4.5 ENERGY

This section describes the existing energy conditions of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the Cypress Point project (proposed project) in the City of Oceanside (City). The following analysis is based on the latest version of California Emissions Estimator Model (CalEEMod), Version 2016.3.2, to estimate the proposed project's energy use (Air Quality Assessment, Appendix B).

4.5.1 Existing Conditions

Electricity

According to the U.S. Energy Information Administration (EIA), California used approximately 250,379 gigawatt hours of electricity in 2019 (EIA 2020a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. By sector in 2017, commercial uses utilized 46% of the state's electricity, followed by 35% for residential uses, and 19% for industrial uses (EIA 2019). Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the residential sector is lower than any other state except Hawaii (EIA 2020b).

San Diego Gas & Electric (SDG&E) provides electric services to 3.6 million customers through 1.4 million electric meters located in a 4,100-square-mile service area that includes San Diego County (County) and southern Orange County (SDG&E 2018). SDG&E is a subsidiary of Sempra Energy and would provide electricity to the proposed project. According to the California Public Utilities Commission (CPUC), SDG&E customers consumed approximately 19,169 million kilowatt-hours (kWh) of electricity in 2015 (CPUC 2016).

SDG&E receives electric power from a variety of sources. According to CPUC's Biennial Renewable Portfolio Standard (RPS) Program Update, 43% of SDG&E's power came from eligible renewable energy sources in 2016, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2016).

Based on recent energy supply and demand projections in California, statewide annual peak electricity demand is projected to grow an average of 890 megawatts per year for the next decade, or 1.4% annually, and consumption per capita is expected to remain relatively constant at 7,200–7,800 kWh per person (CEC 2015).

In the County, the California Energy Commission (CEC) reported an annual electrical consumption of approximately 19.0 billion kWh in 2019, with 12.4 billion kWh for non-residential use and 6.7 billion kWh for residential use (CEC 2020).

Natural Gas

CPUC regulates natural gas utility service for approximately 10.8 million customers who receive natural gas from Pacific Gas & Electric (PG&E), Southern California Gas (SoCalGas), SDG&E, Southwest Gas, and several smaller natural gas utilities. CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage (CPUC 2017). SDG&E provides natural gas service to the Counties of San Diego and Orange and would provide natural gas to the proposed project. SDG&E is a wholesale customer of SoCalGas and currently receives all of its natural gas from the SoCalGas system (CPUC 2017).

The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers accounted for approximately 32% of the natural gas delivered by California utilities in 2012. Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 68% of the natural gas delivered by California utilities in 2012 (CPUC 2017).

CPUC regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins (CPUC 2017).

The CEC reports that SDG&E consumed a total of approximately 139 trillion British thermal units (Btu) of natural gas in 2013, including 20 trillion Btu for commercial buildings, 3.7 trillion Btu for industrial buildings, and 34 trillion Btu for residential use. In San Diego County, total natural gas consumption was approximately 537.8 million Btu in 2013, with 219.5 million Btu for non-residential use and 318.3 million Btu for residential use (California Gas and Electric Utilities 2014).

Petroleum

According to the EIA, California used approximately 681 million barrels of petroleum in 2018, with the majority (584 million barrels) used for the transportation sector (EIA 2021). This total annual consumption equates to a daily use of approximately 1.9 million barrels of petroleum. There are 42 U.S. gallons in a barrel, so California consumes approximately 78.4 million gallons of petroleum per day, adding up to an annual consumption of 28.7 billion gallons of petroleum. By sector, transportation uses utilize approximately 85.5% of the state's petroleum, followed by 11.1% from industrial, 2.5% from commercial, 0.9% from residential, and 0.01% from electric power uses (EIA 2018). Petroleum usage in California includes petroleum products such as motor

gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, which are described in Section 4.5.2, below. As such, the CEC anticipates an overall decrease of gasoline demand in the state over the next decade.

