

## 4.11 Energy Conservation

According to Appendix F of the State CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy including decreasing reliance on natural gas and oil and increasing reliance on renewable energy sources (renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat). The project would be constructed to Title 24 standards, which are designed to reduce energy demand in all new construction.

This chapter describes the existing setting of the project site as it relates to energy conservation; identifies associated regulatory conditions and requirements; presents the criteria used to evaluate potential impacts related to use of fuel and energy upon implementation of the project; and identifies mitigation measures to reduce or avoid each significant impact. The significance of each impact after the incorporation of identified mitigation measures is included at the end of this section.

### 4.11.1 PROJECT ENERGY CONSUMPTION

Energy consumption is analyzed in this EIR due to the potential direct and indirect environmental impacts associated with the project. This section presents information on the existing energy consumption in the region and project vicinity. The following information serves as the baseline for assessing the project's impacts related to energy conservation.

#### California's Energy Use and Supply

Californians consumed 292,039 gigawatt hours (GWh)<sup>1</sup> of electricity in 2017, which is the most recent year for which data is available<sup>2</sup>. Placer County consumed 2,939 GWh in 2016, the most recent year available for electrical consumption by county<sup>3</sup>. In 2017, the California electricity mix included was made up of the following sources and the approximate percent of the overall mix: natural gas (34 percent), coal (4 percent), large hydroelectric plants (15 percent), and nuclear (9

<sup>1</sup> A watt hour is a unit of energy equivalent to one watt of power expended for one hour. For example, a typical light bulb is 60 watts, meaning that if it is left on for one hour, 60-watt hours have been used. One kilowatt equals 1,000 watts. The consumption of electrical energy by homes and businesses is usually measured in kilowatt hours (kWh). Some large businesses and institutions also use megawatt hours (MWh), where one MWh equals 1,000 kWh. One gigawatt equals 1,000 megawatts, or 1,000,000 kilowatts. The energy output of large power plants over long periods of time, or the energy consumption of jurisdictions, can be expressed in gigawatt hours (GWh).

<sup>2</sup> California Energy Commission, [https://www.energy.ca.gov/almanac/electricity\\_data/total\\_system\\_power.html](https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html), accessed November 6, 2018.

<sup>3</sup> California Energy Commission, <http://ecdms.energy.ca.gov/elecbycounty.aspx>, accessed November 6, 2018

percent). renewable energy (29.00 percent), such as wind, solar, geothermal, biomass, and small hydroelectric facilities. The remaining 9 percent came from oil and other petroleum products.

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 7,676 trillion BTU in 2015 (the most recent year for which this specific data is available), which equates to an average of 197 million BTU per capita. Of California's total energy usage, the breakdown by sector is 39 percent transportation, 24 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use.<sup>4</sup> In 2016, taxable gasoline sales (including aviation gasoline) in California accounted for 15,297,030,909 gallons of gasoline.<sup>5</sup>

In 2002, California established its Renewable Portfolio Standard program<sup>6</sup> 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)). Then-Governor Schwarzenegger signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, then-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 Assembly Bill (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 Jerry 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.

Additional energy efficiency measures beyond the current regulations are needed to meet these goals as well as the AB 32 greenhouse gas (GHG) reduction goal of reducing statewide GHG

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<sup>4</sup> EIA (US Energy Information Administration), California State Profile and Energy Estimates, updated April 19, 2018, <http://www.eia.gov/state/data.cfm?sid=CA#ConsumptionExpenditures> and [https://www.eia.gov/state/seds/data.php?infile=/state/seds/sep\\_fuel/html/fuel\\_te.html&sid=US&sid=CA](https://www.eia.gov/state/seds/data.php?infile=/state/seds/sep_fuel/html/fuel_te.html&sid=US&sid=CA), accessed May 2, 2018.

<sup>5</sup> California Board of Equalization, *Net Taxable Gasoline Sales, 2016*, [https://www.boe.ca.gov/sptaxprog/reports/mvf\\_10\\_year\\_report.pdf](https://www.boe.ca.gov/sptaxprog/reports/mvf_10_year_report.pdf), accessed September 28, 2017.

<sup>6</sup> 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.

emissions to 1990 levels by 2020 (see Section 4.2, Air Quality, and Section 4.5, Greenhouse Gas Emissions, for a discussion of AB 32). Part of the effort in meeting California’s long-term reduction goals include reducing petroleum use in cars and trucks by 50 percent, increasing from one-third to one-half of California’s electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner; reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands so they can store carbon (CEC, 2016b).

### Current Energy Providers

**Electricity Provider.** Currently, Pacific Gas and Electric Company (PG&E) provides electricity to Placer County businesses and residents. The PG&E 2016 power mix was as follows: 17 percent natural gas; 24 percent nuclear; 33 percent renewables; 12 percent large hydroelectric; 14 percent unspecified power (PG&E, 2018b).

