be consistent with the 2024-2050 RTP/SCS.

In summary, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Conclusion

Therefore, the Project would result in a less than significant impact related to this threshold, and no mitigation is required.

4.7.5 CUMULATIVE IMPACTS

The geographic scope of the cumulative GHG emissions analysis is the South Coast Air Basin (Air Basin). In a larger sense, however, the relevant geographic area is the entire Earth, as explained by the California Supreme Court. "[B]ecause of the global scale of climate change, any one project's contribution is unlikely to be significant by itself" (*Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, 219). "'With respect to climate change, an individual project's emissions would most likely not have any appreciable impact on the global problem by themselves, but they would contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe. The question therefore becomes whether the proposed project's incremental addition of greenhouse gases is "cumulatively considerable" in light of the global problem, and thus significant'" (id., quoting Crockett, Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World (July 2011) Golden Gate U. Envtl. L.J. 203, 207–208)). If a project would contribute its "fair share" of what will be required to achieve those long-term climate goals, then a reviewing agency can find that the impact will not be significant because the project will help to solve the problem of global climate change (62 Cal.4th 220–223).

Accordingly, if a project is designed and built to incorporate certain design elements as well as feasible mitigtion measures, such as those that help facilitate achievement of relevant goal, policies, actions, requirements and standards under the comprehensive regulatory framework as well as relevant General Plans, the Building and CALGreen Codes and CAPs, then it will contribute its portion of what is necessary to achieve California's long-term climate goals—its "fair share"—and an agency reviewing the project under CEQA can conclude that the project will not make a cumulatively considerable contribution to global climate change.

The Project would emit new GHG emissions, as would other past, present, and reasonably foreseeable projects within the Air Basin. However, the Project, similar to other cumulative developments, would be required to adhere to applicable laws and regulations and implement applicable mitigation measures (such as those discussed above). Moreover, the Project, similar to other cumulative development, would incorporate numerous project

design features that would reduce GHG emissions. As such, the Project would not make a cumulatively considerable contribution to any cumulative impact related to GHG emissions. Moreover, the Project would not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines (as discusssed in detail in Section 4.5, Energy, of this Draft EIR).

As demonstrated above, the Project would exceed the quantitative threshold. However, it would be required to incorporate numerous mitigation measures that would reduce this impact to the extent feasible. Moreover, it would be required to incorporate various project design features and comply with a comprehensive set of applicable laws and regulations. In so doing, the Project would be consistent with relevant provisions of the [2017/2022 Scoping Plan] and would contribute its "fair share" of what will be required to achieve California's 2030 target as well as the long-term climate goal of carbon neutrality by 2045.

While the Project would be developed in accordance with the identified mitigation measures and goals established under local and State plans and legislation and consequently would not conflict with an applicable plan, policy, or regulation for the purpose of reducing the emissions of GHGs, Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, the impact identified under threshold 4.7-1 would not be considered a Project-specific impact, but the rather the Project's contribution to a cumulative impact. Because implementation of the Project would result in annual GHG emissions that would exceed South Coast AQMD's interim threshold, Project-related GHG emissions and their contribution to global climate change would result in a cumulatively considerable contribution to a significant cumulative impact related to GHGs.

4.7.6 MITIGATION PROGRAM

MM GHG-1: New residential and commercial uses shall be all-electric (i.e., natural gas usage shall be prohibited) except as otherwise provided for in this **MM GHG-1**. Natural gas usage and the extension of existing natural gas infrastructure shall be permitted for the multiple-family residential building: (A) for all fire elements located (1) at the front entrance, (2) on the rooftop deck, (3) in all common areas, and (B) for each individual residential unit stove (but not for ovens or heating/cooling systems within each unit). Prior to the issuance of the building permit for vertical construction of the subject Project component (i.e., multiple-family residential, commercial, or single-family residential), the Property Owner/Developer shall submit a utility plan to the City showing compliance with this **MM GHG-1**.

MM GHG-2: The Property Owner/Developer use diligent and good faith efforts to install and maintain solar power generation in the Project Site to generate at least 15% of the Project's electrical demand on-site. Solar panels may be installed on rooftops, above the surface parking lot for the commercial buildings, behind (south of) the commercial buildings, and/or elsewhere in the Project Site to satisfy this **MM GHG-2.** The locations of on-site power generation shall be subject to review and approval by the City Planning Department to confirm

compatibility with the scenic corridor overlay requirements. Solar panels shall not be visible from Santa Ana Canyon Road. Prior to issuance of the building permit for vertical construction of the subject Project component (i.e., multiple-family residential, commercial, or single-family residential), the Property Owner/Developer shall submit a memorandum and plan to the City Planning Department for review and approval reasonably documenting (a) compliance with this **MM GHG-2** with respect to the subject Project component and (b) demonstrating that the proposed solar panels would not result in a substantial source of glare for neighboring properties and for local roadways. By February 1 of each year, the Property Owner/Developer shall submit a memorandum to the City Planning Department describing the prior year's electrical usage and on-site power generation. If the 15% on-site power generation was not achieved in the prior year, the memorandum shall contain feasible measures that the Property Owner/Developer shall implement to reduce electrical usage and/or to increase on-site renewable energy generation to achieve this target.

MM GHG-3: The Property Owner/Developer shall enter into a Power Purchasing Agreement with Anaheim Public Utilities for the purchase of at least 60% "green power" for the Project's electricity demand that cannot be produced on-site, if available. The Property Owner/Developer shall submit documentation of green power purchases for the prior year, or documentation that it is not available, to the City Planning Department each February 1. This information shall be included in the memorandum that is required by **MM GHG-2.**

4.7.7 SIGNIFICANCE AFTER MITIGATION

Even with implementation of **MM TRANS-1** through **MM TRANS-5** and **MM GHG-1** through **MM GHG-3**, the Project would result in a significant unavoidable impact related to GHG emissions.

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