Existing Infrastructure

Electricity and natural gas would be provided by San Diego Gas & Electric (SDG&E). There are existing electrical lines and natural gas pipeline within Pala Road and Los Arbolitos Boulevard, adjacent to the project site. The project would connect to existing dry utilities at Pala Road and Los Arbolitos Boulevard.

4.5.2 Regulatory Setting

Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Intermodal Surface Transportation Efficiency Act of 1991

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of intermodal transportation systems to maximize mobility and address national and local interests in air quality and energy. ISTEA contained factors that metropolitan planning organizations were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, metropolitan planning organizations adopted policies defining the social, economic, energy, and environmental values guiding transportation decisions.

Transportation Equity Act for the 21st Century

The Transportation Equity Act for the 21st Century was signed into law in 1998 and builds on the initiatives established in the ISTEA legislation, discussed above. The act authorizes highway, highway safety, transit, and other efficient surface transportation programs. The act continues the program structure established for highways and transit under ISTEA, such as flexibility in the use

of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of transportation decisions. The act also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of intelligent transportation systems to help improve operations and management of transportation systems and vehicle safety.

State

California Environmental Quality Act

Appendix F of the CEQA Guidelines calls for discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

California Energy Commission

The CEC's Integrated Energy Policy Report set forth policies that would enable the state to meet its energy needs under the carbon constraints established in the 2006 Global Warming Solutions Act. The Integrated Energy Policy Report also provides a set of recommended actions to achieve these policies.

Warren-Alquist Act

The California Legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the CEC. The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are provided, and identified policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and

taxpayers. In 2005, a second Energy Action Plan was adopted by the CEC and CPUC to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based in part on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than produce a new energy action plan, the CEC and CPUC prepared an "update" that examines the state's ongoing actions in the context of global climate change.

Senate Bill 1078 (2002)

This bill established the California RPS Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

Senate Bills 107 (2006), X1-2 (2011), 350 (2015), and 100 (2018)

Senate Bill (SB) 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) requires all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% shall come from renewables; by December 31, 2016, 25% shall come from renewables; and by December 31, 2020, 33% shall come from renewables.

SB 350 (2015) requires retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the 60% RPS in 2030. Therefore, any project's reliance on non-renewable energy sources would also be reduced.

Assembly Bill 1007 (2005)

AB 1007 (2005) required the CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the plan in partnership with the California Air Resources Board (CARB) and in consultation with the other state, federal, and local agencies. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Assembly Bill 32 (2006) and Senate Bill 32 (2016)

In 2006, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies and the use of renewable resources and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources. Additional information on AB 32 and SB 32 is provided in Section 3.7 of this EIR.

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies.

The current Title 24, Part 6 standards, referred to as the 2019 Title 24 Building Energy Efficiency Standards, became effective on January 1, 2020. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53%

less energy than those under the 2016 standards (CEC 2018a). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018a).

Title 24 also includes Part 11, the California Green Building Standards (CALGreen). CALGreen establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The 2019 CALGreen standards are the current applicable standards. Title 24 categorizes residential buildings that are 4 or more habitable levels as high-rise residential rather than mid-rise. High-rise residential are included in the nonresidential section of Title 24 and are thus, subject to the nonresidential code rather than the residential code. For nonresidential projects (which the project is subject to), some of the key mandatory CALGreen 2019 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle (EV) charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11).

Integrated Energy Policy Report

The CEC is responsible for preparing integrated energy policy reports that identify emerging trends related to energy supply, demand, and conservation; public health and safety; and maintenance of a healthy economy. The CEC's 2018 Integrated Energy Policy Report discusses the state's policy goals of decarbonizing buildings, doubling energy efficiency savings, and increasing flexibility in the electricity grid system to integrate more renewable energy (CEC 2018b). Specifically, for the decarbonizing of building energy, the goal would be achieved by designing future commercial and residential buildings to have their energy sourced almost entirely from electricity in place of natural gas. Regarding the increase in renewable energy flexibility, the goal would be achieved through increases in energy storage capacity within the state, increases in energy efficiency, and adjusting energy use to the time of day when the most amount of renewable energy is being generated. Over time these policies and trends would serve to beneficially reduce the project's GHG emissions profile and energy consumption as they are implemented.

