4.10 ENERGY

4.10.1 Introduction

Appendix F, Energy Conservation, of the *State of California Environmental Quality Act (CEQA) Guidelines* requires that Environmental Impact Reports (EIRs) include a discussion of potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F establishes a goal of decreasing reliance on fossil fuels. It requires an EIR to include a discussion of the potential energy impacts of proposed projects.

Consistent with requirements outlined in Appendix F of the *State CEQA Guidelines*, the analysis and discussion in this section provides information pertaining to the effects of the proposed project and its associated impacts on existing energy supplies and energy use patterns in the region and locality.

The information in this section is based largely on data and reports produced by the California Energy Commission (CEC), the South Coast Air Quality Management District (SCAQMD), and the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE).

4.10.2 CEQA Baseline

Although the Notice of Preparation (NOP) was published on May 2015, the baseline year when analyzing energy impacts in this Recirculated Draft EIR is 2018.[1] This represents a departure from the 2016 Draft EIR, which used a baseline year of 2012 to evaluate project-related impacts. This Recirculated Draft EIR also differs from the energy analysis in the 2016 Draft EIR in that the previous analysis used the electricity and natural gas usage factors from SCAQMD's *CEQA Air Quality Handbook* (1993, currently being revised), whereas the current analysis uses the latest data from the California Emission Estimator Model (CalEEMod) model version 2016.3.2. The use of CalEEMod to determine baseline and projected energy impacts is considered to be a more accurate representation of project-related impacts, as CalEEMod incorporates 2008 energy efficiency standards into its model. It should be noted that CalEEMod model version 2016.3.2 is not yet updated with the 2016 California Green Building Standards Code (CALGreen Code) that became effective January 1, 2017.

4.10.3 Methodology

The discussion focuses on current levels of service provided to the planning area and information on possible constraints or impacts to those services associated with the anticipated General Plan build out scenario (2040).

To measure energy use within the planning area, demands for electricity and natural gas were obtained from the SCAQMD-approved CalEEMod model version 2016.3.2. The electricity and natural gas usage factors were modeled by land use type to the equivalent of one acre (e.g., 3 single-family

[1] While 2018 is the baseline when comparing existing energy usage to energy usage estimated in the anticipated General Plan build out scenario (2040), 2016 and 2017 data are used to describe the existing setting for energy, as these are the most current data for which background energy information is available.

dwelling units per acre, 16 low-rise apartment units per acre, and 38 midrise apartment units per acre), and were calculated as in 1,000 British thermal units per acre (kBtu/acre) for the existing baseline year of 2018 and the anticipated General Plan build out scenario (horizon year 2040).

CEQA requires an analysis of energy consumption because of environmental impacts associated with its production and usage. Such impacts include the depletion of non-renewable resources (e.g., oil, natural gas, and coal) and emissions of pollutants during both the production and consumption of energy use.

Energy usage is typically analyzed and expressed using the British thermal unit (Btu).[1] For example, the approximate amount of energy contained in one gallon of gasoline, one cubic foot of natural gas, and one-kilowatt hour (kWh) of electricity is 123,000 Btus, 1,000 Btus, and 3,400 Btus, respectively. Natural gas usage is typically analyzed and expressed in terms of therms. One therm is equal to approximately 100,000 Btus.

Electrical energy is expressed in units of kilowatts (kW) and kWh. A kWh is a measurement of energy. If energy is used at a constant rate over a period of time, then the total energy in kW hours would be equal to the power multiplied by the time in hours. For example, if a one kW hair dryer was run for one hour, the hair dryer would use one kWh of electrical energy. It should be noted that electrical energy is also often expressed in terms of megawatts (MW, or 1,000 kW) and gigawatts (GW, or 1,000,000 kW).

4.10.4 Existing Environmental Setting

According to the U.S. Department of Energy EIA, California has the second highest energy consumption in the nation. In 2016, the total energy usage for the State of California was 7,826 trillion Btus. Natural gas and motor vehicle gasoline accounted for the largest portion of the State's total energy demand at approximately 29 and 22 percent, respectively.[2]

In 2016, transportation uses consumed 3,112.4 trillion Btus (39.8 percent of the total demand), industrial uses consumed 1,852.1 trillion Btus (23.7 percent of the total demand), commercial uses consumed 1,477.2 trillion Btus (18.9 percent of the total demand), and residential uses consumed 1,384.4 trillion Btu (17.7 percent of the total demand).[3]

4.10.4.1 Electricity

In December 2018, California consumed an average of over 14,935 thousand megawatt-hours (MWh) of electricity. Natural gas is the main source of electricity in the State (approximately

1 A "British thermal unit" is a traditional unit of measuring heat and is defined by the amount of heat that is needed to raise one pound of water a maximum density to one degree Fahrenheit.

2 U.S. Department of Energy, Energy Information Administration (EIA). California. Website: https://www.eia.gov/state/?sid=CA#tabs-1 (accessed December 12, 2018).

3 U.S. Department of Energy, EIA, California. Website: https://www.eia.gov/state/?sid=CA#tabs-2 (accessed April 16, 2019).

55 percent) followed by non-hydroelectric renewables[1] (25 percent), hydroelectric facilities (9.5 percent), nuclear facilities (10 percent), and coal-fired facilities (less than 1 percent).[2]

The City of Long Beach (City) receives its electricity from Southern California Edison (SCE). SCE, an independently owned utility, provides electrical service to 15 million people in 50,000 square miles across central, coastal, and southern California, including the City of Long Beach. SCE delivers electrical power to its service area through 12,635 miles of transmission lines, 91,375 miles of distribution lines, 1,433,336 electric poles, 720,800 distribution transformers, and 2,959 substation transformers.[3]

In 2017, SCE's primary source of energy was natural gas (34 percent of all energy provided). The second main source of SCE's energy was from non-hydroelectric renewable resources (29 percent). Other SCE energy sources include large hydroelectric (15 percent), nuclear (9 percent), coal (4 percent), and unspecified sources of power (9 percent).[4] SCE generates 16 percent of the energy provided at its own facilities.[5]

In February 2018, the CEC published preliminary California Energy Demands for 2018 through 2030 within the SCE Planning Area.[6] According to the CEC, the electricity consumption in the SCE service area for 2018 was 110,349 gigawatt hours (GWh) in the high-demand scenario. Forecasted electricity consumption within the SCE service area is estimated to be 125,112 GWh by 2025 and 133,754 GWh by 2030 (the furthest horizon year for which data are available). In addition, the CEC estimates that net peak demand and net energy load within SCE's service territory will continue to grow annually by 2.45 percent until 2030.

4.10.4.2 Natural Gas

As of 2017, California produced less than 1 percent of the total United States supply of natural gas.[7] Natural gas production includes onshore facilities located across the State, as well as offshore in the Pacific Ocean. In the State of California, electricity generation is the largest user of natural gas (nearly 45 percent), followed by industrial uses (25 percent), residential uses (e.g., space and water heating) (21 percent), and commercial uses (9 percent). Due to the decline in natural gas production

1 "Nonhydroelectric renewables" refer to energy sources such as wind, solar, biomass, and geothermal.

2 U.S. Department of Energy, EIA, California. Website: https://www.eia.gov/state/?sid=CA#tabs-4, (accessed April 16, 2019).

3 Southern California Edison (SCE). Powering Southern California for 130+ Years, Website: https://www.sce.com/ about-us/who-we-are (accessed December 19, 2018).

4 SCE 2017 Power Content Label, updated July 2018.

5 SCE Newsroom Fact Sheet, updated November 18, 2016.

6 California Energy Commission (CEC), 2018–2028 Electricity Demand Preliminary Forecast. Website: http://www.energy.ca.gov/2017_energypolicy/documents/2017-08-03_workshop/2017-07-06_pre_demand_forecst.php, (accessed July 30, 2018).

7 U.S. Department of Energy, EIA, California State Profile and Energy Estimates. Rankings: Natural Gas Marked Production 2017. Website: https://www.eia.gov/state/rankings/?sid=CA#/series/47 (accessed December 17, 2018).

in California, the State depends on out-of-state imports for nearly 90 percent of its natural gas supply.[1]

The City of Long Beach Municipal Energy Resources (ER) Department purchases natural gas from Southern California Gas Company (SoCalGas) and provides natural gas services to residents and businesses of Long Beach and Signal Hill and portions of surrounding communities, including the cities of Bellflower, Compton, Lakewood, Los Alamitos, Paramount, and Seal Beach. Currently, the ER Department is the fifth largest municipal gas utility in the nation, serving approximately 500,000 residents[2] and businesses through over 1,900 miles of ER pipelines.[3] The ER Department's customer profile is 53 percent residential and 47 percent commercial/industrial.

The ER Department receives a small portion (approximately 5 percent) of its natural gas supply directly into its pipeline system from local production fields in the planning areas, as well as offshore facilities. The remainder of ER's natural gas supplies is purchased from the southwestern United States. The ER Department also receives intrastate transmission service for purchased gas from SoCalGas.

In 2018, the California Gas and Electric Utilities[4] published the *2018 California Gas Report*. In addition to providing a summary of the existing and historic natural gas demands, the *2018 California Gas Report* provides projected annual gas supplies for future years through year 2035. According to the *2018 California Gas Report*, the natural gas demand in the ER Department's service area was estimated to be 8.65 billion cubic feet (bcf) per year in 2018 with a future annual demand projected to reach 9.02 bcf per year in 2035 (the furthest horizon year for which data are available).[5]

4.10.4.3 Gasoline

California crude oil production levels have been declining over the last 30 years; however, the State still accounts for 5 percent of the United States' crude oil production and petroleum refining capacity.[6] In 2017, approximately 143 billion gallons of gasoline were consumed in the United

1 CEC. Supply and Demand of Natural Gas in California. Website: https://www. energy.ca.gov/almanac/naturalgasdata/overview.html (accessed December 17, 2018).

2 Long Beach Energy Resources Department. Website: http://www.longbeach.gov/energyresources// (accessed December 11, 2018).

3 California Gas and Electric Utilities. *2018 California Gas Report*. Website: https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf (accessed December 11, 2018).

4 Consists of the following: Southern California Gas Company, Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southwest Gas Corporation, City of Long Beach Energy Resources Department, Sacramento Municipal Utilities District, and Southern California Edison Company.

5 California Gas and Electric Utilities. *2018 California Gas Report*. Website: https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf (accessed December 11, 2018).

6 U.S. Department of Energy, EIA. "California State Profile and Energy Estimates Profile Analysis." Website: https://www.eia.gov/state/analysis.php?sid=CA#40 (accessed February 13, 2019).

States[1] (setting an annual gasoline consumption record) and 15.5 billion gallons were consumed in California.[2]

The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.0 mpg in 2015.[3] Federal fuel economy standards have changed substantially since the Energy Independence and Security Act was passed in 2007. The Act, which originally mandated a national fuel economy standard of 35 mpg by year 2020, applies to cars and light trucks of Model Years 2011 through 2020.[4] In 2012, the federal government raised the fuel economy standard to 54.5 mpg for cars and light-duty trucks by Model Year 2025.[5]

According to the CEC Transportation Energy Demand Forecast 2018–2030, the demand for fuel is expected to decrease to between 12.3 billion and 12.7 billion gallons in 2030 (a 20–22 percent reduction). The reduction in gasoline demand through year 2030 (the furthest horizon year for which data are available) is based on assumptions related to new energy efficiency and regulations at the State and local levels and an increasing number of electric, hydrogen, diesel, and high fuel economy vehicles.[6]

4.10.5 Regulatory Setting

4.10.5.1 Federal Policies and Regulations

At the federal level, the United States Department of Transportation (DOT), the United States Department of Energy (DOE), the Federal Energy Regulatory Commission (FERC), and the United States Environmental Protection Agency (U.S. EPA) are the federal agencies with substantial influence over energy policies and programs. These agencies influence and regulate energy consumption through the establishment and enforcement of fuel economy standards for automobiles and light trucks, through energy-related research and development projects, and through transportation infrastructure improvements. In addition, these agencies regulate the interstate exchange of electricity, natural gas, and oil; and the licensing and permitting of hydroelectric projects; as well as oversee the environmental issues associated with electricity.

1 U.S. Department of Energy, EIA. "Frequently Asked Questions". Website: https://www.eia. gov/tools/faqs/faq.php?id=23&t=10 (accessed March 19, 2019).

2 California Department of Tax and Fee Administration. 10-Year Report of Net Taxable Gasoline Gallons. Website: http://www.cdtfa.ca.gov/taxes-and-fees/MVF_10_Year_Report.pdf (accessed March 19, 2019).

3 U.S. Department of Transportation (DOT). "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: https://www.bts.gov/archive/publications/national_transportation_statistics/table_04_23/ (accessed March 19, 2019).

4 U.S. Department of Energy. "Energy Independence & Security Act of 2007." Website: https://www.afdc.energy.gov/laws/eisa (accessed March 19, 2019).

5 The White House. Office of the Press Secretary. "Obama Administration Finalizes Historic 54.5 MPG Fuel Efficiency Standards. Website: https://obamawhitehouse.archives.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-mpg-fuel-efficiency-standard (accessed March 19, 2019).

6 CEC. Transportation Energy Demand Forecast 2018-2030. Published on December 4, 2017.

National Energy Act. The National Energy Act of 1978 was a legislative response to the 1973 energy crisis. It includes the following statutes:

- **Public Utility Regulatory Policies Act (Public Law 95-617):** Passed by the U.S. Congress in 1978 to promote energy conservation and the greater use of domestic and renewable energy.

- **Energy Tax Act (Public Law 95-318):** Passed by the U.S. Congress in 1978 as a response to the 1973 oil crisis. The objective of this law was to shift from oil and gas reliance to energy conservation by promoting fuel efficiency and renewable energy through taxes and tax credits.

- **National Energy Conservation Policy Act (Public Law 95-619):** Passed by the U.S. Congress in 1978, this act was aimed at encouraging utilities to provide residential consumers with energy conservation audits and other services to encourage slower growth of electricity demand.

- **Powerplant and Industrial Fuel Use Act (Pub.L. 95–620).** Passed by the U.S. Congress in 1978 with the purpose of reducing the import of petroleum and increasing the nation's ability to use domestic energy sources. Specifically, this Act aimed to encourage the use of alternate fuels in lieu of natural gas and oil and the modernization of electric power plants, while reducing the vulnerability of the United States to energy supply interruptions.

- **Natural Gas Policy Act (Pub.L. 95–621).** Passed by the U.S. Congress in 1978, this law authorized the FERC to regulate both intrastate and interstate natural gas production and transmission. This Act had three main goals: (1) creating a single national natural gas market; (2) equalizing supply with demand; and (3) allowing market forces to establish the wellhead price of natural gas. Price controls put in place under this Act were intended to protect consumers from potential monopoly pricing.

Federal Energy Policy and Conservation Act. In 1975, the United States Congress adopted the Federal Energy Policy and Conservation Act as a means to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. The primary goals of this Act were to increase energy production and supply, reduce energy demand, provide energy-efficient alternatives, and grant additional authority to the Executive Branch to respond to changes in the nation's energy supply. In order to meet these goals, this Act established a reserve of petroleum, established energy conservation standards for consumer products, and established the first fuel economy standards for on-road motor vehicles. Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. While compliance with federal fuel economy standards is not determined for each individual vehicle model, compliance is determined for each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the U.S. EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The U.S. EPA calculates a CAFE value for each manufacturer, based on fuel economy test results and vehicle sales. On the basis of the information from the CAFE program, the

U.S. DOT is authorized to assess penalties for non-compliance. Consequently, this regulatory program has resulted in vastly improved fuel economy throughout the nation's vehicle fleet.

4.10.5.2 State Policies and Regulations

At the State level, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are the two primary regulatory bodies that govern energy. The CPUC regulates privately owned electric, natural gas, and other public utilities. The CEC is the State's energy policy and planning agency. Among other duties, the CEC has regulatory authority over the construction or expansion of power-generating facilities, as well as authority to regulate energy resources in terms of supply, demand, and consumption.

Renewables Portfolio Standard Program. California established its Renewables Portfolio Standard (RPS) Program in 2002 under Senate Bill (SB) 1078, which was accelerated in 2006 under SB 107. The RPS required 20 percent of electricity sales to be served by renewable energy sources by 2010. In 2008, Executive Order S-14-08 was signed into law requiring retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. In October 2015, SB 350 was enacted to codify California's climate and clean energy goals. SB 350 requires retail sellers of electricity and publicly owned utilities to procure 50 percent of their electricity from renewable sources by 2030.[1]

Title 24 of the California Code of Regulations. The California Energy Code (Title 24, Part 6 of the California Code of Regulations, California's Energy Efficiency Standards for Residential and Nonresidential Buildings), provides energy conservation standards for the new construction and rehabilitation of residential and non-residential buildings and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards for new buildings provided these standards meet or exceed Title 24 Building Code requirements. Title 24 regulates building energy consumption for heating, cooling, ventilation, water heating, and lighting with regard to both electricity and natural gas. These standards are typically updated every 3 years by the CEC. The CALGreen Code (Title 24, Part 11) was most recently updated in 2016 to include new mandatory measures for residential as well as non-residential uses; the new measures became effective January 1, 2017. Compliance with Title 24 energy efficiency requirements can be achieved through following a prescriptive approach outlined in the standards or by following a performance approach using computer modeling. The prescriptive approach offers relatively little design flexibility but is easy to use, while the performance approach allows design flexibility that can be used to find the most cost-effective solutions but that requires multiple calculations.

Appendix F of the *State CEQA Guidelines*. Appendix F, Energy Conservation, requires that EIRs include a discussion of the potential energy impacts of a proposed project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (refer to Public Resources Code 21100[b][3]). In addition, Appendix F seeks inclusion of information in the EIR addressing the following:

[1] CEC. Renewable Portfolio Standard. Website: https://www.energy.ca.gov/ portfolio/ (accessed March 19, 2019).

- Measures to reduce wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and maintenance of the project;
- The siting and orientation of buildings and structures to minimize energy consumption, including transportation energy;
- Measures for reducing peak energy demand;
- Incorporation of alternative fuels (particularly renewable ones) or energy systems; and
- Incorporation of recycling for non-renewable resources.

Appendix F of the *State CEQA Guidelines* is an advisory document that assists Lead Agencies in determining whether a project would result in impacts related to energy.

4.10.5.3 Local Policies and Regulations.

Sustainable City Action Plan. The City adopted the *Sustainable City Action Plan* on February 2, 2010, with the purpose of moving the City towards becoming a more sustainable City. Sustainability is defined in this plan as maximizing individual benefits and minimizing negative environmental impacts to ensure the long-term health of the environment for the enjoyment and use of current and future generations. The *Sustainable City Action Plan* includes initiatives, goals, and actions that are meant to guide City decision-makers in striving towards achieving a sustainable City. The following goals, initiatives, and actions are applicable to the proposed project:[1]

Sustainability Goal 2: Reduce electricity use in City operations by 25% by 2020.

Sustainability Goal 3: Reduce natural gas use in City operations by 15% by 2020.

Sustainability Goal 4: Facilitate the development of at least 2 megawatts of solar energy on City facilities by 2020.

Sustainability Goal 5: Reduce community electricity use by 15% by 2020.

Sustainability Goal 6: Reduce community natural gas use by 10% by 2020.

Sustainability Goal 7: Facilitate the development of at least 8 megawatts of solar energy within the community (private rooftops) by 2020.

Energy Initiative 2: Ensure all of the City of Long Beach's operational needs are met through energy efficiency, conservation, and renewable energy sources.

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

[1] City of Long Beach. Office of Sustainability. 2010. *Sustainable City Action Plan.* Adopted February 2, 2010.

Action 1: Increase energy efficiency in City facilities through ongoing energy audits, retrofits, weatherization, and preventative maintenance.

Action 4: Encourage the use of energy-efficient products including efficient lighting, energy monitoring systems, cool and green roofs, insulation, and efficient HVAC systems.

Action 9: Implement energy efficiency and conservation measures.

Climate Action and Adaption Plan. The City is currently in the process of preparing a Climate Action and Adaptation Plan (CAAP). The goal of the CAAP is to reduce future greenhouse gas (GHG) emissions and to prepare the City for the impacts of climate change, specifically rising sea levels, extreme heat, and poor air quality. The CAAP would provide a framework for creating and updating policies, programs, and practices to reduce the City's GHG footprint, and would incentivize the residents and businesses for their compliance. Through the City Inventory Reporting and Information System (CIRIS), the City will have a framework for calculating and reporting GHG emissions, and forecasting projected emissions based on anticipated growth. The CAAP would also include an analysis of existing sustainability and climate mitigation efforts, and develop strategies to reduce future emissions and impacts. Eventually, the CAAP would produce a plan to monitor the performance of the mitigation strategies.

4.10.6 Thresholds of Significance

The following thresholds of significance criteria are based on Appendix G of the *State CEQA Guidelines*. Based on these thresholds, implementation of the proposed project would have a significant adverse impact on energy providers if it would:

Threshold 4.10.1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, or

Threshold 4.10.2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.10.7 Compliance Measures and Project Design Features

Because the proposed project is a programmatic planning action and does not include any project design plans or construction, it would not be required to adhere to any compliance measures and would not include any project design features related to energy. It should be noted that much of the existing development in the City was built before the 2016 Building Energy Efficiency Standards were adopted. New development occurring under the anticipated General Plan build out scenario would be required to be developed in accordance with the latest Building Energy Efficiency Standards in effect at the time of building permit issuance. Currently, the California's Building Energy Efficiency Standards are updated every three years. The updates are designed to improve the energy efficiency of regulated newly constructed residential and nonresidential buildings, building additions, and building alterations.

Although there are no compliance measures and project design features related to energy, the applicable Land Use Element (LUE) and Urban Design Element (UDE) Goals, Strategies, and Policies are intended to reduce the impacts of future development envisioned and facilitated by the proposed project. Additionally, the CAAP will serve as a mitigation measure of the LUE and will include a multitude of policies and programs to further reduce energy consumption, increase the use of renewable energy, and increase energy conservation to, at minimum, meet the State GHG targets for GHG reduction.

4.10.7.1 Proposed Land Use Element and Urban Design Element Goals, Strategies, and Policies

The following proposed LUE and UDE goals, strategies, and policies are applicable to the analysis of energy and would replace existing goals, strategies, and policies outlined in the City's existing LUE following project approval:

Land Use Element.

LU Policy 1-1: Promote sustainable development patterns and development intensities that use land efficiently and accommodate and encourage walking.

LU Policy 1-2: Support high-density residential, mixed-use, and transit-oriented development within the Downtown, along transit corridors, near transit stations and at neighborhood hubs.

LU Policy 1-3: Require sustainable design strategies to be integrated into public and private development projects.

LU-M-9: Require that all new City leases and tenant improvements follow LEED standards. Require energy efficiency standards to be part of all City lease/rental agreements.

LU-M-10: Continue to utilize solar power within public buildings and on public sites, and continue to study means by which solar power can be incorporated into all aspects of municipal services.

LU Policy 1-4: Require electric vehicle charging stations to be installed in new commercial, industrial, institutional and multiple-family residential development projects. Require that all parking for single-unit and two-unit residential development projects be capable of supporting future electric vehicle supply equipment.

LU Policy 1-5: Encourage resources and processes that support sustainable development for adaptive reuse projects, as well as appropriate infill projects.

LU Policy 1-6: Require that new building construction incorporate solar panels, vegetated surface, high albedo surface, and/or similar roof structures to reduce net energy usage and reduce the heat island effect.

Strategy No. **2:** Promote efficient management of energy resources to reduce greenhouse gas emissions and the impacts of climate change by employing a full range of feasible means to meet climate goals.

LU Policy 2-1: Promote the establishment of local green energy generation projects along with the infrastructure to support such projects.

LU Policy 3-1: Implement land use regulations and economic development strategies that will help diversify the local economy and expand job growth. Accommodate a mix of industries in Long Beach, including high technology, telecommunications, aerospace, green technology, renewable energy, healthcare, higher education, manufacturing, port and shipping, professional services, restaurants, entertainment and the film industry.

LU Policy 4-1: Provide a Land Use Plan that allows a place for green energy development and green businesses.

LU Policy 7-3: Allow heavy industry uses as well as oil and gas facilities to transition to green industry where feasible and desired.

LU Policy 7-6: Promote transit-oriented development around passenger rail stations and along major transit corridors.

LU Policy 7-9: Focus infill development in the Downtown, multi-family residential neighborhoods, and transit-oriented development areas, and along specific corridors.

LU Policy 7-11: Support infill and transit-oriented development projects by utilizing available tools, such as public-private partnerships and assistance with land assembly and consolidation.

LU Policy 10-3: Plan for and accommodate neighborhood-serving goods and services, learning facilities, public amenities, and transit stops within walking distance of most residences.

LU Policy 10-4: Enhance neighborhoods and connect housing to commercial uses to provide residents with an active choice to walk or bike within their local neighborhoods.

LU Policy 11-2: Provide for a wide variety of creative, affordable, sustainable land use solutions to help resolve air, soil and water pollution, energy consumption and resource depletion issues.

Urban Design Element.

Policy UD 1-3: Promote the adaptive reuse and appropriate infill of resources within the existing urban fabric.

Policy UD 4-2: Support the goals and programs of the *Sustainable City Action Plan* (see the Conservation chapter and appendix) to promote, educate, and provide leadership on sustainable planning and development.

Policy UD 5-5: Accommodate space for the use of rooftop solar panels and other forms of renewable energy on buildings, underutilized sites, utility plants, and parking facilities through a simplified permitting process, wherever feasible.

Policy UD 5-6: Encourage the establishment of electric vehicle charge points and other alternative fuel accommodations at new public and private projects and suitable locations throughout the City.

Policy UD 5-10: Support infrastructure improvements that attract light industrial and clean manufacturing uses, green technology uses, clean energy-related businesses, research, and development.

Policy UD 6-4: Promote sustainability through the use of new technologies and green infrastructure to upgrade City infrastructure systems and equipment. Prioritize areas to retrofit with green infrastructure, Low Impact Development, and Best Stormwater Management Practices.

Policy UD 6-5: Ensure buildings meet the City's requirements for sustainability and green development, both for construction and operation.

Policy UD 8-6: Develop building types and forms with reduced servicing costs and reduced environmental footprints.

Policy UD 13-1: Incentivize neighborhood improvements to increase walkable/bikeable access to daily needs, goods/services, and healthy foods, reduce blight, and create safe places to play and congregate.

Policy UD 13-2: Neighborhood amenities, such as coffee shops, restaurants, and convenience stores, shall be located within a 10-minute walk or a short bike ride from residents to the greatest extent possible.

Policy UD 13-3: Encourage new development projects to provide safe pedestrian access to public sidewalks, bus and rail transit facilities, and the bicycle network.

Policy UD 16-3: Focus new development with the greatest intensity and broadest mix of uses, along transit-supportive corridors, Downtown, and near transit stations.

Policy UD 19-7: Promote opportunities for improved transit connectivity for neighborhoods originally designed around the streetcar.

Policy UD 19-8: Provide better connections to these neighborhoods by improving bikeways and pedestrian paths, especially along the arterial streets. Capture opportunity for pedestrian paths to improve walkability (e.g., utility easement and vacant parcels).

4.10.8 Project Impacts

Threshold 4.10.1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact.

Electricity. Anticipated build out of the proposed project (2040) would allow for the construction of 28,524 housing units and 13,524,617 square feet of non-residential square footage, resulting in an increased demand for energy services. Energy would be consumed throughout construction and operation associated with future projects facilitated by project approval, in addition to energy consumed by existing development in the planning area. Specifically, energy would be required during construction for the transportation of building materials, manufacturing of building materials, and the actual construction of buildings and infrastructure improvements. Energy consumption during operation would be associated with building heating and cooling, use of consumer products, lighting, and vehicular traffic (including charging of Electric Vehicles [EVs] [1]).

Table 4.10.A, Citywide Forecasted Energy Demands, illustrates the total estimated electricity demand under existing conditions and compares this estimate to the projected electricity demand in 2040 following implementation of the proposed project. As illustrated in Table 4.10.A, the City consumed approximately 1,664,303,700 kWh of electricity in 2018 (968,449,622 kWh for residential uses [58 percent] and 695,854,078 kWh for non-residential uses [42 percent]). Following implementation of the proposed project, the projected electricity demand in the City would be 1,950,216,130 kWh in the General Plan horizon year of 2040 with anticipated buildout. As such, the project-related increase in electricity demand would be approximately 17.18 percent greater than the existing electricity demand. This analysis also assumes full build out under the anticipated General Plan build out scenario (2040) based on population, housing, and employment projections. This projection is conservative because the bulk of projected new housing units through 2040 is intended to alleviate overcrowding of existing housing units in Long Beach with current Long Beach residents who are already using energy resources within the City. Moreover, new units are likely to use significantly less energy due to building codes requiring reduced energy consumption. Moreover, many of the land uses as proposed under the project would replace existing uses that already utilize electricity resources.

Table 4.10.A: Citywide Forecasted Energy Demands

Energy Type	Usage/Unit	Existing Conditions (2018)	General Plan Anticipated Build Out (2040)	Net Difference in Energy Usage	Percentage Change from 2018 to 2040
Electricity					
Residential	kWh/yr	968,449,622	1,099,974,647	131,525,025	13.58%
Non-Residential	kWh/yr	695,854,078	850,241,484	154,387,406	22.19%
	Electricity Totals	1,664,303,700	1,950,216,130	285,912,430	17.18%
Natural Gas					
Residential	kBtu/yr	3,318,119,302	3,779,245,087	461,125,785	13.90%
Non-Residential	kBtu/yr	678,167,256	869,915,643	191,748,387	28.27%
	Natural Gas Totals	3,996,286,558	4,649,160,730	652,874,172	16.34%

Source: Compiled by LSA using CalEEMod model version 2016.3.2 (March 2019).
kBtu/yr = kilo-British thermal units per year
kWh/yr = kilowatt hour per year

[1] Although EV charging stations were not factored in the CalEEMod energy demand, EMFAC2014, which is included in the CalEEMod model, assumed that by year 2025 approximately 15.7% of passenger car sales will be Electric Vehicle (EV) equivalent. Only a small percent of the EV equivalent vehicles (not the hybrids) would utilized the EV charging stations.

New facilities required to support the project-related demand for electricity would be constructed in accordance with the demand for the new service. Because developments that would be considered under the proposed project have not yet been designed or proposed, the specific electricity facilities that would need to be installed to serve such future developments are unknown at this time, as are the potential environmental impacts of such installations. Potential environmental impacts would be evaluated on a project-by-project basis. However, because the City is largely built out, it is not anticipated that major new facilities would be necessary to serve new development facilitated by the anticipated General Plan build out scenario (2040).

For the reasons stated above, the proposed project would result in less than significant environmental impacts related to the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. No mitigation would be required.

Natural Gas. Future development occurring under the proposed project would also result in additional demand for natural gas. As illustrated in Table 4.10.A, Citywide Forecasted Energy Demands, the City used a total of 3,996,286,558 kBtu in 2018. Residential uses accounted for 83 percent of the total (3,318,119,302 kBtu), whereas non-residential uses comprised the remaining 17 percent (678,167,256 kBtu). Implementation of the proposed project would increase natural gas consumption from current conditions through 2040. As illustrated in Table 4.10.A, future growth occurring under the proposed project would generate a natural gas demand of 4,649,160,730 kBtu, or an approximately 16.34 percent increase in natural gas demand. This is considered a small increase over the life of the project. This analysis also assumes full build out under the anticipated General Plan build out scenario (2040), which is a worst-case analysis since it is unknown how much of the proposed residential and non-residential uses would actually be constructed. In addition, many of the land uses as proposed under the project would replace existing uses that already utilize natural gas resources.

Gas service will be added to the existing system operated and maintained by the ER Department, as necessary to meet the requirements of individual projects within the City. Because developments that would be considered under the proposed project have not yet been designed or proposed, the specific improvements to existing natural gas facilities that would need to be implemented to serve future developments are unknown at this time, as are the potential environmental impacts of such improvements. Potential environmental impacts would be evaluated on a project-by-project basis. However, because the City is largely built out, it is not anticipated that major improvements would be necessary to serve the City and new development facilitated by the project approval.

For the reasons stated above, the proposed project would result in less than significant environmental impacts related to the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. No mitigation would be required.

Gasoline. In addition to increasing the demand for electricity and natural gas, the project would result in energy usage associated with gasoline to fuel project-related trips (i.e., the use of motor vehicles). When evaluating a long-range planning project with an implementation horizon of 21 years, forecasting future travel methods and gasoline use is too speculative and not appropriate or feasible. Rather, the more appropriate measure of estimating energy use is to consider the distance traveled by vehicles associated with the proposed project. Therefore, this analysis is centered on the

overall VMT associated with the new development allowed by the proposed project and its associated transportation energy use.

As discussed further in Section 4.8, Transportation, citywide peak period VMT would decrease by 8 percent from 4,635,625 to 4,276,489 and citywide off-peak period VMT would decrease by 2 percent from 4,846,627 to 4,471,838 in 2040. Further, VMT per capita would decrease by approximately 9 percent from 19.9 in 2018 to 18.2 in 2040, and VMT per household would decrease by 19 percent from 56.9 in 2018 to 46.1 in 2040[1]. The decrease in VMT per capita and per household would likely result in an associated decrease in the demand for gasoline. Moreover, the fuel efficiency of vehicles is expected to continue to increase and improve throughout the life of the project as new fuel economy standards are established.

In addition, the proposed project aims to promote mixed-use development and encourage alternative modes of transportation to reduce vehicle trip lengths and reliance on the automobile, which in turn, would reduce the transportation energy demand in the planning area. The proposed project also encourages development of housing near employment and transportation centers (e.g., establishment of the Transit-Oriented Development PlaceType), which would lead to a potential decrease in VMT. The proposed project would also promote land use patterns that would improve walking and bicycling facilities to be more prominent, comfortable, and safe throughout the City. In addition, the project would require electric vehicle charging stations in new development projects (LU Policy 1-4) that would also serve to reduce the overall transportation energy demand. Finally, through requirements for installing and building new construction ready for EV chargers, the project will encourage a shift from use of gasoline to electricity use.

Therefore, implementation of the proposed project would not result in a substantial increase in transportation-related energy uses, such that it would result in a wasteful, inefficient, or unnecessary consumption of energy resources.

Summary. The projected energy demands (i.e., electricity and natural gas) associated with the proposed project include the State's 50 percent increase in energy efficiency RPS for new residences and buildings and also accounts for Title 24 building energy efficiency as a result of changes to the CALGreen Building Efficiency Standards (Title 24, Part 11) and the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) (which became effective on January 1, 2017) for new residences and buildings. In addition, the project includes a number of goals, policies, and strategies aimed at further reducing the energy demand in the City. These goals, policies, and strategies were not incorporated into the forecasted electricity demands. Therefore, the estimated electricity demand is a worst-case analysis. For example, due to the high number of sunny days which would provide an abundant supply of solar energy, the project would require new buildings constructed in the planning area to include solar panels, vegetated surfaces, high albedo surfaces, and/or similar roof features to reduce net energy usage

[1] Regional Travel Demand Model traffic analysis zones do not terminate at city limits. Per capita ratio is the total VMT in all traffic analysis zones for which any portion is within Long Beach divided by the total population in those traffic analysis zones, which is greater than the Long Beach population. Household ratio is the total VMT in all traffic analysis zones for which any portion is within Long Beach divided by the total households in those traffic analysis zones, which is greater than the Long Beach household.

(LU Policy 1-6) and would also promote the establishment of local green energy generation projects (LU Policy 2-1). Sustainable City Plan Goals 4 and 7 would facilitate the development of at least 2 megawatts and 8 megawatts of solar energy, respectively, on City facilities and within the community (private rooftops) by 2020. Moreover, the project would require all new City leases and tenant improvements to follow Leadership in Energy and Environmental Design (LEED) or equivalent standards and would require energy efficiency standards to be part of all City lease/rental agreements (LU-M-9). The proposed LUE also includes several policies aimed at reducing VMT (LU Policy 1-10), which would serve to reduce the project's demand for gasoline. The proposed UDE would also require new projects to accommodate space for the use of rooftop solar panels and other forms of renewable energy (Policy UD 5-5) and would support infrastructure improvements that would attract clean energy-related businesses, research, and development (Policy UD 5-10). These policies will result in the generation of more solar energy, which will provide additional electrical supply to help power future operational demand, including EV charging stations. Implementation of applicable policies outlined in the proposed LUE, as well as compliance with the CAAP and the *Sustainable City Action Plan*, aimed at reducing energy usage, would ensure that new development envisioned under the project would be constructed and operated in a manner that would not use energy in a wasteful manner.

For the reasons stated above, the proposed project would result in less than significant environmental impacts related to the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. No mitigation would be required.

Threshold 4.10.2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. As previously stated, future projects facilitated by approval of the proposed project would be required to comply with the CALGreen Code (Title 24, Part 11) and the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6), which includes provisions related to insulation and design aimed at minimizing energy consumption. Future projects facilitated by project approval would also be required to comply with goals, policies, and strategies outlined in the proposed LUE and UDE that are aimed at reducing energy consumption in the planning area.

As described further in Section 4.8, Transportation, VMT per capita would be reduced from 19.9 to 18.2, and VMT per household would be reduced from 56.9 to 46.1 under the anticipated General Plan build out scenario (2040) (a 9 percent and 19 percent decrease, respectively, from 2018 to 2040). Citywide peak period VMT and off-peak period VMT would also be reduced following implementation of the proposed project (8 percent and 2 percent, respectively, from 2018 to 2040). The overall reduction of VMTs associated with the project would likely result in a corresponding reduction in gasoline used for vehicles traveling to and from the site. Moreover, the reduction in overall VMTs would be consistent with the State's goal of reducing vehicular GHG emissions as outlined in SB 743.

In addition to complying with federal, State, and local standards regulating energy consumption, the project is also required to comply with Appendix F, Energy Conservation, of the *State CEQA Guidelines*. Specifically, Appendix F requires that EIRs include a discussion of potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Table 4.10.B includes a project-specific consistency analysis with applicable Appendix F considerations.

Table 4.10.B: Proposed Project Comparison to *State CEQA Guidelines* Appendix F

Appendix F Items for Consideration	Proposed Project
1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.	**Consistent.** Energy use during construction of future development facilitated by project approval would primarily involve gasoline and diesel fuel and would represent a short-term use of readily available resources. Potential construction impacts would be less than significant, and no mitigation is required. Operational energy demand includes natural gas and electricity. The anticipated General Plan build out scenario (2040), including new development proposed within the Areas of Change, would result in a 2040 natural gas demand of 4,649,160,730 kBtu (a 16.34 percent increase over existing conditions). Demand for electricity under the anticipated General Plan build out scenario (2040) would be 1,950,216,130 kWh (a 17.18 percent increase over existing conditions). Future development under the proposed project would be required to meet or exceed the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11). Additionally, because developments that would be considered under the proposed project have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such projects are considered. Therefore, with adherence to Title 24 regulations and the goals, policies, and strategies outlined in the proposed LUE and UDE, the proposed project is considered consistent with this threshold.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.	**Consistent.** The proposed project does not include physical improvements, but future development facilitated by the proposed project would be required to meet or exceed the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11) and would be required to comply with goals, policies, and strategies outlined in the proposed LUE and UDE that are aimed at reducing energy consumption. The demand for energy supplies under the anticipated General Plan build out scenario (2040) would be greater than the current General Plan build out demand, but would remain within the forecasted demands for each utility (refer to Section 4.10.10, Cumulative Impacts, of this section for further information on the project's energy demands as compared to forecasted energy demands. In the event that new energy facilities are needed at a later date, such discretionary projects would be required to undergo a separate CEQA review process and their impacts would be assessed at that time. The proposed project is considered consistent with this threshold.

Table 4.10.B: Proposed Project Comparison to *State CEQA Guidelines* Appendix F

Appendix F Items for Consideration	Proposed Project
3. The effects of the project on peak and base period demands for electricity and other forms of energy.	**Consistent.** The proposed project's impact relative to peak and base demands for electricity and other forms of energy is discussed later in Section 4.10.10, Cumulative Impacts. Future projects would implement a variety of energy conservation measures that would be consistent with goals, policies, and strategies outlined in the proposed LUE and UDE that are aimed at reducing energy consumption and would also be required to meet the California Energy Code Building Energy Efficiency Standards contained in Title 24 (Part 6). Additionally, because developments that would be considered under the proposed project have not been designed or proposed at this time, potential improvements to the current energy and natural gas facilities would be identified at the time such discretionary projects are proposed and under review. In the event that new energy facilities are needed, such projects would be required to undergo a separate CEQA review process and their impacts would be assessed at that time. Therefore, the proposed project is considered consistent with this threshold.
4. The degree to which the project complies with existing energy standards.	**Consistent.** Future development under the proposed project would be required to be consistent with goals, policies, and strategies outlined in the proposed LUE and UDE that are aimed at reducing energy consumption and would also be required to meet or exceed the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11). For example, new projects facilitated by approval of the proposed project would be required to comply with the Building Energy Efficiency Standards for Residential and Non-Residential Buildings that are in place at the time new development is proposed. These standards are updated approximately every 3 years, with the next update (2019) to go into effect on January 1, 2020. Therefore, the proposed project is considered consistent with this threshold.
5. The effects of the project on energy resources.	**Consistent.** Future development under the proposed project would be required to be consistent with goals, policies, and strategies outlined in the proposed LUE and UDE that are aimed at reducing energy consumption and would also be required to meet or exceed the provisions included in the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6) and the CALGreen Code (Title 24, Part 11). Further, the energy demands of the proposed project would be included in the calculation of delivery capabilities and projected loads for SCE and the ER Department. The estimated amount of natural gas consumption for the anticipated General Plan build out scenario (2040) is approximately 4,649,160,730 kBtu, or an 16.34 percent overall increase in electricity demand. Electricity use is projected to be 1,950,216,130 kWh at General Plan build out, or a 17.18 percent overall increase in natural gas demand. The increased demand for natural gas and electricity does not account for energy efficiency standards, which would further reduce energy demands over the life of the project. Future improvements to existing electricity and natural gas facilities would be determined on a project-by-project basis. However, it is not anticipated that major new facilities would be necessary due to the minimal project-related increase in energy demand (less than 1 percent increase in electricity and natural

Table 4.10.B: Proposed Project Comparison to *State CEQA Guidelines* Appendix F

Appendix F Items for Consideration	Proposed Project
	gas demand through year 2040) to serve new development facilitated by the anticipated General Plan build out scenario (2040). Therefore, the proposed project is considered consistent with this threshold.
6. The project's anticipated transportation energy use requirements and its overall use of efficient transportation alternatives.	**Consistent.** The proposed project would be located in an urban area currently served by public transportation. Transit service is provided within the project vicinity by Metro and the Long Beach Transit. It is anticipated that the existing transit service in the project area would be able to accommodate the project-generated transit trips. The estimated traffic from the proposed project is addressed in Section 4.8, Transportation, in the Draft EIR and the *Traffic Impact Analysis* (TIA) (Appendix G). As described in the TIA, the proposed project would result in a 9 percent decrease in VMT per capita and a 19 percent decrease per household by 2040, which would serve to reduce the overall transportation energy usage in 2040 as compared to the without project scenario (the 2040 without project scenario would only result in a 1 percent decrease in VMT over existing conditions). In addition, new vehicles traveling within the planning area through 2040 would likely have improved fuel efficiency and would increasingly be comprised of electric, hydrogen, and diesel vehicles (consistent with historic and current trends). The project-related decrease in VMT can be attributed to the design of the proposed project, which aims to promote mixed-use new development near employment centers and transit-rich areas of the City and also encourages transit alternatives. For example, the proposed project concentrates new growth within the TOD PlaceType (along the Metro Blue Line in the City of Long Beach's Downtown) to encourage new residents to utilize public transit. The proposed project also encourages alternative transit options through the creation of bicycle and pedestrian paths to improve the bikeability and walkability in the planning area. Therefore, the proposed project is considered consistent with this threshold.

CEQA = California Environmental Quality Act
EIR = Environmental Impact Report
ER Department = Energy Resources Department
Metro = Los Angeles County Metropolitan Transportation Authority
SCE = Southern California Edison
TOD = Transit-Oriented Development
VMT = vehicle miles traveled

Future projects facilitated by project approval would be required to comply with federal, state, and local regulations aimed at reducing energy consumption. In addition, the proposed project includes several goals, policies, and strategies aimed at reducing energy consumption specifically within the planning area. These goals, policies, and strategies have been developed in accordance with federal and State energy regulations, such as the California Energy Code Building Energy Efficiency Standards (Title 24, Part 6), the CALGreen Code (Title 24, Part 11), and SB 743, which are also aimed at reducing energy consumption. Therefore, the proposed project would be consistent with

applicable plans related to renewable energy and energy efficiency, and no mitigation would be required.

4.10.9 Mitigation Measures

There would be no significant adverse impacts of the proposed project related to energy, and no mitigation is required.

4.10.10 Cumulative Impacts

As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for energy. The planning area includes the entire 50 square miles within the limits of the City of Long Beach; therefore, the cumulative area for energy providers is listed below for each individual public service provider.

4.10.10.1 Electricity

The geographic area for the cumulative analysis of impacts to the provision of electricity is the service territory of SCE.

Build out of the proposed General Plan LUE would result in an operational electricity demand of 1,950,216,130 kWh (1,950.22 GWh) (a 17.18 percent increase in demand over existing 2018 conditions). The SCE service territory is forecasted electricity demand of 133,754 GWh by 2030. Because no 2040 forecast was available, the 2030 high demand consumption forecast was extrapolated to the 2040 high demand consumption forecast using the annual growth percentage average under the peak demand scenario.[1] Using this calculation, the 2040 high demand consumption would be 155,227 GWh in 2040. The anticipated General Plan build out scenario (2040) would represent approximately 1.3 percent of the extrapolated 2040 peak demand. Therefore, it is anticipated that the electricity demand under the anticipated General Plan build out scenario (2040) would be within the forecasted electricity demand for 2040.

Although the proposed project has the potential to increase electrical demand in the area, SCE has identified adequate capacity to handle increase in electrical demand, and any increase in electrical demand resulting from the proposed project would be incremental compared to an increase in regional electrical demand. Compliance with Title 24 of the California Code of Regulations regulates energy consumption in new construction and regulates building energy consumption for heating, cooling, and lighting for future development under the proposed project. Future projects would also be required to comply with goals, policies, and strategies aimed at reducing energy demand within the planning area. Therefore, in relation to the cumulative study area, the proposed project's incremental contribution to increased demand for electricity would not be cumulatively considerable, and no mitigation is required.

[1] According to the California Energy Demand 2018–2030 Revised Forecast, SCE has historically experienced 1.5 percent annual growth in electricity demand under peak demand scenarios. In the absence of 2040 electricity projections, this historic growth rate has been applied to the 10-year period between the 2030 estimated electricity demand to estimate the peak electricity demand in 2040.

4.10.10.2 Natural Gas

The geographic area for the cumulative analysis of impacts to the provision of natural gas is the service territory for the ER Department; and the ER Department's service area covers the Cities of Long Beach and Signal Hill and portions of surrounding communities, including the cities Bellflower, Compton, Lakewood, Los Alamitos, Paramount, and Seal Beach. According to the *2018 California Gas Report*, the future ER Department's annual demand for natural gas is projected to reach 9.02 bcf in 2035. Because no 2040 forecast was available, the 2035 demand consumption forecast was extrapolated to the 2040 demand using the average percentage change from 2022 to 2035 projections (1.1 percent increase), as documented in the *2018 California Gas Report*.[1] The anticipated General Plan build out scenario (2040) would result in an operational natural gas demand of 4,649,160,730 kBtu (0.0046 bcf). Therefore, the anticipated 2040 natural gas demand would represent 0.05 percent of the ER Department's projected natural gas demand for the year 2040. Moreover, future development under the anticipated General Plan build out scenario (2040) would be subject to Title 24 requirements and would be evaluated on a case-by-case basis to determine the need for specific distribution infrastructure improvements. Where necessary, gas service would be added to the existing system by the ER Department to meet the requirements of individual development projects in the City. Therefore, the proposed project's contribution to cumulative natural gas impacts would be considered less than significant.

4.10.10.3 Gasoline

The geographic area for the cumulative analysis of impacts to the provision of natural gas is the State of California, as there is no local or singular provider for gasoline. According to the CEC Transportation Energy Demand Forecast 2018–2030, the demand for fuel is expected to decrease to between 12.3 billion and 12.7 billion gallons in 2030 (a 20–22 percent reduction) from the 2017 demand of 15.8 gallons). Because no 2040 forecast was available, the 2030 demand consumption forecast was extrapolated to the 2040 demand using the percentage change from 2018 to 2030 projections (20 percent total or an approximate annual decrease of 1.66 percent). Based on this extrapolation, the 2040 demand for fuel is expected to be approximately 10.7 billion gallons. The reduction in gasoline demand through the year 2040 is based on assumptions in the CEC Transportation Energy Demand Forecast 2018–2030, which includes projections that account for new energy efficiency and regulations at the State and local levels and an increasing number of electric, hydrogen, diesel, and high fuel economy vehicles.[2]

Although the proposed project would result in an increase in vehicular trips that would result in an increased demand for gasoline, new vehicles traveling within the planning area through 2040 would

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1 According to the *2018 California Gas Report*, the natural gas demand would increase by 0.42 percent, 1.67 percent, and 1.23 percent, respectively, from 2022–2025, 2025–2030, and 2030–2035. Using an average growth rate of 1.1 percent, the 2040 demand would be 9.11 bcf.

2 For reference, the Transportation Energy Demand Forecast 2018–2030 projects that the transportation electricity demand for electric vehicles is forecasted to be 17,974 GWh in a high-demand scenario. The transportation hydrogen demand for hydrogen-powered vehicles is anticipated to reach 70 million Gasoline Gallon Equivalents (GGE) in the high-demand 2030 scenario, and the transportation demand for diesel associated with diesel-powered vehicles is anticipated to reach approximately 4.6 billion gallons of diesel fuel (assumptions include on-road vehicles and rail) in the high-demand 2030 scenario.

likely have improved fuel efficiency and would increasingly be comprised of electric, hydrogen, and diesel vehicles (consistent with historic and current trends). In addition, the proposed project would support land use patterns and travel modes that would reduce the number of VMTs traveled within the planning area (a 9 percent decrease from 2018 to 2040), which would further reduce the project-related transportation energy demand. Furthermore, the project-related demand for gasoline would be minimal compared to the statewide availability of gasoline. Therefore, the proposed project's contribution to cumulative transportation energy impacts would be considered less than cumulatively significant.

4.10.11 Level of Significance after Mitigation

There would be no significant unavoidable adverse impacts of the proposed project related to energy. No mitigation would be required.