5.5 Energy

This section describes the applicable laws and policies relating to energy resources, discusses the existing energy resources in the Project area, and evaluates potential environmental impacts related to energy consumption associated with implementation of the proposed Project. As required pursuant to Appendix F of the California Environmental Quality Act (CEQA) Guidelines, an Environmental Impact Report (EIR) must include a discussion of the potential energy impacts of a project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Public Resources Code Section 21100(b)(3) and CEQA Guidelines Section 15126.4 also require EIRs to describe feasible mitigation measures which could minimize, where relevant, the wasteful, inefficient, and unnecessary consumption of energy caused by a project.

5.5.1 Regulatory Framework

The following is a description of state and local environmental laws and policies that are relevant to the CEQA review process. Refer to Sections 5.2, *Air Quality*, and 5.7, *Greenhouse Gas Emissions*, for additional regulatory background and environmental analysis regarding the Project's energy consumption.

Federal

Energy Policy Act of 2005

On August 8, 2005, President George W. Bush signed the National Energy Policy Act of 2005 (Public Law 109-58) into law. This comprehensive energy legislation contains several electricity-related provisions that aim to:

- Help ensure that consumers receive electricity over a dependable, modern infrastructure.
- Remove outdated obstacles to investment in electricity transmission lines.
- Make electric reliability standards mandatory instead of optional.
- Give federal officials the authority to site new power lines in Department of Energy-designated national corridors in certain limited circumstances.

The Renewable Fuel Standard (RFS) program was created under the Energy Policy Act (EPAct) of 2005 and established the first renewable fuel volume mandate in the United States. The program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders. As required under EPAct, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act (EISA) (Public Law 110-140) was signed into law by President George W. Bush on December 19, 2007. The Act's goal is to achieve energy security in the United States by increasing renewable fuel production, improving energy efficiency and performance, protecting consumers, improving vehicle fuel economy, and promoting research on

greenhouse gas (GHG) capture and storage. Under the EISA, the updated RFS program (RFS2) was expanded in several key ways:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel, and set separate volume requirements for each one.
- EISA required the U.S. Environmental Protection Agency (EPA) to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

RFS2 lays the foundation for achieving significant reductions of GHG emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of our nation's renewable fuels sector. The EISA also includes a variety of new standards for lighting and for residential and commercial appliance equipment. The equipment includes residential refrigerators, freezers, refrigerator-freezers, metal halide lamps, and commercial walk-in coolers and freezers.

State of California

Renewable Energy: California Renewables Portfolio Standard Program

Established in 2002 under Senate Bill (SB) 1078, accelerated in 2006 under SB 107, expanded in 2011 under SB 2 and further expanded in 2015 under SB 350, California's Renewables Portfolios Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. On September 12, 2002, then-Governor Gray Davis signed SB 1078. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

In November 2008, then-Governor Arnold Schwarzenegger signed Executive Order (EO) S-14-08, which expands the state's RPS to 33 percent renewable power by 2020. In September 2009, former Governor Schwarzenegger continued California's commitment to the RPS by signing EO S-21-09, which directs the California Air Resources Board (CARB) under its Assembly Bill (AB) 32 authority to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020.

The 33 percent by 2020 goal was codified in April 2011 with SB X1-2, which was signed by Governor Edmund G. Brown, Jr. This RPS preempts the CARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. These entities must adopt the new RPS goals of 20 percent of retail sales from renewables by the end of

2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.[1]

The Clean Energy and Pollution Reduction Act of 2015, SB 350 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 does the following: (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (SB-350 Clean Energy and Pollution Reduction Act 2015).

Assembly Bills 2514 and 2868

In order to improve power grid reliability and greater integration of renewables[2] into the energy system, California has introduced AB 2514 and AB 2868 to increase the energy storage infrastructure. Under AB 2514, California's landmark energy storage law passed in 2013, California's three Investor-Owned Utilities ("IOUs") (Southern California Edison ("SCE"), Pacific Gas & Electric ("PG&E"), and San Diego Gas & Electric ("SDG&E")) are required to install 1,325 MW of energy storage by 2024. Additionally, AB 2868, signed by California Governor Jerry Brown in 2016, requires PG&E, SCE, and SDG&E to propose programs and investments for up to 500 MW of distributed energy storage systems (defined as distribution-connected or behind-the-meter energy storage resources with a useful life of at least 10 years).

California Green Building Standards

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require

[1] At this time, California's top three POUs are well ahead of their respective RPS targets, with PG&E, SCE and SDG&E reporting RPS procurements for 2020 at 33%, 28% and 43%, respectively (www.cpuc.ca.gov/rps_homepage/, accessed December 7, 2017).

[2] The integration of renewables, such as solar and wind, into California's energy system has been a challenge as they are generated intermittently. For example, during mid-days in the summary, the amount of solar energy produced surpasses the demands. Due to the limited energy storage available across the state, there has been times when the state is required to pay other neighboring states to take the surplus to prevent overloading the grid.

additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

California Building Energy Efficiency Standards: 2016 Title 24, Part 6 (California Energy Code)

The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption (California Building Standards Commission 2015). These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards (CEC 2016a). These provisions include mandatory requirements for efficiency and design of the following types of systems, equipment, and appliances:

- Air conditioning systems
- Heat pumps
- Water chillers
- Gas- and oil-fired boilers
- Cooling equipment
- Water heaters and equipment
- Pool and spa heaters and equipment
- Gas-fired equipment, including furnaces and stoves/ovens
- Windows and exterior doors
- Joints and other building structure openings ("envelope")
- Insulation and cool roofs
- Lighting control devices

The standards include additional mandatory requirements for space conditioning (cooling and heating), water heating, and indoor and outdoor lighting systems and equipment in nonresidential, high-rise residential, and hotel or motel buildings. Mandatory requirements for low-rise residential buildings cover indoor and outdoor lighting, fireplaces, space cooling and heating equipment (including ducts and fans), and insulation of the structure, foundation, and water piping. In addition to the mandatory requirements, the standards call for further energy efficiency that can be provided through a choice between performance and prescriptive compliance approaches. Separate sections apply to low-rise residential and to nonresidential, high-rise residential, and hotel or motel buildings. In buildings designed for mixed use (e.g., commercial and residential), each section must meet the standards applicable to that type of occupancy.

