

## 4.6 Greenhouse Gas Emissions and Energy

### 4.6.1 Introduction

This section identifies and evaluates the impacts related to greenhouse gas (GHG) emissions and energy that could result from development of the Project. This section presents an overview of global and local climate change, and examines the potential for development of the Project to result in increased GHG emissions, which contribute to climate change. The impact analysis also includes an evaluation of the Project's consistency with statewide and local planning efforts to reduce GHG emissions.

In addition, the section examines the project energy usage characteristics to determine whether the project could result in any significant environmental impacts during construction or operation activities. This section also describes the California energy profile (i.e. mix of energy resources and consumption characteristics) and identifies regulatory and policy frameworks that govern the production and consumption of energy resources and aim to increase energy efficiency while reducing reliance on fossil fuels.

### 4.6.2 Environmental Setting

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continued rise in temperature. Warming of the climate system is now considered to be unequivocal (IPCC, 2007), with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years (CCCC, 2006).

Increases in GHG concentrations in the earth's atmosphere are the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has reached the earth. Some GHGs occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

### Greenhouse Gases

Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O occur naturally but are also generated through human activity. Emissions of CO<sub>2</sub> are largely by-products of fossil fuel combustion, whereas CH<sub>4</sub> results from off-gassing<sup>1</sup> associated with agricultural practices and landfills. Other human-generated GHGs, which have much higher heat-absorption potential than CO<sub>2</sub>, include

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<sup>1</sup> Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>), which are byproducts of certain industrial processes.

CO<sub>2</sub> is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O are substantially more potent GHGs than CO<sub>2</sub>, with GWPs of 25 and 310 times that of CO<sub>2</sub>, respectively.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons (MTs) of CO<sub>2</sub> equivalents (CO<sub>2</sub>e). CO<sub>2</sub>e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH<sub>4</sub> and N<sub>2</sub>O have much higher GWPs than CO<sub>2</sub>, CO<sub>2</sub> is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO<sub>2</sub>e.

## **Impacts of Climate Change**

### ***Impacts in California***

Global warming impacts in California include loss in snow pack, rise in sea level, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences, loss of infrastructure, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. Global warming would cause detrimental effects to some of the state's largest industries, including agriculture, winemaking, tourism, skiing, commercial and recreational fishing, forestry, and electrical power generation: “[t]he impacts of global warming are already being felt in California. The Sierra snowpack, an important source of water supply for the state, has shrunk 10 percent in the last 100 years. It is expected to continue to decrease by as much as 25 percent by 2050. World-wide changes are causing sea levels to rise – about 8 inches of increase has been recorded at the Golden Gate Bridge over the past 100 years – threatening low coastal areas with inundation and serious damage from storms” (CARB, 2008).

## **Greenhouse Gas Emissions Estimates**

### ***State of California Emissions***

In 2017, California emitted approximately 424 million tons of CO<sub>2</sub>e. At 10.7 tons/ person/ year California has one of the lowest per capita GHG emission rates in the country (CARB, 2019). This is in part due to the success of the state's energy efficiency and renewable energy programs and commitments that have lowered the GHG emissions rate of growth by more than half of what it would have been otherwise (CEC, 2007). Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The latest California Air Resources Board (CARB) inventory found that transportation is the source of approximately 40 percent of the state's GHG emissions in 2017, followed by industrial sources at 21 percent and electricity generation (both in-state and out-of-state) at 15 percent.

Agriculture is the source of approximately 8 percent, and residential activity is the source of about 6 percent, followed by commercial activities at 4 percent (CARB, 2019).

### ***Bay Area Emissions***

In the San Francisco Bay Area, the last inventory prepared by the Bay Area Air Quality Management District (BAAQMD; dated 2011, and updated in 2015) indicates that the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 39.7 percent and 35.7 percent, respectively, of the Bay Area's 86.6 million tons of CO<sub>2</sub>e in 2011. Electricity/co-generation sources account for about 14 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.7 percent. Off-road equipment sources currently account for approximately 1.5 percent of total Bay Area GHG emissions (BAAQMD, 2015).

### ***Unincorporated Contra Costa County Emissions***

On December 15, 2015, the Contra Costa County Board of Supervisors approved a Climate Action Plan containing a 2005 baseline GHG inventory and a 2013 GHG inventory update with stationary source emissions included. Emissions of GHGs in unincorporated Contra Costa County in 2005 totaled 18,730,640 MTCO<sub>2</sub>e and 18,292,510 MTCO<sub>2</sub>e in 2013. In 2013, 47 percent of the county's emissions were attributed to on-road transportation. Residential energy was the second-largest source of emissions with approximately 19 percent, followed by landfills with approximately 14 percent of emissions (Contra Costa, 2015).

## **Setting: Energy**

### ***State Energy Profile***

Total energy usage in California was 7,881 trillion British Thermal Units (Btus) in 2017 (the most recent year for which specific data are available), which equates to an average of 200 million Btu per capita. These figures place California second among the nation's 50 states in total energy use and 48th in per capita consumption (EIA, 2020).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 66 percent of the electrical power needed to meet California's demand is produced in the state; the balance, approximately 32 percent, is imported from the Pacific Northwest and the Southwest. In 2018, California's in-state electricity was derived from natural gas (46.5 percent), coal (0.2 percent), large hydroelectric resources (11.3 percent), nuclear sources (9.4 percent), oil (0.2 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (32.4 percent). Other sources including oil, petroleum coke, and waste heat accounted for 0.2 percent of California's in-state electricity (CEC, 2019).

In recent years, electricity demand has been flat or slightly declining as energy efficiency programs have resulted in end-use energy savings and as customers install behind-the-meter (BTM) solar photovoltaic (PV) systems that directly displaces utility-supplied generation. In

2018, BTM solar generation was estimated to be 13,582 gigawatt hours (GWh), a 20 percent increase from 2017. The strong growth in solar PV has had a measurable impact on utility served load and, consequently, on the total system electric generation summary (CEC, 2019a).

### ***Transportation Fuels***

Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the California Energy Commission (CEC), the state relies on petroleum-based fuels for 95 percent of its transportation needs (EIA, 2018). In 2019, approximately 30 percent of California's crude oil was produced within the state, about 12 percent was produced in Alaska, and the remaining 58 percent was produced in foreign lands (CEC, 2020b).

Refineries in California are located largely within two sub-regions: Southern California (primarily Los Angeles County) and the San Francisco Bay Area. Refining capacity in California has been decreasing over the years due to the closure of older and smaller refining operations that found compliance with the state's strict environmental regulations to be cost prohibitive. The permitting of new facilities is likewise limited, and therefore any potential increase in oil refining capacity in the future in California appears highly unlikely. In Contra Costa County, the oil and gas industry is responsible for approximately 10 percent of employment within the county, directly and indirectly (Western States Petroleum Association 2014).

In 2019, taxable gasoline sales (including aviation gasoline) in California accounted for approximately 15.4 billion gallons of gasoline (CDTFA, 2020a), and taxable diesel fuel sales accounted for approximately 3.1 billion gallons of diesel fuel (CDTFA, 2020b). Statewide, there was an overall decrease in gasoline and diesel consumption from 2007 to 2011 due to the economic recession, but consumption has increased since then. The corona virus outbreak also is expected to decrease gasoline and diesel consumption throughout 2020. The CEC estimates that 389 million gallons of gasoline and approximately 34 million gallons of diesel were sold in 2018 in Contra Costa County (CEC, 2019b).

### **Pacific Gas and Electric Company**

Pacific Gas and Electric Company (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000-square-mile service area that extends from Eureka in the north, to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. The nine-county Bay Area is within its service area for both kinds of energy. Operating characteristics of PG&E's electricity and natural gas supply and distribution systems are provided below.

#### ***PG&E Electric Utility Operations***

PG&E provides "bundled" services (i.e., electricity, transmission and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial and agricultural consumers. Customers also can obtain electricity from alternative providers such as municipalities or Customer Choice Aggregators (CCAs), as well as from self-generation resources, such as rooftop solar installations. In recent years, PG&E has continued to

make improvements to its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of new Smart Grid technologies. As required by California law, on July 1, 2015, PG&E filed its proposed electric distribution resources plan for approval by the California Public Utilities Commission (CPUC). The plan identifies optimal locations on its electric distribution system for deployment of distributed energy resources. PG&E’s proposal is designed to allow energy technologies to be interconnected with each other and integrated into the larger grid. The CPUC also is considering PG&E’s request for approval of the deployment of electric vehicle charging infrastructure in response to the CPUC’s December 2014 decision adopting a policy to expand the California utilities’ role in developing an EV (electrical vehicle) charging infrastructure to support California’s climate goals.

In 2018 PG&E generated and/or procured a total of 48,832 GWh of electricity.<sup>2</sup> Of this total, PG&E owns 7,686 megawatts (MW) of generating capacity, itemized below (PG&E, 2019). The remaining electrical power is purchased from other sources in and outside of California (see **Table 4.6-1**).

**Renewable Energy Resources**

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020. This program, known as the RPS program, became effective in December 2011, established three multi-year compliance periods that have gradually increasing RPS targets: 2011 through 2013, 2014 through 2016, and 2017 through 2020. After 2020, the RPS compliance periods will be annual.

**TABLE 4.6-1  
 PG&E-OWNED ELECTRICITY GENERATING SOURCES**

<b>Source</b>	<b>Generating Capacity (Megawatts MW)</b>
Nuclear (Diablo Canyon-2 reactors)	2,240
Hydroelectric	3,891
Fossil Fuel-Fired	1,400
Fuel Cell	3
Solar Photovoltaic (13 units-12 in Fresno County, 1 in Kings County)	152
<b>Total</b>	<b>7,686</b>

SOURCE: PG&E, 2019. *2018 Annual Report*.

<sup>2</sup> This amount excludes electricity provided to direct access customers and CCAs who procure their own supplies of electricity.

**TABLE 4.6-2  
PG&E RENEWABLE ENERGY SOURCES**

Source	Percent of Total Energy Portfolio
Biopower	4.4
Geothermal	3.7
Wind	10.0
RPS-Eligible Small Hydroelectric	2.7
Solar	18.1
<b>Total</b>	<b>38.9</b>

SOURCE: PG&E, 2019. 2018 Annual Report.

Renewable generation resources, for purposes of the RPS program, include bioenergy such as biogas and biomass, certain hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. During 2018, 38.9 percent of PG&E's energy deliveries were from renewable energy sources, exceeding the annual RPS target of 28.0 percent (PG&E, 2019).

### Electricity Consumption

**Table 4.6-3** shows the electricity consumption by sector in the PG&E service area based on the latest available data from the California Energy Commission (CEC).

**TABLE 4.6-3  
ELECTRICITY CONSUMPTION IN PG&E SERVICE AREA (2019)**

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
<b>All Usage Expressed in Millions of kWh (GWh)</b>							
4,490	29,560	4,349	9,710	1,642	28,014	308	78,072

SOURCE: CEC, 2020. Energy Consumption Data Management System, *California Energy Consumption Database*, interactive web tool.

As shown in the table above, PG&E produced approximately 78 billion kilowatt-hours (kWh) in 2019, of which approximately 28 billion kWh were consumed by residential uses and 2 billion kWh were consumed by mining and construction, those sectors which are relevant to the proposed project.

