IV. Environmental Impact Analysis

L.2 Utilities and Service Systems—Energy

1. Introduction

This section of the Draft EIR analyzes the Project's potential impacts on energy resources, focusing on the following three resources: electricity, natural gas, and transportation-related energy (petroleum-based fuels). This section evaluates the demand for energy resources attributable to the Project during construction and operation; demonstrates whether the current and planned electrical, natural gas, and petroleum-based fuel supplies and distribution systems are adequate to meet the Project's forecasted energy consumption; and makes a determination regarding the Project's use and conservation of energy resources. The information presented herein is based, in part, on the *Energy Calculations for 2nd & PCH Project* provided in Appendix U of this Draft EIR and the *2nd and PCH SCE and Long Beach Gas and Oil—Ability to Serve (*Electricity and Natural Gas Memorandum*)* prepared by Butsko Utility Design, Inc. in November 2016, included as Appendix V of this Draft EIR.

2. Environmental Setting

a. Regulatory Framework

(1) Federal

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[1]

[1] *For more information on the CAFE standards, refer to www.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy, accessed February 14, 2017.*

(2) State

(a) California Building Standards Code (Title 24)

(i) California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2016 Title 24 standards, which became effective on January 1, 2017.[2] The 2016 Title 24 standards include efficiency improvements to the residential standards for attics, walls, water heating, and lighting, and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers *(*ASHRAE) 90.1 2013 national standards.[3]

(ii) California Green Building Standards (Title 24, Part 11)

The 2016 update of the California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2017. The 2016 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.[4] Most mandatory measure changes, when compared to previously applicable 2013 CALGreen Code, were related to the definitions and to the clarification or addition of referenced manuals, handbooks, and standards. For example, several definitions related to energy that were added or revised affect electric vehicles chargers and charging and hot water recirculation systems. For new multi-family dwelling units, the residential mandatory measures were revised to provide additional electric vehicle charging space requirements, including quantity, location, size, single EV space, multiple EV spaces, and identification.[5]

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[2] *California Energy Commission (CEC), 2016 Building Energy Efficiency Standards, www.energy.ca.gov/title24/2016standards/, accessed February 14, 2017.*

[3] *CEC, 2016 Building Energy Efficiency Standards for Residential and Nonresidential Buildings, June 2015.*

[4] *California Building Standards Commission, Guide to the 2016 California Green Building Standards Code Nonresidential, January 2017.*

[5] *California Building Standards Commission, 2016 California Green Building Standards Code, California Code of Regulations, Title 24, Part 11, Chapter 4—Residential Mandatory Measures, effective January 1, 2017.*

For non-residential mandatory measures, the table (Table 5.106.5.3.3) identifying the number of required EV charging spaces has been revised in its entirety.[6]

(b) California's Renewable Portfolio Standard

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020.[7] The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility's renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy.[8]

(c) Senate Bill 350

SB 350, signed October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. SB 350 is the implementation of some of the goals of Executive Order B-30-15, issued in April 2015, which established a new statewide policy goal to reduce greenhouse gas (GHG) emissions by 40 percent below 1990 levels by 2030. The objectives of SB 350 are: (1) to increase the procurement of our electricity from renewable sources from 33 percent to 50 percent; and (2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.[9]

(d) Assembly Bill 32

As discussed in Section IV.E, Greenhouse Gas Emissions, of this Draft EIR, Assembly Bill (AB) 32 (Health and Safety Code Sections 38500–38599), also known as the California Global Warming Solutions Act of 2006, commits the State to achieving year 2000 GHG emission levels by 2010 and year 1990 levels by 2020. To achieve these goals, AB 32 tasked the CPUC and the CEC with providing information, analysis, and

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[6] *California Building Standards Commission, 2016 California Green Building Standards Code, California Code of Regulations, Title 24, Part 11, Chapter 5—Nonresidential Mandatory Measures, effective January 1, 2017.*

[7] *CPUC, California Renewables Portfolio Standard (RPS), www.cpuc.ca.gov/RPS_Homepage/, accessed February 14, 2017.*

[8] *CPUC, California Renewables Portfolio Standard (RPS), www.cpuc.ca.gov/RPS_Homepage/, accessed February 14, 2017.*

[9] *Senate Bill 350 (2015–2016 Reg, Session) Stats 2015, ch. 547.*

recommendations to the California Air Resources Board (CARB) regarding ways to reduce GHG emissions in the electricity and natural gas utility sectors.

(e) Assembly Bill 1493 (AB 1493)/Pavley Regulations

AB 1493 (commonly referred to as CARB's Pavley regulations) was the first legislation to regulate GHG emissions from new passenger vehicles. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks) for model years 2009–2016.[10] The Pavley regulations are expected to reduce GHG emissions from California's passenger vehicles by about 30 percent in 2016, all while improving fuel efficiency and reducing motorists' costs.[11]

(f) Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with 0.25 percent in 2011 and culminating in a 10-percent total reduction in 2020.[12] Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.[13]

(g) California Air Resources Board

(i) CARB's Advanced Clean Cars Regulation

Closely associated with the Pavley regulations, the Advanced Clean Car Standards emissions-control program was approved by CARB in 2012.[14] The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission

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[10] *CARB, Clean Car Standards—Pavley, Assembly Bill 1943, www.arb.ca.gov/cc/ccms/ccms.htm, last reviewed January 11, 2017.*

[11] *CARB, Clean Car Standards—Pavley, Assembly Bill 1943, www.arb.ca.gov/cc/ccms/ccms.htm, last reviewed January 11, 2017.*

[12] *CEC, Low Carbon Fuel Standard: Fuels and Transportation Division Emerging Fuels and Technologies Office, www.energy.ca.gov/low_carbon_fuel_standard/, accessed February 14, 2017.*

[13] *CEC, Low Carbon Fuel Standard: Fuels and Transportation Division Emerging Fuels and Technologies Office, www.energy.ca.gov/low_carbon_fuel_standard/, accessed February 14, 2017.*

[14] *CARB, The Advanced Clean Cars Program, www.arb.ca.gov/msprog/acc/acc.htm, last reviewed by CARB January 18, 2017.*

vehicles for model years 2015–2025.[15] The components of the Advance Clean Car Standards include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[16]

(ii) Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (California Code of Regulations Title 13, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fueled used by the vehicle.

