

IV.C GREENHOUSE GAS EMISSIONS

Introduction

This section compares the Project's characteristics with applicable regulations, plans, and policies set forth by the State of California, the Southern California Association of Governments (SCAG) and the City to reduce greenhouse gas (GHG) emissions to determine whether the Project is consistent with and/or would conflict with the provisions of these plans. To assist in analyzing the Project's potential to conflict with applicable regulations, plans and policies, this section also estimates the Project's GHG emissions generated by Project construction and operations, taking into account mandatory and voluntary energy and resource conservation measures that have been incorporated into the Project to reduce GHG emissions. Details of the GHG analysis are provided in the *Air Quality and Greenhouse Gas Technical Modeling*, which is attached as Appendix B of this Draft EIR, and is incorporated by reference.

1. Environmental Setting

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and severe weather events. Global warming, a related concept, is the observed increase in average temperature of Earth's surface and atmosphere. One identified cause of global warming is an increase of GHGs in the atmosphere. GHGs are those compounds in Earth's atmosphere that play a critical role in determining Earth's surface temperature.

Earth's natural warming process is known as the "greenhouse effect." It is called the greenhouse effect because Earth and the atmosphere surrounding it are similar to a greenhouse with glass panes in that the glass allows solar radiation (sunlight) into Earth's atmosphere but prevents radiative heat from escaping, thus warming Earth's atmosphere. Some levels of GHGs keep the average surface temperature of Earth close to a hospitable 60 degrees Fahrenheit. However, as GHG from human activities increase, they build up in the atmosphere and warm the climate, leading to many other changes around the world - in the atmosphere, on land, and in the oceans, with associated adverse climatic and ecological consequences.¹

Scientists studying the particularly rapid rise in global temperatures have determined that human activity has resulted in increased emissions of GHGs, primarily from the burning of fossil fuels (from motor vehicle travel, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.), deforestation, agricultural activity, and the decomposition of solid waste.

¹ USEPA, *Climate Change Indicators: Greenhouse Gases*, <https://www.epa.gov/climate-indicators/greenhouse-gases>, accessed March 1, 2022.

Scientists refer to the global warming context of the past century as the “enhanced greenhouse effect” to distinguish it from the natural greenhouse effect.²

Global GHG emissions due to human activities have grown since pre-industrial times. As reported by the United States Environmental Protection Agency (USEPA), global carbon emissions from fossil fuels increased by over 16 times between 1900 and 2008 and by about 43 percent between 1990 and 2015. In addition, in the Global Carbon Budget 2019 report, published in December 2019, atmospheric carbon dioxide (CO₂) concentrations in 2018 were found to be 47 percent above the concentration at the start of the Industrial Revolution, and the present concentration is the highest during at least the last 800,000 years.³ Global increases in CO₂ concentrations are due primarily to fossil fuel use, with land use change providing another significant but smaller contribution. Regarding emissions of non-CO₂ GHGs, these have also increased significantly since 1990.⁴ In particular, studies have concluded that it is very likely that the observed increase in methane (CH₄) concentration is predominantly due to agriculture and fossil fuel use.⁵

In August 2007, international climate talks held under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) led to the official recognition by the participating nations that global emissions of GHG must be reduced. According to the “Ad Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol,” avoiding the most catastrophic events forecast by the United Nations Intergovernmental Panel on Climate Change (IPCC) would entail emissions reductions by industrialized countries in the range of 25 to 40 percent below 1990 levels. Because of the Kyoto Protocol’s Clean Development Mechanism, which gives industrialized countries credit for financing emission-reducing projects in developing countries, such an emissions goal in industrialized countries could ultimately spur efforts to cut emissions in developing countries as well.⁶

In December 2015, the US entered into the Paris Agreement which has a goal of keeping a global temperature rise this century below 2 degrees Celsius above pre-industrial levels and limit the temperature increase further to 1.5 degrees Celsius. This agreement requires that all parties report regularly on emissions and implementation efforts to achieve these goals.

Regarding the adverse effects of global warming, as reported by SCAG:

Global warming poses a serious threat to the economic well-being, public health and natural environment in southern California and beyond. The potential adverse impacts of

² Pew Center on Global Climate Change, *Climate Change 101: Understanding and Responding to Global Climate Change*.

³ P. Friedlingstein et al.: *Global Carbon Budget 2019*, 2019.

⁴ USEPA, *Global Greenhouse Gas Emissions Data*, www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data, Accessed March 1, 2022.

⁵ USEPA, *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gas*, updated April 2021.

⁶ United Nations Framework Convention on Climate Change, *Press Release—Vienna UN Conference Shows Consensus on Key Building Blocks for Effective International Response to Climate Change*, August 31, 2007.

global warming include, among others, a reduction in the quantity and quality of water supply, a rise in sea level, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases. Over the past few decades, energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the states in CO₂ emissions from fossil fuel consumption per unit of Gross State Product. However, in terms of total CO₂ emissions, California is second only to Texas in the nation and is the 12th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is also a major contributor to the global warming problem.⁷

a) GHG Fundamentals

GHGs are those compounds in the Earth's atmosphere that play a critical role in determining temperature near the Earth's surface. GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).⁸ More specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth's atmosphere, but retain some of the low frequency infrared energy which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. Compounds that are regulated as GHGs are discussed in Table IV.C-1 below.⁹

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⁷ SCAG, *The State of the Region—Measuring Regional Progress*, December 2006, p. 121.

⁸ As defined by California Assembly Bill (AB) 32 and Senate Bill (SB) 104.

⁹ Intergovernmental Panel on Climate Change, *Second Assessment Report, Working Group I: The Science of Climate Change*, 1995.

¹⁰ Intergovernmental Panel on Climate Change, *Fourth Assessment Report, Working Group I Report: The Physical Science Basis*, Table 2.14, 2007.

**Table IV.C-1
Description of Identified GHGs^a**

GREENHOUSE GAS	GENERAL DESCRIPTION
Carbon Dioxide (CO₂)	An odorless, colorless GHG, which has both natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human-caused) sources of CO ₂ are burning coal, oil, natural gas, and wood.
Methane (CH₄)	A flammable gas and the main component of natural gas. When one molecule of CH ₄ is burned in the presence of oxygen, one molecule of CO ₂ and two molecules of water are released. A natural source of CH ₄ is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH ₄ , which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
Nitrous Oxide (N₂O)	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N ₂ O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, race cars, and as an aerosol spray propellant.
Hydrofluorocarbons (HFCs)	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH ₄ or ethane (C ₂ H ₆) with chlorine and/or fluorine atoms. CFCs are non-toxic, non-flammable, insoluble, and chemically unreactive in the troposphere (the level of air at Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987. HFCs are synthetic man-made chemicals that are used as a substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone, but to a much lesser extent than CFCs.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.
Sulfur Hexafluoride (SF₆)	An inorganic, odorless, colorless, non-toxic, and non-flammable gas. SF ₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

**Table IV.C-1
Description of Identified GHGs^a**

GREENHOUSE GAS	GENERAL DESCRIPTION
Nitrogen Trifluoride (NF₃)	An inorganic, non-toxic, odorless, non-flammable gas. NF ₃ is used in the manufacture of semi-conductors, as an oxidizer of high energy fuels, for the preparation of tetrafluorohydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.
<p>^a GHGs identified in this table are ones identified in the Kyoto Protocol and other synthetic gases recently added to the IPCC's Fifth Assessment Report.</p> <p>Source: Association of Environmental Professionals, Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, Final, June 29, 2007; Environmental Protection Agency, Acute Exposure Guideline Levels (AEGLs) for Nitrogen Trifluoride; January 2009.</p>	

Not all GHGs possess the same ability to induce climate change. Carbon dioxide is the most abundant GHG in Earth's atmosphere. Other GHGs are less abundant but have higher global warming potential (GWP) than CO₂. Thus, emissions of other GHGs are commonly quantified in the units of equivalent mass of carbon dioxide (CO₂e). GWP is based on several factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO₂, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years otherwise referred to as atmospheric lifetime) relative to that of CO₂.

The larger the GWP, the more that a given gas warms the Earth compared to CO₂ over that time.¹¹ These GWP ratios are available from the Intergovernmental Panel on Climate Change (IPCC). Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). The IPCC updated the GWP values in its Fourth Assessment Report (AR4). The GWPs in the IPCC AR4 are used by CARB for reporting Statewide GHG emissions inventories, consistent with international reporting standards. By applying the GWP ratios, Project-related CO₂e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO₂ over a 100-year period is used as a baseline.