### PG&E Natural Gas Operations

PG&E provides natural gas transportation services to “core” customers and to “non-core” customers (i.e., industrial, large commercial, and natural gas-fired electric generation facilities) that are connected to its gas system in its service territory. Core customers can purchase natural gas procurement service (i.e., natural gas supply) from either PG&E or non-utility third-party gas

procurement service providers (referred to as core transport agents). When core customers purchase gas supply from a core transport agent, PG&E continues to provide gas delivery, metering and billing services to customers. When PG&E provides both transportation and procurement services, PG&E refers to the combined service as “bundled” natural gas service. Currently, more than 97 percent of core customers, representing nearly 80 percent of the annual core market demand, receive bundled natural gas service from PG&E.

PG&E does not provide procurement service to non-core customers, who must purchase their gas supplies from third-party suppliers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E’s backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to off-system customers (i.e., outside of PG&E’s service territory) and to third-party natural gas storage customers (PG&E, 2019).

**Natural Gas Supplies**

PG&E can receive natural gas from all the major natural gas basins in western North America, including basins in western Canada, the Rocky Mountains, and the southwestern United States. PG&E also is supplied by natural gas fields in California. PG&E purchases natural gas to serve its core customers directly from producers and marketers in both Canada and the United States. The contract lengths and natural gas sources of PG&E’s portfolio of natural gas purchase contracts have fluctuated generally based on market conditions. During 2018, PG&E purchased approximately 287,000 MMcf of natural gas (net of the sale of excess supply of gas). Substantially all of this natural gas was purchased under contracts with a term of one year or less. PG&E’s largest individual supplier represented approximately 15 percent of the total natural gas volume that PG&E purchased during 2018 (PG&E, 2019).

**Natural Gas Consumption**

Table 4.6-4 shows the natural gas consumption by sector in the PG&E service area with the latest data available from CEC.

**TABLE 4.6-4  
 NATURAL GAS CONSUMPTION IN PG&E SERVICE AREA (2019)**

<b>Agricultural and Water Pump</b>	<b>Commercial Building</b>	<b>Commercial Other</b>	<b>Industry</b>	<b>Mining and Construction</b>	<b>Residential</b>	<b>Total Usage</b>
<b>All Usage Expressed in Millions of Therms</b>						
34.3	926.6	61.6	1,847.2	169.6	1,902.8	4,942.1

SOURCE: CEC, 2020. Energy Consumption Data Management System, California Energy Consumption Database, interactive web tool.

As shown in the table above, PG&E produced approximately 4.9 billion therms in 2019, of which approximately 1.9 billion therms were consumed by residential uses and 169.6 million therms

were consumed by mining and construction, those sectors which are relevant to the proposed project.

### 4.6.3 Regulatory Setting

#### **Greenhouse Gas Emissions: International Treaties and Other Developments**

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. It was adopted in Kyoto, Japan, on December 11, 1997 and entered into force on February 16, 2005. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions. The targets amount to a reduction of overall GHG emissions by at least five percent in the commitment period from 2008 to 2012. Recognizing that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.” (UN, 1997).

Negotiations after Kyoto have continued in an attempt to address the period after the first “commitment period” of the Kyoto Protocol, concluded at the end of 2012. In Durban, South Africa in 2011, parties to the protocol agreed in principle to negotiate a new comprehensive and legally binding climate agreement by 2015 and to enter it into force for all parties starting from 2020. Intensive negotiations took place under the Ad Hoc Group on the Durban Platform for Enhanced Action (ADP) throughout 2012 through 2015 and culminated in the adoption of the Paris Agreement by the Conference of the Parties (COP) on December 12, 2015. The Paris Agreement seeks to accelerate and intensify the actions and investment needed for a sustainable low carbon future. Its central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (UN, 2015).

In accordance with Article 21, paragraph 1, of the Paris Agreement, the Agreement shall enter into force after 55 Parties to the Convention, accounting in total for at least an estimated 55 percent of the total global GHG emissions, have deposited their instruments of ratification, acceptance, approval or accession. On October 5, 2016, the threshold for entry into force of the Paris Agreement was achieved, and the agreement entered into force on November 4, 2016. The United States ratified the Paris agreement on September 3, 2016 (UN, 2017). On June 1, 2017, President Trump announced that he would withdraw the United States from the agreement (The White House, 2017).

## **Greenhouse Gas Emissions: Federal**

### ***U.S. Environmental Protection Agency “Endangerment” and “Cause or Contribute” Findings***

In *Massachusetts v. Environmental Protection Agency* et al., 12 states and cities, including California, together with several environmental organizations, sued to require the USEPA to regulate GHGs as pollutants under the Clean Air Act (127 S. Ct. 1438 (2007)). The U.S. Supreme Court ruled that GHGs fit within the Clean Air Act’s definition of a pollutant and the USEPA had the authority to regulate GHGs.

On December 7, 2009, the USEPA Administrator signed two findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of six key GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

### ***Mandatory Greenhouse Gas Reporting Rule***

On September 22, 2009, the USEPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the USEPA to develop “...mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy...” The Reporting Rule applies to most entities that emit 25,000 MT of CO<sub>2</sub>e or more per year. Starting in 2010, facility owners were required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the USEPA to verify annual GHG emissions reports.

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

In response to the *Massachusetts v. EPA* ruling discussed above, the Bush Administration issued an Executive Order on May 14, 2007, directing the United States Environmental Protection Agency (USEPA), the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008.

On October 10, 2008, the National Highway Traffic Safety Administration (NHTSA) released a final environmental impact statement analyzing proposed interim standards for passenger cars and light trucks in model years 2011 through 2015. The NHTSA issued a final rule for model year 2011 on March 30, 2009 (NHTSA, 2009).

On May 7, 2010, the USEPA and the NHTSA issued a final rule regulating fuel efficiency and GHG pollution from motor vehicles for cars and light-duty trucks for model years 2012–2016 (USEPA, 2010). On May 21, 2010, President Obama issued a memorandum to the Secretaries of Transportation and Energy, and the Administrators of the USEPA and the NHTSA calling for establishment of additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. (GPO, 2010). In response to this directive, USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal GHG and fuel economy standards for model year 2017-2025 light-duty vehicles (GPO, 2011). The agencies proposed standards projected to achieve 163 grams/mile of CO<sub>2</sub> in model year 2025, on an average industry fleet wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. California has announced its support of this national program (CARB, 2011). The final rule was adopted in October 2012, and NHTSA intends to set standards for model years 2022-2025 in a future rulemaking (USEPA, NHTSA, 2012).

On January 12, 2017, USEPA Administrator Gina McCarthy issued a final determination with a recommendation to maintain the current GHG emissions standards for model year 2022-2025 vehicles, finding that “automakers are well-positioned to meet the standards at lower costs than previously estimated.” In August 2018, the USEPA revised its 2017 determination, and issued a proposed rule that maintains the 2020 Corporate Average Fuel Economy (CAFE) and CO<sub>2</sub> standards for model years 2021 through 2026 (83 Fed. Reg. 42986). The estimated CAFE and CO<sub>2</sub> standards for model year 2020 are 43.7 miles per gallon (mpg) and 204 grams of CO<sub>2</sub> per mile for passenger cars and 31.3 mpg and 284 grams of CO<sub>2</sub> per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. On May 1, 2018, California, joined by 16 other states and the District of Columbia, filed a petition challenging the USEPA’s proposed rule to revise the vehicle emissions standards, arguing that the USEPA had reached erroneous conclusions about the feasibility of meeting the existing standards. On October 25, 2019, the D.C. Circuit dismissed the challenges, concluding that it did not have jurisdiction to consider the US EPA’s withdrawal of the Obama administration’s mid-term determination that model year 2022 to 2025 GHG emission standards promulgated in 2012 remained appropriate. The court noted that the withdrawal did not itself change the emission standards established in 2012 but only created the possibility that the standards could be modified in the future, similar to an agency’s grant of a petition for reconsideration of a rule.<sup>3</sup> Accordingly, due to the uncertainty of future federal regulations, this analysis assumes that the existing CAFE standards will remain in place.

### ***Energy Independence and Security Act***

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law (GPO, 2007). Among other key measures, the Act would do the following, which would aid in the reduction of national mobile and non-mobile GHG emissions:

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<sup>3</sup> The State of California’s May 1, 2018 petition, the October 25, 2019 decision by the U.S. Court of Appeals for the D.C. Circuit, and other materials in the docket for Case No. 18-1114 are available online: <http://climatecasechart.com/case/california-v-epa-4>. Accessed December 10, 2019.

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Prescribe or revise 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.
3. While superseded by NHTSA and USEPA actions described above, EISA also set miles per gallon targets for cars and light trucks and directed the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.

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

## **Energy: Federal**

### ***National Energy Conservation Policy Act***

The National Energy Conservation Policy Act (NECPA) serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer projects and includes a residential program for low-income weatherization assistance, grants and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Furthermore, the NEPCA established fuel economy standards for on-road motor vehicles in the United States. The National Highway Traffic and Safety Administration (NHTSA), which is part of the U. S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and revising existing standards under the NEPCA. The NHTSA requires manufacturers of light duty vehicles to meet an estimated combined passenger car and light truck average fuel economy level of 34.1 miles per gallon (mpg) by model year 2016 (NHTSA 2010). The USDOT is authorized to assess penalties for noncompliance. In the course of more than 30 years, this regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet, and has also protected against inefficient, wasteful, and unnecessary use of energy.

### ***National Energy Policy Act of 2005***

The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; and constructing energy-efficient buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), signed in 2009.

## **Greenhouse Gas Emissions: State**

The legal framework for GHG emission reduction in California has come about through Executive Orders, legislation, and regulation. The major components of California's climate change initiative are reviewed below.

### ***Assembly Bill 32 and the California Climate Change Scoping Plan***

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008 (re-approved by CARB on August 24, 2011 [CARB, 2008]) outlining measures to meet the 2020 GHG reduction goals. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from 2008 levels. The Scoping Plan recommends measures for further study and possible State implementation, such as new fuel regulations. It estimates that a reduction of 174 million MT of CO<sub>2</sub>e (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and other sources could be achieved should the State implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of Senate Bill (SB) 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

The Scoping Plan is required by AB 32 to be updated at least every five years. The first update to the AB 32 Scoping Plan, approved on May 22, 2014 by CARB (CARB, 2014), described the state's progress towards AB 32 goals. It found that, "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32." In addition, the update stated, "if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758,

and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050” (CARB, 2016).

The 2017 Scoping Plan Update was adopted on December 14, 2017. The Scoping Plan Update addresses the 2030 target established by Senate Bill 32 (SB 32) (Pavley), as discussed below, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, increasing the use of renewable energy in the state, and reduction of methane emissions from agricultural and other wastes (CARB, 2017).

### ***California Supreme Court Ruling in Center for Biological Diversity v. Department of Fish and Wildlife***

In its 2015 decision, *Center for Biological Diversity v. Department of Fish and Wildlife*, S217763 (Newhall), the California Supreme Court evaluated the California Department of Fish and Wildlife’s (DFW) analysis of potential impacts caused by GHG emissions contained in the EIR for the proposed land development called Newhall Ranch (California, 2015). In the EIR, the DFW analyzed GHG emissions under AB 32, using the business-as-usual (BAU) comparison as its sole criterion of significance.