The performance approach set forth under these standards provides for the calculation of an energy budget for each building and allows flexibility in building systems and features to meet the budget. The energy budget addresses space-conditioning (cooling and heating), lighting, and water heating. Compliance with the budget is determined by the use of a California Energy

Commission (CEC)-approved computer software energy model. The alternative prescriptive standards require demonstrating compliance with specific minimum efficiency for components of the building, such as building envelope insulation R-values, fenestration (areas, U-factor, and solar heat gain coefficients of windows and doors) and heating and cooling, water heating, and lighting system design requirements. These requirements vary depending on the building's location in the state's 16 climate zones.

California's Building Energy Efficiency Standards are updated on an approximately 3-year cycle as technology and methods have evolved. The 2016 Standards, effective January 1, 2017, focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, and include requirements that will enable both demand reductions during critical peak periods and future solar electric and thermal system installations.

California Assembly Bill No. 1493 (AB 1493, Pavley), (Chapter 200, Statutes of 2002)

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO2) emissions, AB 1493 (Chapter 200, Statutes of 2002), enacted on July 22, 2002, required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles whose primary use is noncommercial personal transportation manufactured in and after 2009. Refer to Section 5.7, *Greenhouse Gas Emissions*, for details regarding this regulation.

CARB's 2017 Update to Climate Change Scoping Plan (November 2017)

CARB's Climate Change Scoping Plan, which functions as a roadmap to achieve the California GHG reductions required by AB 32 and SB 32 through subsequently enacted regulations, is discussed in detail in 5.7, *Greenhouse Gas Emissions*. On December 14, 2017, CARB approved the final version of *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving California's new SB 32 2030 GHG target: a 40 percent reduction in GHG emissions by 2030 relative to 1990 levels (CARB 2017). The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. The Scoping Plan references a 2013 study by the CEC that shows 12 percent of the total energy used in the state is related to water, with 10 percent associated with water-related end uses (e.g., heating, cooling, pressurizing, and industrial processes) and 2 percent associated with energy used by water and wastewater systems (e.g., pump, convey, treat) (DRW 2017). These figures indicate that the greatest potential for water-related energy savings resides with water end users, while water agencies have a role in improving end-user water conservation and in reducing the energy intensity of their portfolios. SB 350 and other regulations are expected to decarbonize the electricity sector over time, which will in turn reduce the consumption of fossil-fuel-based energy to produce water.

Los Angeles County Title 31 Green Building Standards Code

Los Angeles County has adopted the Green Building Standard Code. The purpose of this Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts with reduced negative impacts, or positive

environmental impacts, and encouraging sustainable construction practices. Buildings subject to County approval are subject to the Code.

Local

City of El Segundo Green Building Program

The City of El Segundo encourages homeowners and building professionals to incorporate green building design in construction activities through the use of "green" building materials. The City's Home Remodeling Green Building Guidelines provides a list of green measures that can be incorporated into building projects. The program promotes green buildings to enhance the wellbeing of occupants, and to minimize negative impacts to the community and the natural environment. The five components of green design are:

- Implementing sustainable site planning;
- Safeguarding water and water efficiency;
- Ensuring energy efficiency and employing renewable energy;
- Using conservation of materials and resources; and
- Providing indoor environmental quality

City of El Segundo Energy Efficiency Climate Action Plan

The City adopted an Energy Efficiency Climate Action Plan (EECAP) in 2015, focused on reducing the community's GHG emissions related to energy use. The EECAP includes two measures designed to reduce GHG emissions associated with water use by promoting water use efficiency in alignment with the SB X7-7 goal of reducing per-capita water use by 20 percent by the year 2020. Although the City does not have jurisdiction over West Basin (as a water wholesaler to the City), the West Basin 2015 Urban Water Management Plan (UWMP) is consistent with the EECAP in that it demonstrates how the region's water retailers will collaborate with West Basin on the most effective efficiency programs to ensure that the SB X7-7 target can be met (City of El Segundo 2015).

5.5.2 Environmental Setting

Pursuant to CEQA Guidelines Appendix F, the environmental setting may include "existing energy supplies and energy use patterns in the region and locality." Existing energy supplies and energy use in the region and locality are described below. Energy consumption is analyzed in this EIR because of the potential direct and indirect environmental impacts associated with the Project. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal) and emissions of pollutants during both Project construction and operations. Refer to Sections 5.2, *Air Quality* and 5.7, *Greenhouse Gas Emissions* for additional regulatory background and environmental setting regarding the Project's energy consumption.

Electricity/Natural Gas Services

Southern California Edison (SCE) provides electrical services to Los Angeles County through State-regulated public utility contracts. Over the past 15 years, electricity generation in California

has undergone a transition. Historically, California has relied heavily on oil- and gas-fired plants to generate electricity. Spurred by regulatory measures and tax incentives, California's electrical system has become more reliant on renewable energy sources, including cogeneration, wind energy, solar energy, geothermal energy, biomass conversion, transformation plants, and small hydroelectric plants. Unlike petroleum production, generation of electricity is usually not tied to the location of the fuel source and can be delivered great distances via the electrical grid. The generating capacity of a unit of electricity is expressed in megawatts (MW). One MW provides enough energy to power 1,000 average California homes per day. Generation is typically measured in megawatt-hours (MWh), kilowatt-hours (kWh), or gigawatt-hours (GWh).

For SCE's average power mix in 2016, 28 percent qualified as renewable under the RPS, as estimated by the CEC, while the statewide average was 25 percent (CEC 2016b). In 2016, SCE also offered 50 percent Green Rate and 100 percent Green Rate power mixes composed of 64 percent and 100 percent qualifying renewables, respectively, according to the CEC (CEC 2016c).

The Southern California Gas Company (SCG) provides natural gas services to Los Angeles County. Natural gas is a hydrocarbon fuel found in reservoirs beneath the earth's surface and is composed primarily of methane (CH_4). It is used for space and water heating, process heating and electricity generation, and as transportation fuel. Use of natural gas to generate electricity is expected to increase in coming years because it is a relatively clean alternative to other fossil fuels like oil and coal. In California and throughout the western United States, many new electrical generation plants that are fired by natural gas are being brought online. Thus, there is great interest in importing liquefied natural gas from other parts of the world. As of 2016, 50 percent of the electricity consumed in California was generated using natural gas (CEC 2017a). While the supply of natural gas in the United States and production in the lower 48 states has increased greatly since 2008, California produces little, and imports 90 percent of its natural gas. Most imports are delivered via interstate pipelines from the Southwest, Rocky Mountains, and Canada (CEC 2017a).

