4.5 ENERGY

This section discusses energy use that is expected to result from implementation of the proposed project and evaluates whether the proposed project would result in the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with any applicable plans for renewable energy and energy efficiency.

4.5.1 Environmental Setting

4.5.1.1 Electricity

Electricity is a manmade resource. The production of electricity requires the consumption or conversion of energy resources (including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources) into energy. Electricity is used for a variety of purposes (e.g., lighting, heating, cooling, and refrigeration, and for operating appliances, computers, electronics, machinery, and public transportation systems).

According to the most recent data available, in 2020, California's electricity was generated primarily by natural gas (37.06 percent), renewable sources (33.09 percent), large hydroelectric (12.21 percent), nuclear (9.33 percent), coal (2.74 percent), and other unspecified sources. Total electric generation in California in 2020 was 272,576 gigawatt-hours (GWh), down 2 percent from the 2019 total generation of 277,704 GWh.[1]

The City of Fairfield is located in Pacific Gas and Electric's (PG&E) service area. According to the California Energy Commission (CEC), total electricity consumption in the PG&E service area in 2020 was 78,518.8 gigawatt hours (GWh) (29,833.5 GWh for the residential sector and 48,685.3 GWh for the nonresidential sector).[2,3] Total electricity consumption in Solano County in 2020 was 3,320.8 GWh (1,191.8 GWh for the residential sector and 2,129.0 for the nonresidential sector).[4]

4.5.1.2 Natural Gas

Natural gas is a non-renewable fossil fuel. Fossil fuels are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth over millions of years. Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas is found in naturally occurring reservoirs in deep underground rock formations. Natural gas is used for a variety of uses (e.g., heating buildings, generating electricity, and powering appliances such as stoves, washing machines and dryers, gas fireplaces, and gas grills).

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1 California Energy Commission (CEC). 2021a. *2020 Total System Electric Generation*. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation (accessed March 2022).

2 PG&E electricity service area is a very large area and covers more than two thirds of the state of California. Similarly, PG&E's natural gas service area also covers more than two thirds of the state.

3 CEC. 2021b. Electricity Consumption by Entity. Website: ecdms.energy.ca.gov/elecbyutil.aspx (accessed March 2022).

4 CEC. 2021c. Electricity Consumption by County. Website: ecdms.energy.ca.gov/elecbycounty.aspx (accessed March 2022).

Natural gas consumed in California is used for electricity generation (45 percent), residential uses (21 percent), industrial uses (25 percent), and commercial uses (9 percent). California continues to depend on out-of-state imports for nearly 90 percent of its natural gas supply.[5]

PG&E is the natural gas service provider for the City of Fairfield. According to the CEC, total natural gas consumption in the PG&E service area in 2020 was 4,508.5 million therms (1,891.3 million therms for the residential sector and 2,617.2 million therms for the nonresidential sector).[6] Total natural gas consumption in Solano County in 2020 was 217.4 million therms (57.4 million therms for the residential sector and 159.9 million therms for the nonresidential sector).[7]

4.5.1.3 Petroleum/Transportation Energy

Petroleum is also a non-renewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a large number of consumer products, primarily fuel oil, gasoline, and diesel.

The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2020.[8] Federal fuel economy standards have changed substantially since the Energy Independence and Security Act was passed in 2007. The Act, which originally mandated a national fuel economy standard of 35 mpg by year 2020, applies to cars and light trucks of Model Years 2011 through 2020.[9] In March 2020, the United States Environmental Protection Agency (USEPA) and National Highway Traffic Safety Administration (NHTSA) finalized the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, further detailed below.

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. According to the most recent data available, total gasoline consumption in California was 289,918 thousand barrels or 1,464.7 trillion British Thermal Units (BTU) in 2020.[10] Of the total gasoline consumption, 273,289 thousand

5 CEC. 2021d. Supply and Demand of Natural Gas in California. Website: https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/supply-and-demand-natural-gas-california (accessed March 2022).