In Newhall, the California Supreme Court concluded that a finding of consistency with meeting statewide emission reduction goals is a legally permissible criterion of significance when analyzing potential impacts of GHG emissions under CEQA. However, the Court found that the EIR’s conclusion that the project’s emissions would be less than significant under that criterion was not supported by substantial evidence, and remanded back to the appellate court the narrow issue of whether substantial evidence supported the application of AB 32 statewide GHG reduction goal of 29 percent to new land use projects.

The Court then identified “potential options” for lead agencies evaluating cumulative significance of a proposed land use development’s GHG emissions in future CEQA documents, but the Court was careful to note that there was no “guarantee” that any of these would be sufficient. These include: substantiation of project reductions from BAU, compliance with regulatory programs or performance based standards, compliance with GHG reduction plans or climate action plans, or compliance with local air district thresholds.

The “potential pathways to compliance” suggested by the Court include the numerical GHG significance thresholds used in this EIR. Specifically, the Court favorably cites to the Bay Area Air Quality Management District (BAAQMD) GHG significance thresholds, which are based on compliance with AB 32 and use a “service population” GHG ratio threshold for land use projects and a 10,000 ton annual GHG emission threshold for industrial projects.

### **Executive Order S-3-05**

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05 (EO S-3-05), which announced target dates by which Statewide GHG emissions would be progressively reduced. These included a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050. As discussed below, the 2020 reduction target was codified in 2006 as Assembly Bill 32. However, the 2050 reduction target has not been codified and the California Supreme Court has ruled that CEQA lead agencies are not required to use it as a significance threshold. *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497.

### **Executive Order B-30-15 and SB 32**

California EO B-30-15 (April 29, 2015) set an "interim" statewide emission target to reduce greenhouse emissions to 40 percent below 1990 levels by 2030, and directed state agencies with jurisdiction over GHG emissions to implement measures pursuant to statutory authority to achieve this 2030 target and the 2050 target of 80 percent below 1990 levels. Specifically, the Executive Order directed CARB to update the Scoping Plan to express this 2030 target in MT.

On September 8, 2016, Governor Jerry Brown signed Senate Bill 32 (SB 32) which builds on the AB 32 goals and requires the State to reduce GHG emissions to 40 percent below 1990 levels by 2030. SB 32 codifies the interim 2030 GHG target included in EO B-30-15. The interim target is intended to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. Along with SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. In December 2017, CARB approved the 2017 Climate Change Scoping Plan Update, outlining the proposed framework of action for achieving the 2030 GHG target codified by SB 32.

### **Senate Bill 605**

On September 21, 2014, Governor Jerry Brown signed Senate Bill 605 (Chapter 523, Statutes of 2014), which requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide." SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32.

The final strategy released by CARB in March 2017 focuses on methane, black carbon, and fluorinated gases, particularly hydrofluorocarbons, as important short-lived climate pollutants. The final strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed. The measures identified in the final strategy and their expected emission reductions will feed into the update to the CARB Scoping Plan that is currently being developed. The 2017 Scoping Plan Update will establish a broad

framework for meeting all of California's climate-related targets and will include an evaluation of all proposed GHG reducing activities, for both short-lived and longer-lived pollutants.

### ***Senate Bill 375***

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375 (Chapter 728, Statutes of 2008), which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate a "sustainable communities strategy" (SCS) that will achieve GHG emission reduction targets set by CARB and coordinate regional housing and transportation. MTC is the federally recognized metropolitan planning organization (MPO) for the nine county Bay Area, which includes Contra Costa County.

Plan Bay Area, which includes the region's SCS and the 2040 RTP, was jointly approved by the Association of Bay Area Governments' (ABAG) Executive Board and the Metropolitan Transportation Commission (MTC) on July 18, 2013. The SCS lays out how the region will meet certain GHG reduction targets, which include reducing per capita emissions by seven percent by 2020 and 15 percent by 2035 from a 2005 baseline. On July 26, 2017, the updated Plan Bay Area 2040 and an associated EIR were approved by ABAG and MTC.

### ***Assembly Bill 1493 (Pavley Standards)***

In 2002, then-Governor Gray Davis signed Assembly Bill 1493 (Chapter 200, Statutes of 2002), which required the CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to Title 13 CCR, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight [GVW] rating of less than 10,000 pounds and that is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37 percent lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a GVW of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Because the Pavley standards (named for the bill's author, State Senator Fran Pavley) would impose stricter standards than those under the Federal Clean Air Act, California applied to the

USEPA for a waiver under the Federal Clean Air Act; this waiver was denied in 2008. In 2009, however, the USEPA granted the waiver. The waiver has been extended consistently since 2009; however, in 2018 the US EPA and NHTSA indicated their intent to revoke California's waiver, and prohibit future State emissions standards enacted under the CAA. As of October 2020, the status of the federal government's revocation of the waiver was uncertain.

### ***Executive Order S-1-07***

Executive Order S-1-07, signed by then-Governor Arnold Schwarzenegger in 2007, proclaimed that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. The order established a goal of reducing the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020. It also directed CARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

In September 2018, CARB extended the Low Carbon Fuel Standard program to 2030, making significant changes to the design and implementation of the Program including a doubling of the carbon intensity reduction to 20 percent by 2030 (CARB, 2018).

### ***Advanced Clean Cars***

In January 2012, CARB approved the Advanced Clean Cars Program, a new emissions-control program for model year 2017 through 2025.

The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

The program also requires car manufacturers to offer for sale an increasing number of zero-emission vehicles (ZEVs) each year, including battery electric, fuel cell, and plug-in hybrid electric vehicles.

In December 2012, CARB adopted regulations allowing car manufacturers to comply with California's GHG emissions requirements for model years 2017-2025 through compliance with the EPA GHG requirements for those same model years (CARB, 2012).

### ***CEQA and Senate Bill 97***

In 2007, the State Legislature passed SB 97, which required amendment of the *CEQA Guidelines* to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The California Natural Resources Agency adopted these amendments on December 30, 2009. They took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the California Code of Regulations.

The Guidelines revisions include a new section (§ 15064.4) that specifically addresses the potential significance of GHG emissions. § 15064.4 calls for a “good-faith effort” to “describe, calculate or estimate” GHG emissions. § 15064.4 further states that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with “regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.” The new guidelines also state that a project may be found to have a less-than-significant impact on GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Sec. 15064(h)(3)). Importantly, however, the *CEQA Guidelines* do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

No quantitative significance threshold is included in the Amendments.

The Amendments also include a new Subdivision 15064.7(c) which clarifies that in developing thresholds of significance, a lead agency may appropriately review thresholds developed by other public agencies, or recommended by other experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (CNRA, 2009).

### ***Senate Bill 1368***

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission was also required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and CEC.

### ***Renewable Portfolio Standards (Senate Bills 1078 and 107 and Executive Orders S-14-08 and S-21-09)***

SB 1078 (Chapter 516, Statutes of 2002) requires 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. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which increased the state’s Renewables Portfolio Standard (RPS) to 33 percent renewable power by 2020. In September 2009, Governor Schwarzenegger continued California’s commitment to the RPS by signing Executive Order S-21-09, which directs CARB under its AB 32 authority to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020.

The 33 percent by 2020 goal was codified in April 2011 with Senate Bill X1-2 (Chapter 1, Statutes of 2011-12 First Extraordinary Session), which was signed by Governor Brown. This new RPS preempted the CARB 33 percent Renewable Electricity Standard and applied to all electricity retailers in the state, including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. California's RPS has since been updated by SB 350 and SB 100 (see below).

### **Senate Bill 1**

Senate Bill 1 of 2006 (Chapter 132, Statutes of 2006) established the statewide California Solar Initiative, also required the California Energy Commission (CEC) to implement regulations that required sellers of production homes to offer a solar energy system option to all prospective homebuyers. Besides offering solar as an option to prospective homebuyers, sellers of homes constructed on land for which an application for a tentative subdivision map has been deemed complete on or after January 1, 2011, must disclose to the prospective homebuyer the total installed cost of the solar option, the estimated cost savings associated with the solar energy system option, information about California solar energy system incentives, and information about the Go Solar California website.

### **Assembly Bill 1109**

Assembly Bill 1109 (Chapter 534, Statutes of 2007), the Lighting Efficiency and Toxic Reduction Act, required the establishment of minimum energy efficiency standards for all general purpose lights. The standards are structured to reduce average statewide electrical energy consumption by not less than 50 percent from the 2007 levels for indoor residential lighting and not less than 25 percent from the 2007 levels for indoor commercial and outdoor lighting by 2018.

### **Senate Bill 350**

Senate Bill 350 (Chapter 547, Statutes of 2015), signed October 7, 2015, is the *Clean Energy and Pollution Reduction Act of 2015*. SB 350 is the implementation of some of the goals of EO B-30-15. The objectives of SB 350 are

1. To increase from 33 percent to 50 percent, the procurement of our electricity from renewable sources.
2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

### **Senate Bill 100**

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered

achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

### ***Title 24 Building Energy Efficiency Standards***

The CEC first adopted 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 (typically every three years) to allow for the consideration and inclusion of new energy efficiency technologies and methods. The current Title 24, Part 6 standards (2019 standards) were made effective on January 1, 2020.

### ***California Green Buildings Standards Code (CALGreen)***

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24 CCR). CALGreen is a Statewide regulatory code for all buildings, including residential and commercial buildings. The regulations are intended to encourage more sustainable and environmentally-friendly building practices, require low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment.

### ***California Integrated Waste Management Act of 1989 and Assembly Bill 341***

The California Integrated Waste Management Act of 1989 (Public Resources Code Sections 40000 et seq.) required each jurisdiction's source reduction and recycling element to include an implementation schedule that shows (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; and (2) diversion of 50 percent of all solid waste on and after January 1, 2000, through source reduction, recycling, and composting facilities.<sup>4</sup> Additionally, jurisdictions were not prohibited from implementing source reduction, recycling, and composting activities designed to exceed these requirements.<sup>5</sup>

AB 341 (Chapter 476, Statutes of 2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and annually thereafter.<sup>6</sup> In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal.<sup>7</sup>

<sup>4</sup> Cal. Pub. Res. Code Section 41780(a).

<sup>5</sup> Cal. Pub. Res. Code Section 41780(b).

<sup>6</sup> Cal. Pub. Res. Code Section 41780.01(a).

<sup>7</sup> Cal. Pub. Res. Code Section 41780.02.

### **State Model Water Efficient Landscape Ordinance (MWELO) and Executive Order B-29-15**

The MWELO (CCR Title 23, Division 2, Chapter 2.7) establishes an outdoor water budget for new and renovated landscaped areas that are 500 square feet or larger. EO B-29-15 calls for revising the Model Ordinance to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. It also establishes a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The revised Ordinance became effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance.

