CHAPTER 3 EFFECTS NOT FOUND TO BE SIGNIFICANT

This chapter of the EIR discusses those effects that were identified as less than significant, after conducting a thorough analysis of the environmental effects associated with the proposed project. Each environmental issue area describes existing conditions, regulatory setting, analysis of proposed project effects and determinations of significance, cumulative impact analysis, and significance of impact prior to mitigation. The environmental issue areas addressed in Chapter 3 are as follows:

- Energy (EIR, Section 3.1)
- Hydrology and Water Quality (EIR, Section 3.2)
- Land Use and Planning (EIR, Section 3.3)
- Parks and Recreation (EIR, Section 3.4)
- Public Services (EIR, Section 3.5)

Analysis of I-15 Interchange Improvements (Mitigation Measure M-TR-1)

Caltrans is the lead agency for the I-15 interchange improvements project. Accordingly, in a separate environmental review and approval process under CEQA and the National Environmental Policy Act (NEPA), Caltrans will analyze the I-15 interchange improvements, and whether the existing park-and-ride lots should be expanded, reconfigured, and/or enhanced to support transportation alternatives (e.g., ride-share, car-share, and transit). This EIR identifies the I-15 interchange improvements as a mitigation measure (See EIR Section 2.13, Transportation and Traffic, Mitigation Measure M-TR-1). Because the interchange improvements are a mitigation measure, this EIR discusses the potential environmental effects of the interchange improvements as required by CEQA (see CEQA Guidelines Section 15126.4(a)(1)(D)).

In addition, evaluating the Caltrans interchange improvements in terms of the project's mitigation is appropriate because information concerning the interchange improvements is still under review and scoping through the Caltrans process, including an assessment of alternatives to the interchange improvements, which affect the intersection size, configuration, disturbance zones, and other features that are needed for an overall environmental analysis. Nonetheless, this EIR endeavors to disclose all it reasonably can at this time regarding environmental effects associated with the interchange improvements.

3.1 Energy

Appendix F (Energy Conservation) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) include a discussion of the

potential energy impacts, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of nonrenewable energy, in order to ensure energy implications are considered in project decision-making processes. As such, this section provides a summary of the energy regulatory framework, discusses the existing conditions on the project Site, discloses potential energy use during construction and operation of the proposed project, and identifies project design features and mitigation measures that may reduce energy consumption and thereby enhance energy conservation.

Comments received in response to the Notice of Preparation (NOP) raised concerns regarding energy use and vehicle miles traveled (VMT). These concerns are addressed and summarized in this section. A copy of the NOP and comment letters received in response to the NOP is included in Appendix A of this EIR.

3.1.1 Existing Conditions

Environmental Setting

California consumes more electricity than it generates, such that approximately 25 percent of California's electricity comes from outside the state (primarily the Pacific Northwest and Southwest regions of the United States). Natural gas is the primary electricity source, with natural gas-fired power plants accounting for more than half of California's electricity generation. Until 2013, California's two nuclear power plants (San Onofre and Diablo Canyon) provided almost 20 percent of the state's total electricity. With the retirement of San Onofre Nuclear Generation Station, Diablo Canyon continues to provide approximately 7 percent of the state's electricity (EIA 2015).

California's estimated annual energy use included:

- Approximately 282,896 gigawatt hours of electricity (CEC 2016a);
- Approximately 10,054 million therms of natural gas (CEC 2016b); and
- Approximately 18 billion gallons of gasoline (CEC 2016c).

Electricity

According to the California Energy Commission's (CEC) California Energy Consumption Database, California used approximately 282,896 gigawatt hours (2,829trillion kilowatt-hours (kWh)) of electricity in 2015 (CEC 2016a), which is the most recent year of data available. Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency standards and

efficiency and conservation programs, California's per capita electricity use has remained stable for more than 30 years, while the national average has steadily increased.

San Diego Gas & Electric (SDG&E) provides electric services to 3.6 million customers through 1.4 million electric meters and 873,000 natural gas meters throughout a 4,100-square-mile service area in San Diego County and southern Orange County (SDG&E 2016). SDG&E is a subsidiary of Sempra Energy and will provide electricity to the project Site. According to CEC, SDG&E consumed approximately 19.722 billion kWh of electricity in total in 2015 (CEC 2016a).

SDG&E receives electric power from a variety of sources. According to the CPUC's 2016 Biennial Renewables Portfolio Standard (RPS) Program Update, 36.4 percent of SDG&E's power came from eligible renewable energy sources in 2014, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2016). This is an improvement from the 15.7 percent renewable energy portfolio that SDG&E achieved in 2011.

Based on recent energy supply and demand projections in California, statewide annual peak electricity demand is projected to grow an average of 890 megawatts per year for the next decade, or 1.4 percent annually, while per capita consumption is expected to remain relatively constant at 7,200–7,800 kWh per person (CEC 2015a). In the County of San Diego (County), the CEC reported an annual electrical consumption of approximately 19.8 billion kWh in total, with 12.9 billion kWh for non-residential use and 6.9 billion kWh for residential use in 2015 (CEC 2016d).