The IPCC has issued an updated Fifth Assessment Report (AR5), which has revised down the majority of the GWP for key regulated pollutants. As CARB still uses AR4 values and the modeling software CalEEMod is built on these assumptions, AR4 GWP values are used for the Project. Generally, the changes from AR4 to AR5 are reductions in warming potential for the GHG most

¹¹ GWPs and associated CO₂e values were developed by the Intergovernmental Panel on Climate Change (IPCC), and published in its Second Assessment Report (SAR) in 1996. Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's SAR. The IPCC updated the GWP values based on the latest science in its Fourth Assessment Report (AR4). CARB has begun reporting GHG emission inventories for California using the GWP values from the IPCC AR4.

associated with construction and operation of typical development projects. The GWP from AR4 and AR5 and atmospheric lifetimes for key regulated GHGs are provided in Table IV.C-2.

**Table IV.C-2
Atmospheric Lifetimes and Global Warming Potentials**

GAS	ATMOSPHERIC LIFETIME (YEARS)	GLOBAL WARMING POTENTIAL (100-YEAR TIME HORIZON) (AR4 ASSESSMENT)	GLOBAL WARMING POTENTIAL (100-YEAR TIME HORIZON) (AR5 ASSESSMENT)
Carbon Dioxide (CO ₂)	50-200	1	1
Methane (CH ₄)	12 (+/-3)	25	28
Nitrous Oxide (N ₂ O)	114	298	265
HFC-23: Fluoroform (CHF ₃)	270	14,800	12,400
HFC-134a: 1,1,1,2-Tetrafluoroethane (CH ₂ FCF ₃)	14	1,430	1,300
HFC-152a: 1,1-Difluoroethane (C ₂ H ₄ F ₂)	1.4	124	138
PFC-14: Tetrafluoromethane (CF ₄)	50,000	7,390	6,630
PFC-116: Hexafluoroethane (C ₂ F ₆)	10,000	12,200	11,100
Sulfur Hexafluoride (SF ₆)	3,200	22,800	23,500
Nitrogen Trifluoride (NF ₃)	740	17,200	16,100

Source: IPCC, *Climate Change 2007: Working Group I: The Physical Science Basis, Direct Global Warming Potentials*.

b) Projected Impacts of Global Warming in California

In 2009, California adopted a statewide Climate Adaptation Strategy (CAS) that summarizes climate change impacts and recommends adaptation strategies across seven sectors: Public Health, Biodiversity and Habitat, Oceans and Coastal Resources, Water, Agriculture, Forestry, and Transportation and Energy. The California Natural Resources Agency will be updating the CAS and is responsible for preparing reports to the Governor on the status of the CAS. The Natural Resources Agency has produced climate change assessments which detail impacts of global warming in California.¹² These include:

¹² State of California, Department of Justice, Office of the Attorney General, *Climate Change Impacts in California*, <https://oag.ca.gov/environment/impact>, Accessed March 1, 2022.

- Sea level rise, coastal flooding and erosion of California’s coastlines would increase, as well as sea water intrusion.
- The Sierra snowpack would decline between 70 and 90 percent, threatening California’s water supply.
- Higher risk of forest fires resulting from increasing temperatures and making forests and brush drier. Climate change will affect tree survival and growth.
- Attainment of air quality standards would be impeded by increasing emissions, accelerating chemical processes, and raising inversion temperatures during stagnation episodes resulting in public health impacts.
- Habitat destruction and loss of ecosystems due to climate change affecting plant and wildlife habitats.
- Global warming can cause drought, warmer temperatures and saltwater contamination resulting in impacts to California’s agricultural industry.

With regard to public health, as reported by the Center for Health and the Global Environment at the Harvard Medical School, the following are examples of how climate change can affect cardio-respiratory disease: (1) pollen is increased by higher levels of atmospheric CO₂; (2) heat waves can result in temperature inversions, leading to trapped masses or unhealthy air contaminants by smog, particulates, and other pollutants; and (3) the incidence of forest fires is increased by drought secondary to climate change and to the lack of spring runoff from reduced winter snows. These fires can create smoke and haze, which can settle over urban populations causing acute and exacerbating chronic respiratory illness.¹³

c) Regulatory Framework

There are a number of plans, regulations, programs, and agencies that provide policies, requirements, and guidelines regarding GHG emissions at the federal, state, regional, and local levels. As described below, these plans, guidelines, and laws include the following:

- Federal Clean Air Act
- Corporate Average Fuel Economy (CAFE) Standards
- Energy Independence and Security Act
- California Air Resources Board
- California Greenhouse Gas Reduction Targets
- California Global Warming Solutions Act (AB 32)
- Climate Change Scoping Plan
- Cap-and-Trade Program
- Emission Performance Standards
- Renewables Portfolio Standard Program

¹³ Paul R. Epstein, et al., *Urban Indicators of Climate Change, Report from the Center for Health and the Global Environment*, (Harvard Medical School and the Boston Public Health Commission, August 2003), unpaginated.

- Clean Energy and Pollution Reduction Act
- Pavley Standards
- California Low Carbon Fuel Standard
- Advanced Clean Cars Regulations
- Sustainable Communities and Climate Protection Act (SB 375)
- Senate Bill 743
- Executive Order N-79-20
- California Appliance Efficiency Regulations
- Title 24, Building Standards Code and CALGreen Code
- CEQA Guidelines
- South Coast Air Quality Management District
- Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy
- Green New Deal
- City of Los Angeles Green Building Code
- City of Los Angeles Solid Waste Programs and Ordinances
- City of Los Angeles General Plan
- Traffic Study Policies and Procedures

(1) Federal

(a) *Federal Clean Air Act*

The United States Environmental Protection Agency (USEPA) is responsible for implementing federal policy to address GHGs. The United States Supreme Court (Supreme Court) ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that CO₂ and other GHGs are pollutants under the federal Clean Air Act (CAA), which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. In December 2009, U.S. EPA issued an endangerment finding for GHGs under the Clean Air Act, setting the stage for future regulation.

The Federal Government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

(b) *Corporate Average Fuel Economy (CAFE) Standards*

In response to the *Massachusetts v. Environmental Protection Agency* ruling, President George W. Bush issued Executive Order 13432 in 2007, directing the USEPA, the United States Department of Transportation (USDOT), and the United States Department of Energy (USDOE)

to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. The National Highway Traffic Safety Administration (NHTSA) subsequently issued multiple final rules regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011 and later for model years 2012-2016, and 2017-2021. In March 2020, the USDOT and the USEPA issued the final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, which amends existing CAFE standards and tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establishes new standards covering model years 2021 through 2026¹⁴. These standards set a combined fleet wide average of 36.9 to 37 for the model years affected.¹⁵

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011 the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program would reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines. Building on the first phase of standards, in August 2016, the EPA and NHTSA finalized Phase 2 standards for medium and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. The Phase 2 standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons.¹⁶

(c) *Energy Independence and Security Act*

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and

¹⁴ United States Environmental Protection Agency, *Final Rule for Model Year 2021 - 2026 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards*, published April 30, 2020.

¹⁵ National Highway Traffic Safety Administration (NHTSA), *Corporate Average Fuel Economy standards*.

¹⁶ U.S. EPA, *EPA and NHTSA Adopt Standards to Reduce GHG and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond*, August 2016.

- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs.”¹⁷

(2) State

(a) *California Air Resources Board*

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California’s State Implementation Plan (SIP), for which it works closely with the Federal Government and the local air districts. The SIP is required for the State to take over implementation of the Federal Clean Air Act. CARB also has primary responsibility for adopting regulations to meet the State’s goal of reducing GHG emissions. The State has met its goals to reduce GHG emissions to 1990 levels by 2020. Subsequent State goals include reducing GHG emissions to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050.

(b) *California Greenhouse Gas Reduction Targets*

(i) *Executive Order S-3-05*

Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

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

¹⁷ *A green job, as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.*

In accordance with Executive Order S-3-05, the Secretary of CalEPA is required to coordinate efforts of various agencies, which comprise the California Climate Action Team (CAT), in order to collectively and efficiently reduce GHGs. The CAT provides periodic reports to the Governor and Legislature on the State of GHG reductions in the State as well as strategies for mitigating and adapting to climate change.

The CAT stated that smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development (TOD), and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population.

(ii) Executive Order B-30-15

On April 29, 2015, Governor Brown issued Executive Order B-30-15. Therein, the Governor directed the following:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

(iii) Executive Order B-55-18

Executive Order B-55-18, issued by Governor Brown in September 2018, establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB would work with relevant state agencies to develop a framework for implementation and accounting that tracks progress towards this goal as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

(c) California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted Assembly Bill (AB) 32 (codified in the California Health and Safety Code (HSC), Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines regulated GHGs as CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ and represents the first enforceable Statewide program to limit emissions of these GHGs from all major industries, with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for

reducing GHG emissions. CARB is required to adopt rules and regulations directing State actions that would achieve GHG emissions reductions.