Executive Order N-79-20. EO N-79-20 (2020) sets the goal for the State that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035. EO-N-79-20 also sets goals for transition to 100 percent zero emission all medium- and heavy-duty vehicles by 2045, zero emission drayage trucks by 2035, and zero emission off-road vehicles and equipment by 2035, where feasible. Among other directives to further this executive order, for passenger cars and trucks, the Governor directed CARB to develop and propose regulations requiring increasing volumes of new zero-emission vehicles sold in the State towards the target of 100 percent of in-

state sales by 2035. The Governor also directed the Governor's Office of Business and Economic Development to develop a Zero-Emissions Vehicle Market Development Strategy, which was completed in February 2021[1]. The executive order also directs updates and assessments to ensure zero-emission vehicle infrastructure is in place to support the levels of electric vehicle adoption required by the order.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As codified in California Government Code, Section 65080, SB 375 requires metropolitan planning organizations (San Diego Association of Governments) to include a sustainable communities strategy in its regional transportation plan. The main focus of the sustainable communities strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also a part of a bigger effort to address other development issues within the general vicinity, including transit and VMT, which influence the consumption of petroleum-based fuels.

Local

City of Oceanside General Plan

Energy Climate Action Element

The Energy Climate Action Element (ECAE) of the General Plan addresses energy consumption and other activities within the City that may contribute to adverse energy and GHG impacts. The ECAE focuses on activities associated with human-induced climate change. The ECAE outlines sustainability goals and policies for the City's decision-making process including development review protocols. The primary themes and goals of the ECAE are related to energy efficiency and renewable energy, smart growth and multimodal transportation, zero waste, water conservation, urban greening, local agriculture, and sustainable consumption.

City of Oceanside Climate Action Plan

The City adopted a Climate Action Plan (CAP) in May of 2019, which seeks to align with state efforts to reduce greenhouse gas (GHG) emissions while balancing a variety of community interests such as quality of life, economic development, and social equity. The CAP outlines City measures and strategies to reduce GHG emissions to make progress towards meeting the State of

[1] https://static.business.ca.gov/wp-content/uploads/2021/02/ZEV_Strategy_Feb2021.pdf

California's 2050 GHG reduction goal. The CAP mirrors what the ECAE mentions regarding the different efforts that will be vital in meeting these goals for GHG reduction.

4.5.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to energy are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to energy would occur if the proposed project would:

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

4.5.4 Impacts Analysis

Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction Use

As discussed in Chapter 3, the project would require an approximately 14-month-long construction period. The construction phases anticipated to occur include site preparation, rough grading, building construction and architectural coating, and paving. Heavy-duty construction equipment associated with construction activities would rely on diesel fuel, as would trucks associated with vendor and haul trips.

The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. Natural gas is not anticipated to be required during construction of the project.

Heavy-duty construction equipment of various types would be used during each phase of construction. The CalEEMod analysis discussed in Appendix B to this EIR, includes the proposed construction schedule and assumed equipment usage. Based on that analysis, over all phases of construction, diesel-fueled construction equipment would run for an estimated 19,014 hours, as summarized in Table 4.5-1.

Table 4.5-1
Hours of Operation for Construction Equipment

Phase	Hours of Equipment Use
Site Preparation	560
Grading	1,536
Paving	960
Building Construction	15,640
Architectural Coating	318
Total	**19,014**

Source: Appendix B.

Fuel consumption from construction equipment was estimated based on the project's anticipated construction schedule by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of diesel. Construction is estimated to occur over a 14-month period (2022-2023) based on the construction phasing schedule. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2019). The estimated diesel fuel use from construction equipment is shown in Table 4.5-2.