Natural Gas

According to the CEC California Energy Consumption Database, California used approximately 10,054 million therms of natural gas in 2015 (CEC 2016b), which is the most recent year of data available.

The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), SDG&E, Southwest Gas, and several smaller natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage (CPUC 2017). SDG&E would provide natural gas service to the land uses proposed for the project Site.

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

The CPUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35 percent of their natural gas supply from basins located in the Southwest, 16 percent from Canada, 40 percent from the Rocky Mountains, and 9 percent from basins located within California (CPUC 2017).

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California consumers are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, the Ruby Pipeline, Questar Southern Trails, and Mojave Pipeline. Another pipeline, the North Baja–Baja Norte Pipeline, takes gas off the El Paso Pipeline at the California/Arizona border, and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission regulates the transportation of natural gas on the interstate pipelines, the CPUC often participates in Federal Energy Regulatory Commission regulatory proceedings to represent the interests of California natural gas consumers (CPUC 2017).

Most of the natural gas transported via the interstate pipelines, as well as some of the California-produced natural gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large noncore customers take natural gas directly off the high pressure backbone pipeline systems, while core customers and other noncore customers take natural gas off the utilities' distribution pipeline systems. The CPUC has regulatory jurisdiction over 150,000 miles of utility-owned natural gas pipelines, which transported 82 percent of the total amount of natural gas delivered to California's gas consumers in 2012 (CPUC 2017).

SDG&E is a wholesale customer of SoCalGas and currently receives all of its natural gas from the SoCalGas system. (CPUC 2017).

Some of the natural gas delivered to California customers may be delivered directly to them without being transported over the regulated utility systems. For example, the Kern River/Mojave pipeline system can deliver natural gas directly to some large customers, "bypassing" the utilities' systems. Much of California-produced natural gas is also delivered directly to large consumers (CPUC 2017).

PG&E and SoCalGas own and operate several natural gas storage fields that are located in Northern and Southern California. These storage fields, and four independently owned storage

utilities – Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage – help meet peak seasonal natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently (CPUC 2017).

California's regulated utilities do not own any natural gas production facilities. All of the natural gas sold by these utilities must be purchased from suppliers and/or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the Federal Energy Regulatory Commission in the mid-1980s and is determined by "market forces." However, the CPUC decides whether California's utilities have taken reasonable steps in order to minimize the cost of natural gas purchased on behalf of their core customers (CPUC 2017).

As indicated in the preceding discussion, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The CPUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the state (CPUC 2017).

Petroleum

There are more than 27 million registered vehicles in California, and those vehicles consumed an estimated 18.5 billion gallons of petroleum and diesel in 2014 (CEC 2016c). Gasoline and other vehicle fuels are commercially provided commodities, and would be available to the proposed project via commercial outlets.

Petroleum accounts for approximately 92 percent of California's transportation energy sources. Technology advances, market trends, consumer behavior, and government policies could result in significant changes in fuel consumption by type and in total. At the federal and state levels, various policies, rules, and regulations have been enacted to improve vehicle fuel efficiency, promote the development and use of alternative fuels, reduce transportation-source air pollutants and greenhouse gas (GHG) emissions, and reduce VMT. (See, e.g., Section 2.7, Greenhouse Gas Emissions, of this EIR for discussion of various statewide programs, policies and regulations that are targeted towards the reduction of petroleum consumption.) Market forces have driven the price of petroleum products steadily upward, and technological advances have made use of other energy resources or alternative transportation modes increasingly feasible.

Largely as a result of, and in response to these multiple factors, gasoline consumption within the state has declined in recent years, while availability of other alternative fuels/energy sources has increased. In total, the quantity, availability and reliability of transportation energy resources

have increased in recent years, and this trend may likely continue and accelerate (CEC 2013). Increasingly available and diversified transportation energy resources act to promote continuing reliable and affordable means to support vehicular transportation within the state.

3.1.2 Regulatory Setting

Federal

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission is an independent agency that regulates the transmission and sales of electricity, natural gas, and oil in interstate commerce, licensing of hydroelectric projects, and oversight of related environmental matters. The setting and enforcing of interstate transmission sales is also regulated by Federal Energy Regulatory Commission.

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act to serve the nation's energy demands and promote feasibly attainable conservation methods. This act established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards were approved for model year 2017 passenger cars and light trucks at 54.5 miles per gallon. Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Intermodal Surface Transportation Efficiency Act of 1991

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

The Transportation Equity Act for the 21st Century

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs.

TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

Energy Policy Act of 2005

The Energy Policy Act of 2005 put more responsibility on the Federal Energy Regulatory Commission, including regulating market manipulation and mergers as well as overseeing the nation's electrical infrastructure. The Renewable Fuel Standard (RFS) program also was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012 (EPA 2014). The U.S. Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes other provisions related to energy efficiency:

- Renewable Fuel Standard (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

This federal legislation requires ever-increasing levels of renewable fuels—the RFS—to replace petroleum. The EPA is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

- The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the Act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay 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 updated program is referred to as RFS2 and includes the following:

- o EISA expanded the RFS program to include diesel, in addition to gasoline.
- o 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.
- o EISA established new categories of renewable fuel and set separate volume requirements for each one.
- o EISA required the 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.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

State

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978, and serves to enhance and regulate California's building standards. Part 6 specifically establishes energy efficiency standards for residential and nonresidential buildings constructed in the State of California to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The 2016 Title 24 building energy efficiency standards, which became effective on January 1, 2017, will serve to reduce energy consumption by project residences and non-residence buildings. In general, single-family homes built to the 2016 standards are anticipated to use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5 percent less energy than those built to the 2013 standards (CEC 2015b).

Title 24 also includes Part 11, known as California's Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011, and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings, as well as schools and hospitals. The 2016 CALGreen standards became effective on January 1, 2017. The mandatory standards require:

- 20 percent mandatory reduction in indoor water use.

- 50 percent of construction and demolition waste must be diverted from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

Integrated Energy Policy Report

The CEC is responsible for preparing Integrated Energy Policy Reports (IEPRs), which identify emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. Of relevance to this EIR, the CEC's 2015 IEPR discusses the state's policy goal to require that new residential construction be designed to achieve zero net energy (ZNE) standards by 2020, and that new non-residential construction follow by 2030. Please see Section 2.7, Greenhouse Gas Emissions, of this EIR for additional discussion of the state's ZNE objectives and how the state's achievement of its objectives would serve to beneficially reduce the proposed project's GHG emissions profile and energy consumption.

Renewable Portfolio Standards

As most recently amended by Senate Bill 350, the Renewable Portfolio Standard (RPS) requires an annual increase in renewable energy generation by utility providers equivalent to at least 33 percent by 2020 and 50 percent by 2030. (Interim RPS targets also are set between 2020 and 2030.)

State Vehicle Standards

The California Air Resources Board (CARB) Advanced Clean Cars program for passenger vehicles—cars and light trucks— serves to reduce petroleum consumption by increasing the operating efficiencies of vehicles and accelerating the penetration of plug-in hybrids and zero-emission vehicles in California (CARB 2013). CARB also has adopted regulations that enhance the operating efficiencies of various types of construction equipment; while such regulations primarily are adopted to reduce air pollution, co-benefits – in the form of reduced petroleum consumption – are common.

CEQA Guidelines Appendix F

Appendix F of the CEQA Guidelines outlines what information should be included within an EIR regarding energy conservation where considered applicable or relevant. This appendix includes a list of energy impact possibilities and potential conservation measures and the goals of wise and efficient use of energy during development and operations.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As specifically codified in Government Code Section 65080, SB 375 requires the Metropolitan Planning Organization relevant to the project area (here, the San Diego Association of Governments (SANDAG)) to include a Sustainable Communities Strategy in its Regional Transportation Plan. While the main focus of the Sustainable Communities Strategy is to plan for growth that will ultimately reduce GHG emissions, the strategy is also a part of a bigger effort to address many other development issues within the general vicinity, including transit and VMT.

Local

SDG&E Long-Term Resource Plan

In 2004, SDG&E filed a long-term energy resource plan (LTRP) with the CPUC, which identifies how it will meet the future energy needs of customers in SDG&E's service area. The LTRP identifies several energy demand reduction (i.e., conservation) targets, as well as goals for increasing renewable energy supplies, new local power generation, and increased transmission capacity.

The LTRP sets a standard for acquiring 20 percent of SDG&E's energy mix from renewables by 2010 and 33 percent by 2020. The LTRP also calls for greater use of in-region energy supplies, including renewable energy installations. By 2020, the LTRP states that SDG&E intends to achieve and maintain the capacity to generate 75 percent of summer peak demand with in-county generation. The LTRP also identifies the procurement of 44 percent of its renewables to be generated and distributed in-region by 2020.

County of San Diego General Plan

The County General Plan takes steps to address energy use throughout all General Plan Elements by including policies for improving energy efficiency, reducing waste, recycling, and managing water use. The General Plan seeks to reduce energy consumption through minimizing vehicle trips and approving land use patterns that support increased density in areas where there is infrastructure to support it, increased opportunities for transit, pedestrians, and bicycles, and through green building and land development conservation initiatives. Applicable General Plan policies include:

- **Policy COS-14.1, Land Use Development Form.** Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.

- **Policy COS-14.3, Sustainable Development.** Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.
- **Policy COS-15.4, Title 24 Energy Standards.** Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.
- **Policy COS-16.2, Single-Occupancy Vehicles.** Support transportation management programs that reduce the use of single-occupancy vehicles.
- **Policy COS-17.2, Construction and Demolition Waste.** Require recycling, reduction and reuse of construction and demolition debris.