To achieve these goals, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. In order to achieve the reduction targets, AB 32 requires CARB to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG reductions.¹⁸

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 and AB 197 amend HSC Division 25.5, establish a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and include provisions to ensure that the benefits of state climate policies reach disadvantaged communities. The new goals outlined in SB 32 update the scoping plan requirement of AB 32 and involve increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

AB 197, signed September 8, 2016, is a bill linked to SB 32 and signed on September 8, 2016, prioritizes efforts to cut GHG emissions in low-income or minority communities. AB 197 requires CARB to make available, and update at least annually, on its website the emissions of GHGs, criteria pollutants, and toxic air contaminants for each facility that reports to CARB and air districts. In addition, AB 197 adds two Members of the Legislature to the CARB board as ex officio, non-voting members and creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the Legislature and the houses of the Legislature concerning the State's programs, policies, and investments related to climate change.

(d) AB 1297

Governor Gavin Newsom codified the goals outlined in EO-B-55-18 in September 2022 when he signed AB 1279. It requires the state to reduce statewide anthropogenic GHG emissions to at least 85 percent below 1990 levels and to maintain net negative GHG emissions thereafter. AB 1279 tasks CARB with monitoring and regulating GHG emissions to achieve this goal.

¹⁸ CARB's list of discrete early action measures that could be adopted and implemented before January 1, 2010, was approved on June 21, 2007. The three adopted discrete early action measures are: (1) a low-carbon fuel standard, which reduces carbon intensity in fuels statewide; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance; and (3) increased methane capture from landfills, which includes requiring the use of state-of-the-art capture technologies.

(e) *Climate Change Scoping Plan*

AB 32 required CARB to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (HSC section 38561 (h)). The 2008 Climate Change Scoping Plan proposed a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health.”¹⁹ The 2008 Climate Change Scoping Plan had a range of GHG reduction actions which included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

The 2008 Climate Change Scoping Plan called for a “coordinated set of solutions” to address all major categories of GHG emissions. Transportation emissions were addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard (LCFS), and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations were encouraged and, sometimes, required to use energy more efficiently. Utility energy providers were required to include more renewable energy sources through implementation of the Renewables Portfolio Standard.²⁰ Additionally, the 2008 Climate Change Scoping Plan emphasized opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished through “improving energy efficiency by 25 percent.”

The 2008 Climate Change Scoping Plan identified several specific issues relevant to the development projects, including:

- The potential of using the green building framework as a mechanism, which could enable GHG emissions reductions in other sectors (i.e., electricity, natural gas), noting that:

A Green Building strategy will produce greenhouse gas savings through buildings that exceed minimum energy efficiency standards, decrease consumption of potable water, reduce solid waste during construction and operation, and incorporate sustainable materials. Combined, these measures can also contribute to healthy indoor air quality, protect human health, and minimize impacts to the environment.

¹⁹ CARB, *Climate Change Scoping Plan*, December 2008.

²⁰ For a discussion of Renewables Portfolio Standard, refer to subsection California Renewables Portfolio Standard.

- The importance of supporting the Department of Water Resources' work to implement the Governor's objective to reduce per capita water use by 20 percent by 2020. Specific measures to achieve this goal include water use efficiency, water recycling, and reuse of urban runoff. The *Climate Change Scoping Plan* notes that water use requires significant amounts of energy, including approximately one-fifth of statewide electricity.
- Encouraging local governments to set quantifiable emission reduction targets for their jurisdictions and use their influence and authority to encourage reductions in emissions caused by energy use, waste and recycling, water and wastewater systems, transportation, and community design.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions reduction target for 2020. The 2020 emissions reduction target was originally set at 427 million metric tons (MMT) of CO₂e using the GWP values from the IPCC SAR. Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the scope of the reductions California must make to return to the 1990 emissions level by 2020 as required by AB 32. CARB originally defined the "business-as-usual" or BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the 2008 Climate Change Scoping Plan, as approximately 596 MMTCO₂e (using GWP values from the IPCC SAR). For example, in further explaining CARB's BAU methodology, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards. Therefore, under these original projections, the State would have had to reduce its 2020 BAU emissions by 28.4 percent to meet the 1990 target of 427 MMTCO₂e.

(i) *2014 Update to the Climate Change Scoping Plan*

The First Update to the Scoping Plan was approved by CARB in May 2014 and built upon the initial Scoping Plan with new strategies and recommendations.²¹ In 2014, CARB revised the target using the GWP values from the IPCC AR4 and determined the 1990 GHG emissions inventory and 2020 GHG emissions limit to be increased to 431 MMTCO₂e. CARB also updated the State's 2020 BAU emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that had recently been adopted for motor vehicles and renewable energy. CARB's projected statewide 2020 emissions estimate using the GWP values from the IPCC AR4 was 509.4 MMTCO₂e. Therefore, under the first update to the Scoping Plan, the emission reductions necessary to achieve the 2020 emissions target of 431 MMTCO₂e would have been 78.4 MMTCO₂e, or a reduction of GHG emissions by approximately 15.4 percent, (down from 28.4 percent).

²¹ CARB, *First Update to the AB 32 Scoping Plan*, 2014.

The stated purpose of the First Update was to “highlight... California’s success to date in reducing its GHG emissions and lay... the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.”²² The First Update found that California was on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.²³

In conjunction with the First Update, CARB identified “six key focus areas comprising major components of the State’s economy to evaluate and describe the larger transformative actions that will be needed to meet the State’s more expansive emission reduction needs by 2050.”²⁴ Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of the 2050 reduction target.

Based on CARB’s research efforts, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050.”²⁵ Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

The First Update discussed new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings as an element of meeting mid-term and long-term GHG reduction goals. The First Update expressed CARB’s commitment to working with the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) to facilitate further achievements in building energy efficiency.

(ii) *2017 Update to Climate Change Scoping Plan*

In response to the passage of SB 32 and the identification of the 2030 GHG reduction target, CARB adopted the 2017 Climate Change Scoping Plan in December 2017.²⁶ The 2017 Update built upon the framework established by the 2008 Climate Change Scoping Plan and the First Update while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health. The 2017 Update included policies to require direct GHG reductions at some of the State’s

²² CARB, *2014 Update*, May 2014, p. 4.

²³ CARB, *2014 Update*, May 2014, p. 34.

²⁴ CARB, *2014 Update*, May 2014, p. 6.

²⁵ CARB, *2014 Update*, May 2014, p. 32.

²⁶ CARB, *California’s 2017 Climate Change Scoping Plan*, November 2017.

largest stationary sources and mobile sources. These policies included the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade program, which constraints and reduces emissions at covered sources.²⁷

CARB's projected Statewide 2030 emissions takes into account 2020 GHG reduction policies and programs.²⁸ The 2017 Scoping Plan also addressed GHG emissions from natural and working lands of California, including the agriculture and forestry sectors. Under the Scoping Plan Scenario, the majority of the reductions would result from the continuation of the Cap-and-Trade regulation. Additional reductions would be achieved from electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. Implementation of mobile source strategies (cleaner technology and fuels) included the following:

- At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025
- At least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030
- Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Cars regulations
- Medium- and heavy-duty GHG Phase 2
- Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO_x standard.
- Last Mile Delivery: New regulation that would result in the use of low NO_x or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for Class 3–7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030.
- Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document “Potential VMT Reduction Strategies for Discussion.”

²⁷ CARB, *2017 Update*, November 2017, p. 6

²⁸ CARB, *2017 Update*, November 2017.

The alternatives in the Scoping Plan were designed to consider various combinations of these programs, as well as consideration of a carbon tax in the event the Cap-and-Trade regulation is not continued. However, in July 2017, the California Legislature voted to extend the Cap-and-Trade regulation to 2030.

The 2017 Scoping Plan discussed the role of local governments in meeting the State's GHG reductions goals because local governments have jurisdiction and land use authority related to: community-scale planning and permitting processes, local codes and actions, outreach and education programs, and municipal operations.²⁹ Furthermore, local governments may have the ability to incentivize renewable energy, energy efficiency, and water efficiency measures.³⁰

For individual projects under CEQA, the 2017 Scoping Plan stated that local governments can support climate action when considering discretionary approvals and entitlements. According to the 2017 Scoping Plan, lead agencies have the discretion to develop evidence-based numeric thresholds consistent with the Scoping Plan, the State's long-term goals, and climate change science.³¹

The City of Los Angeles has not developed per capita targets for 2030 or 2050; however, the City recognizes that GHG emissions reductions are necessary in the public and private sectors. The City has taken the initiative in combating climate change by developing programs such as the Green New Deal and Green Building Code. Each of these programs is discussed further below.

A summary of the GHG emissions reductions required under HSC Division 25.5 is provided in Table IV.C-3, *Estimated Statewide Greenhouse Gas Emissions Reductions Required by HSC Division 25.5*.