Table 4.5-2
Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg CO_2/Gallon	Gallons
Site Preparation	7	16.86	10.21	1,651.38
Grading	6	42.03	10.21	4,116.95
Paving	6	20.19	10.21	1,977.36
Building Construction	9	268.17	10.21	26,265.09
Architectural Coating	1	2.68	10.21	262.97
			Total	**34,273.75**

Sources: Appendix B (pieces of equipment and equipment CO_2); The Climate Registry 2019 (kg/CO_2/gallon). CO_2 = carbon dioxide; kg = kilogram; MT = metric ton

Fuel consumption from worker and vendor trips is estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are analyzed as being gasoline fueled, and vendor/hauling vehicles are analyzed as being diesel fueled. Calculations for total worker, vendor, and hauler fuel consumption are provided in Tables 4.5-3, 4.5-4, and 4.5-5.

Table 4.5-3
Construction Worker Vehicle Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
Site Preparation	180	0.58	8.78	66.57
Grading	480	1.56	8.78	177.54
Paving	300	0.97	8.78	110.96
Building Construction	4,370	14.11	8.78	1,607.46
Architectural Coating	212	0.27	8.78	31.07
			Total	**1,993.60**

Sources: Appendix B (construction worker CO_2); The Climate Registry 2019 (kg/CO_2/gallon). CO_2 = carbon dioxide; kg = kilogram; MT = metric ton

Table 4.5-4
Construction Vendor Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	kg/CO_2/Gallon	Gallons
Site Preparation	0	0.00	10.21	0.00
Grading	0	0.00	10.21	0.00
Paving	0	0.00	10.21	0.00
Building Construction	1,380	17.43	10.21	1,707.42
Architectural Coating	0	0.00	10.21	0.00
			Total	**1,707.42**

Sources: Appendix B (construction worker CO_2); The Climate Registry 2019 (kg/CO_2/gallon). CO_2 = carbon dioxide; kg = kilogram; MT = metric ton

Table 4.5-5
Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
Site Preparation	0	0.00	10.21	0.00
Grading	3,461	125.94	10.21	12,334.99
Paving	0	0.00	10.21	0.00
Building Construction	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
			Total	**12,334.99**

Sources: Appendix B (construction worker CO_2); The Climate Registry 2019 (kg/CO_2/gallon). CO_2 = carbon dioxide; kg = kilogram; MT = metric ton

As shown in Tables 4.5-2 through 4.5-5, the project is estimated to consume a total of approximately 50,310 gallons of petroleum during the construction phase. By comparison, approximately 14.8 billion gallons of petroleum would be consumed in California over the course of the proposed project's construction period based on the California daily petroleum consumption estimate of approximately 52.9 million gallons per day (CEC 2016). Additionally, the proposed project would be required to comply with CARB's Airborne Toxics Control Measure, which limits fuel use by restricting heavy-duty diesel vehicle idling time to 5 minutes. Based on

the calculations above, the project would not significantly affect the overall demand for petroleum considering the project's minimal contribution towards demand, and compliance with CARB's Airborne Toxics Control Measure.

Temporary electric power for as-necessary lighting and electronic equipment such as computers inside temporary construction trailers is not anticipated; however, electricity used for such activities would be less than that required for project operation and would have a minimal contribution to the project's overall energy consumption. Project construction would also involve use of non-renewable or slowly renewable resources used to create building materials including certain types of lumber and other forest products; aggregate materials used in concrete and asphalt such as sand, gravel, and stone; metals such as steel, copper, and lead; petrochemical construction materials such as plastics; and water. Construction would comply with all relevant energy-related regulations by conserving energy and natural resources to the extent feasible. The energy demands due to diesel and gasoline use during construction would be small relative to statewide and local demands for fuel use, as discussed previously. The energy consumption during project construction would be commensurate with typical construction projects and would not use energy wastefully or inefficiently. Therefore, impacts related to temporary energy consumption during construction of the project are considered to be **less than significant.**

Operational Use

Electricity

San Diego Gas & Electric (SDG&E) provides electric services to 3.6 million customers through 1.46 million electric meters and 892,000 natural gas meters throughout a 4,100- square-mile service area in San Diego and Southern Orange County (SDG&E 2020). According to the California Public Utilities Commission (CPUC), SDG&E consumed approximately 15,634 million kWh of electricity in total in 2018 (SDG&E 2020). Based on recent energy supply and demand projections in California, statewide per capita consumption is expected to remain relatively constant at 7,200–7,800 kWh per person (CEC 2015). In the County, SDG&E reported an annual electrical consumption of approximately 15,634 million kWh in 2018, with 8,550 million kWh for non-residential use and 7,084 million kWh for residential use (SDG&E 2019). More specifically, within the City, annual electricity consumption (encompassing both residential and non- residential) is approximately 654,557,305 kWh in 2018 (SDG&E 2019).