3.1.3 Analysis of Project Effects and Determination as to Significance

Guidelines for the Determination of Significance

The County's *Guidelines for Determining Significance* do not include guidelines on energy. Therefore, for the purpose of this EIR, Appendix F of the CEQA Guidelines applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. Appendix F does not prescribe a threshold for the determination of significance. Rather, Appendix F focuses on reducing and minimizing inefficient, wasteful, and unnecessary consumption of energy.

Therefore, for the purpose of this EIR, a significant impact to energy would result if the project would:

1. Result in the wasteful, inefficient, or unnecessary use of nonrenewable resources during its construction or long-term operation.
2. Be inconsistent with adopted plans and policies.
3. Place a significant demand on local and regional energy supplies, or require a substantial amount of additional capacity.

Analysis

Would the project result in wasteful, inefficient, or unnecessary consumption of energy?

Implementation of the proposed project would increase the demand for electricity and natural gas at the project Site, and gasoline consumption in the project area during construction and operation relative to existing conditions. The following analysis includes the Phase 1 project improvements, including the construction of the I-15 interchange improvements, an off-site mitigation measure for the project. The energy usage associated with the construction of Phase 1,

including the interchange improvements, is conservatively accounted for under the energy usage for Phase 1 construction based on an estimated construction equipment mix.

Electricity

Construction Use

Temporary electric power for as-necessary lighting and electronic equipment such as computers inside temporary construction trailers would be provided by SDG&E. The electricity used for such activities would be temporary and negligible; therefore, impacts would be **less than significant**.

Operational Use

Long-term energy consumption associated with the proposed project includes electricity and natural gas consumption by residents, Town Center commercial uses and the school site, energy from water conveyance, and long term vehicle operations from residents.

The proposed project would use electricity for lighting, appliances, and other uses associated with the project's land uses. Appendix K of this EIR estimated the annual electricity demand by using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 default values for project-specific land uses. The non-residential uses within the proposed project are estimated to use approximately 1,221,960 kilowatt-hours (kWh) of electricity per year, while all of the residential land uses' electricity needs would be met with on-site solar installations, as described further below.

While the proposed project would result in a long-term increase in demand for electricity from SDG&E, the project would be designed according to the most recent 2016 Title 24 or future, more stringent versions of Title 24 that are applicable to its land uses as it is built out. Part 6 of Title 24 specifically establishes energy efficiency standards for residential and non-residential buildings constructed in the State of California to reduce energy demand and consumption. Section 2.7, Greenhouse Gas Emissions, of this EIR identifies additional project-specific design features that would serve to further reduce energy consumption during operations, including fuel consumption, electricity and natural gas. Measures would include solar installations on residential structures and street lighting, electrical outlets for use by electrical landscaping equipment (as opposed to gasoline-powered equipment), cool roofs, energy-efficient appliances, as well as the installation of EV charging equipment in the garages of all single-family residential units, the installation of charging stations in 3 percent of the Town Center area, and encouraging installation of charging stations in 3 percent of the park-&-ride parking spaces. Should installation of EV charging stations at the park-&-ride facilities be deemed acceptable by the land owner, the project would fully fund these improvements. More specifically, solar panels would be included on all residential units (both attached and detached) and Community facilities

to offset 100 percent of estimated electrical use associated with these land uses. All light fixtures along public roads would also be solar powered. See Section 2.7, Greenhouse Gas Emissions of this EIR, specifically Table 2.7-7, Project Design Features to Reduce GHG Emissions, PDF-22: Solar Power. These measures would reduce consumption of energy to the extent feasible, such that use of electricity during operation of the proposed project would not be inefficient, or wasteful.

Additionally, the proposed project's energy demand was compared against the County's service population electricity demand, as shown in Table 3.1-1. A service population is the sum of the number of employees and the number of residents in the County or generated by the proposed project. As described in Section 2.12, Population and Housing of this EIR, the existing population of the San Diego region is approximately 3,143,429 people and there are approximately 1,346,969 existing jobs (SANDAG 2014). As such, the service population of San Diego County is approximately 4,490,398.

As shown in Table 3.1-1, the proposed project would consume less electricity per service person than the County average. Moreover, the demand for housing, jobs, and educational facilities in the project vicinity demonstrates that the energy consumption used by this or a similar land development project in this location would not be unnecessary. As stated in Section 2.12, Population and Housing, specifically Subsection 2.12.1.4, "SANDAG estimates a 49 percent increase in the population within this subregional plan area from 2012 through 2050… a 44 percent increase in housing units within this subregional plan area from 2012 through 2050…[and] a 75 percent increase in employment within this subregional plan area from 2012 through 2050." Therefore, even without implementation of the proposed project, projected growth in the proposed project area would result in the consumption of electricity.