6 CEC. 2021e. Gas Consumption by Entity. Website: ecdms.energy.ca.gov/gasbyutil.aspx (accessed March 2022).

7 CEC. 2021f Gas Consumption by County. Website: ecdms.energy.ca.gov/gasbycounty.aspx (accessed March 2022).

8 U.S. Department of Transportation (DOT). "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles (accessed March 2022).

9 U.S. Department of Energy. 2007. "Energy Independence & Security Act of 2007." Website: https://www.afdc.energy.gov/laws/eisa (accessed March 2022).

10 A British Thermal Unit is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

barrels or 1,380.7 trillion BTU were consumed for transportation.[11] Based on fuel consumption obtained from EMFAC2021, approximately 177.5 million gallons of gasoline and approximately 53.5 million gallons of diesel were consumed as a result of vehicle trips in Solano County in 2021.

4.5.2 Regulatory Setting

Federal and State agencies regulate energy use and consumption through various means and programs. At the federal level, the United States Department of Transportation, the United States Department of Energy, and the USEPA are three federal agencies with substantial influence over energy policies and programs. Generally, federal agencies influence and regulate transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding of transportation infrastructure improvements. At the State level, the California Public Utilities Commission (CPUC) and the CEC are two agencies with authority over different aspects of energy.

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies and serves the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy.

The CEC is the State's primary energy policy and planning agency. The CEC forecasts future energy needs, promotes energy efficiency, supports energy research, develops renewable energy resources, and plans for and directs state response to energy emergencies. The applicable federal, State, regional, and local regulatory framework is discussed below.

4.5.2.1 Federal Laws and Regulations

Energy Policy Act of 2005. The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand for these resources. For example, under this Act, consumers and businesses can obtain federal tax credits for purchasing fuel-efficient appliances and products (including hybrid vehicles), building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Safer Affordable Fuel-Efficient Vehicles Rule. On March 21, 2020, the USEPA NHTSA finalized the SAFE Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule). The SAFE Vehicles Rule amends certain existing Corporate Average Fuel Economy and tailpipe carbon dioxide (CO_2) emissions standards for passenger cars and light trucks and establishes new standards, all covering model years 2021 through 2026. More specifically, the NHTSA set new Corporate Average Fuel Economy standards for model years 2022 through 2026 and amended its

[11] U.S. Department of Energy, EIA. 2021. California State Profile and Energy Estimates. Table F3: Motor gasoline consumption, price, and expenditure estimates, 2020. Website: eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA (accessed March 2022).

2021 model year Corporate Average Fuel Economy standards, and the USEPA amended its CO_2 emissions standards for model years 2021 and later.

4.5.2.2 State Laws and Regulations

Assembly Bill 1575, Warren-Alquist Act. In 1975, largely in response to the oil crisis of the 1970s, the State Legislature adopted Assembly Bill (AB) 1575 (also known as the Warren-Alquist Act), which created the CEC. The statutory mission of the CEC is to forecast future energy needs; license power plants of 50 megawatts (MW) or larger; develop energy technologies and renewable energy resources; plan for and direct State responses to energy emergencies; and, perhaps most importantly, promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code (PRC) Section 21100(b)(3) and *State CEQA Guidelines* Section 15126.4 to require EIRs to include, where relevant, mitigation measures proposed to minimize the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the State Resources Agency created Appendix F to the *State CEQA Guidelines*. Appendix F assists EIR preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the *State CEQA Guidelines* also states that the goal of conserving energy implies the wise and efficient use of energy and the means of achieving this goal, including (1) decreasing overall per capita energy consumption; (2) decreasing reliance on fossil fuels such as coal, natural gas, and oil; and (3) increasing reliance on renewable energy sources.

Senate Bill 1389, Energy: Planning and Forecasting. In 2002, the State Legislature passed Senate Bill (SB) 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan 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 plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles (ZEVs) and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

In compliance with the requirements of SB 1389, the CEC adopts an *Integrated Energy Policy Report* every 2 years and an update every other year. The most recently adopted reports include the *2021 Integrated Energy Policy Report* and the *2022 Integrated Energy Policy Report Update.*[12] The Integrated Energy Policy Report covers a broad range of topics, including decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.