²⁹ CARB, *2017 Update*, November 2017, p.97.

³⁰ CARB, *2017 Update*, November 2017, p.97.

³¹ CARB, *2017 Update*, November 2017, p.100.

TABLE IV.C-3
ESTIMATED STATEWIDE GREENHOUSE GAS EMISSIONS REDUCTIONS REQUIRED BY HSC
DIVISION 25.5

EMISSIONS SCENARIO	GHG EMISSIONS (MMTCO ₂ E)
2008 Scoping Plan (IPCC SAR)	
2020 BAU Forecast (CARB 2008 Scoping Plan Estimate)	596
2020 Emissions Target Set by AB 32 (i.e., 1990 level)	427
Reduction below Business-As-Usual necessary to achieve 1990 levels by 2020	169 (28.4%) ^a
2014 Scoping Plan Update (IPCC AR4)	
2020 BAU Forecast (CARB 2014 Scoping Plan Estimate)	509.4
2020 Emissions Target Set by AB 32 (i.e., 1990 level)	431
Reduction below Business-As-Usual necessary to achieve 1990 levels by 2020	78.4 (15.4%) ^b
2017 Scoping Plan Update	
2030 BAU Forecast ("Reference Scenario" which includes 2020 GHG reduction policies and programs)	389
2030 Emissions Target Set by HSC Division 25.5 (i.e., 40% below 1990 Level)	260
Reduction below Business-As-Usual Necessary to Achieve 40% below 1990 Level by 2030	129 (33.2%) ^c
<p><i>MMTCO_{2e} = million metric tons of carbon dioxide equivalents</i></p> <p>^a 596 – 427 = 169 / 596 = 28.4%</p> <p>^b 509.4 – 431 = 78.4 / 509.4 = 15.4%</p> <p>^c 389 – 260 = 129 / 389 = 33.2%</p> <p>SOURCE: CARB, <i>Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED)</i>, Attachment D, August 19, 2011; CARB, <i>2020 Business-as-Usual (BAU) Emissions Projection</i>, 2014 Edition, 2017, http://www.arb.ca.gov/cc/inventory/data/bau.htm. Accessed October 2017; CARB, <i>California's 2017 Climate Change Scoping Plan</i>, November 2017.</p>	

Under the Scoping Plan Scenario, continuation of the Cap-and-Trade regulation (or carbon tax) is expected to cover approximately 34 to 79 MMTCO₂ of the 2030 reduction obligation.³² The State's short-lived climate pollutants strategy, which is for GHGs that remain in the atmosphere for shorter periods of time compared to longer-lived GHGs like CO₂, is expected to cover approximately 17 to 35 MMTCO_{2e}. The Renewables Portfolio Standard with 50 percent renewable electricity by 2030 is expected to cover approximately 3 MMTCO₂. The mobile source strategy and sustainable freight action plan includes maintaining the existing vehicle GHG emissions standards, increasing the number of zero emission vehicles and improving the freight system efficiency, and is expected to cover approximately 11 to 13 MMTCO₂. Under the 2017 Scoping Plan Scenario, CARB expected that the reduction in GHGs from doubling of the energy efficiency

³² CARB, *California's 2017 Climate Change Scoping Plan*, Appendix G, November 2017.

savings in natural gas and electricity end uses in the CEC 2015 Integrated Energy Policy Report by 2030 would cover approximately 7 to 9 MMTCO₂ of the 2030 reduction obligation. The other strategies would be expected to cover the remaining 2030 reduction obligations.

(iii) 2022 Update to Climate Change Scoping Plan

Adopted in December 2022, the 2022 Scoping Plan establishes a scenario by which the State may achieve carbon neutrality by 2045 or earlier, and it outlines a technologically feasible, cost-effective, and equity-focused path for achieving this climate target. The 2022 Scoping Plan addresses the latest climate-related legislation and direction from current Governor Gavin Newsom, who, by his signing of AB 1279, required the State to reduce statewide anthropogenic GHG emissions to at least 85 percent below 1990 levels by 2045 and to maintain net negative GHG emissions thereafter. The 2022 Scoping Plan relies on the aggressive reduction of fossil fuels in all statewide sectors and accelerating existing carbon reduction programs. 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 global warming potential 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.

CARB 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.

(f) Cap-and-Trade Program

The Climate Change Scoping Plan identifies a Cap-and-Trade Program as one of the strategies California would employ to reduce GHG emissions. CARB asserts that this program will help put California on the path to meet its goal of ultimately achieving an 80 percent reduction from 1990

levels by 2050. Under Cap-and-Trade, an overall limit on GHG emissions from capped sectors is established and facilities subject to the cap will be able to trade permits to emit GHGs.

CARB designed and adopted a California Cap-and-Trade Program³³ pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from public and private major sources (deemed “covered entities”) by setting a firm cap on Statewide GHG emissions and employing market mechanisms to achieve the State’s emission-reduction mandates. The Statewide cap for GHG emissions from the capped sectors³⁴ (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the Program’s duration.

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities that emit more than 25,000 MTCO₂e per year must comply with the Cap-and-Trade Program.³⁵ Triggering of the 25,000 MTCO₂e per year “inclusion threshold” is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule or “MRR”).³⁶

Each covered entity with a compliance obligation is required to surrender “compliance instruments”³⁷ for each MTCO₂e of GHG they emit. Covered entities are allocated free allowances in whole or part (if eligible), and can buy allowances at auction, purchase allowances from others, or purchase offset credits.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the Statewide emission limits will not be exceeded. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site-specific or project-level, GHG emissions reductions. Also, due to the regulatory framework adopted by CARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the state’s emissions forecasts and the effectiveness of direct regulatory measures.

The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported.³⁸ Accordingly, for projects that are subject to the CEQA, GHG emissions from electricity consumption are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from

³³ California Code of Regulations 17, Section 95800 to 96023.

³⁴ California Code of Regulations 17, Section 95811, 95812.

³⁵ California Code of Regulations 17, Section 95812.

³⁶ California Code of Regulations 17, Section 95100-95158.

³⁷ Compliance instruments are permits to emit, the majority of which will be “allowances,” but entities also are allowed to use CARB-approved offset credits to meet up to 8% of their compliance obligations.

³⁸ California Code of Regulations 17, Section 95811(b).

combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.³⁹

The Program applies to emissions that cover approximately 80 percent of the State's GHG emissions. Demonstrating the efficacy of AB 32 policies, California achieved its 2020 GHG Reduction Target four years earlier than mandated. The largest reductions were the result of increased renewable electricity in the electricity sector, which is a covered sector in the Cap-and-Trade Program.

AB 398 was enacted in 2017 to extend and clarify the role of the State's Cap-and-Trade Program through December 31, 2030. As part of AB 398, refinements were made to the Cap-and-Trade program to establish updated protocols and allocation of proceeds to reduce GHG emissions.

(g) Energy-Related (Stationary) Sources

(i) Emission Performance Standards

SB 1368, signed September 29, 2006, is a companion bill to AB 32, which requires the CPUC and the CEC to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the State. SB 1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB 32.

(ii) Renewables Portfolio Standard

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017 as a Renewables Portfolio Standard (RPS). Subsequent amendments provided additional targets throughout the years. Most recently, on October 7, 2015, SB 350 (Chapter 547, Statutes of 2015), also known as the Clean Energy and Pollution Reduction Act, further increased the RPS to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 also requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. The 2017 Climate Change Scoping Plan incorporated the SB 350 standards and estimated the GHG reductions would account for approximately 21 percent of the Scoping Plan reductions.⁴⁰ On September 10, 2018, SB 100, provided additional RPS targets of 44 percent by 2024, 52 percent by 2027, and

³⁹ California Code of Regulations 17, Section 95811, 95812(d).

⁴⁰ CARB, *California's 2017 Climate Change Scoping Plan*, Table 3, p. 31, November 2017. Calculated as: $(108 - 53) / 260 = 21$ percent.

60 percent by 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by 2045.⁴¹

(h) *Mobile Sources*

(i) *Pavley Standards*

AB 1493 (Chapter 200, Statutes of 2002), enacted on July 22, 2002, required CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In 2004, CARB approved the Pavley regulation to require automakers to control greenhouse gas emissions from new passenger vehicles for the 2009 through 2016 model years. Upon adoption of subsequent federal greenhouse gas standards by the United States Environmental Protection Agency (U.S. EPA) that preserved the benefits of the Pavley regulations, the Pavley regulations were revised to accept compliance with the federal standards as compliance with California's standards in the 2012 through 2016 model years. This is referred to as the "deemed to comply" option.