For the reasons set forth above, the impact of electricity consumption during operation of the proposed project is considered **less than significant**.

Natural Gas

Construction Use

Natural gas is not anticipated to be required during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the "petroleum" subsection below. Any minor amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible and would not have an adverse effect; therefore, impacts would be **less than significant**.

Operational Use

Natural gas would be directly consumed throughout operation of the proposed project, primarily through building heating, water heating and cooking associated with the residential, commercial and school land uses on the project Site. As shown in Appendix K of this EIR, natural gas consumption was estimated for each of the proposed project's land uses based on the CalEEMod default values. Based on these calculations and as shown in Table 3.1-2, the proposed project is estimated to consume approximately 45,954,920 thousand British thermal units (kBTU) of natural gas per year during operation.

As described, the proposed project would result in a long-term increase in demand for natural gas. However, the proposed project would be designed according to the most recent 2016 Title 24 standards or future, more stringent versions of Title 24 that are applicable to its land uses as it is built out. Additionally, the proposed project's natural gas demand was compared against the County's service population natural gas demand.

As shown in Table 3.1-3, the proposed project would consume less natural gas per service person than the County average. Moreover, the demand for housing, jobs, and educational facilities in the project vicinity demonstrates that the consumption of natural gas by this or a similar land development project in this location would not be unnecessary. As stated in Section 2.12, Population and Housing, specifically Subsection 2.12.1.4, SANDAG estimates a 49 percent increase in the population, a 44 percent increase in housing units, and a 75 percent increase in employment within this subregional plan area from 2012 through 2050. Therefore, even without implementation of the proposed project, projected growth in the proposed project area would result in the consumption of natural gas.

For the reasons set forth above, the proposed project would result in a **less than significant** impact relating to natural gas consumption during operation.

Petroleum

Construction Use

Petroleum would be consumed throughout construction of the proposed project. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction, while VMT associated with the transportation of construction materials and construction worker commutes would also result in petroleum consumption. Heavy-duty equipment used for project construction would rely on diesel fuel, as would haul trucks involved in off-hauling materials from demolition and excavation. Construction workers would travel to and from the project Site throughout the duration of construction. It is assumed that construction workers would travel to and from the project Site in gasoline-powered passenger vehicles.

There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities or use of equipment that would not conform to current emissions standards (and related fuel efficiencies).

Heavy-duty construction equipment of various types would be used during each phase of construction. CalEEMod was used to estimate construction equipment usage; the results of which are included in Appendix K of this EIR. Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel as shown in Table 3.1-4. Construction is estimated to occur in the years 2018 through 2027 based on the construction phasing schedule. The conversion factor for gasoline is 9.13 kilograms CO_2 per gallon (kg CO_2/gallon) and the conversion factor for diesel is 10.35 kg CO_2/gallon (The Climate Registry 2016).

Additionally, fuel consumption from worker and vendor trips are estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to use gasoline and vendor/hauling vehicles are assumed to use diesel.

As described in Section 2.13, Transportation and Traffic, approval of a Construction TCP would be required prior to the issuance of the first grading permit. Implementation of a Construction TCP may serve to reduce petroleum consumption by requiring measures to reduce idling and direct traffic to open roads via detours.

Calculations for total worker, vendor, and hauler fuel consumption are provided in Table 3.1-5, Construction Worker Gasoline Demand, Table 3.1-6, Construction Vendor Diesel Demand, and Table 3.1-7, Construction Hauler Diesel Demand.

In summary, the proposed project is estimated to consume approximately 7,265,212 gallons of petroleum during the construction phase, which is anticipated to extend from 2018 to 2027. Petroleum use is necessary to operate construction equipment, and construction equipment would employ Tier 4 Final engines (and thus would be newer off-road equipment units), which would operate much more efficiently than older construction equipment models, where feasible. Additionally, energy used during construction of the proposed project would be limited to the construction period, and would not involve long-term petroleum use. As such, energy consumption during construction activities would not be considered wasteful, inefficient or unnecessary. Moreover, the demand for housing, jobs, and educational facilities in the project vicinity demonstrates that the proposed construction activities would not be unnecessary, thus the petroleum consumption associated with construction would also not be considered unnecessary.

As noted above, there are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities or use of equipment that would not conform to current emissions standards (and related fuel efficiencies). Thus project construction would not consume petroleum in a wasteful or inefficient manner.

For the reasons stated above, the energy effects related to petroleum consumption during construction would be **less than significant**.

Operational Use

During project operations, the majority of fuel consumption resulting from the proposed project would involve the use of motor vehicles traveling to and from the project Site, as well as fuels used for alternative modes of transportation that may be used by residents and guests.

