5.18 ENERGY CONSUMPTION

NOTE TO READER: This section of the Partial Recirculated Draft Environmental Impact Report (RDEIR) includes an updated analysis of potential energy consumption impacts. This section was revised to update the analysis based upon updated energy modeling completed for the project as part of the greenhouse gas emissions calculations. This section is recirculated in its entirety.

This section evaluates energy consumption and conservation associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new energy conservation regulations, is included in this section. Energy modeling outputs are included as Appendix RDEIR-A-1, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA.

Public Resources Code Section 21100(b)(3) and *State CEQA Guidelines* §15126.2(b) require EIRs to describe, where relevant, the wasteful, inefficient, and unnecessary consumption of energy caused by a project. In 1975, largely in response to the oil crisis of the 1970s, the California legislature adopted Assembly Bill (AB) 1575, which created the California Energy Commission (CEC). The statutory mission of the CEC is to forecast future energy needs, license thermal power plants of 50 megawatts 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 Section 21100(b)(3) to require EIRs to consider the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the State Resources Agency created Appendix F of the *State CEQA Guidelines*.

State CEQA Guidelines Appendix F assists EIR preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy. For the reasons set forth below, this EIR concludes that the proposed project would not result in this type of energy consumption and therefore would not create a significant impact on energy resources.

5.18.1 ENVIRONMENTAL SETTING

Energy consumption is analyzed in this EIR due to the potential direct and indirect environmental impacts associated with the project. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emissions of pollutants during both the construction and long-term operational phases.

ENERGY USAGE

Energy usage is typically quantified using the British Thermal Unit (Btu). In general, the approximate amount of energy contained in a gallon of gasoline, a cubic foot of natural gas, and a kilowatt hour (kWh) of electricity are 120,333 Btu's, 1,036 Btu's, and 3,412 Btu's, respectively.[1]

[1] EIA (U.S. Energy Information Administration). *Energy Units & Calculations Explained.* [Online]: https://www.eia.gov/energyexplained/index.cfm?page=about_energy_conversion_calculator. Accessed January 30, 2020.

Total energy usage in California was 7,966 trillion Btu's in 2018 (the most recent year for which this specific data is available). Of California's total energy usage in 2018, the consumption breakdown by sector was 1,439 trillion Btu for residential uses (18.1 percent), 1,509 trillion Btu for commercial uses (18.9 percent), 1,848 trillion Btu for industrial uses (23.2 percent), and 3,170 trillion Btu for transportation (39.8 percent).[2]

Given the nature of the proposed project (i.e., a Planned Development in Shasta County), the remainder of this discussion will focus on the three most relevant sources of energy: electricity, natural gas, and gasoline for vehicle trips associated with residential uses.

ELECTRICITY

Electricity usage in California differs substantially by land use, type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity consuming devices within a building. The average annual usage of electricity is roughly 6,500 kWh/residence.[3]

In 2019, total electrical power generation for California was 277,704 gigawatt-hours (GWh), about 2.7 percent lower than 2018.[4] In 2019, the forecast for California's electricity consumption in 2030 was about 5 percent below 2018 levels at 321,300 GWh. This decrease in demand is partially related to the 2019 Title 24 buildings standards update which requires photovoltaic (solar) installations on new homes, in addition to other factors such as efficiency program savings and refreshed electricity rate projections.[5]

NATURAL GAS

Natural gas usage in California varies substantially by the type of land use, construction materials used in a building, and the efficiency of all gas-consuming devices within a building. Natural gas is being used to power vehicles. In 2019, California used a total of nearly 2.1 million cubic feet of natural gas.[6] The natural gas was used to produce electricity (30 percent), in industrial uses (37 percent), in commercial uses (12 percent), in residential uses (20 percent), and in vehicles (1 percent).[7]

GASOLINE FOR MOTOR VEHICLES

The primary factors linked to increasing gasoline consumption are: (1) population growth; (2) declining per-mile cost of gasoline; (3) land use patterns increasing the distance between jobs and housing; and (4) a shift in consumer preferences to larger, less fuel-efficient motor vehicles. The fuel economy standard for new passenger cars in 2017 was 38.5 miles per gallon (mpg), and 29.4 mpg for new light trucks (gross

[2] EIA (U.S. Energy Information Administration). *California Profile Overview.* [Online:] http://www.eia.gov/state/?sid=CA#tabs-2. Accessed October 14, 2020.
[3] EIA (U.S. Energy Information Administration). *Household Energy Use in California*. [Online]: http://www.eia.gov/consumption/residential/reports/2009/state_briefs/pdf/ca.pdf. Accessed October 14, 2020.
[4] CEC (California Energy Commission). *Total System Electric Generation*. [Online]: http://www.energy.ca.gov/almanac/electricity_data/total_system_power.html. Accessed October 14, 2020.
[5] CEC (California Energy Commission). 2016. *California Energy Demand Update Forecast*, 2017-2027. December. [Online]: file:///C:/Users/alex.jewell/Downloads/TN232922_20200506T151733_Adopted%202019%20Integrated%20Energy%20Policy%20Report.pdf . Accessed =October 14, 2020.
[6] EIA (U.S. Energy Information Administration). *Natural Gas Delivered to Consumers in California (Including Vehicle Fuel)*. [Online]: https://www.eia.gov/dnav/ng/hist/n3060ca2m.htm. Accessed October 14, 2020.
[7] EIA (U.S. Energy Information Administration). *California Natural Gas Summary*. [Online]: https://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_sCA_m.htm. Accessed October 14, 2020.

vehicle weight of 8,500 pounds or less).[8] Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with Federal fuel economy standards is not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States.

5.18.2 REGULATORY SETTING

The following is a description of State and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process.

STATE

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24)

Title 24, California's energy efficiency standards for residential and non-residential buildings, was established by the California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. California's energy efficiency standards are updated on an approximate three-year cycle. On January 1, 2020, the 2019 Title 24 standards became effective with more stringent requirements. The 2019 standards are expected to substantially reduce the growth in electricity and natural gas use. Additional savings result from the application of the standards on building alterations. For example, requirements for cool roofs, lighting, and air distribution ducts are expected to save additional electricity. These savings are cumulative, doubling as years go by.

California Green Building Standards

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and went into effect January 1, 2020.

2006 Appliance Efficiency Regulations

The California Energy Commission adopted Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) on October 11, 2006. The regulations were approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both Federally regulated appliances and non-Federally regulated appliances. While these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

[8]National Highway Traffic Safety Information (NHTSA) https://one.nhtsa.gov/cafe_pic/CAFE_PIC_fleet_LIVE.html ; Accessed October 14, 2020

2008 California Energy Action Plan Update

The California Public Utilities Commission and California Energy Commission *2008 Energy Action Plan Update* provides a status update to the *2005 Energy Action Plan II,* which is the State's principal energy planning and policy document. The plan continues the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil fuel-fired generation.

Senate Bills 1078 and 107; Executive Orders S-14-08, S-21-09, and SB 2X

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2 (2011) codified the 33 percent by 2020 goal.

Executive Order B-30-15; Senate Bills 100 and 350

In April 2015, Governor Brown issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. SB 350 (Chapter 547, Statutes of 2015) advanced these goals through two measures. First, the law increases the renewable power goal from 33 percent renewables by 2020 to 50 percent by 2030. Second, the law requires the CEC to establish annual targets to double energy efficiency in buildings by 2030. The law also requires the California Public Utilities Commission to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal. In 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

State Vehicle Standards (AB 1493)

AB 1493 (Pavley Regulations and Fuel Efficiency Standards), enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009–2016 and a second set of emissions standards for model

years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO2e emissions and 75 percent fewer smog-forming emissions.

Renewable Portfolio Standard

In 2002, California established its Renewable Portfolio Standard program[9] with the goal of increasing the annual percentage of renewable energy in the state's electricity mix by the equivalent of at least 1 percent of sales, with an aggregate total of 20 percent by 2017. The California Public Utilities Commission subsequently accelerated that goal to 2010 for retail sellers of electricity (*Public Utilities Code* Section 399.15(b)(1)). Governor Schwarzenegger signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the California Air Resources Board under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In September 2010, the California Air Resources Board adopted its Renewable Electricity Standard regulations, which require all of the state's load-serving entities to meet this target. In October 2015, Governor Brown signed into legislation Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Recent CEQA Litigation

In California, Clean Energy Committee v. City of Woodland (2014) 225 Cal.App.4th 173 ("CCEC"), the Court observed that *State CEQA Guidelines* Appendix F lists environmental impacts and mitigation measures that an EIR may include. Potential impacts requiring EIR discussion include:

- *The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.*
- *The effects of the project on local and regional energy supplies and on requirements for additional capacity.*
- *The effects of the project on peak and base period demands for electricity and other forms of energy.*
- *The degree to which the project complies with existing energy standards.*
- *The effects of the project on energy resources.*
- *The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.*

LOCAL

Shasta County General Plan

[9] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country.

The Shasta County *General Plan* includes several objectives and policies related to energy. The objectives and policies that would apply to the proposed project are provided below.

- *Objective E-2*. Increase utilization of renewable energy resources by encouraging development of solar, hydroelectric, biomass, waste-to-energy, and cogeneration sources.

- *Policy E-b*. Encourage development patterns which reduce the number of miles driven in personal vehicles through consideration of higher density and mixed land uses, transit- and pedestrian-oriented developments, and increased jobs-to-housing balance. At the community level, the County shall adopt land use plans which reduce the need to travel outside the community for basic commercial services.

- *Policy E-c.* The County should develop energy thresholds and standards which assist applicants for development projects in designing conservation features into their proposals. Energy threshold standards could also be used to assist in the evaluation of potential energy consumption impacts which may be environmentally significant.

- *Policy E-g.* Revision or development of landscaping and tree protection standards should provide consideration to improving building energy efficiency and shading of streets and parking areas during the hot summer season.

- *Policy E-h.* Subdivision design review should include standards for street and building orientation which allow appropriate solar access as well as landscape shading for cooling and heating in urban and town centers.

5.18.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA

In accordance with the *State CEQA Guidelines*, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria used to determine the significance of impacts may vary depending on the nature of the project. According to Public Resources Code Section 21100(b)(3) and Appendix G of the *State CEQA Guidelines*, the proposed project would have a significant impact related to energy, if it would:

- Result in wasteful, inefficient, and unnecessary consumption of energy resources during project construction or operations. Refer to Impact 5.18-1, below.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Refer to Impact 5.18-2, below.

Based on these standards, the effects of the proposed project have been categorized as either a "*less than significant"* impact or a "*potentially significant"* impact. Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a "*significant and unavoidable"* impact.

5.18.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The impact analysis focuses on the three sources of energy that are relevant to the proposed project: electricity, natural gas, and transportation fuel for vehicle trips associated with new development as well as the fuel necessary for project construction. The analysis of electricity/natural gas usage is based on California Emissions Estimator Model (CalEEMod) greenhouse gas (GHG) emissions modeling, which quantifies energy use for occupancy. The results of the CalEEMod modeling are included in Appendix RDEIR A-1, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA. Modeling was based primarily on the default settings in the computer program for Shasta County. The amount of operational fuel use was estimated using the California Air Resources Board's Emissions Factor 2014 (EMFAC2014) computer program, which provides projections for typical daily fuel usage in Shasta County. The amount of construction-related fuel use was estimated using ratios provided in the Climate Registry General Reporting Protocol for the Voluntary Reporting Program, Version 2.1. The results of EMFAC2014 modeling and construction fuel estimates are included in Appendix RDEIR A-1.

Energy consumption impacts are analyzed below according to topic. Mitigation measures directly correspond with an identified impact.

IMPACT 5.18-1 ***Project implementation would not use fuel or energy in a wasteful manner.***

Significance: Less Than Significant Impact.

Impact Analysis:

Short-Term Construction

In 1994, the U.S. Environmental Protection Agency (EPA) adopted the first set of emission standards (Tier 1) for all new off-road diesel engines greater than 37 kilowatts (kW). The Tier 1 standards were phased in for different engine sizes between 1996 and 2000, reducing NO_X emissions from these engines by 30 percent. The EPA Tier 2 and Tier 3 standards for off-road diesel engines are projected to further reduce emissions by 60 percent for NO_X and 40 percent for particulate matter from Tier 1 emission levels. Tier 4 standards were established in 2004 and reduce NO_x, PM_{10}, and $PM_{2.5}$ emissions by 90 percent and were phased in between 2008 and 2014. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary consumption.

Depending on market conditions, the project is expected to be constructed in phases generally over a period of 10 to 15 years. Construction would consist of site preparation, grading, paving, building construction, and architectural coating. Table 5.18-1, CONSTRUCTION FUEL CONSUMPTION, provides an estimate of construction fuel consumption for the project based on information provided by the CalEEMod air quality computer model.

Table 5.18-1
CONSTRUCTION FUEL CONSUMPTION

Equipment	Quantity	Horsepower	Load Factor	Fuel Consumption Rate[1] (gallons per hour)	Duration[2] (total hours)	Total Fuel Consumption[3,4] (gallons)
Site Preparation						
Rubber Tired Dozers	3	247	0.40	3.95	240	948
Tractors/Loaders/Backhoes	4	97	0.37	1.44	320	459
Grading						
Excavators	2	158	0.38	2.40	480	1,153
Graders	1	187	0.41	3.07	240	736
Rubber Tired Dozers	1	247	0.40	3.95	240	948
Scrapers	2	367	0.48	7.05	480	3,382
Tractors/Loaders/Backhoes	2	97	0.37	1.44	480	689
Building Construction						
Cranes	1	230	0.29	2.68	2,100	5,627
Forklifts	3	89	0.20	0.71	7,200	5,126
Generator Sets	1	84	0.74	2.49	2,400	5,967
Tractors/Loaders/Backhoes	3	97	0.37	1.44	6,300	9,044
Welders	1	46	0.45	0.83	2,400	1,987
Paving						
Pavers	2	130	0.42	2.18	4,800	10,483
Paving Equipment	2	132	0.36	1.90	4,800	9,124
Rollers	2	80	0.38	1.22	4,800	5,837
Architectural Coating						
Air Compressors	1	78	0.48	1.50	1,800	2,696
					TOTAL[4]	***64,208***

Notes:
1 . Derived using the following equation:
Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor
Where: Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.
2. Total hours of duration derived from CalEEMod modeling results.
3. Total Fuel Consumption calculated using the following equation: *Total Fuel Consumption = Duration in Hours x Fuel Consumption Rate*
4. Values may be slightly off due to rounding.
Source: Refer to Appendix RDEIR A-1, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA, for CalEEMod assumptions used in this analysis.

Project construction would occur over six phases, with Phase 1 utilizing the most construction equipment. Table 5.18-1 depicts the "worst-case" construction phase with regards to the highest amount of fuel utilized during construction. As shown in Table 5.18-1, Phase 1 construction would consume a total of approximately 64,208 gallons of fuel. The remaining five phases would each consume less than Phase 1. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or State. It is noted that the project would be required to comply with **MM 5.3-1**, which requires all construction equipment to be at least Tier 4 certified (refer to Section 5.3, AIR QUALITY). As noted above, these engines use highly efficient combustion engines to minimize unnecessary fuel consumption. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. A *less than significant* impact would occur in this regard.

Long-Term Operation

Transportation Energy Demand. Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration (NHTSA) is responsible for establishing additional vehicle standards and for revising existing standards. Compliance with Federal fuel economy standards is

not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. Table 5.18-2, PROJECT OPERATIONAL FUEL CONSUMPTION, provides an estimate of the daily fuel consumed by vehicles traveling to and from the proposed project site.

Table 5.18-2
PROJECT OPERATIONAL FUEL CONSUMPTION

Vehicle Type	Percent of Vehicle Trips[1]	Daily Trips[2]	Daily Vehicle Miles Traveled[3]	Average Fuel Economy (miles per gallon)[4]	Total Daily Fuel Consumption (gallons)[5]
Passenger Cars	86	1,530	15,419	21.6	714
Light/Medium Trucks	4	64	649	17.2	38
Heavy Trucks/Other	10	179	1,804	6.1	296
TOTAL[6]	***100***	***1,774[7]***	***17,872[8]***	--	***1,047***

Notes:
1. Percent of Vehicle Trip distribution based on trip characteristics within the CalEEMod model.
2. Daily Trips calculated by multiplying the total daily trips by percent vehicle trips (i.e., Daily Trips x percent of Vehicle Trips).
3. Daily Vehicle Miles Traveled (VMT) calculated by multiplying percent vehicle trips by total VMT (i.e., VMT x percent of Vehicle Trips).
4. Average fuel economy derived from the Department of Transportation.
5. Total Daily Fuel Consumption calculated by dividing the daily VMT by the average fuel economy (i.e., VMT/Average Fuel Economy).
6. Values may be slightly off due to rounding.
7. Based upon data within the *Tierra Robles Traffic Technical Memorandum*, prepared by Omni-Means, dated August 17, 2017; refer to Appendix RDEIR B-2, SUPPLEMENTAL TRAFFIC IMPACT ANALYSIS.
8. Daily vehicle miles traveled is based upon data within the CalEEMod model; refer to Appendix RDEIR A-1, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA.

Source: Refer to Appendix RDEIR A-1, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA, for CalEEMod assumptions used in this analysis.

As indicated in Table 5.18-2, operation of the proposed project is estimated to consume approximately 1,047 gallons of fuel daily. However, the project would not result in any unusual characteristics that would result in excessive long-term operational fuel consumption. The project would be required to comply with **MM 5.7-1** in Section 5.7, GREENHOUSE GASES AND CLIMATE CHANGE, which requires the Tierra Robles Homeowners Association (TRHOA) bylaws to include a ride-sharing program and mechanism for coordination and communication between residents regarding ride-sharing. The TRHOA bylaws shall also include a requirement that monthly newsletters published by the TRHOA promote ride-sharing programs through the monthly newsletter and association meetings. Ride-sharing would minimize single occupant vehicle trips and minimize transportation fuel consumption. As such, fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. A *less than significant* impact would occur in this regard.

Building Energy Demand. The proposed project would be expected to demand 1,431 megawatt hours (MWh) of electricity and 2.4 million kilo British Thermal Units (kBTU) of natural gas per year.[10] The project would involve operations typical of residential uses, requiring electricity for typical lighting, climate control, and day-to-day activities. In addition, the project would include the operation of a community wastewater treatment facility that would require energy consumption. Although the wastewater treatment facility would require additional energy consumption, the project's grey water diverter system would help reduce the total energy consumption at the wastewater treatment facility. The grey water diverter system would allow diversion of flow from washing machines, showers, and bath tubs to a manual

[10] It is noted that the project's 1,431 megawatt hours (MWh) of electricity and 2.4 million kBTU of natural gas annual consumption includes the operation of the community wastewater treatment facility.

diverter valve. Typical operations would direct flow to provide subsurface irrigation for appropriate drought tolerant trees and shrubs within the individual yard, reducing domestic water demand. During periods of rainfall the flow would be directed to the onsite septic tank. Furthermore, the treatment system would also be designed to meet the reuse requirements for discharge of Title 22 Disinfected Secondary Effluent.

In addition, as stated in Section 5.3, AIR QUALITY, the proposed project would incorporate several energy efficiency measures, including energy-efficient lighting and air conditioning units (refer to **MM 5.3-3**). Further, the project would include passive solar design in all residential units and would be required to comply with Shasta County *General Plan* polices discussed in Section 5.18.2, above. Following compliance with all applicable mitigation measures and Shasta County *General Pan* objectives and policies, as well as inclusion of energy efficient design, the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

Energy Efficiency Measures. Title 24, California's Energy Efficiency Standards for Residential and Non-residential Buildings, was established by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. In 2019, the CEC updated Title 24 standards with more stringent requirements. The 2019 Standards are incorporated within the California Building Code and are expected to substantially reduce the growth in electricity and natural gas use.[11] Additional savings result from the application of the Standards on building alterations. For example, requirements for cool roofs, lighting, and air distribution ducts are expected to save additional electricity. These savings are cumulative, doubling as years go by.

Additionally, implementation of the project's design features (i.e., high efficiency lighting and air conditioning units, passive solar design, grey water diverter systems, etc.) would further reduce energy consumption. The project would be required to adhere to all federal, State, and local requirements for energy efficiency, including the Title 24 standards, as well as the project's design features. The proposed project would not result in the inefficient, wasteful, or unnecessary consumption of building energy. A *less than significant* impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: No mitigation measures are required. Impacts would be *less than significant*.

Impact 5.18-2	**Project implementation would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

Significance: Less Than Significant Impact.

Impact Analysis: Project design and operation would comply with State Building Energy Efficiency Standards, appliance efficiency regulations, and green building standards. As discussed above in Impact

[11] The 2019 standards went into effect on January 1, 2020.

5.18-1, project development would not cause inefficient, wasteful or unnecessary energy use, and impacts would be less than significant.

Shasta County does not have a stand-alone Energy Plan. The County's General Plan includes objectives and policies for energy resources. The General Plan objectives and policies encourage the utilization of renewable energy, reducing vehicle miles traveled, the use of shade trees in parking areas, and passive solar design. The General Plan objectives and policies are measures where the County is responsible for implementation. The proposed project would not conflict with the General Plan objectives and policies or obstruct their implementation.

The proposed project is a residential development that would implement various project design features (i.e., high efficiency lighting and air conditioning units, passive solar design, grey water diverter systems, etc.) that would reduce energy consumption. The project would be required to adhere to all federal, State, and local requirements for energy efficiency, including the Title 24 standards, as well as the project's design features. Further, consistent with General Plan objectives and policies, the project would include passive solar design in all residential units. As noted above, the proposed project would incorporate several energy efficiency measures, including energy-efficient lighting and air conditioning units (refer to **MM 5.3-3** in Section 5.3, AIR QUALITY).

The project would also include electric vehicle charging infrastructure to allow for the future installation of electric vehicle chargers, as this is already required by the California Building Standards Code (Title 24). The project is already required to minimize energy consumption and exceed Title 24 standards. The 2019 version of Title 24 will use approximately 53 percent less energy than those under the 2016 standards. **MM 5.7-1** in Section 5.7, GREENHOUSE GASES AND CLIMATE CHANGE, requires houses to be designed to exceed 2019 Title 24 standards by a minimum of 20 to 30 percent. California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6) contains requirements for the thermal emittance, three-year aged reflectance, and Solar Reflectance Index (SRI) of roofing materials used in new construction and re-roofing projects. Additionally, outdoor electrical outlets are required by the California Electrical Code (Title 24, Part 3), which would reduce fuel consumption of landscape equipment.

The Renewable Portfolio Standard (RPS) requires the state's electricity providers are to procure a minimum of 33 percent of their energy portfolio from renewable sources by 2020 and 50 percent by 2030 and would continue to implement programs consistent with the requirements of SB 350. Furthermore, SB 100 (September 2018) increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045. It should be noted that RPS is not accounted for in the energy consumption calculations provided above. Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are also conservatively not included in the energy calculations above. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations.

Following compliance with all applicable mitigation measures and Shasta County *General Pan* objectives and policies, as well as inclusion of energy efficient design, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. A *less than significant* impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: No mitigation measures are required. Impacts would *be less than significant*.

5.18.5 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

IMPACT 5.18-3 ***The proposed project, in combination with cumulative development within Shasta County, would not use fuel or energy in a wasteful manner.***

Significance: Less Than Significant Impact.

Cumulative Setting: The cumulative setting for energy use includes Shasta County and the incorporated cities of Redding, Anderson, and Shasta Lake.

Impact Analysis: The anticipated project impacts, in conjunction with cumulative development in the site vicinity, would increase urbanization and result in increased energy consumption. Potential land use impacts are site-specific and require evaluation on a case-by-case basis. Each cumulative project would require separate discretionary approval and CEQA assessment, which would address potential energy consumption impacts and identify all feasible mitigation measures to mitigate against the wasteful use of energy.

As noted above, the proposed project would not result in significant energy consumption impacts. The proposed project would not be considered inefficient, wasteful, or unnecessary with regard to energy. Thus, the proposed project and identified cumulative projects are not anticipated to result in a significant cumulative impact.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: No mitigation measures are required. Cumulative impacts related to energy consumption would be *less than significant*.