3.5 ENERGY

This section of the Environmental Impact Report (EIR) describes the existing energy sources, energy providers, and infrastructure within the region, including the Project site and the surrounding vicinity. This impact analysis assesses the potential short- and long-term energy consumption that could result from the construction and operation of the proposed Beach Cities Health District (BCHD) Healthy Living Campus Master Plan (Project). The description of the physical setting and environmental impacts provided in this EIR is consistent with the intent and requirements of Appendix F, *Energy Conservation* of the California Environmental Quality Act (CEQA) Guidelines. The analysis considers the conformance of the proposed Project with all applicable State and local energy conservation regulations and policies (e.g., compliance California Title 24 Building Energy Efficiency Standards [Part 6] CALGreen [Part 11]). Emissions of criteria air pollutants and greenhouse gases (GHG) due to energy consumption are addressed in Section 3.2, *Air Quality* and 3.7, *Greenhouse Gas Emissions and Climate Change*.

3.5.1 Environmental Setting

Electricity

Generation of electricity requires the consumption of energy produced by a mix of non-renewable and renewable sources. Energy production, consumption, research, and conservation efforts within the State of California are managed by the California Energy Commission (CEC). Southern California Edison Company (SCE) provides electricity to approximately 15 million people, 15 counties, and 180 incorporated cities across Central and Southern California, including Redondo Beach and Torrance (SCE 2019).

In 2018, approximately 218,120,200,000 kilowatts (kWh) (218,120.2 gigawatts [GWh]) of electricity were consumed in the State and approximately 67,856,281,249 kWh (67,856.3 GWh) of electricity were consumed in Los Angeles County. Of the electricity consumed in the State, 46.54 percent was generated by natural gas-fired power plants, 0.15 percent was generated by coal-fired power plants, 11.34 percent was generated by large hydroelectric dams, 0.24 percent was generated by oil and other petroleum or waste heat, 9.38 percent was generated by nuclear power plants. The remaining 32.35 percent of electricity production in the State was generated by renewable sources including biomass, geothermal, small hydroelectric dams, solar, and wind power. An additional 30,095 GWh of electricity, or approximately 10.54 percent of the State's total energy mix, was provided from imported sources (CEC 2019b).

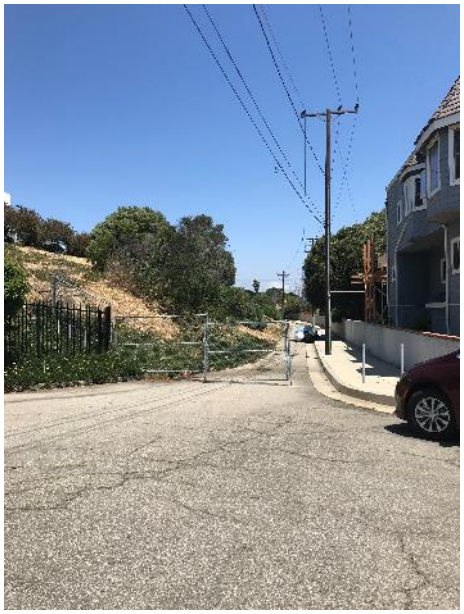
In 2012, the most recent year of publicly available data provided in the Redondo Beach and Torrance Energy Efficiency Climate Action Plans (EECAPs), approximately 498,141,349 kWh of electricity were consumed within Redondo Beach and approximately 1,733,990,505 kWh were consumed within Torrance (South Bay Cities Council of Governments [SBCCOG] 2015a, 2015b).

Table 3.5-1. State, County, and City Electricity Consumption

Year	Area	Population	Electricity Demand (kWh)	
			Total	Per Capita
2018	State of California	39,557,045	218,120,200,000	5,514.07
2018	Los Angeles County	10,105,518	67,856,281,249	6,714.78
2012	Los Angeles County	9,935,000	69,274,866,576	6,972.81
2012	Redondo Beach	67,459	498,141,349	7,242.60
2012	Torrance	146,340	1,733,990,505	11,697.82

Notes: The most recent publicly available data for the Redondo Beach and Torrance is provided in the Redondo Beach and Torrance EECAPs.
Source: CEC 2019a; U.S. Census Bureau 2019; SBCCG 2015b, 2015a.

There are four power plants in the South Bay, which are located in Alamitos, Huntington Beach, and Redondo Beach, that AES Corporation (AES), bought from SCE in 1998. The AES Redondo Beach Power Plant, which provides electricity to the system-wide grid and supports peak usage on hot days, was slated for retirement on December 31, 2020 in accordance with the State Water Resources Control Board (SWRCB) Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (Once-Through Cooling [OTC] Policy). The OTC Policy, which became effective on October 1, 2010, mandated the phasing out of "once-through cooling," a process that uses ocean water to cool turbines and endangers marine life. However, in the aftermath of a heatwave and two rolling blackouts in California in Summer 2020, the SWRCB voted to amend its policy, extending compliance dates for the four power plants in the South Bay. This amendment gave the AES Redondo Beach Power Plant license to operate until December 2021. Redondo Beach and Torrance are also served by electrical infrastructure (e.g., substations, transmission lines, transformers, overhead and underground power lines, etc.) with maintenance and periodic upgrades provided by SCE, as necessary. Overhead power lines



Overhead powerlines are located adjacent to the east of the Project site along Flagler Lane through Flagler Alley. Similarly, overhead power lines are also provided along North Prospect Avenue.

and SCE service poles are provided located along North Prospect Avenue and Flagler Lane. A buried power line is located to the northwest between the Project site and the Redondo Village Shopping Center.

The estimated electricity demand for the operation of the existing residential, medical office, office, health and fitness, and community services uses at the existing BCHD campus is approximately 2,378,070 kWh per year, far less than 0.1 percent of total electricity demand in Redondo Beach (see Table 3.5-2; see Appendix E).