### **Energy: State**

#### **Warren-Alquist Act**

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established a State policy to reduce wasteful, uneconomical and unnecessary uses of energy by employing a range of measures. The Act also requires EIRs to consider wasteful, inefficient, and unnecessary consumption of energy and was the driving force behind the creation of Appendix F to the *CEQA Guidelines*.

#### **California Energy Action Plan**

California's 2008 *Energy Action Plan Update* updates the 2005 *Energy Action Plan II*, which is the State's principal energy planning and policy document. The plan maintains the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are to promote energy efficiency, demand response (i.e., reducing customer energy usage during peak periods to address power system reliability and support the best use of energy infrastructure), and use of renewable power sources. To the extent that these strategies are unable to satisfy increasing energy and capacity needs, the plan supports clean and efficient fossil-fuel fired generation.

#### **State of California Integrated Energy Policy**

In 2002, the Legislature passed Senate Bill 1389, which required the CEC to develop an integrated energy plan biannually for electricity, natural gas, and transportation fuels, for the California Energy Report. The plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for Zero Emission Vehicles and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

An overarching goal of the Integrated Energy Policy Report (IEPR) is to achieve the statewide greenhouse gas reduction targets, while improving overall energy efficiency is the main focus. The IEPR has replaced the Energy Action Plan as the chief program intended to provide a comprehensive statewide energy strategy to guide energy investments, energy-related regulatory efforts and greenhouse gas reduction measures.

## **Greenhouse Gas Emissions: Regional**

### ***Bay Area Air Quality Management District***

The BAAQMD adopted updated *CEQA Air Quality Guidelines* (Guidelines), including new thresholds of significance for GHGs in June 2010, and revised them in May 2011 (BAAQMD, 2012). The Guidelines advise lead agencies on how to evaluate potential air quality and GHG impacts, including establishing quantitative and qualitative thresholds of significance. The thresholds BAAQMD adopted were called into question by a minute order issued January 9, 2012 in *California Building Industry Association v. BAAQMD*, Alameda Superior Court Case No. RGI0548693. The minute order states that “The Court finds [the BAAQMD’s adoption of thresholds] is a CEQA Project, the court makes no further findings or rulings.” The claims made in the case concerned the CEQA impacts of adopting the thresholds, and in particular, how the thresholds would affect land use development patterns. Petitioners argued that the thresholds for Health Risk Assessments encompassed issues not addressed by CEQA. As a result, the BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012. In May 2012, the BAAQMD updated its Guidelines to continue to provide direction on recommended analysis methodologies, but without recommended quantitative significance thresholds. On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD’s CEQA thresholds (*California Building Industry Association v. Bay Area Air Quality Management District*, Case No. A135335 & A136212 [Court of Appeal, First District, August 13, 2013]).

The California Supreme Court granted review of the appeal, but only to address whether or not CEQA requires an analysis of how existing environmental conditions will impact future residents or users of a proposed project and did not review or address the adequacy of specific thresholds adopted by the BAAQMD in 2011. On December 17, 2015, the Supreme Court concluded that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project’s future users or residents, reversing the Court of Appeal’s judgment on that issue. The case was remanded back to the Court of Appeal on August 12, 2016 which concluded that “the challenged thresholds are not invalid on their face, but may not be used for the primary purpose envisioned by District, namely, to routinely assess the effect of existing environmental conditions on future users or occupants of a project” (*CBIA v. BAAQMD* [2016] 1 Cal.App.5<sup>th</sup> 715).

BAAQMD has not formally readopted these thresholds. Notwithstanding formal adoption, the 2011 Thresholds are based on substantial evidence provided by BAAQMD (BAAQMD, 2009), and have been accepted by Contra Costa County for use in this EIR.

The threshold for stationary sources is 10,000 MT of CO<sub>2</sub>e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 MT of CO<sub>2</sub>e per year (i.e., emissions above this level may be considered significant); or
- 4.6 MT of CO<sub>2</sub>e per service population (SP) per year (i.e., emissions above this level may be considered significant). “Service population” is the sum of residents plus employees expected for a development project.

For quantifying a project’s GHG emissions, the BAAQMD recommends that all GHG emissions from a project be estimated, including a project’s direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from on-site combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite from energy production and water conveyance due to a project’s energy use and water consumption. The BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects. The BAAQMD thresholds were designed to meet the AB32 goal of reducing GHG emissions to 1990 levels by 2020. The BAAQMD developed these thresholds by comparing emission reductions included in CARB’s Scoping Plan to those achievable in the San Francisco Bay Air Basin from CEQA projects and by dividing the AB 32 GHG reduction target for land use development emissions in California by the estimated 2020 population and employment level within the district’s jurisdiction (BAAQMD, 2017). The above stated thresholds apply only to operational emissions. To date, the BAAQMD has not adopted numeric thresholds for the assessment of construction-related emissions.

The Guidelines offer step-by-step procedures for a thorough environmental impact analysis of adverse air emissions due to land development in the Bay Area. The BAAQMD prepared the Guidelines to assist lead agencies in air quality analysis, as well as to promote sustainable development in the region. The Guidelines support lead agencies in analyzing air quality impacts and offer numerous mitigation measures and general plan policies to implement smart growth and transit oriented development, minimize construction emissions, and reduce population exposure to air pollution risks.

## **Greenhouse Gas Emissions and Energy: Local**

### ***Contra Costa County General Plan***

The Contra Costa County General Plan Conservation Element contains an air quality resources discussion (§ 8.14) that identifies general goals and policies designed to address air pollution. The goals and policies tend to focus on improvements to the transportation system, reducing long distance commuting, encouraging and supporting non-auto transportation, and reducing future land use conflicts related to air pollution (Contra Costa County, 2010). While §8.14 is geared toward

criteria pollutants, such as ozone and particulate matter, implementation of the stated goals and policies also benefit efforts to reduce GHG emissions.

The Contra Costa County General Plan Conservation Element also discusses renewable energy resources goals and policies (§ 8.8) in order to encourage the use of renewable energy resources and to reduce energy use in the County. In addition, the following General Plan policies pertaining to GHG emissions apply to the project:

- *Policy 8-103*: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.
- *Policy 8-104*: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

*Policy 8-107*: New Housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

### **Contra Costa County Climate Action Planning**

On December 15, 2015, the Contra Costa County Board of Supervisors approved a Climate Action Plan. The Climate Action Plan identifies specific measures on how the County planned to achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHG, the Climate Action Plan includes proposed policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving a longer-term GHG reduction goal for 2035. This Climate Action Plan includes local sector GHG emissions projections, meets the California Environmental Quality Act (CEQA) requirements for developing a qualified GHG reduction strategy, and is consistent with the Bay Area Air Quality Management District's (BAAQMD) guidance on preparing a qualified GHG reduction strategy. A qualified reduction strategy provides CEQA tiering, or streamlining, benefits to subsequent development projects that are consistent with the CAP.

## 4.6.4 Significance Criteria

### **Greenhouse Gas Emissions**

Consistent with Appendices F and G of the CEQA *Guidelines* and the BAAQMD 2017 Thresholds, the project would have a significant effect on GHG emissions if it would:

- a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;
- b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purposes of reducing GHG emissions.

### **Energy**

Consistent with Appendix G of the CEQA *Guidelines* a project would result in a significant impact to energy if it would:

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

## **Approach to Analysis – GHG Emissions**

### ***Modeling GHG Emissions***

For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from the project be estimated, including direct and indirect GHG emissions from operations. Direct emissions include emissions produced from onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite by energy production and water conveyance due to a project's energy use and water consumption. BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects (BAAQMD, 2017). Potential impacts are assessed by modeling the estimated CO<sub>2</sub> emissions generated by Project construction and operations, using the CalEEMod version 2016.3.2 land use emissions model, and comparing modeled emissions to the significance thresholds. For estimating GHG emissions from electricity use, CalEEMod was run using PG&E CO<sub>2</sub> intensity factors estimated for the year 2020.

To date, the BAAQMD has not adopted numeric thresholds for the assessment of construction-related emissions; for the purposes of the analysis and as discussed below, construction emissions were also calculated and assessed.

As introduced in Section 4.1 (Introduction to the Environmental Analysis) of this document, the way that the COVID-19 pandemic has directly affected human behavior - requiring people to shelter in place, implement social distancing, and make other changes to the manner in which they live. These changes have affected the demand and/or use of motor vehicles or energy consumption in the home, in the short-term and possibly permanently in some ways. However, this analysis is based on an environmental baseline without COVID-19, and it would be speculative to identify long-term consequences of the pandemic at this time.

### ***BAAQMD Thresholds***

The BAAQMD's CEQA Air Quality Guidelines establish three potential thresholds for analyzing the GHG emissions associated with land use development projects:

- A mass emissions threshold of 1,100 MTCO<sub>2</sub>e per year, or
- A GHG efficiency threshold of 4.6 MTCO<sub>2</sub>e per service population (SP, equal to project jobs + project residents).
- Compliance with a qualified Climate Action Plan, with a goal consistent with AB 32,

The BAAQMD mass emissions threshold of 1,100 MTCO<sub>2</sub>e per year was designed for the District to meet the AB 32 goal of reducing GHG emissions to 1990 levels by 2020 by accounting

for the Bay Area’s share of GHG emissions reduction beyond that achievable at the state level. It is based on the AB 32 GHG reduction goals and a “gap analysis” that attributes an appropriate share of GHG emissions reductions to new land use development projects in BAAQMD’s jurisdiction. However, the District has not yet developed a corresponding mass emissions threshold that extends beyond 2020 to be aligned with the SB 32 target for 2030. Accordingly, BAAQMD’s existing mass emissions threshold is not appropriate for analyzing the GHG impacts of the proposed Project (which will occur after 2020) without adjusting it to be consistent with SB 32.

Similarly, the BAAQMD efficiency threshold (4.6 MTCO<sub>2e</sub>) was derived by dividing the AB 32 GHG reduction target for land use development emissions in California by the estimated 2020 population and employment level. Similar to the mass emissions threshold, this efficiency threshold does not consider the statewide emissions target mandated by SB 32 for 2030, and for projects built out after 2020 should be adjusted to be consistent with the SB 32 target.

### Derivation of Project Threshold

The use of a service population (residents + employees) threshold (or “efficiency threshold”) is a commonly used tool when assessing potential GHG impacts relative to CEQA. SB 32 sets a GHG reduction goal of 40 percent below 1990 levels by 2030. A 40 percent reduction from BAAQMD’s 2020 efficiency target (which represents 1990 emissions as required by AB 32), a regional 2030 efficiency target of 2.76 MTCO<sub>2e</sub>/SP is derived for BAAQMD. The proposed Project would be fully built out in approximately 2024, and interpolating between the applicable 2020 and 2030 thresholds, the appropriate GHG threshold for the 2024 build-out date is 3.86 MTCO<sub>2e</sub>/SP.