(iii) Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles.

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (California Code of Regulations Title 13, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_X) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission-controlled models would use petroleum-based fuel in a more efficient manner.

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[15] *CARB, California's Advanced Clean Cars Program, www.arb.ca.gov/msprog/acc/acc.htm, last reviewed by CARB January 18, 2017.*

[16] *CARB, California's Advanced Clean Cars Program, www.arb.ca.gov/msprog/acc/acc.htm, last reviewed by CARB January 18, 2017.*

(h) Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008 (SB 375) coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32. SB 375 specifically requires the Metropolitan Planning Organization (MPO) to prepare a Sustainable Communities Strategy (SCS) as a part of its Regional Transportation Plan (RTP) to achieve GHG emission reduction targets set by CARB for the years 2020 and 2035 by reducing vehicle-miles traveled (VMT) from light-duty vehicles through the development of more compact, complete, and efficient communities.[17]

The Project Site is located within the planning jurisdiction of the Southern California Association of Governments (SCAG). SCAG's first-ever SCS was included in the 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (2012–2035 RTP/SCS), which was adopted by SCAG in April 2012. The goals and policies of the SCS that reduce VMT (and result in corresponding decreases in transportation-related fuel consumption) focused on transportation and land use planning that include building infill projects, locating residents closer to where they work and play, and designing communities so there is access to high quality transit service. SCAG adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (2016–2040 RTP/SCS) in April 2106.[18] The goals and policies of the 2016–2040 RTP/SCS are the same as those in the 2012–2035 RTP/SCS.

(i) Senate Bill 1389

SB 1389 (Public Resources Code Sections 25300–25323) requires the development of an integrated plan for electricity, natural gas, and transportation fuels. The CEC must adopt and transmit to the Governor and Legislature an Integrated Energy Policy Report every two years. The most recently completed report, the 2016 Integrated Energy Policy Report, addresses a variety of issues including the environmental performance of the electricity generation system, landscaped-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, update on the Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios and the *California Energy Demand Forecast*.[19]

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[17] *CARB, Sustainable Communities, www.arb.ca.gov/cc/sb375/sb375.htm, last updated November 21, 2016.*

[18] *SCAG, 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, adopted April 2016.*

[19] *CEC, 2016 Integrated Energy Policy Report, docketed January 18, 2017.*

(j) California Environmental Quality Act

In accordance with the California Environmental Quality Act (CEQA) and Appendix F, Energy Conservation, of the CEQA Guidelines, in order to assure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code Section 21100(b)(3)). CEQA Guidelines Appendix F provides a list of energy-related items that may be included throughout the various chapters of an EIR. In addition, while not described as thresholds for determining the significance of impacts related to energy, Appendix F provides the following items that may be considered in the energy analysis:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project's life cycle including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;
- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; or
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

(3) Regional

As discussed in Section IV.H, Land Use, of this Draft EIR, SCAG's 2016–2040 RTP/SCS presents a long-term transportation vision through the year 2040 for the six-county region of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. On April 7, 2016, the SCAG Regional Council adopted the 2016–2040 RTP/SCS, the mission of which is "leadership, vision and progress which promote economic growth, personal well-being, and livable communities for all Southern Californians."[20] The 2016–2040 RTP/SCS includes land use strategies that focus on urban infill growth and walkable,

[20] *SCAG, 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, dated April 2016.*

mixed-use communities in existing urbanized and opportunity areas. More mixed-use, walkable, and urban infill development are expected to accommodate a higher proportion of growth in more energy-efficient housing types like townhomes, apartments, and smaller single-family homes, as well as more compact commercial buildings types. Furthermore, the 2016–2040 RTP/SCS includes transportation investments and land use strategies that encourage carpooling, increase transit use, seize transportation opportunities, and promote more walkable and mixed-use communities which can help to offset passenger VMT.

The 2016–2040 RTP/SCS also establishes High-Quality Transit Areas (HQTA), which are described as generally walkable transit villages or corridors within 0.5 mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours.[21] Local jurisdictions are encouraged to focus housing and employment growth within HQTAs to reduce VMT. The Project Site is located within a HQTA as designated by the 2016–2040 RTP/SCS.[22]

(4) Local

(a) City of Long Beach Sustainable City Action Plan

The City adopted the Long Beach Sustainable City Action Plan (Sustainable City Action Plan) on February 2, 2010. This plan is intended to guide operational, policy, and financial decisions to create a more sustainable Long Beach. The Sustainable City Action Plan includes measureable goals and actions that are intended to be challenging, yet realistic. The following goals are applicable to the Project.

- **Buildings & Neighborhoods Initiative 1:** Accelerate the use of green buildings techniques in new development, renovations and retrofits to improve building efficiency and health.

  Goal: At least 5 million square feet of privately developed LEED certified (or equivalent) green buildings by 2020.

- **Buildings & Neighborhoods Initiative 3:** Enhance our community to encourage people to get out of their cars and into their neighborhoods.

  Goal: By 2020, at least 30 percent of Long Beach residents use alternative transportation to get to work.

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[21] *SCAG, 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, p. 8.*

[22] *SCAG, 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, Exhibit 5.1: High Quality Transit Areas in the SCAG Region for 2040 Plan, p. 77.*

- **Energy Initiative 3:** Reduce electricity and natural gas consumption of the Long Beach community.

  Goal: By 2020 reduce community electricity use by 15 percent and natural gas use by 10 percent.

- **Transportation Initiative 1:** Reduce emissions and improve air quality by moving toward more fuel efficient and alternative fuel vehicles.

  Goal: Reduce vehicle emissions by 30 percent by 2020.

- **Waste Reduction Initiative 1:** Increase diversion by reducing waste and increasing recycling and reuse.

  Goal: Annual reduction in average pounds of solid waste generated per person per day.

- **Water Reduction Initiative 1:** Ensure a sustainable water supply through conservation and reduced dependence on imported water.

  Goal: Reduce per capita use of potable water, exceeding the State mandate to achieve a demand reduction of 20 percent in per capita water use by the year 2020.

(b) City of Long Beach Green Building Ordinance

On May 12, 2009, the Long Beach City Council approved Ordinance No. ORD-09-0013 (Subsection 21.45.400—Green Building Standards for Public and Private Development). The following types of projects shall meet the intent of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) program at the Certified level:

- A new residential or mixed-use building of 50 dwelling units and 50,000 gross square feet or more.

- A new mixed-use, or non-residential building of 50,000 square feet or more of gross floor area;

- The alteration of an existing residential or mixed-use building that results in the addition of 50 dwelling units and 50,000 gross square feet or more;

- The alteration of an existing mixed-use, or non-residential building that results in the expansion of 50,000 gross square feet or more; and

- A new construction or substantial rehabilitation project for which the City provides any portion of funding.

b. Existing Conditions

(1) Electricity

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for one hour would be 100 Wh. If ten 100 W bulbs were on for one hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts (MW), which is 1 million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is 1 billion watt-hours.

The Project Site is located within Southern California Edison's (SCE) 50,000-square-mile planning area, which includes portions of Central and Southern California.[23] SCE generates electricity from a variety of sources, including hydropower, coal, nuclear sources, and renewable resources, such as wind, solar, and geothermal. In 2013, renewable resources made up 25 percent of SCE's power mix, according to their 2015 Power Content Label.[24,25] In 2015, the most recent year for which data are available, SCE delivered 86,704 GWh of electricity to its customers.[26]

SCE supplies electrical power to the Project Site from electrical service lines located in the Project vicinity. According to the Electricity and Natural Gas Memorandum prepared

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[23] *Southern California Edison, Who We Are, www.sce.com/wps/portal/home/about-us/who-we-are/!ut/p/b0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINLdwdPTyDDTzdQ0xMDTydjMyN3Z08jUNcTfULsh0VAYBK1hw!/, accessed February 14, 2017.*

[24] *The Power Content Label was developed by the State to provide a snapshot of the power sources used by utilities in a given year.*

[25] *CEC, Utility Annual Power Content Labels for 2015, www.energy.ca.gov/pcl/labels/, accessed February 14, 2017.*

[26] *CEC, Energy Consumption Data Management System, www.ecdms.energy.ca.gov/elecbyutil.aspx, accessed February 14, 2017.*

by Butsko Utility Design, Inc, as provided in Appendix V of this Draft EIR, SCE has existing infrastructure in the immediate area that serves the existing hotel on-site and would be available to serve the Project. It is estimated that existing uses on the Project Site currently consume approximately 3,325,470 kWh of electricity per year.

(2) Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network, and, therefore, resource availability is typically not an issue. Natural gas provides almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet (cf).

Natural gas is provided to the Project Site by City of Long Beach, Gas & Oil Department (LBGO). LBGO provides natural gas to residents and businesses in Long Beach and Signal Hill and delivers gas through more than 1,800 miles of pipelines. LBGO does not produce natural gas; natural gas is purchased on the open competitive market.

LBGO currently maintains an existing 3-inch main gas line on the north side of the Project Site. It is estimated that existing uses on-site currently consume approximately 11,501,333 cf of natural gas per year.

(3) Transportation Energy

According to the CEC, transportation accounted for nearly 37 percent of California's total energy consumption in 2014.[27] In 2015, California consumed 15.1 billion gallons of gasoline and 2.82 billion gallons of diesel fuel.[28] Petroleum-based fuels currently account for 90 percent of California's transportation energy sources.[29] However, the State is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and

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[27] *CEC, 2016 Integrated Energy Policy Report, January 18, 2017, p. 4.*

[28] *California Board of Equalization, Net Taxable Gasoline Gallons 10-Year Report, and Net Taxable Diesel Gallons 10-Year Report.*

[29] *CEC, 2016–2017 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program, March 2016.*

GHGs from the transportation sector, and reduce VMT. Accordingly, gasoline consumption in California has declined.

Based on the trip generation data provided in the Traffic Study included in Appendix R to this Draft EIR, the existing uses within the Project Site are estimated to generate approximately 1,991,580 VMT per year. This translates to 99,709 gallons of gasoline and 17,260 gallons of diesel per year.[30] Persons traveling to and from the Project Site also have the option of using public transportation to reduce transportation-related fuel use. Specifically, three transit service providers operate lines within the Project Site area, including the Los Angeles County Metropolitan Transportation Authority (Metro), Orange County Transportation Authority, and Long Beach Transit. The Long Beach Transit operates 10 bus lines in the study area and also provides free Passport shuttle service connecting visitors to and around Downtown Long Beach attractions and destinations. The Orange County Transportation Authority provides three bus lines in the study area. The Metro Blue Line 1st Street Station is located approximately 5 miles east of the Project Site. For further discussion of public transit lines that serve the Project Site area, refer to Section IV.K, Traffic and Access, of this Draft EIR.

3. Project Impacts

This analysis addresses the Project's potential energy usage, including electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is assessed. The Project's estimated energy consumption was calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1. Specific analysis methodologies are discussed below.

a. Methodology

(1) Construction

Electricity usage associated with the supply and conveyance of water used for dust control during construction was calculated using CalEEMod.[31] Electricity used to power lighting, electronic equipment, and other construction activities necessitating electrical power was assumed to be negligible. In terms of natural gas, construction activities

[30] *The annual gasoline and diesel usage per year was determined by taking the VMT (2,013,688 miles), multiplying the VMT to the percent fleet mix for gasoline (93.6 percent) and diesel (6.4 percent), and dividing the outcome by the estimated miles per gallon in 2019 for gasoline (18.7 miles per gallon) and diesel (7.4 miles per gallon).*

[31] *California Air Pollution Control Officers Association, CalEEMod™ version 2016.3.1 User's Guide, September 2016.*

typically do not involve the consumption of natural gas. 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 included in Appendix B of this Draft EIR. The total horsepower was then multiplied by fuel usage estimates per horsepower-hour included in Table A9-3-E of the South Coast Air Quality Management District's (SCAQMD) *CEQA Air Quality Handbook*. Fuel consumption from construction worker, vendor, and delivery/haul trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total VMT was then calculated for each type of construction-related trip and divided by the corresponding county-specific miles per gallon factor using CARB's Emission Factors (EMFAC) 2014 model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Consistent with CalEEMod, construction worker trips were assumed to include 50 percent light duty gasoline auto and 50 percent light duty gasoline trucks. Construction vendor and delivery/haul trucks were assumed to be heavy-duty diesel trucks. Refer to Appendix B of this Draft EIR for detailed calculations.

(2) Operation

Annual consumptions of electricity (including electricity usage associated with the supply and conveyance of water) and natural gas were calculated using CalEEMod. CalEEMod provides default factors based on the 2013 Title 24 standards. 2016 Title 24 standards, which went into effect on January 1, 2017, are 28 percent more efficient than the 2013 Title 24 standards for residential construction and five percent more efficient for non-residential construction.[32] Although CalEEMod has not been updated to include these factors, these percentage reductions were applied to the relevant CalEEMod default energy intensity factors to estimate the energy demand for the Project. Energy impacts associated with transportation during operation were also assessed. Daily trip generation used in this analysis was based on *Traffic Impact Analysis—2nd + PCH Project* prepared for the Project by Linscott, Law, & Greenspan Engineers (February 2017), which is included in Appendix R of this Draft EIR. As discussed therein, the Project's trip generation was determined based on the Institute of Transportation Engineers trip generation factors for the proposed land uses. The daily Project-related trips were then input into CalEEMod, which calculated the annual VMT. Based on this annual VMT, gasoline and diesel consumption rates were calculated using the county-specific miles per gallon calculated using EMFAC2014. The vehicle fleet mix for vehicles anticipated to visit the Project Site was calculated consistent with the CalEEMod default for Los Angeles County. Supporting calculations are provided in Appendix B of this Draft EIR. The Project's estimated energy demands also were analyzed relative to SCE's and LBGO's existing and planned energy supplies in 2019 (i.e., the Project buildout year) to determine if these two energy utility

[32] *CEC, 2016 Building Energy Efficiency Standards Adoption Hearing presentation, June 10, 2015.*

companies would be able to meet the Project's energy demands. Finally, the capacity of local infrastructure to accommodate the Project's estimated electricity and natural gas demand was assessed based on the Electricity and Natural Gas Memorandum, included as Appendix V of this Draft EIR.

b. Thresholds of Significance

Appendix F of the CEQA Guidelines states that the potentially significant energy implications of a project should be considered in an EIR and provides direction as to the types of information, analysis, and mitigation measures that may be considered in evaluating a project.

According to Appendix F, the environmental impact analysis may include:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project's life cycle including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;
- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; and/or
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In the context of this guidance from the CEQA Guidelines, the Project would have a significant impact on energy use if it would:

- Cause wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance.
- Result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities that could result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Conflict with adopted energy conservation plans; or

- Violate state or federal energy standards.

c. Project Design Features

As discussed in Section II, Project Description, of this Draft EIR, the Project incorporates features to support and promote environmental sustainability. "Green" principles have been incorporated in the Project to comply with the City of Long Beach Green Building Ordinance (Ordinance No. ORD-09-0013) and the sustainability intent of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) program at the Certified level (or equivalent). These include energy conservation, transportation, waste reduction, and other related measures, as detailed below.

Energy Measures

- Shield exterior fixtures to limit light pollution and glare.
- Commission all building envelope and energy consuming systems to ensure efficient operations and reduce both operational and maintenance costs.
- Meet or exceed Title 24, Part 6, California Energy Code baseline standard requirements for energy efficiency, based on the 2016 Energy Efficiency Standards requirements.

Transportation Measures

- Provide bike parking on-site to reduce vehicle trips.
- Provide preferred parking for clean air, van pools, and fuel efficiency vehicles to encourage clean air vehicle use.
- Provide pre-wiring for electric vehicles in three percent of parking spaces on-site.

Construction Materials

- Recycle or otherwise divert from landfills a minimum of 65 percent of construction waste generated on-site.
- Utilize finishing materials such as paints, primers, sealants, and other materials that emit low quantities of volatile organic compounds (VOCs) and/or other air quality pollutants.
- Utilize panelized wood products that have low levels of formaldehyde.

- Utilize carpet and hard flooring that has low VOC content and/or is composed of recycled products.

Indoor Air Quality and Durability

- Weather protect all exterior entrances to improve the long-term durability of buildings.
- Require third-party testing to ensure that energy systems are installed and functioning as intended.
- Ensure tight ductwork in air conditioning systems to improve comfort and reduce energy costs.
- Utilize bathroom fan systems that either operate continuously or have humidistats to automatically remove moisture and minimize mold growth.

Water Measures

- Install water conserving fixtures that reduce water use by at least 20 percent.
- Install weather-based irrigation controllers.

Additional discussion of the Project's sustainability features is provided in Section IV.E, Greenhouse Gas Emissions, of this Draft EIR.

d. Analysis of Project Impacts

(1) Construction

Project construction is anticipated to occur over approximately 16 months, with completion anticipated in 2019. During Project construction, energy would be consumed in the form of electricity and petroleum-based fuels. As shown in Table IV.L.2-1 on page IV.L.2-17, approximately 45,973 kWh of electricity; 33,991 gallons of gasoline; and 92,504 gallons of diesel are estimated to be consumed during Project construction, as discussed further below.

(a) Electricity

As shown in Table IV.L.2-1, a total of approximately 45,973 kWh of electricity is anticipated to be consumed during Project construction. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. When not in

Table IV.L.2-1
Summary of Energy Use During Project Construction[a]

Fuel Type	Quantity
Electricity	
Water Consumption	45,973 kWh
Lighting, electronic equipment, and other construction activities necessitating electrical power	N/A[b]
Total Electricity	**45,973 kWh**
Gasoline	
On-Road Construction Equipment	33,991 gallons
Off-Road Construction Equipment	0 gallons
Total Gasoline	**33,991 gallons**
Diesel	
On-Road Construction Equipment	21,335 gallons
Off-Road Construction Equipment	71,169 gallons
Total Diesel	**92,504 gallons**

kWh = kilowatt hours

[a] *Detailed calculations are provided in Appendix U of this Draft EIR.*

[b] *Electricity usage associated with this line item is not easily quantifiable. Such electricity demand would be temporary, limited, and would cease upon the completion of construction.*

Source: Eyestone Environmental, 2017.

use, electric equipment would be powered off so as to avoid unnecessary energy consumption. Therefore, the use of electricity during Project construction would not be wasteful, inefficient, or unnecessary.

Construction of the Project's electrical infrastructure would primarily occur within the Project Site although some off-site construction activities to connect the Project's electrical infrastructure with primary electrical distribution lines could occur. The Project Applicant would be required to coordinate electrical infrastructure removals or relocations with SCE and comply with site-specific requirements set forth by SCE, which would ensure that service disruptions and potential impacts associated with grading, construction, and development within SCE easements are minimized. As such, construction of the Project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

The estimated construction electricity usage represents approximately 2.24 percent of the Project's estimated net operational demand, which, as discussed below, would be within the supply and infrastructure service capabilities of SCE. Therefore, construction of

the Project would not result in an increase in demand for electricity that exceeds available supply or distribution infrastructure capabilities that could result in the need for new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, based on the above, construction-related impacts to electricity supply and infrastructure would be less than significant.

(b) Natural Gas

Construction activities typically do not involve the consumption of natural gas. Accordingly, natural gas would not be supplied to support Project construction activities, and there would be no demand generated during construction. However, the Project would involve installation of new natural gas connections to serve the Project Site. Since the Project Site is located in an area already served by existing natural gas infrastructure, it is anticipated that the Project would not require extensive off-site infrastructure improvements to serve the Project Site. Construction impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. Prior to ground disturbance, Project contractors would notify and coordinate with LBGO to identify the locations and depths of all existing gas lines and avoid disruption of gas service to other properties. Therefore, Project construction would not result in an increase in demand for natural gas that affects available supply or distribution infrastructure capabilities and would not result in the need for new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Construction-related impacts to natural gas supply and infrastructure would be less than significant.

(c) Transportation Energy

The petroleum-based fuel use summary provided above in Table IV.L.2-1 on page IV.L.2-17 represents the amount of transportation energy that could potentially be consumed during Project construction based on a conservative set of assumptions. As shown, on- and off-road vehicles would consume an estimated 33,991 gallons of gasoline and approximately 92,504 gallons of diesel fuel throughout the Project's construction period. For comparison purposes, the fuel usage during Project construction would represent approximately 0.001 percent of the 2015 annual on-road gasoline-related energy consumption and 0.01 percent of the 2015 annual diesel fuel-related energy consumption in Los Angeles County, as shown in Appendix U of this Draft EIR.

The recycling of solid waste materials also contributes to reduced energy consumption. Specifically, when products are manufactured using recycled materials, the amount of energy that would have otherwise been consumed to extract and process virgin source materials is reduced. For example, recycling one ton of aluminum cans conserves more than 207 million British thermal units (MMBtu), the equivalent of 36 barrels of oil or

1,665 gallons of gasoline.[33] As discussed in Section II, Project Description, the Project would recycle or otherwise divert from landfills a minimum of 65 percent of construction waste generated on-site. A reduction in solid waste not only reduces the number of trips to haul solid waste, thus reducing the amount of petroleum-based fuel consumed, but it also reduces the amount of energy used to process solid waste. Therefore, the Project would contribute to reduced energy consumption through construction-related recycling and waste diversion activities. Based on the above, Project construction would not result in the wasteful, inefficient, and unnecessary consumption of transportation-related energy resources.

(2) Operation

During operation of the Project, energy would be consumed for multiple purposes, including, but not limited to: heating/ventilating/air conditioning (HVAC); refrigeration; lighting; and the use of electronics, equipment, and machinery. Energy also would be consumed during Project operations in conjunction with water usage, solid waste disposal, and vehicle trips. As shown in Table IV.L.2-2 on page IV.L.2-20, the Project's net new energy demand would be approximately 2,055 MWh of electricity per year; 6,951,862 cf of natural gas per year; 954,952 gallons of gasoline per year; and 165,309 gallons of diesel fuel per year, as discussed further below.

(a) Electricity

As shown in Table IV.L.2-2, with compliance with applicable CALGreen requirements, Project buildout would result in a projected net increase in the on-site demand for electricity totaling approximately 2,055 MWh per year. In addition to complying with CALGreen requirements, the Project would incorporate "green" principles to comply with the City of Long Beach Green Building Ordinance (Ordinance No. ORD-09-0013) and the sustainability intent of the U.S. Green Building Council's LEED® program. Measures implemented as part of the Project would address energy conservation, transportation, waste reduction, water conservation, and indoor air quality and durability, as previously discussed. These measures would further reduce the Project's energy demand. In addition, SCE is required to procure at least 33 percent of their energy portfolio from renewable sources by 2020. The current sources procured by SCE include biomass and biowaste, geothermal, solar, and wind sources. These sources account for 25 percent of SCE's power mix, according to their 2015 Power Content Label.[34] This represents the

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[33] *American Geosciences Institute, How Does Recycling Save Energy?, www.americangeosciences.org/critical-issues/faq/how-does-recycling-save-energy, accessed February 14, 2017.*

[34] *CEC, Utility Annual Power Content Labels for 2015, www.energy.ca.gov/pcl/labels/, accessed February 14, 2017.*

Table IV.L.2-2
Summary of Annual Net New Energy Use During Project Operation[a]

Source	Estimated Energy Demand
Electricity[c]	
Building	1,756 MWh
Water	299 MWh
Total Electricity	**2,055 MWh**
Natural Gas	
Building	6,951,862 cf
Total Natural Gas	**6,951,862 cf**
Transportation	
Gasoline	954,952 gallons
Diesel	165,309 gallons
Total Transportation	**1,120,261 gallons**

MWh = megawatt hours
cf = cubic feet
[a] *Detailed calculations are provided in Appendix U of this Draft EIR.*
Source: Eyestone Environmental, 2017.

available off-site renewable sources of energy that would meet the Project's energy demand. Furthermore, the Project would comply with Title 24 Section 110.10, which includes mandatory requirements for solar-ready buildings and, as such, would not preclude the potential use of alternate fuels. Therefore, the Project would not cause wasteful, inefficient, and unnecessary consumption of electricity during operation.

The availability of electricity depends upon adequate generation capacity and fuel supplies. The CEC analyzes energy usage throughout the State and publishes a demand forecast staff report every few years, the most recent of which covers the 2014–2024 period. The CEC estimates electricity consumption within the SCE planning area would be 109,206 GWh in 2024 (the latest available forecast year).[35] Based on the Project's estimated electrical consumption of 2,055 MWh per year, the Project would account for approximately 0.002 percent of the 2024 demand forecasted in the SCE planning area. In addition, SCE has confirmed that the Project's electricity demand can be served by the

[35] *The CEC's forecast includes three scenarios: a high energy demand case, a low energy demand case, and a mid energy demand case for SCE planning area. The consumption forecast for the low energy demand case is used in this calculation to provide a conservative analysis of the Project (i.e., the Project would represent a greater percentage of overall demand under this scenario). CEC, Commission Final Report, California Energy Demand 2014–2024 Final Forecast, January 2014, p. A-3.*

facilities in the Project area.[36] Additionally, the Project would implement any necessary connections and upgrades required by SCE to ensure adequate service to the Project. Therefore, it is anticipated that SCE's existing and planned electricity capacity and electricity supplies and infrastructure would be sufficient to support the Project's electricity demand. Accordingly, operation of the Project would not result in an increase in demand for electricity that exceeds available supply or distribution infrastructure capabilities that could result in the need for new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Based on the above, operational impacts to electricity supply and infrastructure would be less than significant.

(b) Natural Gas

As provided in Table IV.L.2-2 on page IV.L.2-20, the Project is projected to generate an increase in the on-site demand for natural gas, totaling approximately 6,951,862 cf per year. As discussed above, in addition to complying with applicable regulatory requirements regarding energy conservation (e.g., California Building Energy Efficiency Standards and CALGreen), the Project would implement a variety of sustainability features, many of which would either directly or indirectly conserve energy. Therefore, the Project would not cause wasteful, inefficient, and unnecessary consumption of natural gas during operation.

As stated above, the Project's estimated net increase in demand for natural gas is 6,951,862 cf per year, or approximately 19,046 cf per day. Based on the 2016 California Gas Report, the California Energy and Electric Utilities estimates natural gas consumption within LBGO's planning area will be approximately 23.7 million cf per day in 2019 (i.e., the Project buildout year).[37] The Project would account for approximately 0.008 percent of the 2019 forecasted consumption in LBGO's planning area. In addition, LBGO has confirmed that the Project's natural gas demand can be served by the facilities in the Project area.[38] Furthermore, the Project would implement any necessary connections and upgrades required by LBGO to ensure adequate service to the Project. Therefore, it is anticipated that LBGO's existing and planned natural gas supplies and infrastructure would be sufficient to support the Project's net increase in demand for natural gas.

Based on the above, operation of the Project would not result in an increase in demand for natural gas that exceeds available supply or distribution infrastructure capabilities that could result in the need for new energy facilities or expansion of existing

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[36] *Refer to SCE's Will Serve Letter included in Appendix V of this Draft EIR.*

[37] *California Gas and Electric Utilities, 2016 California Gas Report, p. 105.*

[38] *Refer to LBGO's Will Serve Letter included in Appendix V of this Draft EIR.*

facilities, the construction of which could cause significant environmental effects. Operational impacts to natural gas supply and infrastructure would be less than significant.

(c) Transportation Energy

During operation, Project-related traffic would result in the consumption of petroleum-based fuels related to vehicular travel to and from the Project Site. As previously discussed, public transit in the Project area is provided by Metro, Orange County Transportation Authority, and Long Beach Transit. Long Beach Transit operates 10 bus lines in the study area and also provides free Passport shuttle service connecting visitors to and around Downtown Long Beach. The Orange County Transportation Authority provides three bus lines in the study area. The Metro Blue Line 1st Street Station is located approximately 5 miles east of the Project Site. In addition, the Project would include bicycle racks Project employees and guests. Furthermore, the Project reflects characteristics that reduce vehicle trips and VMT as compared to standard ITE trip generation rates. More specifically, the Project characteristics listed below are consistent with the CAPCOA guidance document, *Quantifying Greenhouse Gas Mitigation Measures*,[39] which provides emission reduction values for recommended mitigation measures and serves to reduce vehicle trips and VMT. Measures applicable to the Project include the following:

- **Increase Diversity of Urban and Suburban Developments (Mixed-Uses) (LUT-3):** The Project would introduce new uses on the Project Site, including new commercial/retail/restaurant uses. The Project would co-locate complementary commercial/retail/restaurant uses in proximity to other existing off-site residential and commercial uses. The increases in land use diversity and the specific mix of uses on the Project Site would reduce vehicle trips and VMT by encouraging walking and non-automotive forms of transportation (i.e., walking and biking), which would result in corresponding reductions in transportation-related emissions. (Note: This measure results in a 15.5-percent reduction in VMT.)

- **Increase Destination Accessibility (LUT-4):** The Project Site is located within 5 miles of Downtown Long Beach and the Port of Long Beach, both of which are primary job centers and are easily accessible by public transportation. Access to multiple destinations in proximity to the Project Site would reduce vehicle trips and VMT compared to the statewide average; encourage walking and non-automotive forms of transportation; and would result in corresponding

[39] *California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, 2010, pp. 162–189.*

reductions in transportation-related emissions as a result of the Project. (Note: This measure results in a 9.3-percent reduction in VMT.)

- **Provide Pedestrian Network Improvements (SDT-1):** Project design would provide pedestrian access that minimizes barriers and links the Project Site with the existing street network to encourage people to walk instead of drive. The Project would provide direct access to the existing off-site pedestrian network to encourage and increase pedestrian activities in the area, which would further reduce VMT and associated transportation-related emissions. (Note: This measure results in a 0.6-percent reduction in VMT.)

As such, the Project's siting characteristics would minimize transportation fuel consumption through the reduction of VMT, as described above.

As summarized in Table IV.L.2-2 on page IV.L.2-20, when accounting for the features implemented to reduce VMT, the Project's estimated net petroleum-based fuel usage would be approximately 954,952 gallons of gasoline and 165,309 gallons of diesel per year, or a total of 1,120,261 gallons of petroleum-based fuels annually. Based on the above characteristics, the Project would not cause wasteful, inefficient, and unnecessary consumption of petroleum-based fuel during operation. Impacts associated with operational transportation-related energy use would be less than significant.

(3) Regulatory Consistency

The Project would comply with applicable regulatory requirements for the design of new buildings, including the provisions set forth in the CALGreen Code and California's Building Energy Efficiency Standards, as well as the City of Long Beach Green Building Ordinance. As previously discussed, the Project's"green" principles would comply with the sustainability intent of the U.S. Green Building Council's LEED® program, and measures implemented as part of the Project would address energy conservation, transportation, waste reduction, water conservation, and indoor air quality and durability.

The Project also would be consistent with regional planning strategies that address energy conservation. As discussed above and in Section IV.H, Land Use, of this Draft EIR, SCAG's 2016–2040 RTP/SCS focuses on creating livable communities with an emphasis on sustainability and integrated planning and identifies mobility, economy, and sustainability as the three principles most critical to the future of the region. As part of the approach, the 2016–2040 RTP/SCS emphasizes reducing fossil fuel use by decreasing VMT, reducing building energy use, and increasing the use of renewable sources. The Project would be consistent with the energy efficiency policies emphasized in the 2016–2040 RTP/SCS. Most notably, the Project is a mixed-use, infill development project within an area designated as Land Use District (LUD) No. 7, Mixed Use District, by the City's

General Plan. As set forth in the General Plan, uses intended for LUD No. 7 include employment centers, such as retail uses, offices, and medical facilities; higher density residences; visitor-serving facilities; personal and professional services; and recreational facilities. The Project would provide greater proximity to neighborhood services and jobs and would be well-served by existing public transportation, including Metro, Orange County Transportation Authority, and Long Beach Transit bus lines. This is evidenced by the Project Site's location within a designated HQTA. The introduction of new job opportunities within a HQTA, as proposed under the Project, is consistent with numerous policies in the 2016–2040 RTP/SCS related to locating new jobs near transit. In addition, the Project would comply with state energy efficiency requirements and would use electricity from SCE, which has a current renewable energy mix of 20 percent. All of these features would serve to reduce the consumption of electricity, natural gas, and transportation fuel associated with VMT.

Based on the above, the Project would not conflict with adopted energy conservation plans, or violate state or federal energy standards. Impacts associated with regulatory consistency would be less than significant.

(4) Conclusion

As demonstrated in the analysis above, the Project would not cause wasteful, inefficient, or unnecessary consumption of energy during construction or operation; result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities that could result in the need for new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; conflict with adopted energy conservation plans; or violate state or federal energy standards. Therefore, Project impacts related to energy use would be less than significant during both construction and operation.

4. Cumulative Impacts

The geographic context for the cumulative impact analysis of electricity is the SCE service area, and the geographic context for the cumulative impact analysis of natural gas is the LBGO service area. While the geographic context for transportation-related energy use is more difficult to define, it is meaningful to consider the Project in the context of County-wide consumption. The Project, in conjunction with forecasted growth through 2019 (i.e., the Project buildout year) in these geographies, would cumulatively increase the consumption of energy, thus potentially resulting in cumulative impacts with respect to energy use. Cumulative growth in the greater Project area through 2019 includes specific known development projects, as well as general ambient growth projected to occur, as described in Section III, Environmental Setting, of this Draft EIR. These related projects

include a limited amount of recreational, office, commercial/retail, restaurant, storage/ warehouse, and infrastructure uses, including an energy storage system facility and new oil wells within an existing oil field.

(1) Electricity

Buildout of the Project, related projects, and additional forecasted growth in SCE's service area would cumulatively increase the demand for electricity supplies and infrastructure capacity. The CEC estimates electricity consumption within the SCE planning area would be 109,206 GWh in 2024 (the latest available forecast year).[40] Based on the Project's estimated electrical consumption of 2,055 MWh per year, the Project would account for approximately 0.002 percent of the 2024 demand forecasted in the SCE planning area. Thus, although Project development would result in the use of renewable and non-renewable electricity resources during construction and operation, which could limit future availability, the use of such resources would be on a relatively small scale and would be consistent with growth expectations for SCE's service area. Accordingly, the Project's contribution to cumulative impacts related to electricity consumption would not be cumulatively considerable and, thus, would be less than significant. Furthermore, as with the Project, during construction and operation, future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including the CALGreen code and state energy standards under Title 24, and incorporate mitigation measures, as necessary.

Electricity infrastructure is typically expanded in response to increasing demand, and system expansion and improvements by SCE are on-going. It is expected that SCE would continue to expand delivery capacity as needed to meet demand increases within its planning area. Development projects within its service area also would be anticipated to incorporate site-specific infrastructure improvements, as necessary. As such, cumulative impacts with respect to electricity infrastructure would be less than significant.

(2) Natural Gas

Buildout of the Project, related projects, and additional forecasted growth in LBGO's service area would cumulatively increase the demand for natural gas supplies and infrastructure capacity. Based on the 2016 California Gas Report, the California Energy

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[40] *The CEC's forecast includes three scenarios: a high energy demand case, a low energy demand case, and a mid energy demand case for SCE planning area. The consumption forecast for the low energy demand case is used in this calculation to provide a conservative analysis of the Project (i.e., the Project would represent a greater percentage of overall demand under this scenario). CEC, Commission Final Report, California Energy Demand 2014–2024 Final Forecast, January 2014, p. A-3.*

and Electric Utilities estimates natural gas consumption within LBGO's planning area will be approximately 23.7 million cf per day in 2019 (i.e., the Project buildout year).[41] The Project would account for approximately 0.008 percent of the 2019 forecasted consumption in LBGO's planning area. LBGO's forecasts take into account projected population growth and development based on local and regional plans. Although Project development would result in the use of natural gas resources, which could limit future availability, the use of such resources would be on a relatively small scale and would be consistent with regional and local growth expectations for LBGO's service area. Furthermore, future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including the CALGreen code and state energy standards under Title 24, and incorporate mitigation measures, as necessary. Accordingly, the Project's contribution to cumulative impacts related to natural gas consumption would not be cumulatively considerable and, thus, would be less than significant.

Natural gas infrastructure is typically expanded in response to increasing demand and system expansion and improvements by LBGO occur as needed. It is expected that LBGO would continue to expand delivery capacity if necessary to meet demand increases within its service area. Development projects within its service area also would be anticipated to incorporate site-specific infrastructure improvements, as appropriate. As such, the Project's contribution to cumulative impacts with respect to natural gas infrastructure would not be cumulatively considerable and, thus, would be less than significant.

(3) Transportation Energy

Buildout of the Project, related projects, and additional forecasted growth would cumulatively increase the demand for transportation-related fuel in the State and region. As described above, at buildout, the Project would consume a net total of 954,952 gallons of gasoline and 165,309 gallons of diesel per year, or a total of 1,120,261 gallons of petroleum-based fuels annually. For comparison purposes, the transportation-related fuel usage for the Project would represent approximately 0.006 percent of the 2015 annual on-road gasoline- and diesel-related energy consumption in Los Angeles County. Additionally, as described above, petroleum currently accounts for 90 percent of California's transportation energy sources; however, over the last decade the State has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHGs from the transportation sector and reduce VMT, which would reduce reliance on petroleum fuels. According to the CEC demand forecasts, gasoline consumption will decline by up to

[41] *California Gas and Electric Utilities, 2016 California Gas Report, p. 105.*

3.7 percent for the next 10 years due to improved fuel economy and the use of alternative fuels, such as natural gas, biofuels, and electricity.[42] As with the Project, other future development projects would be expected to reduce VMT by encouraging the use of alternative modes of transportation and other design features that promote VMT reductions.

Furthermore, as described above under Subsection 3.d.(3), Regulatory Consistency, the Project would be consistent with the energy efficiency policies emphasized by the 2016–2040 RTP/SCS. Specifically, the Project is a mixed-use, infill development project within an area designated as LUD No. 7, Mixed Use District. The Project would provide greater proximity to neighborhood services and jobs and would be well-served by existing public transportation, including Metro, Orange County Transportation Authority, and Long Beach Transit bus lines. This is evidenced by the Project Site's location within a designated HQTA. The introduction of new job opportunities within a HQTA, as proposed by the Project, is consistent with numerous policies in the 2016–2040 RTP/SCS related to locating new jobs near transit. These features would serve to reduce VMT and associated transportation fuel consumption. Furthermore, the 2016–2040 RTP/SCS would result in an estimated 8-percent decrease in per capita GHG emissions by 2020, an 18-percent decrease in per capita GHG emissions by 2035, and a 21-percent decrease in per capita GHG emissions by 2040. As shown in Section IV.E, Greenhouse Gas Emissions, the Project results in a VMT reduction of approximately 28 percent in comparison to the "no implementation of emission reduction measures" (NIERM) scenario (also known as "business-as-usual") and a 25-percent reduction in GHG emissions from mobile sources. The Project also would be consistent with the per capita reduction in transportation emissions provided in the 2016–2040 RTP/SCS. By its very nature, the 2016–2040 RTP/SCS is a regional planning tool that addresses cumulative growth and resulting environmental effects. Since the Project is consistent with the 2016–2040 RTP/SCS, its contribution to cumulative transportation energy use would not be cumulatively considerable and, therefore, would be less than significant.

(4) Conclusion

Based on the analysis provided above, the Project's contribution to cumulative impacts related to energy consumption (i.e., electricity, natural gas, and fuel) would not result in a cumulatively considerable effect related to the wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance; an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities that could result in the need for new energy facilities

[42] *CEC, 2015 Integrated Energy Policy Report, docketed June 29, 2016, p. 113.*

or expansion of existing facilities, the construction of which could cause significant environmental effects; a conflict with adopted energy conservation plans; or a violation of state or federal energy standards. As such, the Project's impacts would not be cumulatively considerable; therefore, cumulative energy impacts are concluded to be less than significant.

5. Mitigation Measures

Project-level and cumulative impacts with regard to energy use would be less than significant. Therefore, no mitigation measures are required.

6. Level of Significance After Mitigation

Implementation of the project design features discussed above would reduce impacts related to energy use to a less-than-significant level.