Table 3.5-2. Estimated Annual Electricity Demand of the BCHD Campus

Equivalent Land Use Type at the Existing BCHD Campus	Area (sf /unit)	Annual Usage (kWh/year)
Beach Cities Health Center		
Residential (Memory Care)	60 units	166,963
Medical Office	42,103 sf	589,021
General Office	15,810 sf	221,182
Day-Care Center	9,717 sf	59,079
Health Club (Center for Health and Fitness)	12,294 sf	103,884
College (Regents of the University of California; California State University of Dominguez Hills Classrooms)	1,519 sf	18,760
Beach Cities Advanced Imaging Building		
Medical Office	45,913	642,322
Providence Little Company of Mary Medical Institute Building		
Medical Office	46,881	576,859
Total		**2,378,070**

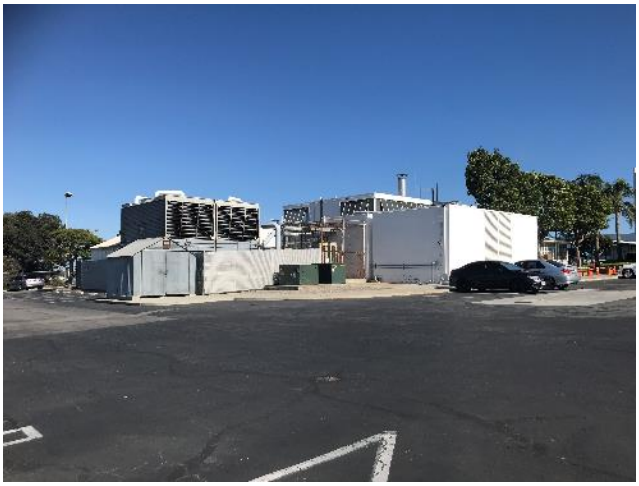
Notes: Some square footage does not generate energy demand (e.g., janitorial closets, storage, etc.) and therefore, is not included in the estimate of energy demand for the existing BCHD campus.
Sources: See Appendix B and Appendix E.

Natural Gas

Natural gas is a fossil fuel formed when layers of buried organic matter are exposed to intense heat and pressure over thousands of years. The energy is stored in the form of hydrocarbons and can be extracted in the form of natural gas, which can be combusted to generate electricity or can be used directly for heating, cooking, and other use. The Southern California Gas Company (SoCal Gas) provides natural gas to 21.8 million consumers in more than 500 communities. Redondo Beach and Torrance are located in SoCalGas's Pacific Region, which includes all of the coastal areas between Long Beach and Ventura (SoCalGas 2019).

In 2018, approximately 12,665,640,779 therms of natural gas were consumed in the State and 2,921,507,284 therms of natural gas were consumed in Los Angeles County (see Table 3.5-3; CEC 2018b, 2019a).

In 2012, the most recent year of publicly available data provided in the Redondo Beach and Torrance EECAPs, approximately 15,486,097 therms of natural gas were consumed within the Redondo Beach and approximately 50,300,801 therms of natural gas were consumed within Torrance (SBCCG 2015a, 2015b). Natural gas is delivered to the cities by SoCalGas through their integrated pipeline system. The majority of this natural gas is produced outside of the State while a small supply is produced locally in Central and Southern California from onshore and offshore fields. All residential and commercial areas within Redondo Beach and the Torrance are served by buried natural gas infrastructure, with maintenance and periodic upgrades provided by SoCalGas, as necessary. A natural gas line is located beneath North Prospect Avenue. Natural gas is delivered to the Project site from this line through another located along the eastern boundary of the Project site paralleling Flagler Lane. After passing through a meter, natural gas is delivered to the Beach Cities Health Center and attached Maintenance Building through a 3-inch and 2-inch natural gas line, respectively.



The attached Maintenance Building supports the Beach Cities Health Center and serves as a centralized distribution point for electricity and natural gas utilities.

Table 3.5-3. State, County, and City Natural Gas Consumption

Year	Area	Population	Natural Gas Demand (therms)	
			Total	Per Capita
2018	State of California	39,557,045	12,665,640,779	320.19
2018	Los Angeles County	10,105,518	2,921,507,284	289.10
2012	Los Angeles County	9,935,000	2,958,817,134	297.82
2012	Redondo Beach	67,459	15,486,097	229.56
2012	Torrance	146,340	50,300,801	343.73

Notes: Natural gas consumption data was not available from the CEC for Lake, Mariposa, and Sierra Counties for 2018; therefore, the total and per capita gas consumption for the State may be slightly greater than reported in this table. The most recent publicly available data for Redondo Beach and Torrance is provided in the Redondo Beach and Torrance EECAPs.
Sources: CEC 2019a; U.S. Census Bureau 2019; SBCCG 2015b, 2015a.

The estimated natural gas demand for operation of the existing residential, medical office, office, health and fitness, and community services uses at the existing BCHD campus is 2,252,693 thousand British thermal units (kBTU) (approximately 22,532 therms) per year, far less than 0.1 percent of total electricity demand in Redondo Beach (see Table 3.5-4; see Appendix E).

Table 3.5-4. Estimated Annual Natural Gas Demand of the BCHD Campus

Land Use	Area (sf /unit)	Annual Usage (kBTU/year)	Annual Usage (therms/year)
Beach Cities Health Center			
Residential (Memory Care)	60 units	479,953	4,801
Medical Office	42,103 sf	384,821	3,849
General Office	15,810 sf	144,503	1,445
Day-Care Center	9,717 sf	115,049	1,151
Health Club (Center for Health and Fitness)	12,294 sf	256,945	2,570
College (Regents of the University of California; California State University of Dominguez Hills Classrooms)	1,519 sf	23,286.3	233
Beach Cities Advanced Imaging Building			
Medical Office	45,913	419,644	4,197
Providence Little Company of Mary Medical Institute Building			
Medical Office	46,881	428,491	4,286
Total		**2,252,693**	**22,532**

Notes: Some square footage does not generate energy demand (e.g., janitorial closets, storage, etc.) and therefore, are not included in the estimate of energy demand for the existing BCHD campus.
1 therm is equal to approximately 99,976.1 BTUs.
Sources: See Appendix B and Appendix E.