In response to Senate Bill 375, CARB has adopted the goal of reducing per capita GHG emissions from 2005 levels by 8 percent by the year 2020 and 13 percent by the year 2035 for light-duty passenger vehicles in the San Diego Association of Governments (SANDAG) planning area. This reduction would occur by reducing VMT through the integration of land use planning and transportation (SANDAG 2015). Accordingly, the proposed project includes a proposed Travel Demand Management (TDM) Program intended to reduce the proposed project's VMT. The elements of the TDM Program that would result in a direct reduction in fuel use are identified in in Section 2.7, Greenhouse Gas Emissions, of this EIR. Each of these elements was evaluated to determine the VMT reduction attributable to its implementation. As a result of this evaluation, it was determined the proposed project would achieve an 11.1 percent reduction in overall VMT (see Appendix K for details); this would result in a total daily VMT of 262,081.

Similar to the construction worker and vendor trips, fuel consumption is estimated by converting the total CO_2 emissions from each land use type to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix provided in CalEEMod, 92.5 percent of the fleet is composed of light-duty to medium-duty vehicles and motorcycles; these are assumed to run on gasoline. The remaining 7.5 percent of vehicles represent medium-heavy duty to heavy-duty vehicles and buses/RVs; these are assumed to run on diesel. Therefore it is estimated that 19,656 of the daily VMT would be from diesel and 242,425 would be from gasoline. Calculations for annual mobile source fuel consumption are provided in Table 3.1-8, Daily Mobile Source Fuel Consumption.

Over the lifetime of the proposed project, the fuel efficiency of the vehicles in use is expected to increase, as older vehicles within the fleet mix are replaced with newer, more efficient models. As such, the amount of petroleum consumed as a result of vehicle trips to and from the project

Site during operation would decrease over time. There are numerous regulations in place that require and/or encourage increased fuel efficiency. For example, CARB has adopted a new approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emissions vehicles in California (CARB 2013). As such, operation of the proposed project is expected to use decreasing amounts of petroleum over time, due to advances in fuel economy. Additionally, the proposed project is designed to incentivize the minimization of petroleum consumption through its provision on on-site electric vehicle charging station infrastructure in the garages of single-family residences and Town Center parking areas.

In summary, although the proposed project would result in an increase in petroleum use during construction and operation compared to existing conditions, the project would implement TDM Program measures to reduce the amount of petroleum consumption and project-specific petroleum use is expected to diminish over time as fuel efficiency improves. Further, the demand for housing, jobs, and educational facilities in the project vicinity demonstrates that petroleum consumption associated with the project would not be unnecessary. As stated in Section 2.12, Population and Housing, specifically Subsection 2.12.1.4, SANDAG estimates a 49 percent increase in the population, a 44 percent increase in housing units, and a 75 percent increase in employment within this subregional plan area from 2012 through 2050. Therefore, even without implementation of the proposed project, projected growth in the proposed project area would result in the consumption of petroleum.

Given these considerations, the petroleum consumption associated with the proposed project would not be considered inefficient or wasteful and therefore would result in a **less than significant** impact.

Would the project conflict with adopted plans and policies?

Many of the regulations regarding energy efficiency are focused on increasing the energy efficiency of buildings and renewable energy generation, as well as reducing water consumption and VMT. The proposed project includes energy conservation measures to meet and exceed the regulatory requirements. The list of project design features provided in Section 2.7, Greenhouse Gas Emissions, of this EIR includes energy conservation measures that would ensure energy would not be used in a wasteful manner or conflict with adopted energy conservation plans, policies or regulations.

The proposed project would be consistent with several energy reduction policies of the County General Plan (see Section 3.1.2, Regulatory Setting), including policies COS-14.1, COS-14.3, and COS-16.2. Additionally, the proposed project would be consistent with sustainable

development and energy reduction policies such as policies COS-14.3 and COS-15.4, through compliance with the most recent Title 24 standards at the time of project construction, installation of energy-efficient appliances within each housing unit, and provision of exterior outlets in residential buildings for recharging electric cars and other equipment. Therefore, the proposed project would implement energy reduction design features and comply with the most recent energy building standards consistent with applicable plans and policies. Therefore, impacts would be **less than significant**.

Would the project place a significant demand on local and regional energy supplies or require a substantial amount of additional capacity?

Electricity

The proposed project's annual electricity demand on SDG&E would account for 0.006 percent of the County's total demand (CEC 2017a). Therefore, the proposed project is not expected to adversely affect SDG&E or its ability to continue to serve existing and anticipated future customers. Additionally, specific energy efficiency measures that would be implemented as part of the proposed project are identified in Section 2.7, Greenhouse Gas Emissions, of this EIR. As such, implementation of the proposed project would not result in a demand for substantial amounts of local or regional energy supplies compared to existing conditions. Therefore, impacts would be **less than significant**.

Natural Gas

As described above, the proposed project is estimated to use 45,954,920 kBTU of natural gas per year. In 2012, SDG&E supplied 51,534,484,750 kBTU of natural gas to customers (CEC 2017b). The proposed project's estimated natural gas use would account for 0.08 percent of this total. This demand would not adversely affect SDG&E or its ability to continue to serve existing and anticipated future customers and would not require increases in capacity or construction of new infrastructure. Therefore, the proposed project's natural gas demand would result in a **less than significant** impact.