Consistency with the 2017 Scoping Plan Update is an appropriate metric by which to determine the significance of a project’s GHG emissions. CEQA Guidelines Section 15064.4(b)(3) states that a lead agency “may consider a project’s consistency with the State’s long-term climate goals or strategies” when determining the significance of a project’s impacts. In *Newhall*, the California Supreme Court sanctioned the use of such a threshold. In *Newhall*, the Court held that assessing a project’s GHG impacts based on a “consistency with a GHG emission reduction plan” threshold of significance is legally permissible under CEQA.<sup>8</sup>

The use of an efficiency metric as a project-specific threshold of significance is supported in the literature by a number of sources. OPR’s 2018 *Discussion Draft: CEQA and Climate Change* states that an efficiency metric is an appropriate method to determine significance:

“A significance threshold that is based on an efficiency metric—rather than an absolute number—would allow lead agencies to compare projects of various types, sizes, and locations equally, and determine whether a project is consistent with the State’s reduction goals.”<sup>9</sup>

<sup>8</sup> The court stated, “Under these circumstances, evaluating the significance of a residential or mixed use project’s greenhouse gas emissions by their effect on the state’s efforts to meet its long-term goals makes at least as much sense as measuring them against an absolute numerical threshold. Using consistency with AB 32’s statewide goal for greenhouse gas reduction, rather than a numerical threshold, as a significance criterion is also consistent with the broad guidance provided by section 15064.4 of the CEQA Guidelines.” (CBD, *supra*, 62 Cal.4th at p. 221.)

<sup>9</sup> Governor’s Office of Planning and Research, 2018. *Discussion Draft: CEQA and Climate Change*. December 2018. Available at: [https://opr.ca.gov/docs/20181228-Discussion\\_Draft\\_Climate\\_Change\\_Adivsory.pdf](https://opr.ca.gov/docs/20181228-Discussion_Draft_Climate_Change_Adivsory.pdf). Accessed June 2020.

The efficiency metrics for 2030 and 2024 are derived above using the 2017 Scoping Plan’s recommendations for local land use development to contribute their “fair share” of emission reductions to the statewide GHG target for 2030. This is consistent with the Association of Environmental Professionals (AEP) 2016 white paper recommendation for “Substantial Progress” thresholds for land use development to show consistency with statewide targets.<sup>10</sup>

### **State and Local Emissions Reduction Targets**

As discussed above under 4.6.3, *Regulatory Setting*, the County adopted a CAP and, with BAAQMD guidance, established a 2020 GHG reduction target and a longer-term GHG reduction goal that aligns with state-adopted goals and targets that were in place at the time. The CAP includes a 2020 GHG reduction target of 15 percent below 2005 levels by 2020, and a longer-term GHG reduction goal of 50 percent below 1990 levels by 2035, equivalent to approximately 57 percent below baseline (2005) levels. As also discussed under 4.6.3, *Regulatory Setting*, SB 32 established a statewide GHG reduction target of 40 percent below 1990 levels by 2030, and EO S-3-05 established a long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050. The County’s CAP’s 2035 goal to reduce emissions 50 percent below 1990 levels represents a trajectory that is aligned with the SB 32 target and with the state’s longer-term 2050 goal.

The discussion under Impact GHG-2 reviews the proposed Project in terms of consistency with the County’s CAP.

### **Project Assumptions**

The Project’s GHG emissions estimate is based on Project information available and applicable generally at the time the NOP of this Draft EIR was released. The timing and sequence of development of the Project will depend upon numerous factors. Therefore, for the estimate of emissions, one construction period is assumed, and CalEEMod default construction phase length assumptions (with the exception of grading, because a large amount of fill would be necessary) which are based on hundreds of projects throughout California, are used where necessary. The construction period for the Project is assumed to take place over approximately three years. The “unadjusted” GHG emissions estimate generated by the original CalEEMod analysis assumes first full year of operations occurs in 2021, whereas the “adjusted” emissions estimate assumes the first full year of operation occurs in 2024.<sup>11</sup>

### **Cumulative**

Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate. (BAAQMD, 2012; CAPCOA, 2008). Therefore, the evaluation of cumulative GHG impacts presented below evaluates whether the Project would make a considerable contribution to cumulative climate change effects.

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<sup>10</sup> Association of Environmental Professionals (AEP), 2016, *Final White Paper - Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*, October 18. Available at: [https://califaep.org/docs/AEP-2016\\_Final\\_White\\_Paper.pdf](https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf). Accessed January 2020.

<sup>11</sup> As noted in Chapter 2, *Project Description*, the Project is anticipated to be developed in up to three phases, generally from west to east across the site, with an anticipated grading start date in 2021 and house completion date in 2024.

### ***Project Adjusted GHG Emissions***

The analysis presents an updated or “adjusted” Project emissions estimate that takes into consideration increased stringency of regulatory measures and refinements in modeling methodology that have been subsequently implemented. Generally, these involve adjustments to emission factors or energy use estimates that differ from the default assumptions in the CalEEMod version 2016.3.2 land use emissions model. The analysis then identifies GHG reduction measures, which can be used to further reduce emissions.

### **Approach to Analysis - Energy**

This impact analysis evaluates the potential for the proposed project to result in a substantial increase in energy demand, consistent with Public Resources Code 21100(b)(3), and/or wasteful use of energy during project construction and operation. The impact analysis is informed by Appendix F of the *CEQA Guidelines*. Though the analysis provides construction and operational energy use estimates for the project, the impacts are analyzed based on an evaluation of whether this energy use would be considered excessive, wasteful or inefficient taking into account energy efficiency features, as well as required compliance with applicable standards and policies aimed to reduce energy consumption including the County’s CAP and the State’s Title 24 Energy Efficiency Standards.

## **4.6.5 Project-Level Impacts**

### **Impact GHG-1: The Project would generate GHG emissions that could have a significant impact on the environment. (Criterion a.) (*Significant Prior to Mitigation*)**

Construction and operation of the project would generate GHG emissions. The use of fossil fuels in construction equipment used to develop the project would generate GHGs such as carbon dioxide, methane and nitrous oxide. Once operational, the project would generate GHG emissions primarily from motor vehicle use, gas, electricity, solid waste generation and water use.

GHG emissions resulting from the project were calculated using the same methodology as described in *Approach to Analysis*, above.

### ***Short-term GHG Emissions from Construction of the Project***

GHG emissions from construction of the project were estimated using CalEEMod version 2016.3.2. Project-specific data were used for equipment fleet, construction schedule, and phasing. Model default emission factors were used. An estimated total of approximately 2,292 MT of CO<sub>2</sub>e would be emitted from construction activities during the peak construction year. Approximately 5,320 MT CO<sub>2</sub>e would be emitted during the total construction period.

Construction emissions are annualized because the proposed operational GHG emissions thresholds are analyzed in terms of MT “per year.” This analysis assumes a 30-year development life of the Project, after which it is assumed to be demolished or remodeled for energy efficiency.<sup>12</sup> Total construction emissions therefore, represent approximately 177 MT per year over the assumed 30 year life of the Project.

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<sup>12</sup> 30 years of useful life the common standard currently used in practice.

The BAAQMD 2017 *CEQA Air Quality Guidelines* do not include a specific threshold or methodology for assessing construction-related GHG emissions for CEQA analysis. Therefore, construction emissions are amortized over the expected 30-year lifetime of Project and included in the annual Project emissions calculations below.<sup>13</sup> The analysis of construction emissions considers improvements in construction equipment exhaust emissions through manufacturer requirements, CARB regulated fleet improvements and turnover. The Project would incorporate dust control measures recommended by BAAQMD (as detailed in **Mitigation Measure AIR-1**, in Section 4.2 *Air Quality*, in this EIR), which primarily include dust abatement measures and measures to reduce construction exhaust emissions.

**Unadjusted GHG Emissions from Operation of the Project**

**Table 4.6-5** summarizes the unadjusted GHG emissions that would result from operation of uses under the Project. The table includes those emission sources that are included in the BAAQMD 2017 *CEQA Air Quality Guidelines*, such as area sources, transportation, operational electricity consumption, solid waste disposal, operational fugitive emissions, water usage and wastewater generation. Emission sources that are not included in the BAAQMD 2017 *CEQA Air Quality Guidelines* or are not relevant to Project, such as emissions generated from permitted stationary source equipment, change in vegetation sequestration, fugitive refrigeration emissions, agricultural emissions, and off-road equipment emissions, are not included.

**TABLE 4.6-5  
 UNADJUSTED ESTIMATED GHG EMISSIONS GENERATED BY THE PROJECT**

Emission Source	Total Emissions (MT/Year)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total CO <sub>2</sub> e
Area Sources	14.0	<1	<1	14.1
Purchased Electricity	151	0.02	0.00	152.5
Natural Gas	325	0.01	0.01	327
Mobile Sources	1,256	0.05	0	1,258
Solid Waste	36.2	2.14	0	89.6
Water and Wastewater	12.4	0.31	0.01	22.2
Amortized Construction Emissions (averaged over 30 years)				177
<b>Total</b>	<b>1,795</b>	<b>2.51</b>	<b>0.02</b>	<b>2,040</b>
Service Population (residents)				356
<b>Total Project GHG Emissions by Service Population</b>				<b>5.73</b>
Project Efficiency Threshold (MTCO <sub>2</sub> e/SP/yr)				3.86

NOTE: Columns may not total precisely due to rounding.  
 SOURCE: ESA, 2017 (Appendix B)

<sup>13</sup> The 2017 *CEQA Air Quality Guidelines* require construction emissions to be disclosed, but do *not* require construction emissions to be added to operational emissions for comparison against thresholds, therefore the inclusion of amortized construction emissions in both the unadjusted and adjusted GHG emissions threshold analysis represents very conservative estimates of GHG emissions, and a very conservative impacts analysis.

Energy use (electrical and natural gas) represents approximately 24 percent of estimated unadjusted operational GHG emissions. Solid waste represents approximately 4.4 percent of operational GHG emissions and water usage represents approximately 1.1 percent. Area sources make up less than 1 percent. Once operational and fully occupied, the proposed Project would result in an increase of an estimated 1,360 daily vehicle trips above baseline levels, as described in Section 4.13, *Transportation and Circulation*.<sup>14</sup> Table 4.6-5 presents the incremental mobile source GHG emissions associated with the Project, which represent approximately 62 percent of the total unadjusted operational GHG emissions.

As shown in Table 4.6-5, the sum of both direct and indirect GHG emissions resulting from operation of the Project would result in an estimated 2,040 MT per year of CO<sub>2</sub>e.<sup>15</sup> The table also shows that the estimated unadjusted Project emissions would be approximately 5.7 MT CO<sub>2</sub>e/SP/yr.<sup>16</sup> The Project emissions exceed the BAAQMD’s service population threshold of 3.86 MT of CO<sub>2</sub>e/SP/yr.

**Adjusted GHG Emissions (Unmitigated)**

Adjustments to the Project’s GHG emissions take into consideration increased stringency of regulatory measures and refinements in modeling methodologies that have been implemented since CalEEMod version 2016.3.2 went into effect January 1, 2017.

The adjusted GHG emissions (still unmitigated) are shown in **Table 4.6-6** and compared to unadjusted emissions (originally shown in Table 4.6-5). The individual adjustments are described in the following paragraphs.