CalEEMod estimates energy usage associated with building systems that are regulated under Title 24 (such as the heating and cooling system), lighting, and use of, appliances, plug-ins, and other sources not covered by Title 24. CalEEMod estimated that the project would consume approximately 437,178 kWh of electricity annually. Compared with the City's annual electricity consumption, the anticipated increase in consumption associated with one year of project

operation is approximately 0.07% of the City's use. Considering the project would be consistent with the City's General Plan and Zoning for the site, the local and regional electricity demand planning would have included the project. In addition, the project would comply with Title 24 energy efficiency standards.

Natural Gas

The CPUC regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. SDG&E provides natural gas service to San Diego and Orange Counties, and would provide service to the project site. CalEEMod estimated that the project would consume approximately 1.26 million thousand British thermal units (kBtu) of natural gas annually. By comparison, the City consumed approximately 4,877 million kBtu in 2018 (SDG&E 2019). The anticipated increase in consumption associated with one year of project operation is approximately 0.03% of the SDG&E existing demand. Considering the project would be consistent with the City's General Plan and Zoning for the site, the local and regional natural gas demand planning would have included the project. In addition, the project would comply with Title 24 energy efficiency standards.

Petroleum

There are more than 35 million registered vehicles in California, and those vehicles consume an estimated 1.45 billion gallons of fuel each year (CEC 2019; DMV 2019). Petroleum currently accounts for approximately 92% of California's transportation energy consumption (CEC 2019). However, technological advances, market trends, consumer behavior, and government policies could result in significant changes in fuel consumption by type and in total. At the federal and state levels, various policies, rules, and regulations have been enacted to improve vehicle fuel efficiency, promote the development and use of alternative fuels, reduce transportation-source air pollutants and greenhouse gas (GHG) emissions, and reduce vehicle miles traveled (VMT). Market forces have driven the price of petroleum products steadily upward over time, and technological advances have made use of other energy resources or alternative transportation modes increasingly feasible. Largely as a result of and in response to these multiple factors, gasoline consumption within the state has declined in recent years, and availability of other alternative fuels and energy sources has increased. The quantity, availability, and reliability of transportation energy resources have increased in recent years, and this trend may likely continue and accelerate (CEC 2019). Increasingly available and diversified transportation energy resources act to promote continuing reliable and affordable means to support vehicular transportation within the state.

CalEEMod estimated that the project would generate approximately 940,859 vehicle miles traveled per year. Similar to construction worker and vendor trips, fuel consumption was

estimated by converting the total CO_2 emissions from each land use type to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix provided in CalEEMod, 93% of the fleet range from light-duty to medium-duty vehicles and motorcycles were assumed to run on gasoline. The remaining 7% of vehicles represent medium-heavy duty to heavy-duty vehicles and buses/recreational vehicles, which were assumed to run on diesel. Calculations for annual mobile-source fuel consumption are provided in Table 4.5-6.

Table 4.5-6
Mobile Source Fuel Consumption – Operation

Fuel	Vehicle MT CO_2	kg CO_2/Gallon	Gallons
Gasoline	322.11	8.78	36,687.31
Diesel	24.29	10.21	2,378.59
		Total	**39,065.90**

Sources: Appendix B (mobile source CO_2); The Climate Registry 2019 (kg/CO_2/gallon). CO_2 = carbon dioxide; kg = kilogram; MT = metric ton

As shown in Table 4.5-6, mobile sources from the proposed project would result in approximately 36,687 gallons of gasoline per year and 2,379 gallons of diesel consumed per year beginning in 2023. By comparison, California as a whole consumed approximately 1.45 billion gallons of petroleum in 2018 (CEC 2019).