Petroleum

Although the proposed project would see an increase in petroleum use during construction and operation, the use would be a small fraction of the statewide use. Additionally, as described above, petroleum use would diminish over time as a result of fuel efficiencies standards primarily driven by state-mandated policies. Moreover, the vehicle fleet for the proposed project would continue to replace older, less efficient vehicles with newer, more fuel-efficient vehicles. Given these considerations, the petroleum consumption associated with the proposed project

would not be considered a substantial demand on local or regional petroleum supplies, and therefore would result in a **less than significant** impact.

3.1.4 Cumulative Impact Analysis

Potential cumulative impacts on energy would result if the proposed project in combination with past, present, and future projects would result in the wasteful or inefficient use of energy. This could result from development that would not incorporate sufficient building energy efficiency features, achieve building energy efficiency standards, or would result in the unnecessary use of energy during construction or operation. The cumulative projects within the areas served by energy providers would be applicable to this analysis. Projects that include development of large buildings or other structures that would have the potential to consume energy in an inefficient manner would have the potential to contribute to a cumulative impact. Projects that would mostly include construction, such as transportation infrastructure, could also contribute to a cumulative impact; however, the impact of these projects would be limited because they would typically not involve substantial ongoing energy use. Other large master planned communities listed in Table 1-4 in Chapter 1, Project Description, such as Lilac Hills Ranch, Meadowood, Warner Ranch, Campus Park, and Campus Park West, would result in incremental increases in long-term energy consumption similar to the proposed project through the introduction of new population to the region. Each of these projects, however, would incorporate design features for reducing energy consumption and increasing efficiency during operation.

As described above, the proposed project would result in less than significant impacts on the wasteful, inefficient, or unnecessary use of energy due to various design features including balance grading on-site to reduce haul trips during construction, extensive on-site solar to meet the demand for electricity, design of the proposed project to reduce VMT, installation of energy efficient appliances and lights, as well as installation of efficient water fixtures. Similar to the proposed project, the cumulative projects would be subject to California's building standards that provide energy efficiency standards for commercial and residential buildings. As discussed above, and depending on timing, new development also could be subject to ZNE standards.Furthermore, various federal and state regulations would serve to reduce the transportation fuel demand by cumulative projects.

In consideration of the cumulative energy use demand, the proposed project would not contribute to a substantial demand on energy resources and services because no new regional energy facilities would be required to be constructed as a result of the incremental increase in energy demand resulting from the proposed project.

With the adherence to the increasingly stringent building and vehicle efficiency standards as well as implementation of the proposed project's design features that would reduce energy

consumption, the proposed project would not contribute to a cumulative impact to the wasteful or inefficient use of energy. As such, the proposed project would **not result in a cumulatively considerable impact** on energy.

3.1.5 Significance of Impacts Prior to Mitigation

Impacts from the wasteful or inefficient use of energy would be less than significant.

3.1.6 Mitigation Measures

No mitigation measures are required.

3.1.5 Conclusion

Impacts from the wasteful or inefficient use of energy would be **less than significant**.

Table 3.1-1
Service Population Electricity Demand

Entity	Service Population	Electricity Consumption (kWh)	Service Population Electricity Consumption (kWh/service person/yr)
County of San Diego	4,490,398[1]	19,562,000,000[2]	4,356
Proposed Project	6,352[3]	1,221,960[3]	192

Sources:
1 SANDAG 2014, Series 13 Regional Growth Forecast, 2014. Population represents County population in 2012.
2 CEC 2017a – electrical usage, San Diego County, 2012.
3 Appendix A of Appendix K
Source: Appendix K; CalEEMod 2013

Table 3.1-2
Estimated Natural Gas Demand

Component	Estimated Natural Gas Demand (kBTU/yr)
Commercial	181,440
School	196,020
Parks	0
Age-Qualified Housing	4,662,660
Multi-Family Housing	15,983,800
Single-Family Housing	24,931,000
Total	**45,954,920**

Source: Appendix K; CalEEMod 2013

Table 3.1-3
Service Population Natural Gas Demand

Entity	Service Population	Natural Gas Consumption (kBTU)	Service Population Natural Gas Consumption (kBTU/service person/yr)
County of San Diego	4,490,398[1]	51,534,484,750[2]	11,477
Proposed Project	6,352[3]	45,954,920[3]	7,235

Sources:
1 SANDAG 2014, Series 13 Regional Growth Forecast, 2014. Population represents County population in 2012.
2 CEC 2017b – natural usage, San Diego County, 2012.
3 Appendix A of Appendix K

Table 3.1-4
Construction Equipment Emissions and Gasoline Demand per Project Phase