Energy Usage

Total energy usage in California was 7,676 trillion British Thermal Units (BTUs) in 2015 (the most recent year for which this specific data is available), which equates to an average of 197 million BTU per capita. Of California's total energy usage, the breakdown by sector is 39 percent transportation, 24 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use (USEIA 2017). In 2016, taxable gasoline sales (including aviation gasoline) in California accounted for 15,487,956,872 gallons of gasoline (CBE 2017).

The electricity consumption attributable to Los Angeles County from 2007 to 2016 is shown in **Table 5.5-1**. As indicated in Table 5.5-1, electricity consumption in Los Angeles County remained relatively constant between 2007 and 2016, with no substantial increase.

TABLE 5.5-1
ELECTRICITY CONSUMPTION IN LOS ANGELES COUNTY 2007–2016

Year	Electricity Consumption (in millions of kilowatt hours)
2007	71,284
2008	72,107
2009	69,954
2010	68,255
2011	68,106
2012	69,082
2013	68,416
2014	69,998
2015	69,750
2016	69,614

SOURCE: CEC 2017c.

The natural gas consumption attributable to nonresidential land uses in Los Angeles County from 2007 to 2016 is shown in **Table 5.5-2**. Similar to energy consumption, natural gas consumption in Los Angeles County remained relatively constant between 2007 and 2016, with no substantial increase.

TABLE 5.5-2
NATURAL GAS CONSUMPTION IN LOS ANGELES COUNTY 2007–2016

Year	Natural Gas Consumption (in millions of therms)
2007	2,990
2008	3,011
2009	2,955
2010	3,124
2011	3,061
2012	2,993
2013	3,129
2014	2,858
2015	2,761
2016	2,869

SOURCE: CEC 2017c.

Automotive fuel consumption in Los Angeles County from 2007 to 2015 is shown in **Table 5.5-3** (projections for the year 2016 are also shown). As shown in Table 5.5-3, automotive fuel consumption in Los Angeles County has declined steadily since 2007.

TABLE 5.5-3
AUTOMOTIVE FUEL CONSUMPTION IN LOS ANGELES COUNTY 2007–2016

Year	On-Road Automotive Fuel Consumption (Gallons)	Off-Road Automotive Fuel Consumption (Construction Equipment) (Gallons)
2007	4,354,657,722	577,721,041
2008	4,180,250,920	526,452,249
2009	4,158,869,535	476,824,999
2010	4,145,192,970	493,616,446
2011	4,074,733,194	504,789,895
2012	3,985,703,070	504,805,809
2013	3,966,026,175	516,730,752
2014	3,983,054,350	528,492,968
2015	3,986,617,671	549,624,464
2016 (projected)	3,980,837,831	569,783,426

SOURCE: California Air Resources Board, EMFAC2014.

5.5.3 Significance Thresholds and Criteria

The CEQA Guidelines Appendix G, Environmental Checklist Form, provides significance thresholds for the evaluation of a number of environmental impacts, but does not provide specific thresholds for the evaluation of impacts related to energy resources. CEQA Guidelines Appendix F, Energy Conservation, states that the evaluation of energy use should be evaluated in an EIR and provides guidance for consideration in this evaluation. While Appendix F does not provide specific thresholds for energy use, it recommends consideration of the following environmental impacts, to the extent relevant and applicable:

- 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.
- The effects of the Project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the Project on peak and base period demands for electricity and other forms of energy.
- The degree to which the Project complies with existing energy standards.
- The effects of the Project on energy resources.
- The Project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In accordance with Appendix F of the CEQA Guidelines, for purposes of this EIR, the Project would result in a significant impact with regard to energy if the Project would:

- Conflict with adopted energy conservation plans.
- Violate State or federal energy standards.

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

Methodology

An EIR must include a discussion of the potential energy impacts of a project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Appendix F of the CEQA Guidelines). Public Resources Code Section 21100(b)(3) and CEQA Guidelines Section 15126.4 also require EIRs to describe feasible mitigation measures which could minimize, where relevant, the wasteful, inefficient, and unnecessary consumption of energy caused by a project. The discussion below analyzes the proposed Project's effect on energy consumption impacts on energy resources.

Potentially Significant Impacts

Energy use in connection with construction and operation of the Project are analyzed below based on the above-listed significance thresholds and feasible mitigation measures are recommended, where warranted, to avoid or minimize the Project's significant adverse impacts.

5.5.4 Impacts and Mitigation Measures

The following impact analysis focuses on the three sources of energy that are relevant to the proposed Project: electricity, natural gas, and transportation fuel for vehicle trips associated with construction and operation of the Project.

Local and Regional Construction

Project construction would consume energy in two general forms: (1) the fuel consumed by construction vehicles and equipment and (2) energy used in preparing construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during site clearing, grading, and construction. Fuel consumption by on-road and off-road construction vehicles is summarized in **Table 5.5-4**. Fuel energy consumed during construction would be temporary and would not represent a substantial demand on energy resources. Some incidental energy conservation would occur during construction through compliance with state requirements that equipment not in use for more than 5 minutes be turned off. Project construction equipment would also be required to comply with the latest USEPA and CARB engine emissions standards. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary fuel consumption. Because of increasing transportation costs and fuel prices, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction. There is growing recognition among developers and retailers that sustainable

construction is not prohibitively expensive, and that there is a significant cost-savings potential in green building practices and materials.

TABLE 5.5-4
TOTAL ENERGY CONSUMPTION COMPARISONS

Energy Type	Project Estimated Annual Energy Consumption	10-year Average Los Angeles County Annual Energy Consumption[2,3]	Average Percentage Increase Countywide[4]
Electricity Consumption (**Local Project**)[1]	104,683 MWh	69,657,000 MWh	0.15%
Electricity Consumption (**Regional Project**)[1]	336,471 MWh	69,657,000 MWh	0.48%
Natural Gas Consumption (Direct)[5]	400 Therms	2,869 Million Therms	<0.001%
Automotive Fuel Consumption[6,7,8,9,10]			
Construction (Off-Road) (Local Project)	390,611 gallons	524,884,205 gallons	0.07%
Construction (On-Road) (Local Project)	150,219 gallons	4,081,594,344gallons	0.004%
Construction (Off-Road) (Regional Project)	245,358 gallons	524,884,205 gallons	0.04%
Construction (On-Road) (Regional Project)	29,476 gallons	4,081,594,344 gallons	<0.001%