Transportation Energy

According to the CEC, transportation accounts for nearly 40 percent of the total energy demand throughout the State and approximately 39 percent of the GHG emissions throughout the State (CEC 2018a). In 2018, California consumed 14.24 billion gallons of gasoline (including aviation fuel) and 3.07 billion gallons of diesel fuel (California Department of Tax and Fee Administration 2019). The California Department of Transportation (Caltrans) reports that approximately 25.5 million automobiles, 5.76 million trucks, and 881,386 motorcycles were registered in the State as of January 1, 2018, resulting in a total estimated 344.3 billion vehicle miles traveled (VMT) in 2017 and 13 billion gallons of transportation fuel consumed (Caltrans 2018a, 2018b). Within Redondo Beach, approximately 538,339,762 miles were traveled by gasoline-, diesel-, and electric-powered vehicles in 2012, accounting for approximately 0.15 percent of the total VMT

throughout the State (SBCCG 2015a). Within Torrance, approximately 1,369,046,211 miles were traveled by gasoline-, diesel-, and electric-powered vehicles in 2012, accounting for approximately 0.4 percent of the total VMT throughout the State (SBCCG 2015b). However, Redondo Beach and Torrance have adopted several policies and regulations to reduce VMT, encourage the use of electric vehicles, and prioritize mass transit services. The Redondo Beach EECAP projected that VMT and the demand for gasoline will decline over the next 15 years and will be approximately 5.7 percent lower than 2012 levels by the year 2035 (SBCCG 2015a). The Torrance EECAP projects that VMT and the demand for gasoline will slow over the next 20 years, but will be 6.7 percent greater than 2012 levels by the year 2035 (SBCCG 2015b).

Solar Energy

Currently, there is no publicly available data on the amount of solar energy produced and consumed in either Redondo Beach or Torrance. However, both cities' Climate Action Plans include multiple goals and objectives to expand the solar energy sector. Additionally, both cities promote solar energy use by providing streamlined solar permitting processes and through the Home Energy Renovation Opportunity (HERO) program, which is a financing mechanism for residential and commercial properties so homeowners and businesses can finance energy and water efficiency projects, such as renewable energy production.

3.5.2 Regulatory Setting

Federal Policies and Regulations

At the Federal level, the U.S. Environmental Protection Agency (USEPA), U.S. Department of Energy, and U.S. Department of Transportation are the three agencies with the most direct influence over national energy policies, especially transportation energy consumption. Generally, these Federal agencies establish and enforce fuel economy standards for automobiles and light trucks, fund energy-related research and development projects, and fund transportation infrastructure projects to manage transportation energy resource demand.

State Policies and Regulations

California has adopted legislation to address issues related to various aspects of energy consumption and efficiency. Several regulatory entities administer energy policy throughout the State. The CEC is the primary energy policy and planning agency in California, and is responsible for ensuring a safe, resilient, and reliable supply of energy. The CEC has seven core responsibilities: advancing state energy policy, encouraging energy efficiency, certifying thermal power plants, investing in energy innovation, developing renewable energy, transforming

transportation, and preparing for energy emergencies. The California Public Utilities Commission (CPUC) is a State agency that regulates privately owned utilities providing telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation services. The CPUC is responsible for assuring that California utility customers have safe, reliable utility services at reasonable rates, while protecting utility customers from fraud. The CPUC regulates the planning of and approval for the physical construction of electric generation, transmission, and distribution facilities as well as local distribution pipelines for natural gas. The California Air Resources Board (CARB) has adopted long-term plans and polices to address GHGs (e.g., 2017 Scoping Plan Update), which are discussed in detail within Section 3.7, *Greenhouse Gas Emissions and Climate Change*.

California Building Standards Code

The CEC first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR] Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically – typically every 3 years – to allow for the consideration and inclusion of new energy efficiency technologies and methods. The Energy Efficiency Standards for Residential and Nonresidential Buildings focus on several key areas to improve the energy efficiency of renovations and addition to existing buildings as well as newly constructed buildings and renovations and additions to existing buildings. The major efficiency improvements to the residential standards involve improvements for attics, walls, water heating, and lighting, whereas the major efficiency improvements to the nonresidential Standards include alignment with the American Society of Heating, Refrigerating and Air-Conditioning Engineers 90.1-2013 national standards. Further, the standards require that enforcement agencies determine compliance with the CCR Title 24, Part 6 before issuing building permits for any construction.

California Green Building Standards Code

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to *"improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: 1) planning and*

design; 2) energy efficiency; 3) water efficiency and conservation; 4) material conservation and resource efficiency; and 5) environmental air quality." The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. The CALGreen Code establishes mandatory measures for new residential and nonresidential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality.

CEQA Guidelines

Appendix F, *Energy Conservation* of the CEQA Guidelines expresses the goal of conserving energy in the State of California and provides guidance for the analysis of energy impacts. Under CEQA (Public Resources Code [PRC] Section 21100[b][3]), EIRs must include a discussion of the potentially significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F lists the following methods to achieve this goal: 1) decreasing overall per capita energy consumption; 2) decreasing reliance on natural gas and oil; and 3) increasing reliance on renewable energy sources. In addition to building code compliance, relevant considerations may include, among others, the project size, location, orientation, equipment use and any renewable energy features that are incorporated into the project (CEQA Guidelines Section 15126.2[b]).

Regional and Local Policies and Regulations

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG addresses regional issues related to transportation, the economy, community development, and the environment. SCAG develops plans pertaining to transportation, growth management, hazardous waste management, housing, and air quality. SCAG prepares the Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) that supports the land use and transportation components of the Air Quality Management Plans (AQMPs), which provide GHG-reduction co-benefits (see Section 3.7, *Greenhouse Gas Emissions and Climate Change* as well as Section 3.14, *Transportation*). The 2016-2040 RTP/SCS, adopted on April 7, 2016, integrates land use and transportation strategies to achieve required emission reductions consistent with Senate Bill (SB) 375 of 8 percent by 2020 and 13 percent by 2035 relative to the base year of 2005. The RTP/SCS set forth a development pattern for the region, which, when integrated with the transportation

network and other transportation measures and policies, aims to reduce GHG emissions from automobiles and light trucks consistent with CARB targets for SCAG.

City of Redondo Beach Local Policies and Regulations

Redondo Beach General Plan Housing Element

Policy 2.5 Promote the use of energy conservation features in the design of residential development to conserve natural resources and lower energy costs.