In January 2012, CARB approved greenhouse gas emission regulations which require further reductions in passenger greenhouse gas emissions for 2017 and subsequent vehicle model years. As noted above, in August 2012, the USEPA and USDOT adopted GHG emission standards for model year 2017 through 2025 vehicles.⁴² On November 15, 2012, CARB approved an amendment that allows manufacturers to comply with the 2017-2025 national standards to meet State law. Automobile manufacturers generally comply with these standards through a combination of improved energy efficiency in vehicle equipment (e.g., air conditioning systems) and engines as well as sleeker aerodynamics, use of strong but lightweight materials, and lower-rolling resistance tires.⁴³

In 2018, the USEPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE) which would roll back fuel economy standards and revoke California's waiver. The rule amended certain average fuel economy and GHG standards for passenger cars covering model years 2021 through 2026. On March 30, 2020, the SAFE Rule was finalized and published in the Federal Register, commencing a review period. Subsequent legal challenges from a coalition of states, including California, and private industry groups were issued. In August 2021, USEPA proposed to revise and strengthen the emissions standards for passenger cars and light trucks for model years 2023-2026.

⁴¹ California Legislative Information, *SB-100 California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases*.

⁴² United States Environmental Protection Agency, 2012.

⁴³ CARB, *California's Advanced Clean Cars Midterm Review*, pp. ES-17, C-9.

On September 27, 2019, the USEPA withdrew the waiver it had previously provided to California for the State's GHG and ZEV programs under Section 209 of the Clean Air Act.⁴⁴ The withdrawal of the waiver was effective November 26, 2019. In response, several states including California filed a lawsuit challenging the withdrawal of the EPA waiver.⁴⁵ In April 2021, the USEPA announced it will move to reconsider its previous withdrawal and grant California permission to set more stringent climate requirements for cars and SUVs.⁴⁶

(ii) *California Low Carbon Fuel Standard*

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates the following: (1) that a Statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) that a LCFS for transportation fuels be established in California. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the LCFS became effective on the same day. In September 2015, CARB approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted.⁴⁷

The development of the 2017 Scoping Plan Update has identified LCFS as a regulatory measure to reduce GHG emission to meet the 2030 emissions target. In September 2018, the standards were amended by CARB to require a 20 percent reduction in carbon intensity by 2030, aligning with California's 2030 targets set by SB 32.⁴⁸

(iii) *Advanced Clean Cars Regulations*

In 2012, CARB approved the Advanced Clean Cars program, an emissions-control program for model years 2015–2025.⁴⁹ The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in

⁴⁴ 84 FR 51310.

⁴⁵ United States District Court for the District Court of Columbia, *State of California vs. Chao*, Case 1:19-cv-02826, 2019.

⁴⁶ United States Federal Register, *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 (Document Number: 2021-08826)*, April 28, 2021.

⁴⁷ CARB, *Low Carbon Fuel Standard - About*, <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/about>. Accessed March 1, 2022.

⁴⁸ CARB, *CARB amends Low Carbon Fuel Standard for wider impact*, 2018, <https://ww2.arb.ca.gov/index.php/news/carb-amends-low-carbon-fuel-standard-wider-impact>. Accessed March 1, 2022.

⁴⁹ CARB, *Advanced Clean Cars Program - About*, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about>, Accessed March 1, 2022.

the 2018 through 2025 model years.⁵⁰ During the March 2017 Midterm Review, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV program for cars and light trucks sold in California through 2025.⁵¹ Effective November 26, 2019, the federal SAFE Vehicles Rule Part One: One National Program withdrew the California waiver for the GHG and ZEV programs under section 209 of the Clean Air Act, which revokes California's authority to implement the Advanced Clean Cars and ZEV mandates. In response, several states including California filed a lawsuit challenging the withdrawal of the EPA waiver.⁵² In April 2021, the USEPA announced it will move to reconsider its previous withdrawal of the waiver.⁵³

In addition, Governor Gavin Newsom signed an executive order (Executive Order No. N-79-20) on September 23, 2020, that would phase out sales of new gas-powered passenger cars by 2035 in California with an additional 10-year transition period for heavy vehicles. The state would not restrict used car sales, nor forbid residents from owning gas-powered vehicles. In accordance with the Executive Order, CARB is developing a 2020 Mobile Source Strategy, a comprehensive analysis that presents scenarios for possible strategies to reduce the carbon, toxic and unhealthy pollution from cars, trucks, equipment, and ships. The strategies will provide important information for numerous regulations and incentive programs going forward by conveying what is necessary to address the aggressive emission reduction requirements.

The primary mechanism for achieving the ZEV target for passenger cars and light trucks is CARB's Advanced Clean Cars II (ACC II) Program. The ACC II regulations will focus on post-2025 model year light-duty vehicles, as requirements are already in place for new vehicles through the 2025 model year. A rulemaking package is anticipated to be presented to the Board in June 2022.

(iv) *Sustainable Communities and Climate Protection Act (SB 375)*

The Sustainable Communities and Climate Protection Act of 2008, or SB 375 (Chapter 728, Statutes of 2008), establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions, was adopted by the State on September 30, 2008. SB 375 finds that the "transportation sector is the single largest contributor of greenhouse gases of any sector."⁵⁴ Under SB 375, CARB is required, in consultation with the Metropolitan Planning Organizations, to set regional GHG reduction targets for the passenger vehicle and light-duty

⁵⁰ CARB, *Advanced Clean Cars Program - About*, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about>, Accessed March 1, 2022.

⁵¹ CARB, News Release: *CARB finds vehicle standards are achievable and cost-effective*, ww2.arb.ca.gov/news/carb-finds-vehicle-standards-are-achievable-and-cost-effective, Accessed March 1, 2022.

⁵² United States District Court for the District Court of Columbia, *State of California vs. Chao*, Case 1:19-cv-02826, 2019.

⁵³ United States Federal Register, *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 (Document Number: 2021-08826)*, April 28, 2021.

⁵⁴ State of California, Senate Bill No. 375, September 30, 2008.

truck sector for 2020 and 2035. SCAG is the Metropolitan Planning Organization in which the City of Los Angeles is located in. CARB set targets for 2020 and 2035 for each of the 18 metropolitan planning organization regions in 2010, and updated them in 2018.⁵⁵ In March 2018, the CARB updated the SB 375 targets for the SCAG region to require an 8 percent reduction by 2020 and a 19 percent reduction by 2035 in per capita passenger vehicle GHG emissions.⁵⁶ As discussed further below, SCAG has adopted an updated Regional Transportation Plan / Sustainable Community Strategies (RTP/SCS) subsequent to the update of the emission targets. The 2020–2045 RTP/SCS is expected to reduce per capita transportation emissions by 19 percent by 2035, which is consistent with SB 375 compliance with respect to meeting the State’s GHG emission reduction goals.⁵⁷

Under SB 375, the target must be incorporated within that region’s Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plans) are not required to be consistent with either the RTP or SCS.

(v) *Senate Bill 743*

Governor Brown signed Senate Bill (SB) 743 in 2013, which creates a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 requires the Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to level of service (LOS) methodology for evaluating transportation impacts. Particularly within areas served by transit, the required alternative criteria must “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” Measurements of transportation impacts may include “vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated.”

(i) *Building Standards and Other Regulations*

(i) *California Appliance Efficiency Regulations*

The Appliance Efficiency Regulations (Title 20, Sections 1601 through 1608), adopted by the CEC, include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

⁵⁵ CARB, *Sustainable Communities & Climate Protection Program – About*. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-climate-protection-program/about>. Accessed March 1, 2022.

⁵⁶ CARB, *SB 375 Regional Greenhouse Gas Emissions Reduction Targets*, 2018.

⁵⁷ SCAG, *Final 2020–2045 RTP/SCS, Chapter 0: Making Connections*, p. 5, 2020.

(ii) *Title 24, Building Standards Code and CALGreen Code*

The CEC first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Part 11 of the Title 24 Building Standards is referred to as the California Green Building Standards (CALGreen) Code and was developed to help the State achieve its GHG reduction goals under HSC Division 25.5 (e.g., AB 32) by codifying standards for reducing building-related energy, water, and resource demand, which in turn reduces GHG emissions from energy, water, and resource demand. The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality.”⁵⁸ The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality.⁵⁹

On May 9, 2018, the CEC adopted the 2019 Title 24 Standards, which went into effect on January 1, 2020. The 2019 standards continue to improve upon the previous (2016) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings.⁶⁰ The 2019 Title 24 Standards ensure that builders use the most energy efficient and energy conserving technologies and construction practices. As described in the 2019 Title 24 Standards represent “challenging but achievable design and construction practices” that represent “a major step towards meeting the Zero Net Energy (ZNE) goal.” Single-family homes built with the 2019 Title 24 Standards are projected to use approximately seven percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once the mandated rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards.

⁵⁸ California Building Standards Commission, 2010 California Green Building Standards Code, (2010).

⁵⁹ California Building Standards Commission, 2010 California Green Building Standards Code, (2010).

⁶⁰ CEC, 2019 Building Energy Efficiency Standards.

Nonresidential buildings are projected to use approximately 30 percent less energy due mainly to lighting upgrades.⁶¹ Compliance with Title 24 is enforced through the building permit process.

(j) CEQA Guidelines

In August 2007, the California State Legislature adopted Senate Bill 97 (SB 97) (Chapter 185, Statutes of 2007), requiring the Governor's Office of Planning and Research (OPR) to prepare and transmit new CEQA guidelines for the mitigation of GHG emissions or the effects of GHG emissions to the Resources Agency by July 1, 2009. In response to SB 97, the OPR adopted CEQA guidelines that became effective on March 18, 2010.

However, neither a threshold of significance nor any specific mitigation measures are included or provided in the guidelines.⁶² The guidelines require a lead agency to make a good-faith effort, based on the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Discretion is given to the lead agency whether to: (1) use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use; or (2) rely on a qualitative analysis or performance-based standards. Furthermore, three factors are identified that should be considered in the evaluation of the significance of GHG emissions:

1. The extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
3. 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.⁶³

The administrative record for the Guidelines Amendments also clarifies "that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of California Environmental Quality Act's requirements for cumulative impact analysis."⁶⁴

⁶¹ CEC, 2019 Building Energy Efficiency Standards, Fact Sheet.

⁶² See 14 Cal. Code Regs. §§ 15064.7 (generally giving discretion to lead agencies to develop and publish thresholds of significance for use in the determination of the significance of environmental effects), 15064.4 (giving discretion to lead agencies to determine the significance of impacts from GHGs).

⁶³ 14 Cal. Code Regs. § 15064.4(b).

⁶⁴ Letter from Cynthia Bryant, Director of the Governor's Office of Planning and Research to Mike Chrisman, California Secretary for Natural Resources, dated April 13, 2009.

(3) Regional

(a) *South Coast Air Quality Management District CEQA Guidance*

The City of Los Angeles is located in the South Coast Air Basin (Air Basin), which consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside Counties, in addition to the San Geronio Pass area in Riverside County. The South Coast Air Quality Management District (SCAQMD) is responsible for air quality planning in the Air Basin and developing rules and regulations to bring the area into attainment of the ambient air quality standards. This is accomplished through air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.⁶⁵ A GHG Significance Threshold Working Group was formed to further evaluate potential GHG significance thresholds.⁶⁶ The SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 MTCO_{2e} per year. Under this proposal, commercial/residential projects that emit fewer than 3,000 MTCO_{2e} per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 MTCO_{2e} per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). The Working Group has been inactive since 2011, and SCAQMD has not formally adopted any GHG significance threshold for other jurisdictions.

(b) *SCAG Regional Transportation Plan/Sustainable Communities Strategy*

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2020–2046 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS) in October 2020. The vision for the region incorporates a range of best practices for increasing transportation choices, reducing dependence on personal automobiles, further improving air quality, and encouraging growth in walkable, mixed-use communities with ready access to transit infrastructure and employment. More and varied housing types and employment opportunities would be located in and near job centers, transit stations and walkable neighborhoods where goods and services are easily accessible via shorter trips. To support shorter trips, people would have the choice of using neighborhood bike

⁶⁵ SCAQMD, Board Meeting, December 5, 2008, Agenda No. 31, <http://www3.aqmd.gov/hb/2008/December/081231a.htm>. Accessed March 1, 2022.

⁶⁶ SCAQMD, *Greenhouse Gases CEQA Significance Thresholds*, <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds>. Accessed March 1, 2022.

networks, car share or micro-mobility services like shared bicycles or scooters. For longer commutes, people would have expanded regional transit services and more employer incentives to carpool or vanpool. Other longer trips would be supported by on-demand services such as microtransit, carshare, and citywide partnerships with ride hailing services. For those that choose to drive, hotspots of congestion would be less difficult to navigate due to cordon pricing and using an electric vehicle will be easier thanks to an expanded regional charging network.

The 2020–2045 RTP/SCS states that the SCAG region was home to about 18.8 million people in 2016 and currently includes approximately 6.0 million homes and 8.4 million jobs.⁶⁷ By 2045, the integrated growth forecast projects that these figures will increase by 3.7 million people, with nearly 1.6 million more homes and 1.6 million more jobs. Transit Priority Areas⁶⁸ (TPAs) will account for less than 1 percent of regional total land but are projected to accommodate 30 percent of future household growth between 2016 and 2045. The 2020–2045 RTP/SCS overall land use pattern reinforces the trend of focusing new housing and employment in the region’s TPAs. TPAs are a cornerstone of land use planning best practice in the SCAG region because they concentrate roadway repair investments, leverage transit and active transportation investments, reduce regional life cycle infrastructure costs, improve accessibility, create local jobs, and have the potential to improve public health and housing affordability.

The 2020–2045 RTP/SCS is expected to reduce per capita transportation emissions by 19 percent by 2035, which is consistent with SB 375 compliance with respect to meeting the State’s GHG emission reduction goals.⁶⁹ Due to fuel economy and efficiency improvements, GHG emission rates of model year 2017 vehicles have decreased by 15 to 20 percent when compared to model year 2008 and earlier vehicles. However, for purposes of SB 375 emissions reduction targets, the fuel economy improvements have been largely excluded from the reduction calculation. The SB 375 target focuses on the amount of vehicle travel per capita. As discussed above, OPR recommended that achieving 15 percent lower per capita (residential) or per employee (office) VMT than existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State’s emissions goals (i.e., SB 375 goal). The reductions generated by fuel economy improvements are already included as part of the State’s GHG emissions reduction program and are not double counted in the SB 375 target calculation.

⁶⁷ 2020–2045 RTP/SCS population growth forecast methodology includes data for years 2010, 2010, 2016, and 2045.

⁶⁸ Defined by the 2020–2045 RTP/SCS as generally walkable transit villages or corridors that are within 0.5 mile of a major transit stop (rail or bus rapid transit station) with 15-minute or less service frequency during peak commute hours.

⁶⁹ SCAG, *Final 2020–2045 RTP/SCS, Chapter 0: Making Connections*, p. 5, 2020.

(4) Local

(a) *Green New Deal*

The City of Los Angeles addressed the issue of global climate change in *Green LA, An Action Plan to Lead the Nation in Fighting Global Warming* (“LA Green Plan/ClimateLA”) in 2007. This document outlines the goals and actions the City has established to reduce the generation and emission of GHGs from both public and private activities.

In April 2019, the *Green New Deal (Sustainable City Plan 2019)*, was released, consisting of a program of actions designed to create sustainability-based performance targets through 2050 designed to advance economic, environmental, and equity objectives.⁷⁰ L.A.’s Green New Deal is the first four-year update to the City’s first Sustainable City pLAN that was released in 2015.⁷¹ It augments, expands, and elaborates L.A.’s vision for a sustainable future and tackles the climate emergency with accelerated targets and new aggressive goals.

While not a plan adopted solely to reduce GHG emissions, within the Green New Deal, “Climate Mitigation,” or reduction of GHG is one of eight explicit benefits that help define its strategies and goals. These include reducing GHG emissions through near-term outcomes:

- Reduce potable water use per capita by 22.5 percent by 2025; 25 percent by 2035; and maintain or reduce 2035 per capita water use through 2050.
- Reduce building energy use per square feet for all building types 22 percent by 2025; 34 percent by 2035; and 44 percent by 2050 (from a baseline of 68 mBTU/sq.ft in 2015).
- All new buildings will be net zero carbon by 2030 and 100 percent of buildings will be net zero carbon by 2050.
- Increase cumulative new housing unit construction to 150,000 by 2025; and 275,000 units by 2035.
- Ensure 57 percent of new housing units are built within 1,500 feet of transit by 2025; and 75 percent by 2035.
- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides, or transit to at least 35 percent by 2025, 50 percent by 2035, and maintain at least 50 percent by 2050.

⁷⁰ City of Los Angeles. LA’s Green New Deal, 2019.

⁷¹ City of Los Angeles, Sustainable City pLAN, April 2015.

- Reduce VMT per capita by at least 13 percent by 2025; 39 percent by 2035; and 45 percent by 2050.
- Increase the percentage of electric and zero emission vehicles in the city to 25 percent by 2025; 80 percent by 2035; and 100 percent by 2050.
- Increase landfill diversion rate to 90 percent by 2025; 95 percent by 2035 and 100 percent by 2050.
- Reduce municipal solid waste generation per capita by at least 15 percent by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 lbs. of waste generated per capita per day in 2011).
- Eliminate organic waste going to landfill by 2028.
- Reduce urban/rural temperature differential by at least 1.7 degrees by 2025; and 3 degrees by 2035.
- Ensure the proportion of Angelenos living within 1/2 mile of a park or open space is at least 65 percent by 2025; 75 percent by 2035; and 100 percent by 2050.

(b) City of Los Angeles Green Building Code

On December 11, 2019, the Los Angeles City Council approved Ordinance No. 186,488, which amended Chapter IX of the Los Angeles Municipal Code (LAMC), referred to as the Los Angeles Green Building Code, by adding a new Article 9 to incorporate various provisions of the 2019 CALGreen Code. Projects filed on or after January 1, 2020, must comply with the provisions of the Los Angeles Green Building Code. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) nonresidential and high-rise residential buildings; and (3) additions and alterations to nonresidential and high-rise residential buildings. Article 9, Division 5 includes mandatory measures for newly constructed nonresidential and high-rise residential buildings.

(c) City of Los Angeles Solid Waste Programs and Ordinances

The recycling of solid waste materials also contributes to reduced energy consumption. Specifically, when products are manufactured using recycled materials, the amount of energy that would have otherwise been consumed to extract and process virgin source materials is reduced as well as disposal energy averted. In 1989, California enacted AB 939, the California Integrated Waste Management Act, which establishes a hierarchy for waste management practices such as source reduction, recycling, and environmentally safe land disposal.

The City has developed and is in the process of implementing the Solid Waste Integrated Resources Plan, also referred to as the Zero Waste Plan, whose goal is to lead the City towards

being a “zero waste” City by 2030. These waste reduction plans, policies, and regulations, along with Mayoral and City Council directives, have increased the level of waste diversion for the City to 76 percent as of 2013.⁷² The RENEW LA Plan, aims to achieve a zero waste goal through reducing, reusing, recycling, or converting the resources not going to disposal and achieving a diversion rate of 90 percent or more by 2025.⁷³ The City has also approved the Waste Hauler Permit Program (Ordinance No. 181,519, LAMC Chapter VI, Article 6, Section 66.32-66.32.5), which requires private waste haulers to obtain AB 939 Compliance Permits to transport construction and demolition waste to City-certified construction and demolition waste processors. The City’s Exclusive Franchise System Ordinance (Ordinance No. 182,986), among other requirements, sets a maximum annual disposal level and diversion requirements for franchised waste haulers to promote waste diversion from landfills and support the City’s zero waste goals. These programs reduce the number of trips to haul solid waste and therefore reduce the amount of petroleum-based fuels and energy used to process solid waste.

(d) *City of Los Angeles General Plan*

The City does not have a General Plan Element specific to climate change and GHG emissions, and its General Plan does not have any stated goals, objectives, or policies specifically addressing climate change and GHG emissions. However, the following five goals from the City’s General Plan Air Quality Element would also lead to GHG emission reductions⁷⁴:

- Less reliance on single-occupancy vehicles with fewer commute and non-work trips;
- Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand-management techniques;
- Minimal impacts of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality;
- Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implement of conservation measures, including passive measures, such as site orientation and tree planting; and
- Citizen awareness of the linkages between personal behavior and air pollution and participation in efforts to reduce air pollution.

⁷² City of Los Angeles, Department of Public Works, LA Sanitation, *Recycling*. https://www.lacitysan.org/san/faces/home/portal/s-lsh-wwd/s-lsh-wwd-s/s-lsh-wwd-s-r?_adf.ctrl-state=kq9mn3h5a_188. Accessed March 1, 2022.

⁷³ City of Los Angeles, *RENEW LA, Five-Year Milestone Report, 2011*.

⁷⁴ City of Los Angeles, *Air Quality Element*, June 1991, pages IV-1 to IV-4.

(e) *Traffic Study Policies and Procedures*

The City of Los Angeles Department of Transportation (LADOT) has developed the City Transportation Assessment Guidelines (TAG) (July 2019, updated July 2020) to provide the public, private consultants, and City staff with standards, guidelines, objectives, and criteria to be used in the preparation of a transportation assessment. The TAG establishes the reduction of vehicle trips and VMT as the threshold for determining transportation impacts and thus is an implementing mechanism of the City's strategy to reduce land use transportation-related GHG emissions consistent with AB 32, SB 32, and SB 375.

d) **Existing Conditions**

(1) Existing Statewide GHG Emissions

CARB reports that in 2019, GHG emissions statewide were 404 MMTCO_{2e}, 27 MMCO_{2e} below the state's 2020 GHG limit of 431 MMTCO_{2e}. The transportation sector was the largest source of GHG emissions, accounting for approximately half of the state's GHG inventory when including upstream transportation emissions from the refinery and oil and gas industrial sectors. The commercial and residential sectors accounted for approximately 10 percent of GHG emissions. Agriculture accounted for approximately 8 percent, and electricity generation accounted for approximately 20 percent. Remaining emissions came from sectors such as non-transportation fuel-related industrial sources, recycling and waste management, and from high global warming potential gases. In 2021, approximately 52 percent of electricity generation serving California came from renewable and zero-carbon resources (e.g., solar and wind).⁷⁵

(2) Existing Project Site GHG Emissions

The building at the Project Site is currently unoccupied and is closed off by fencing. No GHG emissions are currently generated at the Project Site.

2. Project Impacts

a) **Thresholds of Significance**

In accordance with the State CEQA Guidelines Appendix G (Appendix G), a project could have a significant impact related to GHG emissions if the project would do the following:

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

⁷⁵ California Air Resources Board, California Greenhouse Gas Emissions for 2000 to 2020, October 2022.

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

Section 15064.4 of the CEQA Guidelines was adopted to assist lead agencies in determining the significance of the impacts of GHG emissions. This section states that a lead agency shall make a good-faith effort, based to the extent possible on scientific and factual data to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have the discretion to determine, in the context of a particular project, whether to quantify GHG emissions resulting from a project; and/or rely on a qualitative analysis or performance based standards. This section also states that lead agencies should consider the following factors, among others, when determining the significance of impacts from GHG emissions on the environment, including: (i) the extent to which the project may increase or reduce GHG emissions compared to existing conditions; (ii) whether the project exceeds an applicable significance threshold that the lead agency determines applies to the project; and (iii) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Section 15064.4 does not establish a threshold of significance. Lead agencies are given discretion to utilize significance thresholds for their respective jurisdictions in which a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), as long as any threshold chosen is supported by substantial evidence (see CEQA Guidelines Section 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis, as required by CEQA Guidelines Section 15130(f).⁷⁶ As a note, the CEQA Guidelines were amended in response to SB 97 to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

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

⁷⁶ See generally Section 15130(f); see also Letter from Cynthia Bryant, Director of the Office of Planning and Research to Mike Chrisman, Secretary for Natural Resources (April 13, 2009).

15064(h)(3) allows a lead agency to make a finding of less than significance for GHG emissions if a project complies with regulatory programs to reduce GHG emissions.⁷⁷

In the absence of an adopted numeric threshold that applies to projects in the City of Los Angeles, the significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

b) Methodology

Because there is no applicable adopted or accepted numerical threshold of significance for GHG emissions, the methodology for evaluating the Project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans adopted for the purpose of reducing and/or mitigating GHG emissions.

As discussed above, OPR has noted that lead agencies "should make a good-faith effort to calculate or estimate GHG emissions from a project."⁷⁸ GHG emissions are quantified below, consistent with OPR guidelines and to satisfy State CEQA Guidelines Section 15064.4(a), which calls for a good-faith effort to describe and calculate emissions. The estimated emissions inventory is also used to quantify and determine the reduction in the Project's incremental contribution of GHG emissions as a result of compliance with regulations and requirements adopted to implement plans for the reduction or mitigation of GHG emissions. The significance of the Project's GHG emissions impacts is not based on the quantification of GHG emissions provided herein.

A project's GHG emissions typically are very small in comparison to state or global GHG emissions. In isolation, a project has no significant direct impact on climate change. However, the increased accumulation of GHG emissions from more than one project and many sources in the

⁷⁷ See, for example, San Joaquin Valley Air Pollution Control District (SJVPCD), CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation, APR—2030 (June 25, 2014), in which the SJVAPCD "determined that GHG emissions increases that are covered under ARB's Cap-and-Trade regulation cannot constitute significant increases under CEQA..." Further, the SCAQMD has taken this position in CEQA documents it has produced as a lead agency. The SCAQMD has prepared three Negative Declarations and one Draft Environmental Impact Report that demonstrate the SCAQMD has applied its 10,000 MTCO₂e/yr. significance threshold in such a way that GHG emissions covered by the Cap-and-Trade Program do not constitute emissions that must be measured against the threshold. See: SCAQMD, Final Negative Declaration for: Ultramar Inc. Wilmington Refinery Cogeneration Project, SCH No. 2012041014 (October 2014); SCAQMD, Final Negative Declaration for Phillips 66 Los Angeles Refinery Carson Plant—Crude Oil Storage Capacity Project, SCH No. 2013091029 (December 2014); Final Mitigated Negative Declaration for Toxic Air Contaminant Reduction for Compliance with SCAQMD Rules 1420.1 and 1402 at the Exide Technologies Facility in Vernon, CA, SCH No. 2014101040 (December 2014); and Final Environmental Impact Report for the Breitburn Santa Fe Springs Blocks 400/700 Upgrade Project, SCH No. 2014121014 (October 2015).