NOTES:
1 Refer to Appendix 3 for operational energy estimates prepared by SPI. Note that operational electricity consumption estimates account for efficiencies from Energy Recovery Devices (ERDs).
2 10-year County average annual electricity derived from Table 5.5-1, Electricity Consumption in Los Angeles County 2007-2016.
3 10-year County average annual fuel consumption derived from Table 5.5-3, Automotive Fuel Consumption in Los Angeles County 2007-2016.
4 The Project increases in electricity consumption are compared with the average consumption in Los Angeles County from 2007-2016.
5 The Project would not consume natural gas other than for building heating since the desalination process operations and the pumps are electrical.
6 Construction fuel consumption is based on California Emissions Estimator Model (CalEEMod v. 2013.2.2); refer to Section 5.2, *Air Quality*, for a full explanation and assumptions. Total fuel consumption is amortized over number of construction years to derive annual numbers.
7 Project operations would generate nominal average daily vehicle trips, estimated at 120 per day.
8 Countywide fuel consumption is from the CARB EMFAC2014 model.
9 The Project increases in average automotive fuel consumption are compared with the countywide fuel consumption in 2016, as shown in Table 5.5-3.
10 The average construction energy consumption included above reflects conservative default values of CalEEMod (see Section 5.2 Air Quality for a discussion of assumptions) and does not reflect the proposed construction-worker shuttling to and from staging/construction areas.

The Project-related incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes, and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. It is reasonable to assume that production of building materials such as concrete, steel, etc. would employ all reasonable energy conservation practices in the interest in minimizing the cost of doing business.

Local and Regional Project Operation

The Project would increase the demand for electricity resources in order to operate the desalination plant and distribute treated water. The Local Project's estimated energy consumption is summarized in **Table 5.5-5**. As shown in Table 5.5-5, the 20 MGD Project would result in a net new average electricity consumption within the Project site of approximately 104,700 MWh per year. The Regional Project's estimated energy consumption is summarized in **Table 5.5-6**, which

indicates that the 60 MGD Project would result in a net new average consumption of electricity within the Project site of approximately 336,500 MWh per year.

TABLE 5.5-5
AVERAGE OPERATIONAL ENERGY CONSUMPTION – LOCAL PROJECT (20 MGD) [1]

Energy Type	Peak MW[2]	Average MW[3]	MWh/year	KWh/AF[4]
Treatment				
Intake and pretreatment	0.9	0.9	7,569	352
1st Pass RO	8.7	8.3	70,077	3,258
2nd Pass RO	0.55	0.6	4,857	226
Post Treatment	0.1	0.1	631	29
Residuals & Other	0.4	0.4	3,364	156
Miscellaneous	0.1	0.1	841	39
Treatment subtotal	**10.6**	**10.4**	**87,338**	**4,061**
Distribution				
On-site Pumping	1.7	1.7	14,296	665
Distribution Sub-total	**1.7**	**1.7**	**14,296**	**665**
Contingency (3%)	**0.4**	**0.4**	**3,049**	**142**
TOTAL	**12.7**	**12.4**	**104,683**	**4,867**

NOTES:
1 As reported in SPI memo dated December 20, 2017 (SPI 2017), Energy Consumption for West Basin Ocean Water Desalination Project EIR. Estimated energy consumption accounts for efficiencies from Energy Recovery Devices. (This table shows total energy use and does not show the net energy use compared to energy used to import water.)
2 Peak Electrical Consumption represents operation at lowest temperature with fouled RO membrane.
3 Assumes continuous operation, 24 hours per day, 365 days per year.
4 Acre-feet.
5 2nd Pass RO operates at lower capacity at low temperature conditions, thus "Peak" value is lower than "avg."

Not included in Tables 5.5-5 and 5.5-6 is minor fuel use by emergency diesel backup generators[3] and vehicle trips (estimated at 120 per day) associated with employees and maintenance and inspection activities.[4] Fuel consumption by emergency generators and on-road vehicles would be negligible in comparison to the Project's overall energy use, and small even in comparison to the contingency factor of 3 percent used in the energy estimates.

3 The Project would be equipped with emergency diesel backup generators regulated by SCAQMD, typically permitted to operate a maximum of 200 hours per year with maintenance testing of no more than 50 hours per year, per SCAQMD Rule 1110.2. Fuel use would be negligible compared to the desalination plant's overall energy use.

4 Using conservative assumptions about average trip length (12 miles) and vehicle fuel efficiency (25 mpg), 120 vehicle trips over 365 days per year would consume approximately 21,000 gallons of fuel annually.

TABLE 5.5-6
AVERAGE OPERATIONAL ENERGY CONSUMPTION – REGIONAL PROJECT (60 MGD)[1]

Energy Type	Peak MW[2]	Average MW[3]	MWh/year	KWh/AF[4]
Treatment				
Intake and pretreatment	2.7	2.7	22,706	352
1st Pass RO	26.0	25.0	210,240	3,259
2nd Pass RO	1.5[5]	1.7	14,507	225
Post Treatment	0.2	0.2	1,850	29
Residuals & Other	1.0	1.0	8,410	130
Miscellaneous	0.3	0.3	2,523	39
Treatment subtotal	**31.7**	**30.9**	**260,235**	**4,033**
Distribution				
On-site Pumping	5.7	5.7	47,935	743
Supplemental Pumping of Regional Supply (40 MGD)	2.2	2.2	18,501	430
Distribution Sub-total	**7.9**	**7.9**	**66,436**	**1,713**
Contingency (3%)	**1.2**	**1.2**	**9,800**	**152**
TOTAL	**40.8**	**40.0**	**336,471**	**5,358**

NOTES:
1 As reported in SPI memo dated December 20, 2017 (SPI 2017), Energy Consumption for West Basin Ocean Water Desalination Project EIR. Estimated energy consumption accounts for efficiencies from Energy Recovery Devices. (This table shows total energy use and does not show the net energy use compared to energy used to import water.)
2 Peak Electrical Consumption represents operation at lowest temperature with fouled RO membrane.
3 Assumes continuous operation, 24 hours per day, 365 days per year.
4 Acre-feet.
5 2nd Pass RO operates at lower capacity at low temperature conditions, thus "peak" value is lower than "avg."