Phase	Equipment CO_2 (MT)	Gallons
Site Preparation-Phase 1	57.84	5,588.41
Grading-Phase 1	15,499.26	1,497,513.04
Building Construction-Phase 1	7,934.93	766,659.90

Table 3.1-4
Construction Equipment Emissions and Gasoline Demand per Project Phase

Phase	Equipment CO_2 (MT)	Gallons
Trenching- Phase 1	1,228.53	118,698.55
Architectural Coating-Phase 1	3,508.17	338,953.62
Paving-Phase 1	2,127.41	205,546.86
Brush Management-Phase 1	1,111.46	107,387.44
Reservoirs-Phase 1	314.14	30,351.69
Site Preparation-Phase 2	40.15	3,879.23
Grading-Phase 2	6,157.38	594,915.94
Building Construction-Phase 2	6,679.46	645,358.45
Trenching-Phase 2	1,015.24	98,090.82
Architectural Coating-Phase 2	931.47	89,997.10
Paving-Phase 2	2,174.35	210,082.13
Brush Management-Phase 2	418.17	40,402.90
Total	**49,197.96**	**4,753,426.09**

Sources: Pieces of equipment and equipment CO_2 (Appendix K); kg/CO_2/Gallon (The Climate Registry 2016)
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram

Table 3.1-5
Construction Worker Vehicle Emissions and Gasoline Demand

Phase	Vehicle CO_2 (MT)	Gallons
Site Preparation-Phase 1	5.25	575.03
Grading-Phase 1	913.08	100,008.76
Building Construction-Phase 1	7,660.90	839,090.91
Trenching- Phase 1	411.93	45,118.29
Architectural Coating-Phase 1	1,344.70	147,283.68
Paving-Phase 1	198.01	21,687.84
Brush Management-Phase 1	834.94	91,450.16
Reservoirs-Phase 1	48.80	5,345.02
Site Preparation-Phase 2	5.84	639.65
Grading-Phase 2	347.13	38,020.81
Building Construction-Phase 2	1,864.83	204,253.01
Trenching-Phase 2	184.37	20,193.87
Architectural Coating-Phase 2	305.62	33,474.26
Paving-Phase 2	120.52	13,200.44
Brush Management-Phase 2	291.31	31,906.90
Total	**14,537.23**	**1,592,248.63**

Sources: Construction worker CO_2 (Appendix K); kg/CO_2/Gallon (The Climate Registry 2016)
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram

Table 3.1-6
Construction Vendor Diesel Demand

Phase	Vehicle CO_2 (MT)	Gallons
Site Preparation-Phase 1	7.96	769.08
Grading-Phase 1	1,019.82	98,533.33
Building Construction-Phase 1	1,820.06	175,851.21
Trenching- Phase 1	797.52	77,055.07
Architectural Coating-Phase 1	338.01	32,657.97
Paving-Phase 1	529.04	51,114.98
Brush Management-Phase 1	578.51	55,894.69
Reservoirs-Phase 1	20.63	1,993.24
Site Preparation-Phase 2	6.28	606.76
Grading-Phase 2	501.22	48,427.05
Building Construction-Phase 2	842.23	81,374.88
Trenching-Phase 2	511.06	49,377.78
Architectural Coating-Phase 2	173.70	16,782.61
Paving-Phase 2	417.25	40,314.01
Brush Management-Phase 2	244.06	23,580.68
Total	**7,807.35**	**754,333.33**

Table 3.1-7
Construction Haul Diesel Demand

Phase	Vehicle CO_2 (MT)	Gallons
Site Preparation-Phase 1	2.02	195.17
Grading-Phase 1	1,626.23	157,123.67
Building Construction-Phase 1	0.00	0.00
Trenching- Phase 1	0.00	0.00
Architectural Coating-Phase 1	0.00	0.00
Paving-Phase 1	0.00	0.00
Brush Management-Phase 1	0.00	0.00
Reservoirs-Phase 1	0.00	0.00
Site Preparation-Phase 2	1.80	173.91
Grading-Phase 2	79.81	7,711.11
Building Construction-Phase 2	0.00	0.00
Trenching-Phase 2	0.00	0.00
Architectural Coating-Phase 2	0.00	0.00
Paving-Phase 2	0.00	0.00
Brush Management-Phase 2	0.00	0.00
Total	**1,709.86**	**165,203.86**

Sources: Construction haul CO2 (Appendix K); kg/CO2/Gallon (The Climate Registry 2016)
Notes: CO2 = carbon dioxide; MT = metric ton; kg = kilogram

Table 3.1-8
Daily Mobile Source Fuel Consumption

Fuel	Vehicle MT CO2	kg/CO2/Gallon	Gallons
Gasoline	107.66	9.13	11,791.89
Diesel	8.73	10.35	843.47
Total	**116.39**	**19.48**	**12,635.36**

Sources: Mobile Source CO_2 (Appendix K); kg/CO_2/Gallon (The Climate Registry 2016).
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram