4.5 Energy

This section assesses the consumption of energy associated with implementation of the Fanita Ranch Project (proposed project). This section also provides a background discussion of existing and proposed energy sources and a summary of applicable regulations. Information provided in this section is based on the Energy Analysis Report prepared by LSA Associates, Inc. (2020), which is included as Appendix F.

4.5.1 Environmental Setting

The current condition of the project site is undeveloped. The project site does not include any existing energy consuming uses. A pre-existing San Diego Gas & Electric Company electrical transmission easement traverses east to west through the open space on the project site. The following statistics are provided by the California Energy Commission (CEC) and are current through 2017 for County of San Diego (County)-wide electricity and natural gas consumption and through 2018 for statewide fuel consumption. More recent statistics were not available at the time the Energy Analysis Report was prepared (Appendix F).

Electricity

Fueled by population growth, the demand for electricity in California is increasing. At the same time, the mandate to decrease greenhouse gas (GHG) emissions will only increase in the future. In 2017, the majority of California's electricity mix was generated by natural gas (33.7 percent), coal (4.13 percent), large hydroelectric (14.7 percent), nuclear (9.08 percent), and renewable sources (29.0 percent). Also in 2017, California produced approximately 70 percent of the electricity it consumed; the rest was imported from the Pacific Northwest (approximately 14 percent) and the Southwest (approximately 16 percent).

Natural gas is the main source for electricity, contributing 34 percent of the total system power. According to the U.S. Department of Energy, Energy Information Administration Annual Electric Power Industry Report, Californians spent almost $41 billion for their electricity in 2017 (Appendix F). Table 4.5-1 shows the total electricity consumed in the County for 2017.

Table 4.5-1. Annual Electricity Consumption in the County of San Diego (2017)

Type of Consumer	Millions of Kilowatt-Hours[1]
Residential	6,854
Non-Residential	12,492
Total	**19,346**

Source: Appendix F.

Note:

[1] A kilowatt-hour is a unit of power equal to 1,000 watts of electricity consumed in 1 hour.

Natural Gas

Electricity generation is the largest consumer of natural gas in California, consuming approximately half of all natural gas in the state. The residential sector uses 38 percent of the available natural gas. Of that amount, 88 percent is used for space and water heating. Table 4.5-2 shows the total natural gas consumption in the County for the most recent year available (2017).

Table 4.5-2. Annual Natural Gas Consumption in the County of San Diego (2017)

Type of Consumer	Millions of Therms[1]
Residential	273
Non-Residential	207
Total	**480**

Source: Appendix F.

Note:

[1] A therm is a unit of heat containing 100,000 British thermal units (Btu).

Liquid Petroleum Gas (Propane)

Liquefied petroleum gas (LPG) (usually called propane) is a mixture of gaseous hydrocarbons, mainly propane and butane that change into liquid form under moderate pressure. LPG is commonly used as a fuel for rural residences for space and water heating, as a fuel for barbecues and recreational vehicles, and as a transportation fuel. It is normally created as a by-product of petroleum refining and from natural gas production.

LPG is generally an unregulated fuel in California (except for storage and safety issues, which are regulated). Because it is an unregulated commodity, the state does not collect data on LPG sales or use. The statistics for LPG consumption addressed in the Alternatives to Traditional Transportation Fuels section are provided by the U.S. Department of Energy, Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels. As such, statistics are unavailable for LPG as a fuel for rural residences, space and water heating, or barbecues and, therefore, are not included in this section.

Traditional Transportation Fuels (Fossil Fuels)

Fossil fuels are energy resources that come from the remains of plants and animals that are millions of years old. The three fossil fuels—petroleum oil, natural gas, and coal—are overwhelmingly responsible for providing the energy that powers our lifestyles and economy and fuels our transportation systems. While we depend on them for our energy mix, they are a limited resource. Once they are consumed, they will no longer be part of our energy mix.

In addition to their unsustainability, fossil fuels are linked to various negative environmental impacts. The burning of fossil fuels is responsible for emissions that contribute to global climate change, acid rain, ozone problems, and unhealthy air. Alternatives to traditional transportation fuels are required to improve sustainability and reduce impacts of fossil fuel consumption.

In 2018, approximately 16.9 billion gallons of gasoline and nearly 6 billion gallons of diesel were consumed in California, which is equal to approximately 2,900 billion million British thermal units (MMBtu) (CEC 2018a).

Alternatives to Traditional Transportation Fuels

Alternatives to traditional transportation fuels are being developed and introduced into the consumer marketplace. Alternative fuels currently in use in the United States include the following:

- Compressed natural gas
- Electric
- Ethanol, 85 percent
- Hydrogen
- Liquefied natural gas
- Liquid petroleum gas (propane)

The following information for the United States and California was prepared by the Energy Information Administration, the independent statistical and analytical agency in the U.S. Department of Energy. Each year, the Energy Information Administration collects data on the number of alternative fuel vehicles supplied and, for a limited set of fleet user groups, the number of alternative fuel vehicles in use and the amount of alternative transportation fuel consumed. The user groups surveyed are federal and state governments, alternative fuel providers, and transit companies.

An estimated 431,545 alternative fuel vehicles were in use in the United States in 2016, with 45,208 in use in California (Table 4.5-3). The estimated consumption of alternative fuels (in thousand gasoline-equivalent gallons) in California during 2016 is shown in Table 4.5-4.

Table 4.5-3. Alternative Fuel Vehicles In Use by Fuel Type (2016)

Fuel Type	United States	California
Compressed Natural Gas	25,539	8,164
Electric	10,180	3,761
Ethanol, 85 Percent	388,432	31,862
Hydrogen	49	46
Liquefied Natural Gas	379	324
Liquefied Petroleum Gas	6,966	1,051
Total	**431,545**	**45,208**

Source: Appendix F.

Table 4.5-4. Estimated Consumption of Alternative Fuels in California by Fuel Type (2016) (thousand gasoline-equivalent gallons)

CNG	Electric	E85	Hydrogen	LNG	LPG	Total
71,990	231	1,528	121	3,422	1,341	78,633

Source: Appendix F.

Notes: CNG = compressed natural gas; E85 = Ethanol, 85 percent; LNG = liquefied natural gas; LPG = liquefied petroleum gas

4.5.2 Regulatory Framework

Applicable federal, state, and local regulations pertaining to energy use on the project site are described below.

4.5.2.1 Federal

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 was signed into law. In addition to setting increased Corporate Average Fuel Economy (CAFE) standards for motor vehicles, the act includes the following 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 to replace petroleum (Section 202). The Renewable Fuel Standard program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. The Renewable Fuel Standard requires renewable fuel to be blended into transportation fuel in increasing amounts each year, escalating to 36 billion gallons by 2022.

Joint Rule for Vehicle Standards

On April 1, 2010, the U.S. Environment Protection Agency (USEPA) and the National Highway Traffic Safety Administration (NHTSA) announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. In August 2012, the USEPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (77 FR 62624). These standards will reduce motor vehicle GHG emissions to 163 grams of carbon dioxide (CO_2) per mile, which is equal to 54.5 miles per gallon if this level were achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025.

The first phase of the CAFE standards (for model years 2017 to 2021) are projected to require, on an average industry fleet-wide basis, a range from 40.3 to 41.0 miles per gallon in model year 2021. The second phase of the CAFE program (for model years 2022 to 2025) is projected to

require, on an average industry fleet-wide basis, a range from 48.7 to 49.7 miles per gallon in model year 2025. The second phase of standards has not been finalized due to the statutory requirement that NHTSA set average fuel economy standards not more than 5 model years at a time. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including incentives for electric, natural gas, and hybrid vehicles (Dudek 2017).

4.5.2.2 State

Assembly Bill 1493

Adopted in 2002, Assembly Bill 1493 ("Pavley" regulations) required that the California Air Resources Board (CARB) develop and adopt, no later than January 1, 2005, regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. Although the intent of this regulation is to reduce GHG emissions, it is relevant to the analysis of energy consumption because it also serves to reduce the consumption of fossil fuels.

The first California request to implement GHG standards for passenger vehicles, known as a waiver request, was made in December 2005 and was denied by the USEPA in March 2008. That decision was based on a finding that California's request to reduce GHG emissions from passenger vehicles did not meet the Clean Air Act requirement of showing that the waiver was needed to meet "compelling and extraordinary conditions."

The USEPA granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On September 24, 2009, CARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. These amendments are part of California's commitment to a nationwide program to reduce new passenger vehicle GHGs from 2012 through 2016. CARB's September 2009 amendments allow for California's enforcement of the Pavley regulations while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to harmonize its rules with the federal rules for passenger vehicles.

It was estimated that the Pavley regulations would reduce GHG emissions from California passenger vehicles by approximately 22 percent in 2012 and approximately 30 percent in 2016, all while improving fuel efficiency and reducing motorists' costs. CARB adopted a new approach to passenger vehicles—cars and light trucks—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 plugin hybrids and zero-emission vehicles (ZEVs) in California.

California Energy Code

The California Energy Code (24 CCR Part 6), which is incorporated into the Building Energy Efficiency Standards, was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The efficiency standards apply to new construction of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards for new buildings, provided these standards meet or exceed those provided in Title 24 standards. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

It is estimated that the 2019 Title 24 standards, which became effective on January 1, 2020, will result in new buildings that use 7 percent less energy for lighting, heating, cooling, ventilation, and water heating than the previous 2016 standards (Appendix H). The 2019 updates to Title 24 focus on moving closer to zero net energy residences by increasing energy efficiency and requiring solar photovoltaic systems for new residences. Residences built under the 2019 Title 24 standards will use approximately 53 percent less energy than those under the prior 2016 standards, and non-residential buildings will use approximately 30 percent less energy mainly due to lighting upgrades (CEC 2018b). The 2019 Title 24 standards also encourage demand responsive technologies, including battery storage and heat pump water heaters, and improvement of the building's thermal envelope through high-performance attics, walls, and windows to improve comfort and energy savings (CEC 2018b).

The California Building Standards Code, or Title 24 of the California Code of Regulations, contains the regulations that govern the construction of buildings in California. Within the Building Standards Code, Part 6 is California's Energy Efficiency Standards for Residential and Non-Residential Buildings.

California Green Building Standards Code

The purpose of the California Green Building Standards Code (24 CCR Part 11) is to improve the public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts that either reduce negative environmental impact or enhance positive environmental impact. The code encourages sustainable construction practices in the following categories: (1) planning and design, (2) energy efficiency, (3) water efficiency and conservation, (4) material conservation and resource efficiency, and (5) environmental quality. California Green Building Standards Code, which became effective on January 1, 2011, instituted mandatory minimum environmental performance standards for ground-up new construction of commercial, low-rise residential uses and state-owned buildings, as well as schools and hospitals.

Specific to energy conservation, the mandatory standards require inspections of energy systems to ensure optimal working efficiency. The voluntary standards are divided into two tiers and require the following:

- Tier I: 15 percent improvement in energy requirements compared to mandatory standards
- Tier II: 30 percent improvement in energy requirements compared to mandatory standards

Executive Order B-16-12

Executive Order (EO) B-16-12 (issued March 23, 2012) directed state government to accelerate the market ZEVs in California through fleet replacement and electric vehicle infrastructure. The EO set the following targets:

- By 2015, all major cities in California will have adequate infrastructure and be "ZEV ready."
- By 2020, the state will have established adequate infrastructure to support 1 million ZEVs in California.
- By 2025, there will be 1.5 million ZEVs on the road in California.
- By 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

Executive Order S-14-08

EO S-14-08 (issued November 17, 2008) directed several state agencies to expedite the process of creating renewable energy generation facilities and proposing an expansion to California's Renewables Portfolio Standard. The governor's proposed Renewables Portfolio Standard of 33 percent renewable generation by 2020 would build on the Senate Bill (SB) 1078 target of producing 20 percent by 2010.

Executive Order S-21-09

EO S-21-09 (issued September 15, 2009) required that, under its AB 32 authority, adopt a regulation consistent with the 33 percent renewable energy target established in EO S-14-08 by July 31, 2010. Under EO S-21-09, the CARB is directed to work with the California Public Utility Commission and CEC to encourage the creation and use of renewable energy sources. CARB will consult with the Independent System Operator and other load-balancing authorities on, among other aspects, impacts on reliability, renewable integration requirements, and interactions with wholesale power markets in carrying out the provisions of EO S-21-09. CARB also will establish the highest priority for those resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health; can be developed most quickly; and support reliable, efficient, cost-effective electricity system operations.

Integrated Energy Policy Report

SB 1389 (Chapter 568, Statutes of 2002; California Public Resources Code, Sections 25300–25323) required the CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission [CEC] shall use these assessments and forecasts to develop and evaluate energy policies and programs that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (California Public Resources Code, Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every 2 years and an update every other year. The Draft 2019 IEPR is the most recent IEPR, which was docketed on November 8, 2019. The 2019 IEPR provides a summary of priority energy issues currently facing the state, outlining strategies and recommendations to further the state's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the 2019 IEPR include progress toward statewide renewable energy targets, decarbonizing buildings, integrating renewables, energy efficiency, energy equity, updates to Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecasting, and the California Energy Demand Forecast (CEC 2020).

Senate Bill 100: California Renewables Portfolio Standard Program

SB 100 established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers by 2045. It requires the CEC, California Public Utilities Commission, and CARB to prepare a report documenting progress in achieving 100 percent renewable energy generation by 2045.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

SB 350 (issued October 7, 2015) builds on EO S-14-08 by increasing the renewable energy target to 50 percent by 2030. In addition, SB 350 increases the energy efficiency in buildings by 50 percent by 2030.

Senate Bill 1078: California Renewables Portfolio Standard Program

SB 1078, which was enacted on September 12, 2002, established the Renewables Portfolio Standard program that requires retail sellers of electricity—including electrical corporations, community choice aggregators, and electric service providers—to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources, such as wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. SB 107, which was enacted on September 26, 2006, accelerated the Renewables Portfolio Standard to require that at least 20 percent of electricity retail sales be served by renewable energy resources by 2010.

In response to EO S-21-09, the Renewables Portfolio Standard was expanded in 2011 to require 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 the year 2020. In 2018, the State Legislature passed and Governor Jerry Brown signed SB 100, which requires energy providers to derive 60 percent of their electricity from qualified renewable sources by 2030 and 100 percent by 2045. The Renewables Portfolio Standard is included as a reduction measure in the CARB Climate Change Scoping Plan. Increased use of renewable energy would decrease California's reliance on fossil fuels, thus reducing emissions of GHGs from the electricity sector. The CARB estimates that full achievement of the Renewables Portfolio Standard would decrease statewide GHG emissions by 21.3 million metric tons of carbon dioxide equivalent (MT CO_2e).

4.5.2.3 Local

Sustainable Santee Plan: The City's Roadmap to Greenhouse Gas Reductions

The City of Santee (City) adopted the Sustainable Santee Plan on January 8, 2020. The Sustainable Santee Plan provides GHG emissions reduction goals and strategies focused on reducing resource consumption, improving alternative modes of transportation, and reducing overall emissions throughout the City. The Sustainable Santee Plan (City of Santee 2020) presents the following energy-related goals that would improve energy efficiency, reduce energy or fuel demand, and increase clean energy use:

- Goal 1: Increase Energy Efficiency in Existing Residential Units
- Goal 2: Increase Energy Efficiency in New Residential Units
- Goal 3: Increase Energy Efficiency in Existing Commercial Units
- Goal 4: Increase Energy Efficiency in New Commercial Units
- Goal 5: Decrease Energy Demand through Reducing Urban Heat Island Effect
- Goal 6: Decrease Greenhouse Gas Emissions through Reducing Vehicle Miles Traveled (Reduced Fuel Use)
- Goal 7: Increase Use of Electric Vehicles (Fuel Switching to Cleaner Sources of Energy)
- Goal 8: Improve Traffic Flow (Improves Fuel Efficacy of Roadway Traffic)
- Goal 9: Decrease Greenhouse Gas Emissions through Reducing Solid Waste Generation
- Goal 10: Decrease Greenhouse Gas Emissions through Increasing Clean Energy Use

On February 7, 2020, Preserve Wild Santee, Climate Action Campaign, and the Center for Biological Diversity filed a lawsuit challenging the Sustainable Santee Plan (Preserve Wild Santee v. City of Santee, San Diego Superior Court Case No. 37-2020-7331). Although the action remains pending as of the date of this analysis, filing of a lawsuit does not affect the validity of the Sustainable Santee Plan. As such, the City may continue to rely on the plan for the purposes of this analysis.

4.5.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on energy if it would:

- **Threshold 1:** Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.
- **Threshold 2:** Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.5.4 Method of Analysis

The California Emissions Estimator Model (CalEEMod), Version 2016.3.2, was used to estimate electricity and natural gas consumption and renewable energy generation during the operation of the proposed project based on the assumptions consistent with Section 4.2, Air Quality, and Section 4.7, Greenhouse Gas Emissions. For modeling purposes, the analysis assumed a 12-year construction period with the four phases overlapping.

Construction equipment was assumed to be powered by diesel, and the fuel consumption was calculated based on the following equation:

$$\text{Fuel Consumption} = \text{Horsepower} \times \text{Load Factor} \times \text{Specific Fuel Consumption}$$

For the construction equipment analysis, the specific fuel consumption was assumed as 0.22 kilogram per kilowatt-hour for diesel engines (Klanfar et al. 2016).

Construction and operation fuel consumption in gallons was converted to energy consumption in MMBtu for comparison purposes. Additionally, operational petroleum consumption from project-related on-road transportation was calculated from the estimated vehicle miles traveled provided in the Transportation Impact Analysis (Appendix N) and fuel efficiency from EMFAC2017 (CARB 2018). Detailed energy calculation assumptions and CalEEMod emissions modeling output files for the operational phase of the proposed project are provided in Appendix F.

4.5.5 Project Impacts and Mitigation Measures

4.5.5.1 Threshold 1: Wasteful or Inefficient Energy Use

Would the proposed project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Impact: The proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Mitigation: No mitigation is required.

Significance Before Mitigation: Less than significant.

Significance After Mitigation: Less than significant.

Impact Analysis

The proposed project's energy demand from fossil fuels, electricity, and natural gas during construction and operation is addressed below.

Construction

Construction of the proposed project would result in temporary energy consumption and one-time, non-recoverable energy costs associated with construction of structures, utilities, and roadways. Energy consumption as a result of construction of the proposed project would primarily consist of the consumption of fossil fuels as a result of use of off-road construction equipment, movement of soil, and use of on-road vehicles for worker commuting and vendors.

Table 4.5-5 shows the daily fuel and energy consumption of each construction phase from use of off-road construction equipment. Use of trucks on site to move soil to balance cut and full activities totaling approximately 27 million cubic yards is included in the vehicle calculations below. Fuel consumption is converted to energy consumption for comparison purposes. Calculation details are included in Appendix F.

Table 4.5-5. Construction Off-Road Fuel and Energy Consumption

Construction Phase	Fuel Consumption (gallons/day)	Energy Consumption (MMBtu/day)
Phase 1	1,536	211
Phase 2	2,935	403
Phase 3	1,607	221
Phase 4	1,610	221

Source: Calculation details are included in Appendix F.
Notes: MMBtu = million British thermal units

Construction vehicle trips, including soil hauling in the construction area, worker commuting, and vendor trips, would also consume fuel. It was assumed that light-duty trucks would be used for on-road worker commuting, while trucks that would be used on site to move soil would be heavy-duty diesel trucks. Table 4.5-6 shows the daily vehicle miles traveled, fuel consumption, and energy consumption for each phase. Calculation details are included in Appendix F.

Table 4.5-6. Construction Vehicle Fuel Consumption

Construction Phase	Diesel Consumption (gallons/day)	Gasoline Consumption (gallons/day)	Energy Consumption (MMBtu/day)
Phase 1	11,368	677	1,644
Phase 2	5,798	384	843
Phase 3	8,422	408	1,207
Phase 4	3,917	445	592

Source: Calculation details are included in Appendix F.
Notes: MMBtu = million British Thermal Units

As shown in Tables 4.5-5 and 4.5-6, peak total daily energy consumption from on- and off-road sources would be approximately 1,855 MMBtu per day and would occur during Phase 1. The transportation fuel consumption is only available at the state level for comparison. As discussed in Section 4.5.1, Environmental Setting, the transportation fuel consumption in California is approximately 2.9 billion MMBtu per year, or approximately 7.8 million MMBtu per day. The proposed project would result in an increase in temporary indirect energy consumption compared to energy consumption without project construction. However, this level of energy consumption would be negligible at the regional level (approximately 0.03 percent of statewide transportation fuel consumption) and would be a one-time use during project construction. Construction of the proposed project would not include unusual construction practices that would result in wasteful or inefficient consumption of energy compared to typical construction. Therefore, construction of the proposed project would not cause a significant temporary energy impact during construction. This impact would be less than significant.

Operation

Electricity

The proposed project's estimated electricity consumption and renewable energy generation were calculated for project operation. Table 4.5-7 shows the annual electricity consumption of the proposed project at full buildout as a percentage of the total electricity consumption in the County of 19,346 million kWh in 2017 (Table 4.5-1). Estimated annual electricity consumption is presented for the preferred land use plan with school and the land use plan without school. Table 4.5-7 provides estimated energy consumption with and without implementation of the mitigation measures required to reduce air quality and GHG emissions in Sections 4.2 and 4.7, respectively. Specifically, Mitigation Measure AIR-8 would reduce energy use, and Mitigation Measure GHG-1 requires generation of renewable energy on the project site. The annual electricity consumption of the proposed project with Mitigation Measures AIR-7, GHG-4, and GHG-6 would be higher than without mitigation measures due to the electricity consumption by electric vehicles (EVs) and all-electric residences. However, mitigation would include on-site renewable electricity generation (Mitigation Measure GHG-1) that would offset the higher electricity consumption of the proposed project.

The U.S. Census Bureau reported that, in 2017, the total population in the County was 3,325,468 (U.S. Census Bureau 2020). The proposed project is anticipated to generate a service population of approximately 8,424 people under the preferred land use plan with school, or 8,345 people under the land use plan without school, which is equal to approximately 0.3 percent of the County's total population. The proposed project would be home to approximately 0.3 percent of the County's population but would consume approximately 0.15 percent of the County's total electricity consumption without any mitigation and 0.06 percent of the County's total electricity consumption when on-site renewable generation is taken into account. Therefore, before mitigation, the proposed project's electricity consumption per person would be efficient compared to its

proportion of the County's population and would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. The implementation of the air quality and GHG mitigation measures further improves the proposed project's energy efficiency by decreasing its proportion of energy consumption in the County.

Additionally, within implementation of Mitigation Measure GHG-1, the proposed project would generate renewable energy on site. By buildout, the proposed project would generate approximately 20,472,039 kilowatt-hours (kWh) and 20,378,877 kWh of electricity per year from distributed photovoltaic solar electric generation on site, under the preferred land use plan with school and land use plan without school, respectively, which is equal to approximately 63 percent of the total electricity demand. The on-site generation of renewable energy would reduce the project's percent of County 2017 energy consumption to 0.06 percent. Therefore, the proposed project's operational electricity impacts would be less than significant.

Table 4.5-7. Annual Electricity Consumption of the Proposed Project

Scenario		Preferred Land Use Plan With School	Land Use Plan Without School
Buildout Without Mitigation Measures	Project Electricity Consumption (kWh)	29,773,470	29,820,624
	Percent of County 2017 Consumption	0.15	0.15
Buildout With Mitigation Measures (AIR-6, AIR-7, AIR-8, GHG-1, and GHG-4)	*Project Electricity Consumption (kWh)* [1]	28,806,132	28,911,714
	EV Electricity Consumption (kWh)[2]	*3,279,101*	*3,435,943*
	Total Electricity Consumption (kWh)	32,085,233	32,347,657
	On-Site Photovoltaic Renewable Generation (kWh)	20,472,039	20,378,877
	Total Net Electricity Consumption (kWh)	**11,613,194**	**11,968,780**
	Change from Buildout Without Mitigation Measures (kWh)	−18,160,2763	−17,851,844
	Percent of County' 2017 Consumption	0.06	0.06

Source: Appendix F.

Notes: EV = electric vehicle; kWh = kilowatt-hours

[1] All-electric residences with energy efficiency improvements.

[2] Average fuel efficiency of electric vehicle is 35 kWh per 100 miles.

Natural Gas

In Sections 4.2 and 4.7, natural gas consumption was estimated for the preferred land use plan with school and the land use plan without school and with and without implementation of the mitigation measures required to reduce air quality and GHG emissions. Specifically, Mitigation Measure GHG-4 requires all-electric residences, which would substantially reduce natural gas consumption. These mitigation measures are not required to reduce energy consumption but would have the added benefit of reducing natural gas consumption. Table 4.5-8 provides estimated natural gas use at project buildout with and without mitigation measures required for air quality and GHG impacts.

At full buildout, without mitigation, the proposed project would result in an annual natural gas consumption of approximately 60,889 MMBtu and 62,329 MMBtu under the preferred land use plan with school and the land use plan without school, respectively, which is approximately 0.13 percent of the County's total natural gas consumption of 48,000,000 MMBtu in 2017 (Table 4.5-2). Because the population of the proposed project would be approximately 0.3 percent of the County's total population, and its natural gas consumption would be 0.13 percent, the proposed project's natural gas consumption would be efficient compared to its population. This impact would be less than significant prior to implementation of mitigation measures for air quality and GHG emissions impacts. However, with implementation of all-electric residences (Mitigation Measure GHG-4), natural gas use on the project site would be further reduced to approximately 0.04 percent of the County's total consumption under the preferred land use plan with school and 0.03 percent for the land use plan without school. Therefore, the proposed project would not result in a significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of natural gas. This impact would be less than significant.

Table 4.5-8. Annual Natural Gas Consumption of the Proposed Project

Scenario	With School	Without School
Project Natural Gas Consumption (MMBtu) Without Mitigation	60,899	62,329
Percent of County 2017 Consumption Without Mitigation	0.13	0.13
Project Natural Gas Consumption (MMBtu) With Mitigation (AIR-8, GHG-1, and GHG-4)	18,031	15,773
Change from Buildout Without Mitigation (MMBtu)	-42,868	-46,556
Percent of County 2017 Consumption With Mitigation	**0.04**	**0.03**

Source: Appendix F.

Note: EV = electric vehicle; kWh = kilowatt hours

[1] All-electric residences with energy efficiency improvements.

[2] Average fuel efficiency of electric vehicle is 35 kWh per 100 miles.

Petroleum

Table 4.5-9 shows the annual petroleum demand at full buildout of the proposed project under the preferred land use plan with school and the land use plan without school and with and without the transportation demand management mitigation measure (Mitigation Measure AIR-6) identified in Section 4.2. The mitigation measure is not required to reduce energy use but would have the added benefit of reducing fuel consumption. The petroleum consumption estimate at the state level is available for comparison to the proposed project's petroleum consumption estimate. As shown in Table 4.5-9, the proposed project would consume approximately 0.01 percent of the state's total petroleum consumption. The U.S. Census Bureau reported that, in 2018, the total population in California was 39,557,045 (U.S. Census Bureau 2020). The proposed project is anticipated to generate a service population of approximately 8,424 people under the preferred land use plan with school, or 8,345 people under the land use plan without school, which is equal to approximately 0.02 percent of the state's total population. Therefore, the proposed project's petroleum consumption

would be efficient compared to its proportion of the state population and would not result in a significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of energy resources. Impacts related to petroleum consumption would be less than significant.

Table 4.5-9. Annual Petroleum Demand of the Proposed Project

Scenario		With School	Without School
Buildout Without Mitigation Measures	Gasoline (gallons)[1]	2,251,276	2,305,488
	Diesel (gallons)[2]	427,600	437,897
	Energy (MMBtu)	329,999	337,946
	Percent of State 2018 Consumption	0.01	0.01
Buildout With Mitigation Measures (AIR-5, AIR-6, AIR-7, and AIR-10)	Gasoline (gallons)[1]	1,672,163	1,752,144
	Diesel (gallons)[2]	317,605	332,796
	Energy (MMBtu)	245,111	256,835
	Percent of State 2018 Consumption	0.01	0.01
Energy Reduction from Buildout Without Mitigation Measures		84,888	81,111

Source: Appendix F.

Notes: MMBtu = million British thermal units

[1] One gallon of gasoline is equal to 120,476 Btu.

[2] One gallon of diesel is equal to 137,452 Btu.

Mitigation Measures

Impacts related to the proposed project's construction and operational energy consumption would be less than significant; therefore, no mitigation is required. Mitigation measures identified for air quality and GHG emissions impacts have a secondary, beneficial effect on reducing energy consumption.

4.5.5.2 Threshold 2: Conflict with Renewable or Energy Efficiency Plan

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

Impact: The proposed project would not conflict with or obstruct any renewable energy or energy efficiency plan.

Mitigation: No mitigation is required.

Significance Before Mitigation: Less than significant.

Significance After Mitigation: Less than significant.

Impact Analysis

The City adopted the Sustainable Santee Plan in 2020, which includes energy-related goals that would improve energy efficiency, reduce energy demand, and increase clean energy use. However, the primary purpose of the plan is to reduce GHG emissions. Therefore, project consistency with this plan is evaluated in detail in Section 4.7. The statewide IEPR is the applicable plan for renewable energy or energy efficiency.

In 2002, the State Legislature passed SB 1389, which requires the CEC to develop an IEPR every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report.

The IEPR calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the IEPR identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for ZEVs and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

The 2019 IEPR adopted by the CEC provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the state is to meet its energy, climate, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2019 IEPR covers a broad range of topics, including implementation of SB 100, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission, landscape-scale planning, the California energy demand preliminary forecast, the preliminary transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California's electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated previously, energy use on the project site during construction would be temporary, and energy use associated with operation of the proposed project would be relatively small in comparison to the state's and County's available energy sources. It would also be efficient compared to the proposed project's estimated proportion of the state's and County's population. In addition, on-site renewable energy generation (Mitigation Measure GHG-1) combined with all-electric residences (Mitigation Measure GHG-4) would significantly reduce the energy usage associated with operation of the proposed project. Because the proposed project's per capita energy consumption would be less than the state or County level for the same resource, the proposed project would not conflict with California's energy conservation plans as described in the CEC's 2019 IEPR. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be less than significant.

Mitigation Measures

Impacts related to energy plans are considered less than significant; therefore, no mitigation is required.

4.5.6 Cumulative Impacts and Mitigation Measures

Would implementation of the proposed project have a cumulatively considerable contribution to energy impacts considering past, present, and probable future projects?

Cumulative Impact	Significance	Proposed Project Contribution
Threshold 1: Wasteful or Inefficient Energy Use	Less than significant	Not cumulatively considerable
Threshold 2: Conflict with Renewable or Energy Efficiency Plan	Less than significant	Not cumulatively considerable

4.5.6.1 Cumulative Threshold 1: Wasteful or Inefficient Energy Use

The geographic scope of the cumulative analysis for natural gas and electricity is the San Diego Gas & Electric Company service area and for petroleum is the state. Table 4-2, Cumulative Projects, in Chapter 4, Environmental Impacts Analysis, includes residential, institutional, and commercial projects that would have the potential to increase energy demand in the region. Regional energy demand would likely increase as growth occurs. However, as discussed in Section 4.5.5.1, implementation of the proposed project would result in more efficient use of natural gas, electricity, and fuel compared to typical existing demand in the region. In addition, the proposed project would implement mitigation measures to reduce GHG and criteria pollutant emissions that would minimize energy use, including incentives for electric vehicle use and transportation demand strategies to reduce vehicle miles traveled to reduce fuel use. Further, with implementation of Mitigation Measure GHG-1, the proposed project would generate approximately 63 percent of the proposed project's electricity demand on site from renewable sources. Cumulative projects would also be required to demonstrate that their energy use would not be wasteful, inefficient, or unnecessary, and would comply with applicable energy efficiency regulations such as Title 24. Therefore, the proposed project and cumulative projects would not combine to result in a significant cumulative impact pertaining to the wasteful, inefficient, or unnecessary use of energy.

4.5.6.2 Cumulative Threshold 2: Conflict with Renewable or Energy Efficiency Plan

The geographic scope for cumulative impacts related to energy plans is statewide because the applicable plan, the 2019 IEPR, is a statewide plan. As indicated in Section 4.5.5.2, energy use on the project site during construction would be temporary in nature. In addition, energy use associated with operation of the proposed project would be relatively small compared to the state's and County's available energy sources and would be efficient compared to the proposed project's estimated proportion of population. Cumulative projects would also be required to demonstrate that energy use would not be wasteful, inefficient, or unnecessary. Because California's energy conservation planning actions are conducted at a regional level, and because it can be assumed that other cumulative projects would implement features to reduce inefficient or unnecessary energy

use, the proposed project and cumulative projects would not conflict with California's energy conservation plans. A significant cumulative impact would not occur.

4.5.7 References

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