The Project would not directly consume natural gas as a part of the desalination process operations, as all the pumps and treatment equipment would be powered by electricity.[5] However, the Project would increase demand for natural gas resources to heat buildings and provide hot water for restroom and breakroom usage. These sources would result in approximately 35,856 KBTU (400 therms) per year of natural gas consumption for the Regional Project. As building square footage for the Local Project would be slightly less than the building square footage of the Regional Project, the natural gas consumption for the Local Project would be similar or slightly less than that of the Regional Project and Local Project natural gas consumption was not individually calculated.

Total Energy Consumption

As shown in Table 5.5-4, the average electricity usage resulting from operation of the Local Project and Regional Project would constitute an approximate 0.15 percent increase and an approximate 0.48 percent increase, respectively, over Los Angeles County's typical average annual electricity consumption. The Project-related natural gas consumption for the Local and Regional Projects would increase Los Angeles County's typical annual natural gas consumption

5 The Project could indirectly cause additional natural gas consumption through the use of electricity from natural gas fired power plants.

by less than 0.001 percent. Construction of the Local Project would increase Los Angeles County's average annual off-road fuel consumption by approximately 0.07 percent and increase on-road fuel consumption by approximately 0.004 percent. Construction of the Regional Project would increase Los Angeles County's average annual off-road fuel consumption by approximately 0.04 percent and increase on-road fuel consumption by approximately 0.001 percent.

Energy Conservation Plans

Impact ENERGY 5.5-1: Would the Project conflict with adopted energy conservation plans?

The following analysis evaluates potential impacts associated with constructing and operating each of the three primary elements of the Project, including offshore, coastal, and inland Project components for both the Local and Regional Projects. **Table 5.5-7** summarizes the impact significance conclusions.

TABLE 5.5-7
SUMMARY OF IMPACT ENERGY 5.5-1 ENERGY CONSERVATION PLANS

	Ocean Water Desalination Facility	Offshore Intake and Discharge Facilities	Inland Conveyance Facilities
Impact ENERGY 5.5-1: Impacts on energy conservation plans.			
Local Project			
Construction	LTS	LTS	LTS
Operation	LTS	LTS	LTS
Regional Project			
Construction	LTS	LTS	LTS
Operation	LTS	LTS	LTS

NOTES:
LTS = Less than Significant, no mitigation proposed

Local and Regional Projects

Construction-Related and Operational Impacts

All Project Components

While there are no local or regional energy conservation plans that are directly applicable to the Project, the 2017 Scoping Plan Update does include high-level objectives and goals intended to reduce energy demand within the state's water sector in the context of developing "more reliable water supplies for people, agriculture, and the environment, provided by a more resilient, diversified, sustainably managed water resources system." The 2017 Scoping Plan Update describes how the state is currently implementing several targeted agricultural, urban, and industrial-based water conservation, recycling, and water use efficiency programs as part of an integrated water management effort that will help achieve GHG reductions through reduced energy demand within the water sector.

The 2017 Scoping Plan Update also notes that while it is important for every sector to contribute to the state's climate goals, the right to "safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes" as outlined in AB 685 (Eng., Chapter 524, Statutes of 2012), also known as the "human right to water" bill, should take precedence over achieving GHG emission reductions from water sector activities where a potential conflict exists (CARB 2017). This is consistent with a 2014 letter sent by CARB Chairman Mary Nichols to the Association of California Water Agencies, clarifying the intent of the 2014 Scoping Plan Update with respect to water reliability and diversification. Ms. Nichols indicated, "[a]lthough the Update and the Water Action Plan emphasize the importance of conservation and water use efficiency for sustaining our water sources, it also recognizes the importance of local agencies developing new water supplies. We acknowledge that local water agencies must balance many factors, including supply diversification, to ensure a reliable water supply. As noted by the Board, a one-size fits-all approach for the water sector would not be appropriate for California Water utilities facing a wide variety of conditions" (CARB 2014).

At the agency level, West Basin is conserving energy through its water recycling and conservation efforts. As noted in Section 5.7, *Greenhouse Gas Emissions*, from 1995 to 2013 West Basin's recycling and conservation programs have offset the need for imported water and reduced per capita water use in the service area 27 percent.

In addition, West Basin has and will continue to achieve operational energy efficiency through energy and water conservation programs and the use of onsite renewables, such as solar photovoltaic installations to reduce the load demand from the grid. For example, at the Edward C. Little Water Recycling Facility, the solar panel project and Variable Frequency Drive project combine to provide more than a 10 percent reduction in grid energy demand at that facility) (SCE 2018).[6]

West Basin is committed to pursuing reasonable and feasible energy minimization and efficiency as part of the Project, including use of energy recovery devices (for the first pass reverse osmosis [RO] process) and energy efficient pumps. West Basin will also use on-site solar power generation to reduce load demand from the grid. Additionally, renewable energy contracts, and/or credits for "clean energy" could also help increase the State's renewable production and it is complementary to State's renewable goals, in addition to fully offset the Project's incremental GHG emissions.

The Project represents an increase in energy consumption over existing conditions to provide increased reliability of an essential service. The Project would incorporate all feasible available energy recovery and conservation technologies to minimize the Project's energy electricity consumption, as described in Mitigation Measure GHG-1. In addition, West Basin plans to expand its water conservation (resulting in greater energy conservation) as well as investigate opportunities to increase its operational energy efficiency. The Project would be consistent with

6 4.1 GWh year to date due to solar and 500,000 kilowatt hours (kWh) annually from variable frequency drives (VFDs): https://www.sce.com/wps/wcm/connect/sce_content_en/content/business/ems/water+and+wastewater

applicable regulations and plans for conserving energy, and impacts would be less than significant.

Mitigation Measures:

None Required.

Local and Regional Project Significance Determination:

Less than Significant Impact.

Energy Standards

Impact ENERGY 5.5-2: Would the Project violate state or federal energy standards?

The following analysis evaluates potential impacts associated with constructing and operating each of the three primary elements of the Project, including offshore, coastal, and inland Project components for both the Local and Regional Projects. **Table 5.5-8** summarizes the impact significance conclusions.

TABLE 5.5-8
SUMMARY OF IMPACT ENERGY 5.5-2 ENERGY STANDARDS

	Ocean Water Desalination Facility	Offshore Intake and Discharge Facilities	Inland Conveyance Facilities
Impact ENERGY 5.5-2: Impacts on energy standards.			
Local Project			
Construction	LTS	LTS	LTS
Operation	LTS	LTS	LTS
Regional Project			
Construction	LTS	LTS	LTS
Operation	LTS	LTS	LTS

NOTES:
LTS = Less than Significant, no mitigation proposed

Local and Regional Projects

Construction-Related Impacts

All Project Components

There are no state or federal energy efficiency standards for construction equipment other than those associated with fuel efficiency and emissions reductions. Construction contractors would be required to comply with applicable CARB regulations that would include restricting the idling of heavy-duty diesel motor vehicles and governing the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. While intended to reduce construction emissions, compliance with anti-idling regulations would also result in energy savings from the use of more fuel-efficient engines.

CARB has adopted emission standards for off-road diesel construction equipment of greater than 25 horsepower. The emissions standards are referred to as "tiers" with Tier 4 being the most stringent (i.e., less polluting). The requirements are phased in, with full implementation for large and medium fleets by 2023 and for small fleets by 2028. The Project would accelerate the use of cleaner construction equipment by using equipment that meet at a minimum the Tier 4 off-road emissions standards (Mitigation Measure AQ-3). A field-testing program by an engine manufacturer that included a wide range of equipment types has shown that a Tier 4 engine results in up to 10 percent lower fuel consumption than an equivalent Tier 3 engine based on the overall results of the program (Cummins, Inc. 2014). Another manufacturer has shown an 18 percent increase in fuel efficiency with a Tier 4 lift truck (i.e., forklift) as compared to the previous generation (Mitsubishi 2015). Therefore, use of Tier 4 construction vehicles reduces fuel consumption. Compliance with CARB standards for fuel efficiency would ensure consistency with applicable plans, resulting in a less than significant impact.

Mitigation Measures:

None Required.

Local and Regional Project Significance Determination:

Less than Significant Impact.

Local and Regional Projects

Operational Impacts

All Project Components

The Project building facilities would comply with or exceed the applicable provisions of Title 24 and the CALGreen Code. According to the CEC, Title 24's 2016 standards use 28 percent and 5 percent less energy for lighting, heating, cooling, ventilation, and water heating than Title 24's prior 2013 standards for residential and nonresidential uses, respectively (CEC 2016a). The Project would comply with Title 24 energy efficiency requirements for fixtures within the industrial facility to maximize energy efficiency, including lighting, air conditioning, and appliance uses. The desalination process would include energy recovery devices and energy efficient pumps to maximize energy efficient in the treatment process.

The electricity demands of the desalination facility and pump stations would be supplied by SCE, which is subject to the California Renewables Portfolio Standard Program. Over time, the electricity available to the proposed Project will include greater contributions from renewable energy supplies. Furthermore, as discussed in Section 5.7, *Greenhouse Gas Emissions*, the net increase in the Project's carbon emissions compared to importing water will be offset through a range of possible GHG mitigation measures as detailed in GHG-1.

Natural gas demands of the desalination facility would be supplied by SCG and, as discussed earlier, would be considered negligible. As discussed above, the Project would be required to implement Title 24 2016 standards, which would reduce natural gas consumption to the negligible levels indicated in Table 5.5-4.

Finally, operation of the Project would be consistent with all applicable state and federal energy standards and the Project would be designed to include numerous energy saving features. As a result, impacts would be less than significant.

Mitigation Measures:

None Required.

Local and Regional Project Significance Determination:

Less than Significant Impact.

Energy Efficiency

Impact ENERGY 5.5-3: Would the Project cause wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance?

The following analysis evaluates potential impacts associated with constructing and operating each of the three primary elements of the Project, including offshore, coastal, and inland Project components for both the Local and Regional Projects. **Table 5.5-9** summarizes the impact significance conclusions.

TABLE 5.5-9
SUMMARY OF IMPACT ENERGY 5.5-3 ENERGY EFFICIENCY

	Ocean Water Desalination Facility	Offshore Intake and Discharge Facilities	Inland Conveyance Facilities
Impact ENERGY 5.5-3: Impacts on energy efficiency.			
Local Project			
Construction	LTSM	LTSM	LTSM
Operation	LTSM	LTSM	LTSM
Regional Project			
Construction	LTSM	LTSM	LTSM
Operation	LTSM	LTSM	LTSM

NOTES:
LTSM = Less than Significant impact with mitigation

Local and Regional Projects

Construction-Related and Operational Impacts

All Project Components

As shown in Table 5.5-4, daily operation of the Project would account for the majority of the demand for electricity. The Project buildings would not result in inefficient, wasteful, or unnecessary consumption of energy, as they would be built in accordance with California's Building Energy Efficiency Standards (Title 24, Part 6) as well as applicable requirements in CalGreen (Title 24, Part 11). As described in Section 5.7 – *Greenhouse Gas Emissions*, the Project would be required to comply with Mitigation Measure GHG-1 which commits West

Basin to developing a GHG Emissions Reduction Plan that reduces operational energy consumption through the use of available feasible energy recovery and conservation technologies.

While the Project would consume more energy to desalinate water than is currently consumed (or would be consumed in the future) by importing water, the additional energy is not considered wasteful because it results in a diversified water supply that reduces dependency on imported water, increase drought resiliency, and increase water reliability.

Pursuant to the federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration is responsible for establishing additional vehicle standards and for revising existing standards. Compliance with federal fuel economy standards is not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. As noted earlier, construction of the Local Project would increase Los Angeles County's annual off-road fuel consumption by approximately 0.07 percent and increase on-road fuel consumption by approximately 0.004 percent. Construction of the Regional Project would increase Los Angeles County's annual off-road fuel consumption by approximately 0.04 percent and increase on-road fuel consumption by approximately 0.001 percent. During operation, the Project's on-road automotive fuel consumption would be nominal compared to annual vehicle use in the county, and vehicles must adhere to California's stringent standards for fuel efficiency as mandated by AB 1493. The Project would not result in any unusual characteristics that would result in excessive operational fuel consumption. Fuel consumption associated with Project-related vehicle trips would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

The Project represents an increase in energy consumption over existing conditions in order to provide increased reliability of an essential service. The Project would adhere to all applicable state and federal energy efficiency standards, and it would incorporate all available feasible energy recovery and conservation technologies to minimize the Project's energy electricity consumption, as required by Mitigation Measure GHG-1. In addition, West Basin is pursuing water conservation that could reuse point of use energy consumption and increase operational energy use efficiency through the use of energy efficient equipment. The Project would not result in wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance, and the impact would be less than significant.

Mitigation Measures:

Implement Mitigation Measure GHG-1.

Local and Regional Project Significance Determination:

Less than Significant Impact with Mitigation Incorporated.

Energy Demand and Infrastructure

Impact ENERGY 5.4-4: Would the Project result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities that

could result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The following analysis evaluates potential impacts associated with constructing and operating each of the three primary elements of the Project, including offshore, coastal, and inland Project components for both the Local and Regional Projects. **Table 5.5-10** summarizes the impact significance conclusions.

TABLE 5.5-10
SUMMARY OF IMPACT ENERGY 5.5-4 ENERGY DEMAND AND INFRASTRUCTURE

	Ocean Water Desalination Facility	Offshore Intake and Discharge Facilities	Inland Conveyance Facilities
Impact ENERGY 5.5-4: Impacts on energy demand and infrastructure.			
Local Project			
Construction	LTS	LTS	LTS
Operation	LTSM	LTSM	LTSM
Regional Project			
Construction	LTS	LTS	LTS
Operation	LTSM	LTSM	LTSM

NOTES:
LTS = Less than Significant, no mitigation proposed
LTSM = Less than Significant impact with mitigation

Transportation Energy Demand

As indicated in Table 5.5-4, the Local Project's annual fuel consumption associated with construction would be 390,611 gallons for off-road vehicles and 150,219 gallons for on-road vehicles, which would increase Los Angeles County's annual off-road fuel consumption by approximately 0.07 percent and increase on-road fuel consumption by approximately 0.004 percent. Construction of the Regional Project would increase Los Angeles County's annual off-road fuel consumption by approximately 0.04 percent and increase on-road fuel consumption by approximately 0.001 percent. It is noted that construction fuel use is temporary and would cease upon completion of construction activities. It is also noted that construction fuel consumption estimates assume the maximum daily activity is the same throughout the entire year of construction, which results in the estimates being conservative. There are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or state. Therefore, construction fuel consumption would be similar to other infrastructure construction projects and would not require the need for new facilities to be constructed. As such, a less than significant impact would occur in this regard.

Electrical Energy Demand and Infrastructure

As shown in Table 5.5-4, the Project's electrical energy demand is estimated at approximately 104,700 MWh per year for the Local Project and 336,500 MWh per year for the Regional Project (the Regional Project includes the Local Project). The RO process would represent the largest

proportion of operational energy consumption, due to the high pressures required to separate salts from seawater. Other Project operations with electrical energy demands would include uses typical of public facility/office building energy demands, including those required for indoor and outdoor lighting, climate control, and other daily activities necessary for ocean water desalination facility operations. Table 5.5-5 and Table 5.5-6 indicate that Project's peak electricity demand differs only slightly from the average demand, as the plant would generally be operated continuously.

As indicated in Table 5.5-4, operational energy consumption would represent an approximate 0.15 (Local Project) or 0.48 (Regional Project) percent increase in electricity consumption over the current electricity usage in Los Angeles County.

SCE is the electricity provider for West Basin. Power to the ocean water desalination facility would be provided via overhead power lines directly from SCE or via the El Segundo Generating Station (ESGS) power infrastructure. Electrical power supply required for the desalination facility, intake pump station, and desalinated water pump station is estimated at 12.4 MW for the Local Project (refer to Table 5.5-5). It is anticipated that the Local Project would require a total annual demand of 104,683 MWh per year. An electrical substation would be required to lower the voltage from service voltage to site distribution voltage. The substation would be located at the Project site, as shown in Figures 3-9 (ESGS North Site) and 3-10 (ESGS South Site). The impacts associated with construction and operation of that substation are analyzed throughout this EIR along with impacts of the overall Project. It is anticipated that the SCE electrical power grid may require upgrades to supply the Project operations. Upgrades could include, for example, new conductoring on existing power poles or installation of new poles. However, SCE is unable to confirm the necessary upgrades to their power grid. As a result, subsequent evaluation of these upgrades may be required. The Project does include a new substation on the property, and West Basin would ensure that relevant connection/expansion fees are paid to SCE in order to upgrade the existing SCE electrical grid such that it can adequately support Project operations alongside the existing energy demands of the ESGS.

The Project would result in an increased demand for energy in order to provide increased reliability of an essential service, but would not result in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure other than as noted above. It is noted that with the implementation of AB2514 and AB 2868, it is expected that the additional energy storage throughout SCE's grid could help improve grid reliability and stabilize the grid loads.

Natural Gas Demand

As shown in Table 5.5-4, the Project's natural gas demand is estimated at approximately 400 Therms per year for the Local Project and Regional Project (the Regional Project includes the Local Project). Consumption is a result of general building consumption and not related to process operation.

As indicated in Table 5.5-4, operational energy consumption would represent a negligible increase in natural gas consumption over the current countywide usage. SCG is the natural gas

provider for West Basin. Natural gas would be provided to the ocean water desalination facility via underground pipelines connecting directly to the SCG infrastructure existing in the area. Underground piping to the buildings would be required for site distribution, but these pipes would be installed as part of Project construction and the impacts associated with construction of these pipelines are analyzed throughout this EIR along with impacts of the overall Project. It is not anticipated that the SCG's infrastructure would require upgrades to support the negligible requirements of Project operations.

The Project would result in an increased demand for energy in order to provide increased reliability of an essential service, but would not result in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure other than as noted above.

Local Project

Construction-Related Impacts

All Project Components

As described above under Impact 5.5-2, construction of the Local Project would be consistent with all applicable State and federal energy standards, including the use of construction equipment that meets at a minimum Tier 4 off-road emissions standards. As indicated in Table 5.5-5, the Local Project's overall fuel consumption associated with construction represents approximately 0.07 percent for off-road vehicle and 0.004 percent for on-road vehicle fuel consumption of total fuel use in Los Angeles County. As such, Local Project construction would have a nominal effect on the need to construct new energy facilities or expand existing facilities and impacts would be less than significant.

Mitigation Measures:

None Required.

Local Project Significance Determination:

Less than Significant Impact.

Operational Impacts

All Project Components

As described above, the Local Project would adhere to all applicable State and federal energy efficiency standards, including the applicable provisions of Title 24 and the CALGreen Code in affect at the time of building permit issuance, and it would incorporate all available feasible energy recovery and conservation technologies to minimize the Project's energy electricity consumption, as required by Mitigation Measure GHG-1. As indicated in Table 5.5-5, the Local Project's overall electricity consumption represents approximately 0.15 percent of electricity use in Los Angeles County. As such, operation of the Local Project would have a nominal effect on the need to construct new energy facilities or expand existing facilities. The Local Project's overall natural gas consumption would be negligible and would not result in a need to construct new energy facilities or expand existing facilities. As a result, impacts would be less than significant with implementation of mitigation measures.