Redondo Beach Climate Action Plan and Energy Efficiency Climate Action Plan

Redondo Beach, in concert with the SBCCOG, is committed to providing a more livable, equitable, and economically vibrant community and subregion through the implementation of energy efficiency measures. The Climate Action Plan, which was adopted in 2017, contains goals and policies that incorporate energy use reduction into municipal and community operations (SBCCOG 2017a). The Climate Action Plan includes a list of non-binding goals and strategies in the following five categories:

- Land Use and Transportation. Facilitate pedestrian and neighborhood development and identify ways to reduce automobile emissions including supporting zero emission vehicle infrastructure, improving pedestrian and bicycle infrastructure, enhancing public transit service, and supporting reductions in single-occupancy vehicle use.
- Energy Efficiency. Emphasize energy efficiency retrofits for existing buildings, energy performance requirements for new construction, water efficient landscaping, financing programs that will allow home and business owners to obtain low-interest loans for implementing energy efficiency in their buildings.
- Solid Waste. Focus on increasing waste diversion and encouraging participation in recycling and composting throughout the community.
- Urban Greening. Create carbon sinks as they store GHG emissions that are otherwise emitted into the atmosphere as well as support health of the community.
- Energy Generation. Demonstrate the City's commitment to support the implementation of clean, renewable energy while decreasing dependence on traditional, GHG emitting power sources.

The Redondo Beach EECAP, adopted in December 2015, served as a foundation for developing the 2017 Climate Action Plan. The EECAP includes a detailed description of methodology, a

comprehensive GHG and energy inventory for 2012, and a forecast for the years 2020 and 2035. Development and adoption of the EECAP allows the City of Redondo Beach to:

- Understand its municipal and community energy use and GHG emissions now and in the future;
- Identify strategies at the local level that will result in long-term energy efficiency;
- Develop a plan to implement strategies; and
- Monitor and report progress toward energy-efficiency goals.

Sustainable Development Plan

In 2004, Redondo Beach created a Strategic Development Plan to encourage and promote sustainable development through policies, strategies, and programs. The plan's goals include increasing community awareness of sustainable development, revising codes to promote sustainable urban design, sustainable building practices in Redondo Beach, increasing water and energy resource conservation, and increasing sustainable transportation practices.

Sustainable City Plan

The Redondo Beach City Council established a Green Task Force in 2007 to educate the public on the importance of environmental best practices to meet Federal, State, and regional regulations, to advise on how to best prepare for meeting higher environmental standards locally and regionally, and to address environmental disaster mitigation. Redondo Beach's Green Task Force created the Sustainable City Plan, presented to City Council in 2008. The plan is a compilation of sustainable recommendations addressing five issue areas, including Economic Vitality and Regional Issues; Housing and Building; Open Space, Land Use and Trees; Resource Conservation; and Transportation.

Redondo Beach Municipal Code

Section 9-23.01: The City adopted a Green Building Ordinance in 2008, with updates in 2019. This ordinance requires the use of highly efficient plumbing fixtures, irrigation, and landscaping for new construction, major remodels, and new or remolded landscapes.

City of Torrance Local Policies and Regulations

Torrance General Plan Community Resource Element

Objective CR.13: To contribute to the improvement of local and regional ambient air quality to benefit the health of all.

Policy CR.13.5 Support air quality and energy and resource conservation by encouraging alternative modes of transportation such as walking, bicycling, transit, and carpooling.

Policy CR.13.7 Encourage the use of alternative fuel vehicles and re-refined oil.

Policy CR.13.8 Promote energy-efficient building construction and operation practices that reduce emissions and improve air quality.

Objective CR.14: To reduce the City of Torrance's overall carbon footprint and counteract the effects of global warming through a reduction in the emissions of GHGs within Torrance.

Policy CR.14.1 Support the CARB in its ongoing plans to implement Assembly Bill (AB) 32, and fully follow any new AB 32-related regulations.

Policy CR.14.2 Develop and implement GHG emissions reduction measures, including discrete, early-action GHG-reducing measures that are technologically feasible and cost-effective.

Policy CR.14.3 Pursue actions recommended in the U.S. Mayors Climate Protection Agreement to meet AB 32 requirements.

Policy CR.14.4 Act as a leader and example in sustainability and reduction in GHG emissions by conducting City business in the most GHG-sensitive way.

Objective CR.21: The efficient use and conservation of energy resources to reduce consumption of natural resources and fossil fuels.

Policy CR.21.1 Promote and encourage energy resource conservation by the public sector, private sector, and local school district.

Policy CR.21.3 Support the development and use of non-polluting, renewable energy resources.

Policy CR.21.4 Encourage the construction of homes and buildings that exceed Title 24 standards. Consider adoption of regulations requiring greater energy efficiency in new or remodeled larger homes and businesses.

Policy CR.21.5 Educate residents and businesses about the benefits of energy efficiency technologies and practices, such as solar panels and low-energy appliances.

Policy CR.21.6 Promote energy-efficient design features, including appropriate site orientation, use of light-colored roofing and building materials, and use of trees to reduce fuel consumption for heating and cooling.

Policy CR.21.7 Encourage owners to retrofit existing buildings with energy-conserving lighting fixtures. Also encourage owners to equip new buildings with energy-efficient lighting devices and to design projects to take full advantage of natural lighting.

Policy CR.21.8 Explore and consider the cost/benefits of alternative fuel vehicles including hybrid, natural gas, and hydrogen-powered vehicles when purchasing new City vehicles.

Objective CR.24: To encourage and promote green building methods and practices within Torrance.

Policy CR.24.1 Encourage sustainable construction practices and the use of energy-saving technology. Consider establishing a green building program that draws from the Leadership in Energy and Environmental Design (LEED) standards.

Policy CR.24.3 Explore the feasibility of adopting green building requirements for all new commercial and industrial development projects of large scale.

Policy CR.24.4 Provide information to the residents and the residential development community about options for "going green" in residential construction, including option for Low Impact Development.

Torrance Climate Action Plan

The City, in coordination with SBCCOG, prepared the Torrance Climate Action Plan in order to reduce GHG emissions (SBCCOG 2017b). The Torrance City Council adopted the Torrance Climate Action Plan on December 12, 2017. The City has established GHG reduction goals for year 2020 (15 percent below 2005 levels) and for year 2035 (49 percent below 2005 levels). The Climate Action Plan includes a list of non-binding goals and strategies in the following the same five general categories as the Redondo Beach's Climate Action Plan listed above (SBCCOG 2017b).

Similar to Redondo Beach's EECAP, the Torrance EECAP served as a foundation for developing the 2017 Climate Action Plan. The EECAP includes a detailed description of methodology, a comprehensive GHG and energy inventory for 2012, and a forecast for the years 2020 and 2035, and is provided in Appendix A to Torrance's Climate Action Plan.