**TABLE 4.6-6  
 SUMMARY COMPARISON OF UNADJUSTED AND ADJUSTED PROJECT GHG EMISSIONS**

Emission Source	Total Emissions (MT/CO <sub>2</sub> e / Year)		
	Unadjusted	Adjusted	Reduction
Area Sources	14.1	14.1	0
Purchased Electricity	152	130	-22.2
Natural Gas	327	298	-28.9
Mobile Sources	1,258	895	-362
Solid Waste	89.6	22.4	-67.2
Water and Wastewater	22.2	19.2	-3.0
Amortized Construction Emissions	177	177	0
<b>Total Emissions (Buildout)</b>	<b>2,040</b>	<b>1,556</b>	<b>-484</b>
Service Population (residents)	356	356	
GHG Emissions per Service Population (MTCO <sub>2</sub> e/SP/yr)	5.73	4.37	
<b>GHG Efficiency Target (MTCO<sub>2</sub>e/SP/yr)</b>	<b>3.86</b>	<b>3.86</b>	
<b>Required Reduction to achieve Target <sup>a</sup></b>	<b>664</b>	<b>182</b>	

<sup>14</sup> The CalEEMod analysis factored in a preliminary Project trip generation of 1,371, and therefore the emissions shown are more conservative or overstated since slightly few trips are estimated.

<sup>15</sup> CO<sub>2</sub>e in all calculations of Project impact include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O, as applicable.

<sup>16</sup> Total of 2,040 MT/year of CO<sub>2</sub>e divided by a service population of 356 residents.

**TABLE 4.6-6 (CONTINUED)**  
**SUMMARY COMPARISON OF UNADJUSTED AND ADJUSTED PROJECT GHG EMISSIONS**

NOTE: Columns may not total precisely due to rounding.

a Full Buildout emissions estimates minus 2024 target of 1,374 MT CO<sub>2</sub>e / yr.

SOURCE: ESA, 2017 (Appendix B)

Table 4.6-6 reflects reductions from the following emissions sources described below; all adjustments are detailed in Appendix B.

- **Purchased Electricity (Not Related to Water Use).** The Project includes operational emissions associated with purchased electricity for lighting, heating, plug-in appliances, electric vehicle charging, and other uses not associated with water supply, treatment, and distribution. CalEEMod estimates emissions based on the electricity use and the carbon intensity of electricity. CalEEMod provides default electricity use rates based on the number of single-family homes associated with the Project. CalEEMod version 2016.3.2 incorporates the 2016 Title 24 building energy efficiency standards, which went into effect January 1, 2017. For estimating “unadjusted” GHG emissions from electricity use, CalEEMod was run using PG&E CO<sub>2</sub> intensity factors estimated for year 2020. PG&E prepared these estimates in 2011, and has since identified more stringent RPS requirements and changes in their non-renewable energy generation mix.

The adjusted emissions shown in Table 4.6-6 adjusted electricity CO<sub>2</sub>e intensity factors that were estimated for 2024 (first operational year) based on PG&E reported emission factors and RPS reports from 2015 through 2017. This PG&E data was used in place of the default carbon intensity in CalEEMod. The adjusted factors take into account the State’s RPS requirement from SB 100 that at least 44 percent of electricity will be from renewable sources by 2024, 60 percent from renewables by 2030, and 100 percent will be carbon-neutral by 2045. The adjusted energy emissions also incorporate energy use reductions due to efficiency improvements required by the 2019 Title 24 standards, which went into effect on January 1, 2020.

The default electricity provider to unincorporated Contra Costa County is Marin Clean Energy (MCE), which as of 2019, includes 90 percent carbon-free electricity in its standard service and provides consumers the option to purchase 100 percent renewable electricity (MCE, 2021). Therefore, purchased electricity emissions shown in Table 4.6-6 remain conservative to account for the possibility that consumers opt-out of MCE and switch back to PG&E.

Since the building permits for the proposed Project will be pulled after January 1, 2020, the 2019 Title 24, Part 6 Building Energy Efficiency Standards (“Title 24”) will apply. 2019 Title 24 standards were approved after unadjusted emissions calculations were performed, and thus were not explicitly incorporated into the unadjusted emissions calculations in Tables 4.6-5 and 4.6-6. However, the 2019 standards require new residential building to install rooftop solar photovoltaic (PV) systems, so the unadjusted electricity emissions shown in Tables 4.6-5 and 4.6-6 represent very conservative estimates.

The adjusted emissions from purchased electricity in Table 4.6-6 incorporate these updates, resulting in a reduction of **22.2 MT CO<sub>2</sub>e**.

- **Natural Gas.** The Project emits GHGs from on-site natural gas combustion. Increased efficiency required in 2019 Title 24 is expected to reduce natural gas consumption in single family residences by 9.4% compared to the 2016 Title 24 applied with the unadjusted estimated emissions in Table 4.6-5, on average (NORESO, 2018). The adjusted emissions in Table 4.6-6 incorporate this update, and this source emission are reduced by **28.9 MT CO<sub>2</sub>e**.
- **Mobile Sources.** The Project would generate vehicle trips from residents, workers, and visitors traveling to and from the site. The mobile source emissions estimate provided in Table 4-6.5 was generated by CalEEMod using EMFAC 2014 emission factors for the operational year 2021. Since then, CARB has updated its fleet emission factors (EMFAC 2017 is now approved for use in CEQA analysis), and the first year of Project operation is now assumed to be 2024. Thus, ESA conducted an off-model adjustment to estimate on-road mobile source emissions using the Project's estimated mobile fuel consumption (see Table 4.6-8) and a standard emission factor for vehicle fuels.
- **Water Use, Including Purchased Electricity.** Electricity is required to supply, treat, and distribute water and wastewater, and as such, water use is a source of GHG emissions. The unadjusted emissions in Table 4.6-5 used the CalEEMod default for single family residences in Contra Costa County for water use. The PG&E CO<sub>2</sub>e intensity factor for 2024 was used in place of the default electricity emissions intensity in CalEEMod. The adjusted value in Table 4.6-6 indicates emissions from this source are reduced by **3.0 MT CO<sub>2</sub>e**.
- **Waste Disposed.** Waste generated by the Project will result in GHG emission. The unadjusted emission using CalEEMod default values in Table 4.6-5 is adjusted to reflect compliance with CCCCAP Reduction Measure W1, which requires achieving 75 percent diversion of residential waste from the landfill in support of the 2020 state target diversion rate of 75 percent, as identified in Assembly Bill 341. The adjusted emissions in Table 4.6-6 incorporate this measure, resulting in a reduction from this source of **67.2 MT CO<sub>2</sub>e**.

By incorporating the relevant regulatory changes and modeling methodology refinements to the unadjusted GHG emissions analysis, the adjusted GHG emissions at full buildout are reduced by a total of approximately 509 MT CO<sub>2</sub>e / year to 1,531MT CO<sub>2</sub>e / year – equivalent to 4.3 MT CO<sub>2</sub>e per service population. This is approximately 0.44 MT/SP higher than the threshold of significance, and represents an absolute exceedance of 182 MT CO<sub>2</sub>e over the threshold, on a total annual emissions basis. Therefore, the Project's emissions, as adjusted, would still constitute a significant impact.

### ***GHG Emissions Mitigation***

As shown Table 4.6-6, the Project would fall short of meeting the GHG emissions threshold, even with adjustments factored in to reflect relevant regulatory changes and modeling methodology refinements. The Project would require a reduction of at least approximately 182 MT CO<sub>2</sub>e /year to achieve the efficiency threshold of 3.86 MT/SP.

### **Mobile Source Measures**

Mobile sources are the substantial portion of GHG emissions and represent approximately 58 percent of the Project's adjusted total operational emissions (see Table 4.6-6). Given the characteristics of the proposed Project (144 single-family residences) and its context relative to

public transit, the suitability of typical measures to reduce vehicular use from the Project are not likely to be viable or effective in substantially reducing the Project's mobile emissions. Mitigation measures recommended to effectively reduce GHG mobile emissions include measures that encourage use of alternative means of transportation, such as incorporating new or enhanced bicycle and pedestrian facilities, and measures to increase access to public transit or employment nodes (e.g., shuttles). As discussed in Section 4.13, *Transportation and Circulation*, the expected demand for transit from the Project would be limited, and existing transit service connects the Project area to the Concord BART station and the Amtrak Station in downtown Martinez, operating every two hours in each direction, and no current plans to expand transit service in the vicinity of the Project site. No mitigation measures specifically addressing trip reduction are identified for the reasons above.

### **On-site Performance-Based Measures**

Implementation of some combination of the following GHG reduction measures in **Mitigation Measure GHG-1**, below, cumulatively would achieve the required reduction to reduce the significant impact to less than significant. The most preferred location for implementation of reduction measures is at the Project site. Therefore, each of the measures are on-site approaches that target reducing the Project's energy and mobile emissions. The potential reductions from implementing certain on-site measures are provided where feasible to demonstrate the viability of achieving the target reduction of at least 182 MT CO<sub>2</sub>e / year with combined measures (where quantified, emissions reduction assumptions and calculations are provided in Appendix X).

- **Install Roof Solar PV.** The 2019 Title 24 building energy standards require solar panels to be installed on new homes of less than three stories. Solar PV will reduce the amount of purchased electricity needed by the Project, by an amount that has not yet been determined by the project proponent. This reduction in electricity load has not been accounted for in the emissions estimates in Table 4.6-5 and 4.6-6.
- **Purchase 100% zero-carbon electricity.** As of 2021, the default electricity provider to unincorporated Contra Costa County is MCE, which provides consumers the option to purchase 100 percent renewable electricity. The Project could purchase 100% zero-carbon electricity (e.g., through MCE's "Deep Green" or "Local Sol" plans or PG&E's "Solar Choice" plan). This measure, in combination with installation of rooftop solar PV, would eliminate the **130 MT CO<sub>2</sub>e** associated with purchased electricity in Table 4.6-6.
- **Replace natural gas with renewable electricity.** To further reduce GHG emissions from energy sources, the Project could electrify heating and cooling or all loads. Assuming the Project purchases 100% zero-carbon electricity from MCE, this measure would eliminate the **298 MT CO<sub>2</sub>e** associated with natural gas use in Table 4.6-6.
- **Reduce number of hearths.** To further reduce GHG emissions from area sources, the Project could reduce the number of hearths installed in single family homes. CalEEMod treats hearths separately from other natural gas use, so this reduction is additive with other natural gas reduction already applied with the adjusted emissions. This measure would reduce the area source emissions shown in Table 4.6-6 by **12 CO<sub>2</sub>e**.
- **Install residential EV chargers and promote EV capability.** To reduce mobile (on-road) emissions sources, the Project can promote EV use through installation of residential EV chargers in 100 of the 144 single family homes. The estimated reduction assumes 50 percent

of residents with EV chargers (corresponding to 35 percent of project households) would own an EV and use the EV for 80 percent of household driving by 2035 (in addition to the 8 percent default assumption for EV penetration).<sup>17</sup> This measure would reduce the mobile source emissions shown in Table 4.6-6 by **216 CO<sub>2</sub>e**.

Achievement of the Statewide GHG reduction targets for 2030 and 2050 will require reductions from many economic sectors, not just from land use development, and will be aided by future State and County actions. However, it is recognized that many sources of GHG emissions are outside the County's jurisdiction and control, and attainment of atmospheric concentrations of GHG that would reverse or reduce the effects of global climate change are likewise outside the County's jurisdiction and control. Despite the uncertainties associated with the GHG reductions that may be realized by 2030 and 2050 through the efforts of the State and County, with Mitigation Measure GHG-1, the proposed Project would reduce its Project-specific GHG emissions and contribute to the overall long range reduction goals established by the State and by the County CAP.

### **Mitigation Measure GHG-1: GHG Emissions Reduction Plan.**

*Prior to the County's approval of the first construction or grading-related permit for the Project, the Project applicant shall submit to the County a "GHG Emissions Reduction Plan" ("Plan") for implementation over the useful life of the Project (generally estimated to be at least 30 years) in accordance with the requirements of this mitigation measure. The Plan shall document the GHG reduction measures that will be combined and implemented to achieve the required emissions reduction of at least 182 MT CO<sub>2</sub>e /year, and a quantification of the emissions reductions achieved with the combination of measures identified in the Plan.*

**A. On-Site Reduction Measures.** The Project applicant shall implement any combination of the following GHG emissions reduction measures to, cumulatively, achieve the required emissions reduction of at least approximately 182 MT CO<sub>2</sub>e /year to achieve the GHG efficiency target of 3.86 MTCO<sub>2</sub>e/SP, as discussed in the *Approach to Analysis*.

1. Meet the Project's electricity demand with rooftop solar PV and/or through purchase of 100% zero-carbon electricity. The Project will purchase 100% zero-carbon electricity (e.g., through MCE's "Deep Green" or "Local Sol" plans, or through PG&E's "Solar Choice" plan).
2. Electrification. The Project applicant shall demonstrate on Project plans submitted to the County for review and approval that each of the 144 homes include electric heating and cooling or all loads, and will either use additional on-site solar or purchase 100 percent zero-carbon electricity (e.g., through MCE's "Deep Green" or "Local Sol" plans or PG&E's "Solar Choice" plan). Alternatively, default grid-supplied electricity would be incorporated into the Project.

<sup>17</sup> A similar set of assumptions for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP) was reviewed by the California Air Resources Board and Ascent Environmental, Inc., and determined to be supported by "an adequate technical basis." See RMDP/SCP Final Additional Environmental Analysis (2017), Appendix 1 at Available at: <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=145723>.

3. Hearth Reduction. The Project applicant shall demonstrate on Project plans submitted to the County for review and approval that hearths will not be installed in any of the Project homes.
4. EV Chargers and Promotion.
  - a. The Project applicant shall demonstrate on Project plans submitted to the County for review and approval the proposed installation of residential electrical vehicle (EV) chargers in at least 100 of the 144 homes. This mitigation involves measures beyond the required installation of charging capability (i.e., wiring) required by CALGreen Building Code.
  - b. The Project applicant shall submit to the County promotional materials that specifically promote EV use through messaging (e.g., flyers, fact sheets), vehicle subsidies, and/or test-drive events specific for residents of Project homes. The Project applicant shall also submit to the County documents that quantify the number or rate of EV ownership and for all Project homes for the prior year.

The target for this measure is that at least 50 percent of residents with EV chargers (corresponding to 35 percent of project households) own an EV and use the EV for 80 percent of household driving by 2035, however, this target may vary depending on the level of implementation and resulting emissions reduction achieved by other measures in this mitigation measure.

5. Additional Energy Measures.
  - a. *High-Efficiency Appliances*. Throughout occupancy of the Project, and if appliances are offered by homebuilders, the Project applicant shall offer homebuyers Energy Star-rated high-efficiency appliances (or other equivalent technology) that have efficiency levels at or above measures required by CALGreen, for installation in Project homes.

## ***B. Implementation, Monitoring and Enforcement.***

### 1. Implementation.

The Project applicant shall implement the approved GHG Reduction Plan (Plan) throughout operation of the Project.

*On-site Measures*: For physical GHG reduction measures to be incorporated into the design of the Project (Mitigation Measures GHG-1, A.2, A.3, A.4a, and A5), the measures shall be included on the drawings and submitted to the County Planning Director or his/her designee for review and confirmation prior to issuance of the first grading and/or building permit for horizontal construction of each of the up to three development phases proposed.

The County Planning Director or his/her designee shall confirm completion of the implementation of these measures as part of the final inspection and prior to issuance of the final certificate of occupancy (CO) for each development phase of the Project. For operational GHG reduction measures (Mitigation Measures GHG-1, A.1 and A.4b), the measures shall be implemented on an indefinite and ongoing basis, as described in Section C.2, *Reporting and Monitoring*, of this mitigation measure.

2. Reporting and Monitoring.

*Reporting:* The Project applicant shall submit a GHG Reduction Report (Report) to the County Planning Director or his/her designee within one year after the County issues the final CO for each development phase of the Project. The Report shall summarize the Project's implementation of GHG reduction measures, over past, current, and anticipated Project phases, if applicable; describe compliance with the conditions of the Plan; show calculations of the emissions reduction achieved toward the minimum reduction required (182 MT CO<sub>2</sub>e /year); and include a brief summary of any revisions to the Plan since any previous Report was submitted.

*Monitoring:* The County or its designee shall review the Report to verify that the Plan is being implemented in full and monitored in accordance with the terms of this mitigation measure. The Plan shall be considered fully attained when the County or its designee makes the determination, based on substantial evidence, that the proposed Project has achieved the required emissions reduction of at least approximately 182 MT CO<sub>2</sub>e /year and is unlikely to exceed the applicable significance threshold at any time in the future, after implementation of this mitigation. *Enforcement:* Notwithstanding the foregoing, the County retains its discretion to enforce all mechanisms under the Municipal Code and other laws to enforce non-compliance with the requirements of this mitigation measure.

The County retains the right to request a Corrective Action Plan if the Report is not submitted, or if the GHG Reduction Measures in the Plan are not being fully implemented and/or maintained, and also retains the right to enforce provisions of that Corrective Action Plan if specified actions are not taken or are not successful at addressing the violation within the specified period of time.

The County shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the Applicant, to coincide with other related monitoring and reporting required for the Project.

Reduction of impacts to a level of insignificance would require reducing greenhouse gas emissions by 182 MT CO<sub>2</sub>e /year. Implementation of a combination of the above-identified measures could accomplish this reduction; were all measures implemented to the extent possible, a reduction of 656 MT CO<sub>2</sub>e /year would be possible, and thus would be capable of mitigating GHG emissions that exceed 2,000 MT CO<sub>2</sub>e /year. Accordingly, a GHG emissions reduction plan implementing a combination of some of the foregoing measures could feasibly reduce expected Project-related impacts of 1,556 MT CO<sub>2</sub>e /year.

**Significance after Mitigation:** Less than Significant.

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**Impact GHG-2: The Project would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing GHG emissions. (Criterion b) (Potentially Significant prior to Mitigation)**

***Consistency with the Contra Costa County Climate Action Plan***

Development of the Project would also be subject to applicable policies in the County's Climate Action Plan, which was adopted by Board of Supervisors on December 15, 2015. The County's CAP also contains a development checklist that was created to aid project applicants and County

staff in determining where a proposed new development project is consistent with the CAP. Table E.1 of the CAP provides descriptions and performance criteria that explain how individual projects can comply with requirements. The proposed Project’s consistency with the CAP criterion and development checklist is shown in **Table 4.6-7**, below.

**TABLE 4.6-7  
 STANDARDS FOR CAP CONSISTENCY – NEW DEVELOPMENT**

<b>Reduction Measure and Applicable Standard</b>	<b>Does the Project Comply?</b>	<b>Notes &amp; Comments</b>
<b>EE 1 &amp; EE 6. New residential development</b> will install high-efficiency appliances and insulation to prepare for the statewide transition to zero net energy.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<b>Mitigation Measure GHG-1</b> will ensure that the proposed Project will install Energy Star-rated high-efficiency appliances (or other equivalent technology) for clothes washers, dish washers, refrigerators, and fans in the residences, where appliances are offered by homebuilders.
<b>EE 1. New nonresidential development</b> will install high-efficiency appliances and insulation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Not applicable. The proposed Project does not include new nonresidential development.
<b>RE 1. New residential and nonresidential development</b> will meet the standards to be solar ready as defined by the California Building Standards Code.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The proposed Project will comply with the solar-ready buildings requirements as defined by the CBC.
<b>LUT 2. New single-family houses and multi-family units with private attached garages or carports</b> will provide prewiring for EV charging stations inside the garage or carport.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The proposed Project will comply with the CALGreen Code, which requires EV charging capability in attached private garages within new construction for single-family dwellings.
<b>LUT 2. New multi-family (greater than five units) and nonresidential (greater than 10,000 square feet) developments</b> will provide EV charging stations in designated parking spots.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	The proposed Project does not include multi-family or nonresidential development. However, the proposed Project will also install residential electrical vehicle (EV) chargers in at least 100 of the 144 single family homes.
<b>LUT 4. New residential and nonresidential development</b> will be located within one half-mile of a BART or Amtrak station, or within one quarter-mile of bus station.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	The proposed Project is approximately within 3.5 miles of the Martinez Amtrak station, and the North Concord/Martinez BART Station..

SOURCE: CAP Appendix E, Table E.1

As presented in Table 4.6-9, the proposed Project would comply with the new development standards for CAP consistency. Therefore, the Project would have a less-than-significant impact with regard to consistency with the County’s CAP and thereby AB 32.

### **Consistency with SB 32 and Executive Orders EO S-3-05**

As discussed above, SB 32 established a statewide GHG reduction target of 40 percent below 1990 levels by 2030, and EO S-3-05 established a long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050. As discussed under Impact GHG-1 above, the proposed Project would achieve an emissions efficiency target consistent with SB 32, with implementation of Mitigation Measure GHG-1.

As stated above, in order to meet the long-term GHG reduction targets established by SB 32 and EO S-3-05, systemic changes would be required in the way that the State and the County produce and consume energy. Significant changes in electricity production, transportation fuels, and industrial processes would be necessary and are beyond the scope of an individual land use project. Nevertheless, the proposed Project will implement Mitigation Measure GHG-1 to ensure the Project contributes its fair share of emission reductions toward the statewide GHG target for 2030. With the implementation of feasible mitigation measures, the proposed Project would be consistent with the goals of SB 32 and EO S-3-05.

**Mitigation Measures:** Implement Mitigation Measure GHG-1.

**Significance after Mitigation:** Less than Significant.

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**Impact ENE-1: The Project would not result in wasteful, inefficient and unnecessary use of energy and the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (Criteria a and b) (*Less than Significant*)**

### **Construction**

Project construction would require the use of construction equipment for grading, building construction activities, and paving as well as construction workers and vendors traveling to and from the Project site. Because the California Emissions Estimator Model (CalEEMod) program used in the GHG analysis presented above does not display the amount and fuel type for construction-related sources, additional calculations were conducted. Detailed calculations can be found in Appendix B to this Draft EIR.

Fuel consumption from on-site heavy-duty construction equipment was calculated based on the equipment mix and usage factors provided in the CalEEMod construction output files. The total horsepower was then multiplied by fuel usage estimates per horsepower-hour included in Table A9-3-E of the SCAQMD's CEQA Air Quality Handbook. Estimated fuel consumption from construction worker and vendor trucks was calculated using trip rates and distances provided in Appendix B to this Draft EIR. The California Air Resources Board's (CARB's) EMFAC 2014 model provides total annual vehicle miles traveled (VMT) and fuel consumed for each vehicle type. Thus, total VMT was calculated for each type of construction-related trip and divided by the corresponding county-specific mpg factor. Construction worker trips were assumed to comprise 50 percent light duty gasoline auto 25 percent class 1 light duty gasoline trucks (0-6,000 pounds) and 25 percent class 2 light duty gasoline trucks (6,001-10,000 pounds), consistent with

CalEEMod. Construction vendor trucks were assumed to be medium duty and heavy duty diesel trucks. As shown in **Table 4.6-8**, Project construction is expected to consume a total of 43,931 gallons of diesel fuel and 408 gallons of gasoline.

**TABLE 4.6-8  
 CONSTRUCTION ENERGY USE**

<b>Fuel</b>	<b>Fuel Consumption</b>
<b>Diesel</b>	
On-Road Construction Trips <sup>a</sup>	316 Gallons
Off-Road Construction Equipment	43,615 Gallons
<b>Diesel Total</b>	<b>43,931 Gallons</b>
<b>Gasoline</b>	
On-Road Construction Trips <sup>a</sup>	408 Gallons
Off-Road Construction Trips <sup>c</sup>	-- Gallons
<b>Gasoline Total</b>	<b>408 Gallons</b>

NOTES:

- a On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod for all years of construction and fleet average fuel consumption in gallons per mile from EMFAC2014 for each of the construction years in the BAAQMD. See Appendix B Table 2, On Road Construction Trip Estimates for calculation details.
- b On-road mobile source fuel use based on a fuel usage rate of 0.05 gallons of diesel per horsepower (HP)-hour, based on SCAQMD CEQA Air Quality Handbook, Table A9-3E.
- c All emissions from off-road construction equipment were assumed to be diesel.

SOURCE: Appendix B, Table 1, Total Construction Related Fuel Consumption

Construction of the Project would result in fuel consumption from the use of heavy-duty construction equipment, and vehicle trips generated from construction workers traveling to and from the site. Construction activities and corresponding fuel energy consumption would be temporary and localized, as the use of diesel fuel and heavy-duty equipment would not be a typical condition of the proposed Project. In addition, there are no unusual Project characteristics that would cause the use of construction equipment that would be less energy efficient compared with other similar construction sites in other parts of the State. For comparison, the State of California consumed 15.4 billion gallons of gasoline and 3.1 billion gallons of diesel fuel in 2019 (CDTFA 2020a; 2020b), and 389 million gallons of gasoline and approximately 34 million gallons of diesel were sold in Contra Costa County (CEC, 2019b). Therefore, construction-related fuel consumption by the Project will not result in inefficient, wasteful, or unnecessary energy use compared with other construction sites in the region.

**Operation**

For operational activities, annual electricity and natural gas consumption were calculated using the demand factors provided in the CalEEMod output in Appendix B to this Draft EIR. The Project’s electrical consumption was estimated to be approximately 1,149,480 kWh of electricity per year and natural gas consumption was estimated to be approximately 6,094,620 kBtus or approximately 60,961 therms per year. Electricity associated with Project water consumption was also estimated to be 169,797 kWh per year. As shown in Table 4.6-3, PG&E produced

approximately 78 billion kWh in 2019. The Project’s total electricity demand (totaling approximately 1,319,277 kWh per year) would comprise approximately 0.0017 percent of the electricity demand in PG&E’s overall service area. Similarly, as shown in Table 4.6-4, PG&E produced approximately 4.9 billion therms of natural gas in 2019. The Project’s natural gas demand would be approximately 0.0012 percent of the existing natural gas use in the PG&E service area. In addition, the proposed Project would comply with existing energy regulations per the CPUC for the extension of electric and gas service. Therefore, the proposed Project would not result in a significant demand on regional energy supply or require substantial additional capacity.

As shown in **Table 4.6-9**, a total of 121,623 gallons of gasoline is estimated to be consumed each year.

**TABLE 4.6-9  
 ANNUAL OPERATIONAL ENERGY CONSUMPTION**

Fuel Type	Energy Consumption	Units
<b>Electricity</b>		
Building <sup>a</sup>	1,149,480	Kwh/year
Water <sup>a</sup>	169,797	Kwh/year
Total Electricity	1,319,277	Kwh/year
<b>Natural Gas</b>		
Building <sup>a</sup>	6,094,620	kBTU/year
<b>Gasoline<sup>b</sup></b>		
Mobile <sup>c,d</sup>	121,623	Gallons/year

NOTES:

- a The building-related electricity and natural gas usage, and water-related electricity usage is based on CalEEMod estimates.
- b Gasoline powered vehicles assumed during operation. Per CARB, less than 1 percent of light duty auto trips in the Bay Area are diesel.
- c Mobile source fuel use based on annual vehicle miles traveled (VMT) from CalEEMod output for operational year 2021 and fleet-average fuel consumption in gallons per mile from EMFAC2014 web based data in the Bay Area Air Quality Management District.
- d Based on operational VMT for the Project as generated by CalEEMod, and on-road fleet fuel consumption data from EMFAC 2017.

SOURCE: ESA, 2021

**Mobile Energy Efficiency**

Statewide, Californians used approximately 15.4 billion gallons of gasoline in 2019 (CDTFA, 2020a). Approximately 389 million gallons of gasoline were sold in Contra Costa County (CEC, 2019b). Fuel usage during Project operation would account for approximately 0.001 percent of the existing gasoline-related energy consumption in the State of California in 2019 and 0.03 percent of the existing gasoline-related energy consumption in Contra Costa County in 2018. Therefore, the Project would neither result in substantial demand nor require substantial additional energy resource capacity relative to energy impacts from mobile sources.

The proposed Project also includes components that promote alternative transportation methods, such as walking and bicycling through the construction of a neighborhood park. The proposed

Project would also comply with the CALGreen Code, which requires EV charging capability in attached private garages within new construction for single-family dwellings (CBSC, 2016). Collectively, compliance with regulatory programs and implementation of project design features, would enhance the efficiency of energy use during Project operations, and prevent or reduce the unnecessary or wasteful consumption of energy.

### **Building Energy Efficiency**

The proposed Project would include Building Energy Efficiency Standards as required by Title 24, Part 6. The Building Energy Efficiency Standards are intended to save energy, increase electricity supply reliability, and avoid the need to construct new power plants. Pursuant to the California Building Standards Code and the Energy Efficiency Standards, the County's Building Division would review the design components of the Project's energy conservation measures when the Project's building plans are submitted. These measures could include: insulation; use of energy-efficient heating, ventilation and air conditioning equipment (HVAC); solar-reflective roofing materials; energy-efficient indoor and outdoor lighting systems; reclamation of heat rejection from refrigeration equipment to generate hot water; incorporation of skylights, and other measures.

The proposed Project would also be subject to the CALGreen Code which requires water conserving plumbing fixtures, water conservation measures, and for 65 percent construction waste diversion. Collectively, compliance with regulatory programs would reduce unnecessary or wasteful consumption of energy.

### **Energy Conservation Plans**

As discussed in Impact GHG-2 above, the proposed Project would comply with the new development standards for CAP consistency. Therefore, the Project would be consistent with the County's CAP which seeks to increase energy efficiency in residential building stock, and reduce community-wide electricity and natural gas use.

### **Summary**

Although the Project would result in the consumption of energy, the consumption would be typical for a new project of this size. Construction activities and corresponding fuel energy consumption would be temporary, and therefore would not represent a substantial demand on energy resources.

No aspect of Project operations would involve higher than typical energy demands, and the Project plans include alternative transportation components as well as onsite performance efficiency measures that will conserve energy while also decreasing construction and operational GHG emissions, as discussed in the greenhouse gas analysis. Further, the Project would be subject to all regulations and County CAP policies, Title 24 and CALGreen standards, and potentially more stringent fuel efficiency regulations in the future that would continue to reduce the energy demand from the Project. Therefore, the energy demand from the construction and operation of the Project would not result in wasteful, inefficient and unnecessary use of energy, and would not require substantial additional capacity. This impact would be less than significant.

**Mitigation:** None required.

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## 4.6.6 Cumulative Impacts

**Impact C-GHG-1: The Project, in conjunction with cumulative development, would result in cumulative impacts regarding GHG emissions and climate change. (Criteria a and b) (Project Level: *Potentially Significant prior to Mitigation*)**

### ***Geographic Context***

GHGs are global pollutants, and also pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Therefore, the effects of GHGs are also experienced globally.

### ***Cumulative Analysis***

The atmospheric concentration of GHGs determines the intensity of climate change, with current levels already leading to increases in global temperatures, sea level rise, severe weather, and other environmental impacts. The continued increase in atmospheric GHG concentrations will only worsen the severity and intensity of climate change, leading to irrevocable environmental changes. Therefore, from the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative. No single project could generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts.

As discussed above under Impact GHG-1 and GHG-2, emissions from the development of the Project would be less than significant with application of Mitigation Measure GHG-1, and the proposed Project would be consistent with the goals of SB 32 and EO S-3-05. Therefore, the Project's contribution to the global cumulative impact would not be cumulatively considerable with mitigation.

**Mitigation Measures:** Implement Mitigation Measure GHG-1.

**Significance after Mitigation:** Less than Significant

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**Impact C-ENE-1: The Project, in conjunction with cumulative development, would not conflict with a state or local plan for renewable energy or energy efficiency, or result in wasteful, inefficient and unnecessary use of energy, such that a cumulative impact would occur. (*Less Than Significant, no Mitigation Required*)**

### ***Geographic Context***

The geographic context for potential cumulative impacts related to energy resources is County-wide and within PG&E's service area, and, in some cases, statewide, nationwide, and global: energy resources are inherently mobile, and, as discussed earlier in this section, PG&E and other energy providers bring energy into California from other parts of the country. Oil and other resources are also transported into California from Canada, Mexico, and other countries; therefore, the effects of energy usage are also experienced globally. Likewise, efforts to improve the efficient use of energy and avoid waste are regulated on the local, State, national, and international levels.

### ***Cumulative Analysis***

From the standpoint of CEQA, impacts related to energy resources are inherently cumulative. No single project is likely to have an impact to energy resources such that the project would contribute noticeably to a change in global resources. However, the cumulative effect of energy use from past, present, and future projects could contribute substantially to overall energy use and its associated environmental impacts.

As discussed above under **Impact ENE-1**, impacts from the development of the Project related to energy use would be less than significant. The Project's contribution would not be considered cumulatively considerable in part because the Project would, like other projects that are part of the cumulative scenario, be required to comply with an established regulatory framework aimed at reducing energy consumption. Additionally, although some future projects may be approved even though they would have significant, unavoidable impacts related to energy resources, in general, future projects would be required to demonstrate that they would not have significant effects on these resources through the CEQA review process.

Overall, in combination with past, present, and reasonably foreseeable future projects within the geographic context for this analysis, the Project would not result in a cumulatively considerable contribution to a cumulative impact on energy resources.

**Mitigation:** None required.

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