Mitigation Measures:

Implement Mitigation Measure GHG-1.

Local Project Significance Determination:

Less than Significant Impact with Mitigation Incorporated.

Regional Project

Construction-Related Impacts

All Project Components

As described above under Impact 5.5-2, construction of the Regional Project would be consistent with all applicable state and federal energy standards, including the use of construction equipment that meets at a minimum Tier 4 off-road emissions standards. As indicated in Table 5.5-6, the Regional Project's overall fuel consumption associated with construction represents approximately 0.04 percent for off-road vehicle and 0.001 percent for on-road vehicle fuel consumption of the total fuel use in Los Angeles County. As such, Regional Project construction would have a nominal effect on the local and regional energy supplies and impacts would be less than significant.

Mitigation Measures:

None Required.

Regional Project Significance Determination:

Less than Significant Impact.

Operational Impacts

All Project Components

As described above in the impact analyses, the Regional Project would adhere to all applicable state and federal energy efficiency standards, including the applicable provisions of Title 24 and the CALGreen Code in affect at the time of building permit issuance, and it would incorporate all available feasible energy recovery and conservation technologies to minimize the Project's energy electricity consumption, as required by Mitigation Measure GHG-1. As indicated in Table 5.5-6, the Regional Project's overall electricity consumption represents approximately 0.48 percent of electricity use in Los Angeles County. As such, operation of the Regional Project would have a nominal effect on the need to construct new energy facilities or expand existing facilities. The Regional Project's overall natural gas consumption would be negligible and would not result in a need to construct new energy facilities or expand existing facilities. As a result, impacts would be less than significant with implementation of mitigation measures.

Mitigation Measures:

Implement Mitigation Measure GHG-1.

Regional Project Significance Determination:

Less than Significant Impact with Mitigation Incorporated.

5.5.5 Cumulative Impacts

Electricity

The geographic context for the cumulative analysis of electricity is SCE's service area. SCE provides electricity to approximately 15 million people, 180 incorporated cities, 15 counties, 5,000 large businesses, and 280,000 small businesses throughout its 50,000-square-mile service area (SCE 2017). Growth within this geography is anticipated to increase the demand for electricity and the need for infrastructure, such as new or expanded facilities.

Buildout of the Project and additional growth forecast to occur in the West Basin service area would increase electricity consumption and may cumulatively increase the need for new energy infrastructure and energy supplies. The CEC forecasts that electricity demand in SCE's Planning Area under the high-demand scenario will be 124,287 GWh in the Local Project buildout year (2027), up from 106,080 GWh in 2015 (CEC 2017b). The Local Project's estimated electrical consumption (104,683 MWh, from Table 5.5-5) would account for approximately 0.08 percent of SCE's projected electricity sales for the Local Project's buildout year. The Project's increased use of electricity would be minor compared to existing supply and infrastructure within the SEC service area and would be consistent with growth expectations for SEC's service area; the Project would therefore not represent a cumulatively considerable contribution to increased demand.

In recent years, SCE has been engaged in capacity planning in the West Los Angeles sub-area of the Los Angeles Basin local reliability area[7] to ensure there will be available electrical capacity to meet peak demand and ensure the safety and reliability of the local electrical grid. In February 2013, the CPUC authorized SCE to procure between 1400 and 1800 Megawatts (MW) of electrical capacity for the Western Los Angeles Basin to meet long-term local capacity requirements by 2021. Subsequently, in March 2014, the CPUC ordered SCE to procure an additional 500 to 700 MW by 2021 to meet local capacity needs stemming from the retirement of the San Onofre Nuclear Generating Station (SONGS) (CPUC 2015). Combined, this represents a procurement of 1,900 to 2,500 MW in the Western Los Angeles Basin. Together, these CPUC authorizations directed SCE to procure a minimum of 550 MW of preferred resources,[8] 50 MW of energy storage, 1,000 MW of gas-fired generation, and an additional 300 MW from any resource type.

The Local and Regional Projects' electricity demands of 12.4 MW and 40.0 MW represent a range of 0.6 percent to 1.6 percent of the overall additional capacity building requirements of SCE. As discussed above, the Project would not have a cumulatively considerable impact on existing energy resources either individually or incrementally, especially when considered with the anticipated growth in the service areas. In addition, the Project would incorporate energy conservation features, comply with applicable regulations, including CALGreen and state energy standards under Title 24, and incorporate mitigation measures, as specified in this EIR.

7 Areas where additional generation would not only satisfy the long-term local capacity requirements, but also enhance the reliability of the distribution system.

8 As described in the state's Energy Action Plan II (September 21, 2005) under a loading order that identifies cost-effective energy efficiency and demand response as the State's preferred means of meeting growing energy needs, followed by renewable sources of power and distributed generation, as preferred resources over fossil-fuel-fired generation.

Accordingly, the impacts related to electricity consumption would not be cumulatively considerable, and thus would be less than significant.

Natural Gas

The geographic context for the cumulative analysis of natural gas is SCG's service area. SCG provides natural gas to approximately 21.6 million customers in more than 500 communities located within 233 incorporated cities and 12 counties (SCG 2018). Growth within this geography is anticipated to increase the demand for natural gas and the need for infrastructure, such as new or expanded facilities.

Buildout of the Project and additional growth forecasted to occur in the West Basin service area would increase natural gas consumption and may cumulatively increase the need for new energy infrastructure, and energy supplies. However, the Local and Regional Projects' natural demands of 400 Therms represent negligible overall additional capacity need for SCG. Therefore, the Project would not have a cumulatively considerable impact on existing energy resources either individually or incrementally, especially when considered with the anticipated growth in the service areas. In addition, the Project would incorporate energy conservation features, and comply with applicable regulations, including CALGreen and state energy standards under Title 24. Accordingly, the impacts related to natural gas consumption would not be cumulatively considerable, and thus would be less than significant.

Transportation Energy

Buildout of the Project would result in a negligible increase in overall VMT; the energy impacts from the increase in transportation energy demand would not be cumulatively considerable, and thus would be less than significant.

5.5.6 Significant Unavoidable Impacts

Implementation of the Local Project and Regional Project would result in less than significant impacts with mitigation incorporated with respect to energy. No significant unavoidable impacts have been identified.

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