Over the lifetime of the project, the fuel efficiency of the vehicles being used by residents, visitors, and employees is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time.

In summary, although the project would increase electricity, natural gas and petroleum use during operation, considering the size of the project, estimated use of these resources would be minimal relative to existing statewide and local demands. Energy consumption during project operation would be commensurate with typical single-family residential projects and would not use energy wastefully or inefficiently. Furthermore, in addition to the project's infill location, the project would include several sustainability design features to reduce potential energy and water usage, and promote pedestrian and bicycle travel such as (but not limited to) installing a solar system for each unit, installation of 90% LED lighting or other high-efficiency lightbulbs, installation of energy star or equivalent energy efficient appliances, and bicycle parking facilities. Given these considerations, energy consumption associated with construction and operation of the project would not be considered wasteful, inefficient, or unnecessary consumption of energy resources and impacts would **be less than significant**.

Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project would meet the Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency. Title 24 of the California Code of Regulations contains energy efficiency standards for residential and nonresidential buildings based on a state mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy efficiency measures that impact energy used for lighting, water heating, heating, and air conditioning, including the energy impact of the building envelope such as windows, doors, skylights, wall/floor/ceiling assemblies, attics, and roofs.

Title 24, Part 6 specifically establishes energy efficiency standards for residential and nonresidential buildings constructed in the State of California in order to reduce energy demand and consumption. The proposed project would comply with Title 24, Part 6, per state regulations.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California's Green Building Standards (CALGreen), and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals.

The 2019 CALGreen standards are the current applicable standards. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential Standards include the introduction of photovoltaic into the prescriptive package, improvements for attics, walls, water heating, and lighting. The Standards are conceptually divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards the energy budgets - that vary by climate zone (of which there are 16 in California) and building type; thus the Standards are tailored to local conditions, and provide flexibility in how energy efficiency in buildings can be achieved. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that provide a recipe or a checklist compliance approach. (24 CCR Part 11).

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance

based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwashers; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Additionally, it is anticipated that operational vehicles would meet the applicable standards of Assembly Bill 1493 (vehicles manufactured in 2009 or later), and as a result, would likely consume less energy as fuel efficiency standards increase and vehicles are replaced. Natural gas and electricity are supplied to the project site by SDG&E. The proposed project would result in an increased use of natural gas and electricity during operation compared with the existing conditions. However, the project would result in a nominal increase in natural gas and electricity over the City's typical annual natural gas and electricity consumption.

Implementation of the project would not result in the reduction of substantial amounts of local or regional energy supplies compared to existing conditions. The resultant increase in energy demand would not exceed the available capacity of SDG&E servicing infrastructure to the site or beyond. Further, as substantiated in the calculations above, the increase in electricity and natural gas usage attributable to the proposed project falls within the current electricity and natural gas local demands. Considering the project would be consistent with the City's General Plan and Zoning for the site, the local and regional energy demand planning would have included the project. In addition, the project would comply with Title 24 energy efficiency standards, use appliances that meet Title 20 requirements, and implement sustainability design features. As outlined in Chapter 3 of this EIR, proposed sustainability design features to be incorporated into the project design include a solar system for each home within the development, installation of 90% light-emitting diode (LED) lighting or other high-efficiency lightbulbs, installation of energy star or equivalent energy efficient appliances, low-flow water fixtures and appliances, drought-tolerant landscaping and water efficient irrigation systems throughout the site, and bicycle parking facilities for residents. Therefore, it has been determined that the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be **less than significant**.

4.5.5 Mitigation Measures

Impacts related to energy as a result of project implementation are determined to be less than significant, and therefore no mitigation measures are required.

4.5.6 Level of Significance After Mitigation

No substantial impacts related to energy were identified; therefore, no mitigation measures are required. Impacts related to energy would be **less than significant**.

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