⁷⁸ OPR, Technical Advisory, CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, June 2008, (at p. 5) website: <https://www.opr.ca.gov/docs/june08-ceqa.pdf>, accessed March 2021.

atmosphere may result in global climate change, which can cause the adverse environmental effects previously discussed. Accordingly, the threshold of significance for GHG emissions determines whether a project's contribution to global climate change is "cumulatively considerable." Many air quality agencies, including the SCAQMD, concur that GHG and climate change should be evaluated as a cumulative impact, rather than project-direct impact. Not every individual project that emits GHG must necessarily be found to contribute to a significant cumulative impact on the environment.⁷⁹

(1) Quantifying GHG Emissions

Construction emissions were calculated using CalEEMod *Version* 2020.4.0, which is based on OFFROAD model outputs. OFFROAD is an emissions estimation model developed by CARB to calculate emissions from off-road road equipment, including construction equipment. The output values used in this analysis were modeled to be project-specific, based on equipment mix, usage rates (hours per day), and length of Project schedule, which is also shown in Table II-1 in Section II, Project Description. The mobile source emission methodology for on-road construction emissions, associated with worker commute and delivery of materials, uses a VMT rate calculated by CalEEMod in order to generate values for annual emissions. Emission factors are derived from the 2014 EMFAC model using light duty automobile factors for worker commute and heavy-duty truck factors for deliveries.

Pursuant to SCAQMD guidance recommended in the SCAQMD GHG Working Group meeting on November 19, 2009, GHG emissions from construction were amortized (i.e., averaged annually) over the lifetime of the Project. As impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively small portion of the overall lifetime project GHG emissions. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, the SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures address construction GHG emissions as part of the operational GHG reduction strategies.⁸⁰ The rationale for this amortization does not apply to the Project, as it proposes no operational component. However, it has been provided for informational purposes.

(2) Consistency with Plans

The Project's GHG impacts are evaluated by assessing the Project's consistency with applicable statewide, regional, and local GHG reduction plans and strategies, in addition to local actions adopted by the City. As discussed previously, the City has established goals and actions to reduce the generation and emission of GHGs from both public and private activities in L.A.'s Green New Deal.

⁷⁹ State of California, Office of Planning and Research, Discussion Draft, CEQA and Climate Change Advisory, pg. 10, December 2018.

⁸⁰ SCAQMD Governing Board Agenda Item 31, December 5, 2008.

The OPR encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. Although the City does not have a programmatic mitigation plan to tier from, such as a GHG Reduction Plan, the City has adopted a number of plans to help reduce GHG emissions by encouraging and requiring applicable projects to implement energy efficiency measures, including those contained in L.A.'s Green New Deal and codified by the L.A. Green Building Code. On a statewide level, the Climate Change Scoping Plan and subsequent updates provides measures to achieve AB 32 and SB 32 targets. On a regional level, the SCAG 2020–2045 RTP/SCS contains measures to achieve VMT reductions required under SB 375. Thus, if the Project complies is designed in accordance with these plans, policies, and regulations, and requirements, the Project would result in a less-than-significant impact, because it would be consistent with the overarching state, regional, and local plans for State regulations on GHG reduction (AB 32).

c) Project Design Features

No specific project design features (PDFs) are proposed with regard to GHG emissions.

d) Analysis of Project Impacts

Threshold (a): *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Threshold (b): *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

(1) Impact Analysis

The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions, nor have SCAQMD, OPR, CARB, CAPCOA, or any other state or regional agency. Since there is not applicable adopted or accepted numerical threshold of significance for assessing GHG emissions, the methodology for evaluating the Project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans adopted for the purposes of reducing and/or mitigating GHG emissions. This evaluation consistency (discussed below) with such plans is the sole bases for determining the significance of the Project's GHG-related impacts on the environment.

Notwithstanding, for purposes of satisfying State CEQA Guidelines Section 15064(a), which calls for a good faith effort to describe and calculate emissions, the analysis calculates the amount of GHG emissions that would be attributable to the Project. The Project would result in direct and indirect GHG emissions associated with demolition activities.

(a) GHG Emissions Calculations

The demolition of the existing building and the installation of the landscape buffer are estimated to take a total of approximately 37 working days to complete, during which a minimal amount of GHG emissions would be generated (refer to Table IV.C-4) as a result of equipment used on-site as well as off-site activities, such as hauling. The estimates provided on Table IV.C-4 are based on the assumed Project schedule described in Table II-1 (in Section II, Project Description), the use of standard construction equipment for demolition activities, and the assumption of a single-trip haul distance of up to 42 miles for the asbestos-containing material (approximately 130 cubic yards) and up to 40 miles for all other demolition material (approximately 4,044 cubic yards). Asbestos abatement for the Project would require the use of powered hand tools such as electric or pneumatic equipment, but no heavy-duty off-road construction vehicles. Subsequent building demolition would require an excavator and two loaders. After the Barry Building structure has been demolished, a backhoe would be utilized to dig and backfill trenches in order to facilitate removal of the building's underground utilities. Installation of the modest landscaped buffer is unlikely to require off-road construction vehicles, but it has been conservatively assumed that trenching for a timed irrigation system may require a small grading vehicle such as a backhoe or a skid steer loader.

As recommended by the SCAQMD, the total GHG construction emissions should be amortized over a 30-year lifetime of a project (i.e., total construction GHG emissions should be divided by 30 to determine an annual construction emissions estimate that can be added to the operational emissions) to determine a project's annual GHG emissions inventory. However, the Project does not include an operational component besides the creation of a modest landscape buffer, which would require a timed irrigation system and occasional landscaping maintenance. Any annual GHG emissions associated with these operational features would be de minimis. Nevertheless, for informational purposes, Table IV.C-4 provides an estimate of GHG emissions if the construction emissions were amortized over a period of 30 years.

Table IV.C-4
Estimated Project GHG Emissions

Year	Metric Tons of CO₂e^a
2022	65.41
Total	65.41
Amortized Over 30 Years	2.18 tons
^a CO ₂ e was calculated using the CalEEMod 2020.4.0 model.	
Source: NTEC, 2021. Refer to Appendix B of this Draft EIR.	

(b) Consistency Discussion

The Project consists of the demolition of the existing building and the installation of a landscape buffer along the southern boundary of the Project Site. No future development of the Project Site is proposed and/or considered as part of the Project. The Project's creation of the modest

landscape buffer that would require a timed irrigation system and occasional landscaping maintenance would emit nominal direct and indirect annual GHG emissions. The State and City GHG emission reduction plans (including the Climate Change Scoping Plan and subsequent updates, the 2020-2045 RTP/SCS and LA's Green New Deal) call for best practices in addressing construction-related GHG emissions but do not identify demolition-related requirements or performance standards. There are also certain regulations that address on- and off-road mobile sources that would govern GHG emissions from fuel combustion. This includes, but is not limited to, the Pavley motor vehicle emission standards, the LCFS promulgated by CARB that become increasingly stringent over time, and CAFE standards that call for increasing fuel efficiency of on-road vehicles. As no new development is proposed, and since the applicable GHG emissions reduction plans are directed at the operational activities associated with development (e.g., on-going traffic trips, energy and water consumption, waste generation, etc.) and do not address construction or demolition activities, there would be no potential conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, Project impacts related to GHG emissions would be less than significant.

(2) Mitigation Measures

No significant impacts related GHG emissions have been identified, and no mitigation measures are required.

(3) Level of Significance After Mitigation

Impacts related to GHG emissions would be less than significant without mitigation.

e) Cumulative Impacts

(1) Impact Analysis

As discussed above, the analysis of a project's GHG emissions is inherently a cumulative impacts analysis because climate change is a global problem and the emissions from any single project alone would be negligible. Accordingly, the analysis above took into account the potential for the Project to contribute to the cumulative impact of global climate change. Based on the above, Project impacts would be less than significant because no development is proposed on the Project Site and the applicable GHG emissions reduction plans do not address construction or demolition activities. As such, the Project's contribution to GHG emissions is not cumulatively considerable, and cumulative impacts related to GHG emissions would be less than significant.

(2) Mitigation Measures

No significant cumulative impacts to GHG emissions have been identified, and no mitigation measures are required.

(3) Level of Significance After Mitigation

Cumulative impacts related to GHG emissions would be less than significant without mitigation.