Renewable Portfolio Standard. SB 1078 established the California Renewable Portfolio Standards (RPS) program in 2002. SB 1078 initially required that 20 percent of electricity retail sales be served

[12] CEC. 2022. *2020 Integrated Energy Policy Report Update*. California Energy Commission. Docket Number: 22-IEPR-01.

by renewable resources by 2017; however, this standard has become more stringent over time. In 2006, SB 107 accelerated the standard by requiring that the 20 percent mandate be met by 2010. In April 2011, SB 2 required that 33 percent of electricity retail sales be served by renewable resources by 2020. In 2015, SB 350 established tiered increases to the Renewable Portfolio Standards of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. In 2018, SB 100 increased the requirement to 60 percent by 2030 and required that all the State's electricity come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019.[13]

Title 24, California Building Code. Energy consumption in new buildings in California is regulated by the Building Energy Efficiency Standards, embodied in Title 24 of the California Code of Regulations (CCR), known as the California Building Code (CBC). The CEC first adopted the Building Energy Efficiency Standards for Residential and Nonresidential Buildings in 1978 in response to a legislative mandate to reduce energy consumption in the State. The CBC is updated every 3 years, and the current 2019 CBC went into effect on January 1, 2020. The 2022 CBC will go into effect on January 1, 2023, prior to project construction. The efficiency standards apply to both new construction and rehabilitation 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 local energy standards for new buildings, provided these standards meet or exceed those provided in CCR Title 24.

California Green Building Standards Code (CALGreen Code). In 2010, the California Building Standards Commission (CBSC) adopted Part 11 of the Title 24 Building Energy Efficiency Standards, referred to as the California Green Building Standards Code (CALGreen Code). The CALGreen Code took effect on January 1, 2011. The CALGreen Code is updated on a regular basis, with the most recent update consisting of the 2019 CALGreen Code standards that became effective January 1, 2020. The 2022 CALGreen Code will go into effect on January 1, 2023, prior to project construction. The CALGreen Code established mandatory measures for residential and non-residential building construction and encouraged sustainable construction practices in the following five categories: (1) planning and design, (2) energy efficiency, (3) water efficiency and conservation, (4) material conservation and resource efficiency, and (5) indoor environmental quality. Although the CALGreen Code was adopted as part of the State's efforts to reduce greenhouse gas (GHG) emissions, the CALGreen Code standards have co-benefits of reducing energy consumption in residential and non-residential buildings subject to the standard.

California Energy Efficiency Strategic Plan. On September 18, 2008, the CPUC adopted California's first Long-Term Energy Efficiency Strategic Plan, presenting a roadmap for energy efficiency in California.[14] The Plan articulates a long-term vision and goals for each economic sector and identifies specific near-term, mid-term, and long-term strategies to assist in achieving those goals. The Plan also reiterates the following four specific programmatic goals known as the "Big Bold Energy Efficiency Strategies" that were established by the CPUC:

[13] California Public Utilities Commission (CPUC). 2019. Renewables Portfolio Standard Program. Website: cpuc.ca.gov/rps (accessed March 2022).

[14] CPUC. 2008. California Long-Term Energy Efficiency Strategic Plan. September. Website: cpuc.ca.gov/General.aspx?id=4125 (accessed March 2022).

- All new residential construction will be zero net energy (ZNE) by 2020.
- All new commercial construction will be ZNE by 2030.
- 50 percent of commercial buildings will be retrofit to ZNE by 2030.
- 50 percent of new major renovations of State buildings will be ZNE by 2025.

4.5.2.3 Regional Plans and Regulations

There are no regional energy regulations that apply to the proposed project.

4.5.2.4 Local Plans and Regulations

***City of Fairfield General Plan*.** The following policies in the *City of Fairfield General Plan* pertaining to energy would be applicable to the proposed project:

> **Policy OS 8.3:** Encourage more efficient use of private vehicles and increased use of mass transit and alternative transportation modes.
>
> **Policy OS 8.5:** Require water conservation and energy efficiency techniques to be incorporated into the design of all development projects.

4.5.3 Significance Criteria

The significance criteria for energy impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The proposed project may be deemed to have a significant impact with respect to energy if it would:

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

4.5.4 Methodology

The energy use analysis in this section is based on information from the California Emissions Estimator Model (CalEEMod) version 2020.4.0 modeling results contained in **Appendix A**. The CalEEMod modeling quantifies energy use for project operations. Fuel consumption (diesel fuel and gasoline) from vehicle trips during operation was estimated for the opening year (2025) of the proposed project based on trip estimates from the CalEEMod model and fuel efficiencies from the California Air Resources Board's (CARB) Emission Factor Model (EMFAC2021) model. Estimates of fuel consumption (diesel fuel and gasoline) from construction trucks and construction worker vehicles were based on trip estimates from the CalEEMod model and fuel efficiencies from the CARB EMFAC2021 model.

The analysis focuses on the three sources of energy that are relevant to the proposed project: electricity, the equipment fuel necessary for project construction, and vehicle fuel necessary for project operations. For the purposes of this analysis, the amount of electricity, construction fuel, and fuel use from operations are quantified and compared to that consumed in Solano County. The electricity use of the proposed project is analyzed as a whole on an annual basis. The proposed

project does not include any natural gas infrastructure or appliances and no natural gas would be used on site for space or water heating, other than a small amount that would be used in the barbeque pits and would be supplied in tanks.

4.5.5 Project Impacts

The following describes the potential impacts regarding energy resources that could result from implementation of the proposed project. As applicable, mitigation measures are presented to reduce significant impacts.

4.5.5.1 Energy Consumption

Impact ENR-1: The proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

The proposed project would increase the demand for energy through day-to-day operations and fuel consumption associated with project construction. This section discusses energy use resulting from implementation of the proposed project and evaluates whether the proposed project would result in the wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy Use. Construction of the proposed project would require energy for activities such as the manufacture and transportation of building materials, grading activities, and building construction. Construction of the proposed project would require diesel and gasoline to operate on-site construction-related equipment. Construction of the proposed project would not involve the consumption of natural gas. The construction-related equipment would not be powered by natural gas, and no natural gas demand is anticipated during construction.

Transportation energy represents the largest energy use during construction and would occur from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction worker vehicles that would use petroleum fuels (e.g., diesel fuel and/or gasoline). Therefore, the analysis of energy use during construction focuses on fuel consumption. Construction trucks and vendor trucks hauling materials to and from the project site would be anticipated to use diesel fuel, whereas construction workers traveling to and from the project site would be anticipated to use mostly gasoline-powered vehicles. Fuel consumption from transportation uses depends on the type and number of trips, VMT, the fuel efficiency of the vehicles, and the travel mode.

Construction phase energy use was estimated for the project using CalEEMod. The proposed project would include the excavation of 770 tons of material to be hauled offsite, which was included in CalEEMod. In addition, the proposed project would require approximately 1,750 cubic yards of cut and 12,050 cubic yards of fill, for a net of 10,300 cubic yards of fill that would be imported to the project site, which was included in CalEEMod. Construction of the proposed project is anticipated to begin in Summer 2023 and end in Spring 2025. Based on information provided by the project applicant, construction of the proposed project would result in a maximum of 150 worker trips per day, which was included in CalEEMod. The project applicant also provided construction fleet details, which were included in CalEEMod. The analysis assumes the use of Tier 2 construction equipment.

Estimates of fuel consumption (diesel fuel and gasoline) were based on default construction equipment assumptions and trip estimates from CalEEMod and fuel efficiencies from EMFAC2021. Construction-related energy consumption estimates are presented in **Table 4.5.A: Proposed Project Energy Consumption Estimates during Construction.** CalEEMod output sheets are included in **Appendix A** and detailed energy calculations are included in **Appendix F.**

Table 4.5.A: Proposed Project Energy Consumption Estimates during Construction

Energy Type	Total Energy Consumption (gallons)	Percentage Increase Countywide
Diesel Fuel	105,095	0.2
Gasoline	45,992	<0.1

Source: Compiled by LSA (October 2022).
kWh = kilowatt-hours

As indicated in **Table 4.5.A**, the project would consume approximately 105,095 gallons of diesel fuel and approximately 45,992 gallons of gasoline during construction. Based on fuel consumption obtained from EMFAC2021, approximately 177.5 million gallons of gasoline and approximately 53.5 million gallons of diesel were consumed in vehicle trips in Solano County in 2021. Therefore, construction of the proposed project would increase the annual fuel use in Solano County by approximately 0.2 percent for diesel fuel usage and less than 0.1 percent for gasoline fuel usage. Construction-related fuel use would also be temporary, occurring over a 24-month period. As such, project construction would have a negligible effect on local and regional energy supplies. The project would not cause or result in the need for additional energy facilities or an additional or expanded delivery system. Furthermore, energy use during project construction would be temporary and relatively small in comparison to Solano County's overall use of the State's available energy resources. No unusual project characteristics would necessitate the use of construction equipment that would be less energy efficient than equipment used at comparable construction sites in the region or the State. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project.

For all of these reasons, fuel consumption during construction would not be inefficient, wasteful, or unnecessary. Impacts would be less than significant.

Operational Energy Use. Operational energy use for a residential project is typically associated with natural gas and electricity consumption associated with the new buildings and electric vehicle (EV) charging; and fuel used to make vehicle trips to and from the project. Energy consumption was estimated for the proposed project using default energy intensities by land use type in CalEEMod. The proposed project would be all-electric and would not involve natural gas use. This was included in CalEEMod. In addition, energy efficiency measures included in the project design were input in CalEEMod. These measures include: photovoltaic (PV) solar, ENERGY STAR appliances, energy efficient light-emitting diode (LED) lighting. When project-specific data were not available, default assumptions from CalEEMod were used in the analysis.

The proposed project would also result in energy usage associated with gasoline and diesel fuel consumed by project-related vehicle trips. Fuel use associated with vehicle trips generated by the proposed project was calculated based on the project's trip generation estimates, which assume the proposed project would typically generate approximately 840 average daily trips (refer to **Section 4.12: Transportation**, for trip generation estimates). The amount of operational fuel use was estimated using CARB's EMFAC2021 model, which provided projections for typical daily fuel usage in Solano County.

Electricity and fuel usage estimates associated with project operation are shown in **Table 4.5.B: Proposed Project Energy Consumption Estimates during Operation**.

Table 4.5.B: Proposed Project Energy Consumption Estimates during Operation

Energy Type	Annual Energy Consumption	Percentage Increase Countywide
Building Fuel Consumption		
Electricity Consumption (kWh/year)	1,124,294	<0.1
Automotive Fuel Consumption		
Gasoline (gallons/year)	51,354	<0.1
Diesel Fuel (gallons/year)	4,742	<0.1

Source: Compiled by LSA (October 2022).
kWh = kilowatt-hours

As shown in **Table 4.5.B**, the estimated increase in electricity consumption associated with the operation of the proposed project is 1,124,294 kilowatt-hours (kWh) per year. Total electricity consumption in Solano County in 2020 was approximately 3,320.8 GWh (3,320,792,693 kWh). If the project-related electricity demand is compared to the existing consumption of electricity in the County, operation of the proposed project would negligibly increase the annual electricity consumption in Solano County by less than 0.01 percent. (Note that these comparisons of project-related electricity consumption to the existing levels of consumption in Solano County are provided to serve as a frame of reference for project energy use and are not intended to serve as the basis of the impact conclusion).

Electrical demand associated with project operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. The project would be required to adhere to all federal, State, and local requirements for energy efficiency, including the Title 24 standards. Title 24 building energy efficiency standards establish minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. In addition, as identified above, the proposed project would include the following sustainability features: a minimum of 15 percent of the roof areas would be reserved for future photovoltaic (PV) solar installation; the building would be equipped with automated electrical lighting controls and occupancy sensor technology; all appliances would be electric and ENERGY STAR certified; all water fixtures (faucets, showerheads, and toilets) would be low flow and/or WaterSense certified for low water use; windows would be treated with energy efficient low emissivity (Low-E) coatings; paint would have reduced amounts of

volatile organic compounds (low VOC) and be Leadership in Energy and Environmental Design (LEED) version 4 qualified; heating, ventilation, and air conditioning (HVAC) equipment would consist of high-efficiency ENERGY STAR certified condensing units with a seasonal energy efficiency rating (SEER) of 15; roofing material would include an ENERGY STAR rated thermoplastic polyolefin (TPO) membrane to reflect ultraviolet rays and heat from the building; high-efficiency central heat pump boiler system would be installed for efficient hot water distribution throughout the residential building; swimming pool water would be heated using energy from solar panels installed on nearby roof areas; floor systems would be fully insulated, and 2-inch by 6-inch exterior walls would provide added building insulation; energy efficient light-emitting diode (LED) light fixtures would be installed in the apartment building and for exterior lighting; and new landscape plants would be drought tolerant, native to California or other Mediterranean climates, or other low water use species. Although energy consumption is largely a function of personal choice and the physical structure and layout of buildings, due to the features built into the project in compliance with CALGreen, the expected energy consumption during operation of the proposed project is expected to be lower than the typical usage rates for existing multi-family residential uses.

In addition, as shown in **Table 4.5.B**, fuel use associated with the vehicle trips generated by the proposed project is estimated at 51,354 gallons of gasoline and 4,742 gallons of diesel fuel per year. This analysis conservatively assumes that all vehicle trips generated as a result of project operation would be new to Solano County. Based on fuel consumption obtained from EMFAC2021, approximately 177.5 million gallons of gasoline and approximately 53.5 million gallons of diesel were consumed in vehicle trips in Solano County in 2021. If the project-related fuel use is compared to the existing fuel use in the County, operation of the proposed project would increase the annual fuel use in Solano County by less than 0.1 percent for diesel fuel usage and less than 0.1 percent for gasoline fuel usage. (Note that this comparison of project-related transportation fuel consumption to the existing levels of transportation fuel consumption in Solano County is provided to serve as a frame of reference for project energy use and is not intended to serve as the basis of impact conclusion).

Fuel consumption associated with vehicle trips generated by project operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. The proposed project would develop housing in close proximity to existing and future commercial and retail uses. Furthermore, the proposed project would provide housing near existing business, commercial, and employment centers in the City of Fairfield, reducing the demand for travel by single occupancy vehicles. In addition, the proposed project would be consistent with CALGreen's 2022 mandatory EV parking requirements for electric vehicle (EV) charging stations, EV ready, and EV capable spaces. The project would also include additional EV capable spaces with the necessary conduits so that they may be converted in the future into additional charging stations and/or EV ready spaces to assist the project in meeting CALGreen Tier 2 level requirements.[15] In addition, parking would be provided consistent with City requirements, not in excess. Therefore, the proposed project is designed to promote the use of alternative modes of transportation and zero

[15] The EV charging requirements for multi-family housing in the California Green Building Standards Code are expected to change in 2023. The proposed project will be constructed after the new code requirements go into effect and therefore the final site plans for the proposed project will be consistent with the revised standards, as applicable.

emissions vehicles by the project residents and would further reduce VMT by implementing **Mitigation Measure TRA-1**.

In summary, although the proposed project would increase the consumption of energy resources in the project area, it would not result in an inefficient, wasteful or unnecessary use of energy and the impact is considered less than significant. No mitigation is required.

Level of Significance prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance after Mitigation: Not Applicable

4.5.5.2 Conflict with Renewable Energy or Energy Efficiency Plans

Impact ENR-2: The proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

In 2002, the Legislature passed SB 1389, which required the CEC to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels for the Integrated Energy Policy Report. The plan 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 integrated energy plan 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 VMT and accommodate pedestrian and bicycle access.

The most recently adopted reports include the *2021 Integrated Energy Policy Report*[16] and the *2022 Integrated Energy Policy Report Update.*[17] The Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. The City of Fairfield relies on the State integrated energy plan and does not have its own local plan to address renewable energy or energy efficiency.

The expected energy consumption during construction and operation of the proposed project would be consistent with typical usage rates for residential uses; however, energy consumption is largely a function of personal choice and the physical structure and layout of buildings. Because California's energy conservation planning actions are conducted at a regional level, and because the proposed project's total impact on regional energy supplies would be minor, the proposed project would not conflict with or obstruct California's energy conservation plans as described in the CEC's *Integrated Energy Policy Report*. Additionally, as demonstrated above, the proposed project would not result in the inefficient, wasteful, and unnecessary consumption of energy. Potential impacts related to conflict with or obstruction of a State or local plan for renewable energy or energy efficiency would be less than significant, and no mitigation is required.

16 CEC. 2021g. *2021 Integrated Energy Policy Report*. Docket No. 21-IEPR-01.

17 CEC. 2022. *2020 Integrated Energy Policy Report Update*. California Energy Commission. Docket Number: 22-IEPR-01.

Level of Significance prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance after Mitigation: Not Applicable

4.5.5.3 Cumulative Impacts

Cumulative Impact C-ENR-1: The proposed project, in conjunction with other past, present, and reasonably foreseeable future development in the project area, would not result in a significant cumulative impact related to energy.

The proposed project would have a significant effect on the environment if it – in combination with other projects – would contribute to a significant cumulative impact related to energy.

The geographic area for cumulative analysis of electricity and natural gas is the PG&E service area. The proposed project would result in an increased service demand for electricity. As discussed previously, total electricity consumption in the PG&E service area in 2020 was 78,518.8 GWh. In 2020, a total of 31 percent of PG&E's delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy.[18] PG&E reached California's 2020 renewable energy goal in 2017, and is positioned to meet the State's 60 percent by 2030 renewable energy mandate set forth in SB 100. In addition, PG&E plans to continue to provide reliable service to their customers and upgrade their distribution systems as necessary to meet future demand.

The proposed project would be all-electric and would not include natural gas infrastructure or use. Although the proposed project would result in a net increase in demand for electricity, this increase would be minimal and would not require PG&E to expand or construct infrastructure that could cause significant environmental impacts. In addition, the proposed project would be required to comply with Energy Efficiency Standards (CCR Title 24, Part 6), the CALGreen Code (CCR Title 24, Part 11), and SB 743, which are also aimed at reducing energy consumption. Further, the project includes certain design features that meet or exceed standards that contribute to the overall energy efficiency (e.g., increase in EV-ready charging capabilities, increased solar capabilities, and elimination of all natural gas associated with residential space and water heating), well beyond projects designed or constructed in the recent past. As such, the proposed project would not contribute to potential cumulative impacts associated with the potential inefficient, wasteful and unnecessary consumption of energy within the PG&E service area.

Transportation energy use would also increase; however, this transportation energy use would not represent a major amount of energy use when compared to the amount of existing development and to the total number of vehicle trips and VMT throughout Solano County and the region. The proposed project and related projects are required to comply with federal and State legislation to improve energy efficiency in buildings, equipment, and appliances, and reduce VMT. Therefore, the

[18] PG&E. 2020. *Exploring Clean Energy Solutions*. June. Website: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page?WT.mc_id=Vanity_cleanenergy (accessed March 2022).

proposed project's contribution to impacts related to the inefficient, wasteful, and unnecessary consumption of energy would not be cumulatively considerable, and no mitigation is required.

Level of Significance prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance after Mitigation: Not Applicable

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