Trip Reduction and Traffic Management Ordinance

In order to reduce mobile source emissions, Torrance has adopted a Trip Reduction and Traffic Management Ordinance (Torrance Municipal Code [TMC] Division 9 Chapter 10) to incentivize walking, cycling, use of public transit, and carpooling to work. Prior to approval of any new development project for which an EIR will be prepared, Torrance shall identify and consult with the regional and municipal fixed-route transit operators providing service to the project.

Torrance Municipal Code

Section 8.113: TMC Chapter 8.113 adopts by reference the CALGreen requirements with the local amendments that require reuse or recycling of all trees, stumps, rocks and associated vegetation and soils removed from land clearing.

3.5.3 Impact Assessment Methodology

Thresholds for Determining Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines and Appendix F, *Energy Conservation* of the CEQA Guidelines as well as State and local sustainability policies.

For purposes of this EIR, the proposed Project may have a significant adverse impact related to energy if:

a) The project would result in potentially significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

b) The project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Appendix F, *Energy Conservation* of the CEQA Guidelines, which provide assistance to lead agencies with regard to evaluation of impacts related to energy resources in EIRs, recommends consideration of the following environmental impacts to the extent relevant and applicable:

a) 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.

b) The effects of the project on local and regional energy supplies and on requirements for additional capacity.

c) The effects of the project on peak and base period demands for electricity and other forms of energy.

d) The degree to which the project complies with existing energy standards.

e) The effects of the project on energy resources.

f) The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Methodology

The impact analysis provided in this section of the EIR utilizes data from the CEC, Redondo Beach and Torrance EECAPs as well as land use and emissions assumptions from the California Emissions Estimator Model (CalEEMod) consistent with the air quality analysis provided in Section 3.2, *Air Quality* and Section 3.7, *Greenhouse Gas Emissions and Climate Change* (see Appendix B and Appendix E). Based on these resources, this analysis assesses the availability and level of energy services, any planned improvements to or changes in these utilities, and projected increases in energy demand associated with future residential and commercial development at the BCHD campus.

Electricity and natural gas demand were estimated using State-wide average energy consumption factors by land use as documented in the CEC's California Commercial End-use Survey (CEC 2006). As described further in the impact analysis below, these factors do not account for the sustainability features described for the proposed Project including photovoltaic solar panels, solar

hot water systems, high efficiency heating, ventilation, and air conditioning (HVAC) systems, etc. (refer to Section 2.5.1.5, *Sustainability Features*). Additionally, this analysis does not account for the Transportation Demand Management (TDM) that would be prepared for the proposed Project (refer to Section 2.5.1.5, *Sustainability Features*). As such, the analysis below presents conservative electricity and natural gas demand estimates as well as conservative fuel consumption estimates.

Construction

Construction of the proposed Project – including the Phase 1 preliminary site development plan as well as the Phase 2 development program – would result in energy consumption as a result of the use of heavy-duty construction equipment, on-road trucks, and construction worker commutes to and from the Project site. Energy consumption from heavy-duty construction equipment has been estimated based on the equipment mix analyzed in the CalEEMod, consistent with the air quality analysis in Section 3.2, *Air Quality* and Section 3.7, *Greenhouse Gas Emissions and Climate Change*, and fuel consumption data from the CARB OFFROAD2011 model. The assumption that diesel fuel would be used for all equipment represents the most conservative scenario for maximum potential energy use during construction.

Operation

Operation of the proposed Project would result in energy consumption in the form of electricity and natural gas for building heating, air conditioning, cooking, lighting, electronics, and other miscellaneous energy needs. Additionally, operation of the proposed Project would result in the consumption of transportation fuels, primarily gasoline, for vehicles traveling to and from the Project site. Building energy use factors, vehicle trips from all vehicle types to and from the Project site, and vehicle trip lengths from CalEEMod have been used to estimate building energy use and VMT (see Appendix B and Appendix E). The estimated fuel economy for vehicles has been based on fuel consumption factors from the CARB EMission FACtors (EMFAC) emissions model, which is incorporated into CalEEMod. Therefore, this energy assessment is consistent with the modeling approach used for other quantitative construction and operational analyses provided in this EIR and consistent with general CEQA practices.

3.5.4 Project Impacts and Mitigation Measures

Impact Description (EN-1)

a) The project would result in potentially significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

EN-1 The proposed Project – including the Phase 1 preliminary site development plan and the more general Phase 2 development program – would not result in wasteful, inefficient, or unnecessary energy consumption. Conformance with of State regulations including the California Title 24 Building Energy Efficiency Standards (Part 6) CALGreen (Part 11) as well as conformance with the Redondo Beach and Torrance General Plans and Climate Action Plans would ensure that this impact would be *less than significant.*

As described in Section 3.5.1, *Existing Setting*, overhead power lines are located along North Prospect Avenue as well as Flagler Lane and Flagler Alley. Additionally, a buried natural gas line is located on the eastern edge of the Project site serving the Beach Cities Health Center and the attached Maintenance Building. Additionally, there are.

The proposed development under Phase 1 and Phase 2 of the proposed Project would be tied into the existing points of connection along North Prospect Avenue. A new electric service would be developed for the Project site – including the development of an underground on-site distribution system – that would replace the existing electrical service at the Project site. The 16 kilovolt (kV) or 4.16 kV line along North Prospect Avenue would be brought onto the Project site from a service drop along North Prospect Avenue. This medium voltage line would be distributed on-site via a proposed distribution system including a SoCal Edison Substation Yard and generator yard, which would be located along the eastern perimeter of the Project site, immediately east of the pedestrian promenade (refer to Figure 2-5 and Figure 2-7). The existing natural gas lines on the BCHD campus would be re-routed as necessary to support the new buildings, and the existing lines to the Beach Cities Health Center and attached Maintenance Building would be removed.

Construction Energy Use

Construction of the proposed Project – including the Phase 1 preliminary site development plan and the more general Phase 2 development program – would require energy consumption for on-site demolition, grading, and construction, transport of demolition debris, soil, and construction materials, and construction worker commute trips.

Electricity would be used during demolition, grading, and construction activities to provide temporary power for lighting, electric-powered hand tools, and other equipment. Electricity use during these activities would vary (e.g., depending on lighting needs) and would be temporary for the duration of demolition, grading, and construction, which would occur over 29 months during Phase 1 and 28 months during Phase 2. Energy use during construction would not result in a substantial increase in on-site electricity consumption and would be substantially less than the

ongoing operational energy use on-site under existing conditions at the BCHD campus. Overall energy impacts associated with construction-related electricity use would be comparable with similarly sized construction projects in the South Bay and would be *less than significant*.

Diesel fuel would be required to power heavy construction equipment and haul trucks exporting demolition debris and soil and delivering construction materials to the Project site. The assumption that diesel fuel would be used for all equipment represents the most conservative scenario for reasonable maximum potential energy use during construction. The total construction fuel consumption has been calculated as the sum of total estimated fuel consumption for each piece of equipment used in each phase of construction. Section 3.0, *Construction Detail* in the CalEEMod Worksheets (see Appendix B and Appendix E), provides detailed construction phasing, construction equipment used in each phase, total number of days worked, equipment horsepower, equipment load factor, and equipment quantities based on typical construction equipment and default model assumptions. These assumptions were used to calculate total fuel consumption for specific construction equipment.

Total fuel consumption has been based on a fuel consumption factor of 0.05 gallons per horsepower per hour (gal/hp/hr) for diesel engines as derived from the South Coast Air Quality Management District (SCAQMD) CEQA Handbook Table A9-3E.

The amount of total fuel required during construction of the proposed Project would be approximately 1,910,839 gallons (see Table 3.5-5). As shown in Table 3.5-5, approximately 91 percent of this fuel consumption (i.e., 1,746,342 gallons of fuel) would be required for construction vehicles, including haul truck trips and construction worker commutes. Total fuel consumption for construction worker commute trips is based on average fuel consumptions for light-duty vehicles conservatively assuming that 100 percent of construction workers would arrive to the Project site using such vehicles. The average fuel consumption rate for construction vehicle trips has been based on light-duty fuel efficiency estimates from 1990 to 2015, as provided by Bureau of Transportation Statistics. Refer to detailed calculations of Project Construction Fuel Consumption in Appendix E.

Table 3.5-5. Estimated Project Construction Fuel Consumption

Phase	Fuel Consumption from Construction Equipment (Gallons)	Fuel Consumption from Construction Vehicle Trips (Gallons)	Total (Gallons)
Phase 1	84,491	803,276	887,767
Phase 2	80,006	943,066	1,023,072
Total	164,497	1,746,342	1,910,839

Source: See Appendix E.

For comparison purposes, the construction energy demand from transportation fuel has been compared to the Los Angeles County transportation fuel sales. As shown in Table 3.5-6, the proposed Project would represent a very small fraction – less than 1 percent – of the County's total 2018 fuel consumption and would not result in a substantial increase in fuel consumption. The total fuel consumption associated with the proposed Project would be comparable with similarly sized construction projects in the South Bay.

Table 3.5-6. Comparison of Project-related Diesel Fuel Consumption to Annual County Diesel Fuel Consumption

	Diesel Fuel Consumption (Gallons)
Annual Los Angeles County (2018)	228,000,000
Total Project Construction (including Phase 1 and Phase 2)	1,910,839

Source: CEC 2018a.

Compliance with State and local policies, such as the State law prohibiting heavy-duty diesel vehicles from idling for longer than 5 minutes (PRC Title 13, Section 2485; refer to Section 3.2, *Air Quality*) would minimize energy consumption. Additionally, the implementation of the Air Quality Management Plan required under Mitigation Measure (MM) AQ-1 would require the use of more efficient USEPA Tier 4 Final engines on all construction equipment, except crushing equipment, to reduce diesel particulate matter emissions. Overall impacts associated with construction-related fuel use would be *less than significant*.

The proposed construction activities would not result in substantial use of natural gas or other energy sources.

Operational Vehicle Fuel Consumption

Phase 1 of the proposed Project would result in a reduction of 1,920 daily vehicle trips to the BCHD campus compared to existing conditions (see Section 3.14, *Transportation*) and would therefore result in a reduction in operational vehicle fuel consumption. Phase 2 would result in an

increase of 376 daily vehicle trips compared to existing conditions. However, this 6-percent increase in daily vehicle trips compared to existing conditions would be minor and would not result in wasteful, inefficient, or unnecessary energy consumption.

Using vehicle fleet mix data provided in Appendix B and Appendix E and average fuel economy information provided by the Bureau of Transportation Statistics, the annual VMT associated with the proposed Project would result in the consumption of approximately 189.9 gallons of fuel per day (see Table 3.5-7), or an estimated 69,313.5 gallons per year. The proposed Project would represent a very small fraction – far less than 1 percent – of the Redondo Beach's total fuel consumption (an estimated 30.3 million gallons). Additionally, the location of the Project site close to several stops along Beach Cities Transit Line 102 and the provision for multi-modal transportation (see Section 3.14, *Transportation*) would incrementally reduce operational vehicle fuel consumption. Further, the proposed Project would implement a Transportation Demand Management Plan under MM T-1 to further minimize VMT and thereby further reduce operational vehicle fuel consumption (see Section 3.14, *Transportation*).

Table 3.5-7. Comparison of Project and Redondo Beach Transportation Fuel Usage

Vehicle Type	Percent of Vehicle Trips[1]	Daily VMT	Average Fuel Economy (miles/gallon)[2]	Total Daily Fuel Consumption (gallons)
Passenger Cars	55.2	1,865	23.3	80
Light/Medium Duty Vehicles	36.0	1,216	17.1	71
Heavy Duty Vehicles/Other	8.3	281	7.3	38.5
Motorcycles	0.5	17	43.4	0.4
Total	**100%**	**3,379[3]**	**--**	**189.9**

Redondo Beach 2012 VMT		Redondo Beach 2012 Fuel Consumption[4]	
Daily	Annual	Daily	Annual
1,474,904	538,339,762	82,932	30,270,180

Notes:
[1] Percentage of Vehicle Trips and Fleet Mix information provided in Table 4.4, *Fleet Mix* of Appendix E.
- Passenger Cars is the sum of the light-duty-auto fleet mix trip percentage column.
- Light/Medium Duty Vehicles is the sum of the LDT1, LDT2, and MDV fleet mix trip percentage columns. LDT = light-duty truck; MDV = medium-duty vehicle
- Heavy Duty Vehicles/Other is the sum of the LHD1, LHD2, MHD, HHD, and bus fleet mix trip percentage columns. LHD = light-heavy-duty; MHD = medium-heavy-duty; HHD – heavy-heavy-duty
Motorcycles is the sum of the MCY fleet mix trip percentage column. MCY = motorcycle
[2] Average fuel economy based on average 2014 U.S. vehicle fuel efficiency (mpg) from Table 4-12: Average Light Duty Vehicle, Long Wheel Base Fuel Consumption and Travel, and Table 4-13: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel of the *National Transportation Statistics.*
[3] Phase 2 Daily VMT provided in Appendix B.
[4] Based on the same fleet mix presented for the proposed Project.
Source: See Appendix B, CalEEMod Worksheets, Section 4.2. *Trip Summary Information*; Bureau of Transportation Statistics 2016; SBCCOG 2015a.

Although the increased VMT associated with the proposed Project following the completion of Phase 2 would result an increase in the consumption of transportation fuels, the proposed Project would not result wasteful, inefficient, or unnecessary energy consumption. Operational impacts associated with long-term energy consumption would be *less than significant*.

Operational Energy Consumption

As previously described, the existing BCHD campus is estimated to consume 2,378,070 kWh of electricity per year and 2,252,693 kBTU (22,532 therms) of natural gas per year. The BCHD campus was constructed in 1958 beginning with the construction of the former South Bay Hospital and, therefore, was not designed or constructed to meet current State and local energy efficiency standards.

Operation of the proposed Project would permanently increase the demand for electricity and natural gas. However, as required by RBMC and TMC, all new buildings on the Project site would conform with the California Title 24 Building Energy Efficiency Standards (Part 6) CALGreen (Part 11) (refer to Section 2.5.1.5, *Sustainability Features*). Compliance with these standards would reduce the amount of energy consumed for heating and cooling, lighting, and other electricity and natural gas consumption relative to existing conditions and would ensure that operational energy consumption associated with the proposed Project would not be wasteful, inefficient, or unnecessary. Additionally, as described in Phase 2.5.1.5, *Sustainability Features*, the proposed Project would include photovoltaic solar panels, solar hot water systems, and high efficiency HVAC systems. New buildings would also meet the equivalent of Leadership in Energy and Environmental Design (LEED) Gold Certification. These features of the proposed Project would further reduce the operational demand for electricity and natural gas compared to the projections in Table 3.5-8 and Table 3.5-9.

The proposed Project would slightly decrease electricity demand following buildout of Phase 1 and would increase electricity demand following buildout of Phase 2. The overall estimated increased electricity demand following the completion of Phase 2 would be 4,989,622 kWh per year (refer to Table 3.5-8), for a net increase in electricity demand of 2,611,552 kWh per year as compared to existing conditions (refer to Table 3.5-2). This estimated increase corresponds with approximately 0.5 percent of electricity consumption in the Redondo Beach in 2012.

Table 3.5-8. Estimated Annual Electricity Demand of the Proposed Project

Land Use	Area (sf /unit)	Annual Usage (kWh/year)
Phase 1		
Residential (Assisted Living and Memory Care)	217 units	862,640
PACE Services	14,000 sf	195,860
Community Services	6,270 sf	529,81.5
Youth Wellness Center	9,100 sf	69,325
Surface Parking Lot	40,725 sf	16,520
Phase 1 Total		**1,144,345**
Phase 2		
Health Club (Aquatics Center and Center for Health and Fitness)	51,300 sf	480,817
Wellness Pavilion	37,150 sf	283,015
Parking Garage	292,500 sf	3,081,445
Phase 1 Annual Electricity Demand		1,144,345
Phase 2 Total		**4,989,622**
Existing Site Demand		*2,378,070*
Project-Related Net Increase in Electricity Demand		***2,611,552***

Note: Some uses do not generate energy demand (e.g., janitorial closets, storage, etc.) and therefore, are not included in the estimate of energy demand for the existing BCHD campus.
Source: see Appendix B and Appendix E.

Table 3.5-9. Estimated Annual Natural Gas Demand of the Proposed Project

Land Use	Area (sf /unit)	Annual Usage (kBTU/year)	Annual Usage (therms/year)
Phase 1			
Residential (Assisted Living and Memory Care)	217 units	2,479,760	24,804
PACE Services	14,000 sf	127,960	1,280
Community Services	6,270 sf	131,043	1,311
Youth Wellness Center	9,100 sf	171,468	1,715
Surface Parking Lot	42,750 sf	0	0
Phase 1 Total		**2,910,231**	**29,110**
Phase 2			
Health Club (Aquatics Center and Center for Health and Fitness)	51,300 sf	1,189,239	11,895
Wellness Pavilion	37,150 sf	700,002	7,002
Parking Structure	292,500 sf	0	0
Phase 1 Annual Natural Gas Demand		2,910,231	18,897
Phase 2 Total		**4,799,472**	**48,007**
Existing Site Demand		*2,252,693*	*22,532*
Project-Related Net Increase in Natural Gas Demand		***2,546,779***	***25,475***

Note: Some uses do not generate energy demand (e.g., janitorial closets, storage, etc.) and therefore, are not included in the estimate of energy demand for the existing BCHD campus.
Source: see Appendix B and Appendix E.

The natural gas demand for the proposed Project would increase existing natural gas demand during both Phase 1 and Phase 2. The overall estimated net increase in natural gas demand following the completion of Phase 2 would be 2,546,779 kBTU (25,475 therms) per year (see Table 3.5-9). This estimated increase corresponds with approximately 0.2 percent of natural gas consumption in Redondo Beach in 2012.

As previously described, the estimated energy demand is conservative in that it does not account for the sustainability features described for the proposed Project including photovoltaic solar panels, solar hot water systems, high efficiency HVAC systems, etc. (refer to Section 2.5.1.5, *Sustainability Features*).

The proposed Project would not constrain local or regional energy supplies, and would not require the expansion or construction of new system-wide electricity generation and/or transmission facilities. Compliance with the energy requirements established within State and local regulations would prevent wasteful and inefficient energy consumption. Additionally, the achievement of LEED Gold Certification would further reduce operational energy use. Therefore, implementation of the proposed Project would not result in a significant impact due to wasteful, inefficient, or unnecessary energy consumption and impacts would be *less than significant*.

In summary, energy use during construction would be temporary and not wound result in a substantial increase in on-site electricity consumption. Diesel fuel required for construction activities would represent a very small fraction – far less than 1 percent – of the total annual fuel consumption of Los Angeles County. Overall energy consumption during construction would be comparable with similarly sized construction projects in the South Bay and be *less than significant*. Operation of the proposed Project would incrementally the regional electricity and natural gas demand by less than 1 percent and would not have substantial impacts on peak and base period demands for electricity, natural gas, or other forms of energy. Further, the proposed Project would incorporate sustainability features to ensure efficient energy use (refer to Section 2.5.1.5, *Sustainability Features*). As such, the proposed Project would not create an impact under criteria (a), (c), or (e) of Appendix F, *Energy Conservation* of the CEQA Guidelines.

The proposed Project would utilize existing electrical and natural gas utilities and would not be likely to require substantial upsizing of existing utilities. As such, the proposed Project would not have a substantial impact on local and regional energy supplies and would not create an impact under criteria (b) of Appendix F, *Energy Conservation* of the CEQA Guidelines.

The proposed Project would be subject to compliance with all State and local energy standards and which would ensure the prevention of wasteful, inefficient, or unnecessary energy consumption.

As such, the proposed Project would not create an impact under criteria (d) of Appendix F, *Energy Conservation,* of the CEQA Guidelines.

The proposed Project would represent a very small fraction – far less than 1 percent – of the total fuel consumption of Los Angeles County's over the life of the proposed Project and would not result in a substantial increase in energy demand. Operation of the proposed Project would result in an incremental increase in the daily consumption of vehicle fuel for trips associated with the proposed Project. The proposed Project would not cause wasteful, inefficient, or unnecessary use of transportation energy and would incorporate efficient transportation alternatives. Therefore, the proposed Project would not result in impacts under criteria (f) of Appendix F, *Energy Conservation*, of the CEQA Guidelines.

Impact Description (EN-2)

b) The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

EN-2 **The proposed Project – including the Phase 1 preliminary site development plan as well as the Phase 2 development program – would conform with State regulations including the California Title 24 Building Energy Efficiency Standards (Part 6) CALGreen (Part 11) as well as the Redondo Beach and Torrance General Plans, Climate Action Plans, and other applicable local plans for renewable energy and energy efficiency. Therefore, this impact would be *less than significant.***

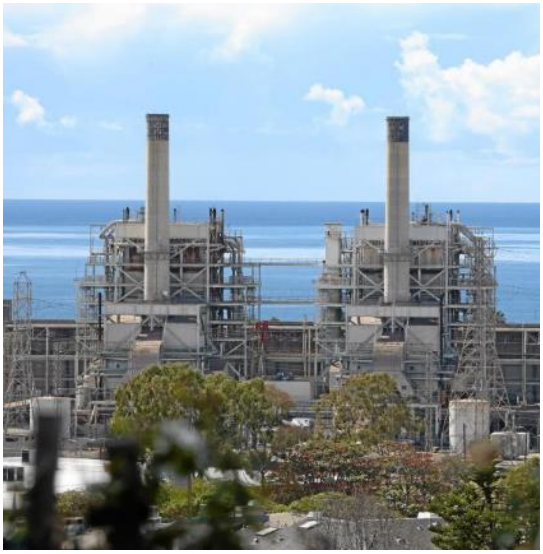
The proposed Project would support the energy conservation and GHG reduction goals and policies established California Title 24 Building Energy Efficiency Standards (Part 6) CALGreen (Part 11) as well as the Redondo Beach and Torrance General Plans, Climate Action Plans, and other applicable local plans for renewable energy and energy efficiency. As described in Impact EN-1, the proposed Project includes a number of sustainable features intended to reduce overall energy impacts (refer to Section 2.5.1.5, *Sustainability Features*). For example, the proposed Project would include the installation of solar on-site photovoltaic systems on between 25-50 percent of the rooftop space developed during Phase 1 and Phase 2. Additionally, the proposed development would include high efficiency HVAC systems, high-performance insulation, and lighting systems designed with occupancy sensors and dimmers to minimize energy use (refer to Section 2.8, *Sustainability Features*). New buildings would meet the equivalent of LEED Gold Certification (consistent with Torrance General Plan Community Resource CR.24.1). Implementation of these sustainable design features would reduce overall energy demand,

including the reliance on non-renewable energy supplies, as called for in the Redondo Beach General Plan, Climate Action and Adaptation Plan, Sustainable Development Plan, and Sustainable City Plan, and the Torrance General Plan and TMC. Therefore, implementation of the proposed Project – include the Phase 1 preliminary site development plan and the more general Phase 2 development program – would result in a *less than significant* impact.

See Tables 3.7-7 and 3.7-8 in Section 3.7, *Greenhouse Gas Emissions and Climate Change* for a summary consistency with the goals and policies established in the Redondo Beach and the Torrance General Plans and Climate Action Plans.

Cumulative Impacts

The proposed Project, along with other past, present, and future projects in Redondo Beach, Torrance, Hermosa Beach, and Manhattan Beach would incrementally contribute to the need for regional energy production and distribution facilities. However, as with the proposed Project, all cumulative development would be required to comply with the requirements of the California Building Standards Code, CALGreen, and all applicable local regulations and policies related to energy efficiency. Further, as discussed above, electricity and natural gas facilities are operated and maintained by private utility companies that plan for and accommodate anticipated growth. Electricity and natural gas services are provided upon demand from consumers and expanded as needed to meet demand, consistent with applicable Federal, State, and local with oversight from the CEC and CPUC. The pending closure of the AES Redondo Beach Power Plant would not affect system-wide grid reliability. The AES Redondo Beach Power Plant will continue to serve as a bridge until December 2021 as new procurement comes online including new battery energy storage resources (SWCRB 2020) and AES' Southland Project intended to replace the 1960-era power plants at Alamitos, Huntington Beach, and Redondo Beach that AES bought from SCE. As described in Impact EN-1, implementation of the proposed Project would result in an increase in the energy use at the Project site that would be negligible within the context of regional energy use in the South Bay and would not be wasteful,



The pending closure of the AES Redondo Beach Power Plant would not affect system-wide grid reliability and would not contribute to a cumulatively substantial impact on energy in the South Bay.

inefficient, or unnecessary. As described in Impact EN-2, the proposed Project would be consistent with applicable local policies and regulations. Therefore, the proposed Project *would not result in a considerable contribution to cumulatively significant impact* associated with energy use.