**Natural Gas Provider.** PG&E operates one of the largest natural gas distribution networks in the country, including 42,141 miles of natural gas transmission and distribution pipelines (PG&E, 2018a). In all, PG&E delivers gas to approximately 4.3 million customer accounts in Northern and Central California, including in Placer County.

As shown in *Table 4.11-1: Electricity Consumption in Placer County 2006-2016* and *Table 4.11-2: Natural Gas Consumption in Placer County 2006-2016*, both electricity and natural gas consumption in Placer County has remained relatively constant between 2006 and 2016.

**Table 4.11-1: Electricity Consumption in Placer County 2006-2016**

Year	Electricity Consumption (in millions of kilowatt hours)
2006	2,836
2007	3,005
2008	3,021
2009	2,953
2010	2,886
2011	2,895
2012	2,912
2013	2,882
2014	2,918
2015	2,895
2016	2,939

Source: CEC, 2018a.

**Table 4.11-2: Natural Gas Consumption in Placer County 2006-2016**

Year	Natural Gas Consumption (in millions of therms)
2006	129
2007	124
2008	91
2009	91
2010	92
2011	94
2012	87
2013	90
2014	76
2015	79
2016	84

Source: CEC, 2018a.

**Transportation Fuel.** California’s transportation sector uses roughly half of the energy consumed in the state. In 2016, Californians consumed approximately 15.1 billion gallons of gasoline and 3 billion gallons of diesel fuel, which were down from 15 billion gallons of gasoline and 2.8 billion gallons of diesel in 2008 (BOE, 2018a; 2018b).

**Fuel Consumption.** As shown in *Table 4.11-3: Automotive Fuel Consumption in Placer County 2009-2019*, on-road automotive fuel and heavy-duty diesel fuel consumption in Placer County has remained steady since 2009.

**Table 4.11-3: Automotive Fuel Consumption in Placer County 2009-2019**

Year	Gasoline Fuel Consumption (Gallons)	Heavy-Duty Vehicle/Diesel Fuel Consumption (Gallons)
2009	150,635,945	34,884,273
2010	148,262,150	34,532,110
2011	144,591,262	33,665,230
2012	143,813,535	33,047,864
2013	144,273,439	33,298,962
2014	145,563,839	34,038,466
2015	147,569,919	34,633,675
2016	151,410,274	37,620,203
2017	146,779,046	38,436,115
2018 (projected)	144,412,675	39,539,233
2019 (projected)	141,816,852	40,648,809

Source: California Air Resources Board, EMFAC2017.

#### 4.11.2 REGULATORY SETTING

The following is a description of State and local environmental laws and policies that are relevant to the CEQA review process.

##### FEDERAL

**National Energy Conservation Policy Act.** The National Energy Conservation Policy Act serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements.

**Energy Policy Act of 2005.** The Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary micro-turbine power plants, and solar power equipment.

Executive Order 13693 (Planning for Federal Sustainability in the Next Decade), signed in 2015, seeks to maintain federal leadership in sustainability and GHG emission reductions. Its goal is to reduce agency Scope 1 and 2 GHG emissions<sup>7</sup> by at least 40 percent by 2025, foster innovation, reduce spending, and strengthen communities through increased efficiency and improved environmental performance. Sustainability goals are set for building efficiency and management, energy portfolio, water use efficiency, fleet efficiency, sustainable acquisition and supply chain GHG management, pollution prevention, and electronic stewardship.

**Energy and Independence Security Act of 2007.** The Energy and Independence Security Act of 2007 sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act.

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<sup>7</sup> In GHG inventories, direct emissions are Scope 1; indirect emissions from consumption of purchased electricity, heat or steam are Scope 2; and other indirect emissions (such as extraction and production of purchased materials and fuels, transport in vehicles not controlled by the reporting entity, outsourced activities) are Scope 3.

**STATE**

**Building Energy Efficiency Standards.** The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the California Code of Regulations, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The California Energy Commission (CEC) adopted an update in 2018, and these new standards become effective on January 1, 2019 (CEC, 2018c).

**California Green Building Standards Code.** 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. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2016 and went into effect January 1, 2017.

**2008 California Energy Action Plan Update.** The *2008 Energy Action Plan Update* provides a status update to the *2005 Energy Action Plan II*, which is the State of California's principal energy planning and policy document (CPUC and CEC, 2008). 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-fired generation.

**2006 Appliance Efficiency Regulations.** The California Energy Commission adopted Appliance Efficiency Regulations (Title 20, California Code of Regulations 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.

**Senate Bill 1078 and 107; Executive Order 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) changed the target date to 2010. In November 2008, then-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, then-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 (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. In April 2011, Governor Brown signed SB 2X, which legislated the prior Executive Order S-14-08 renewable standard.

**Executive Order B-30-15 and Senate Bill 350.** In April 2015, the Governor 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 (CPUC) to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal.

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## LOCAL

**Placer County General Plan.** The Placer County General Plan goals and policies related to energy consumption are discussed in *Table 4.11-4: General Plan Goals and Policies – Energy Conservation*

**Granite Bay Community Plan.** The Granite Bay Community Plan energy consumption goals and policies applicable to the proposed project are discussed in *Table 4.11-5: Granite Bay Community Plan Goals and Policies – Energy Conservation*

**Placer County Code.** Placer County Code Section 15.04.900 adopts the 2013 California Green Building Standards.

## RECENT CEQA LITIGATION

In the Court decision *Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4<sup>th</sup> 173 (“CCEC”), the Court observed that *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 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.



Table 4.11-4: General Plan Goals and Policies – Energy Conservation

General Plan Goals	Consistency Determination	Analysis
<p><b>Policy 6.F.5:</b> The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and area wide source programs and transportation control measures (TCM) programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.</p>	Consistent	<p>The project is consistent with this goal. The project does not generate a significant amount of traffic and transportation source control measures are not required. The project would implement California’s Energy Efficiency Standards for Residential and Non-residential Buildings which are incorporated into the California Building Code to reduce California’s energy consumption and provide energy efficiency standards for residential and non-residential buildings. Additionally, the California Plumbing and Green Building Codes require water efficient fixtures that would reduce water consumption and water related energy use. For example, the code requires automatic irrigation systems utilizing weather and/or soil moisture-based irrigation controllers. The code also requires the installation of high efficiency toilets with a maximum of 1.28 gallons per flush, install kitchen faucets, bath faucets, and shower heads that are 20 percent more efficient than typical low-flow plumbing fixtures.</p>
<p><b>Goal H:</b> To increase the efficiency of energy use in new and existing homes with a concurrent reduction in housing costs for Placer County residents.</p>	Consistent	<p>The project is consistent with this goal. Please see discussion of Policy 6.F.5 above.</p>
<p><b>Policy G-1:</b> The County shall require that all new dwelling units meet current State requirements for energy efficiency, and encourage developers to exceed Title 24 requirements. Retrofitting of existing units shall be encouraged.</p>	Consistent	<p>The project is consistent with this goal. The project would be required to demonstrate compliance with Title 24 Building Codes during the building permit process. Building plans would be reviewed by County staff prior to the issuance of building permits.</p>
<p><b>Policy G-2:</b> The County shall promote land use patterns that encourage energy efficiency, to the extent feasible, and</p>	Consistent	<p>The project consistent with this goal. The project represents and efficient land use by locating a residential care home in an area that is close to commercial and retail services that can be easily accessed by the shuttle provided to the residents by the</p>

**Table 4.11-4: General Plan Goals and Policies – Energy Conservation**

General Plan Goals	Consistency Determination	Analysis
<p>encourage efficient energy use in new development, including but not limited to access to non-auto transit, use of traffic demand management, and water-efficient landscaping.</p>		<p>project. The project would also provide roadway improvements that would contribute to the County’s bicycle network. The project would prepare a landscape plan that includes water efficient landscaping and water efficient irrigation controls.</p>
<p><b>Policy G-3:</b> The County shall continue to implement provisions of the Subdivision Map Act that require subdivisions to be oriented for solar access, to the extent practical.</p>	<p>Consistent</p>	<p>The project is consistent with this policy. The project is not subject to the Subdivision Map Act, but the proposed building has been oriented to meet solar access requirements.</p>
<p><b>Policy G-4:</b> The County shall encourage participation in weatherization and energy efficiency programs sponsored by utility companies.</p>	<p>Consistent</p>	<p>The project is consistent with this policy. As a new development, the project would be required to meet all current energy efficient building standards as discussed in Policy 6.F.5.</p>

**Table 4.11-5: Granite Bay Community Plan Goals and Policies – Energy Conservation**

Granite Bay Community Plan Goals and Policies	Consistency Determination	Analysis
<p><b>Goal 2:</b> Support energy initiatives that will enable Granite Bay residents, businesses and transportation systems to conserve energy and reduce their dependence on fossil based energy sources by changing to alternative or renewable energy systems including food scrap diversion from the landfill.</p>	<p>Consistent</p>	<p>The project is consistent with this goal. The project would comply with the current renewable energy regulations for new construction that are in place at the time of building permit issuance.</p>
<p><b>Policy 3:</b> Encourage the implementation of innovative strategies to achieve energy efficiencies.</p>	<p>Consistent</p>	<p>The project is consistent with this policy. As previously discussed in the goals and policies above, the project would incorporate current green building requirements and energy efficient building designs and fixtures. The project would provide a congregate care home for seniors which would relieve them of the need to drive for shopping and dining as the project would have onsite dining facilities for the residents. The project would also provide a shuttle which would allow residents to carpool to group activities or outings.</p>

### 4.11.3 STANDARDS OF SIGNIFICANCE

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#### SIGNIFICANCE CRITERIA

In accordance with 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. Because Appendix F does not include specific significance criteria, the following threshold is based on the goal of Appendix F. Therefore, the proposed project would have a significant impact related to energy, if it would:

- Result in the inefficient, wasteful or unnecessary consumption of energy during project construction or operation.

The analysis below generally follows Appendix F of the State CEQA Guidelines, which states that the goal of conserving energy implies the wise and efficient use of energy, including decreasing overall per capita energy consumption, decreasing reliance on fossil fuels, and increasing reliance on renewable energy sources. According to Appendix F, the analysis should include a description of energy conservation measures included as part of the project and should consider whether a project would result in inefficient, wasteful and unnecessary consumption of energy.

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#### METHODOLOGY

This section analyzes energy consumption on three sources of energy that are relevant to the 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 project electricity/natural gas usage is based on California Emissions Estimator Model (CalEEMod) modeling, which quantifies energy use for occupancy. The results of the CalEEMod modeling are included in Appendix B (Air Quality and GHG Data) of this Draft EIR. Modeling related to project energy consumption was based primarily on the default settings in the computer program for Placer County. The amount of operational fuel use was estimated using CalEEMod outputs for the project and the California Air Resources Board's Emissions Factor 2017 (EMFAC2017) computer program for typical daily fuel usage in Placer County. Construction fuel consumption was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. The results of EMFAC2017 modeling and construction fuel estimates are included in Appendix B, *Air Quality and GHG Data*.

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## ENERGY CONSUMPTION

Energy consumption impacts are analyzed below according to topic.

### **Construction Energy**

The energy consumption associated with buildout of the project includes electricity usage associated with water usage for dust control, diesel fuel consumption from on-road hauling trips and off-road construction diesel equipment, and gasoline consumption from on-road worker commute and vendor trips. The methodology for each category is discussed below. This analysis relies on the construction equipment list and operational characteristics, as stated in Section 4.2, Air Quality, and Section 4.5, Greenhouse Gas Emissions, as well as Appendix B of this Draft EIR. Quantifications of construction energy consumption are provided for the project.

### ***Electricity Usage***

**Water Consumption for Construction Dust Control.** Electricity usage associated with water consumption for construction dust control is calculated based on total water consumption and the energy intensity for supply, distribution, and treatment of water. The total number of gallons of water usage is calculated based on acreage disturbed during grading and site preparation, as well as the daily water consumption rate per acre disturbed.

- The total acres disturbed are calculated using the methodology described in Chapter 4.2 of Appendix A of the CalEEMod User's Guide (Grading Equipment Passes).
- The water application rate of 3,020 gallons per acre per day is from Air & Waste Management Association's Air Pollution Engineering Manual.

The energy intensity value is based on the CalEEMod default energy intensity per gallon of water for Santa Clara County. As summarized in *Table 4.11-6: Project Energy Consumption During Construction*, the total electricity consumption associated with water consumption for construction dust control would be approximately 7,230 kWh (7.23 megawatt hours [MWh]) over the duration of buildout of the project.

**Table 4.11-6: Project Energy Consumption During Construction**

Source	Project Construction Usage	Placer County Annual Energy Consumption	Percentage Increase Countywide
<b>Electricity Use</b>	<b>Megawatt Hours (MWh)</b>		
Water Consumption <sup>a</sup>	7.23	2,939,000	0.0002%
On-Road Construction Trips <sup>b</sup>	0.13		0.0000%
Construction Electricity Total	<b>7.36</b>		<b>0.0003%</b>
<b>Diesel Use</b>	<b>Gallons</b>		
On-Road Construction Trips <sup>b</sup>	51,151	39,536,233	0.1294%
Off-Road Construction Equipment <sup>c</sup>	33,490		0.0847%
Construction Diesel Total	<b>84,641</b>		<b>0.2141%</b>
<b>Gasoline</b>	<b>Gallons</b>		
On-Road Construction Trips <sup>b</sup>	34,272	144,412,675	0.0237%
<b>Construction Gasoline Total</b>	<b>34,272</b>		<b>0.0237%</b>

## Notes:

a. Construction water use estimated based on acres disturbed per day per construction sequencing and estimated water use per acre (AWMA 1992).

b. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod and fleet-average fuel consumption in gallons per mile from EMFAC2017 in Placer County. Electricity demand based on VMT and calculated average electric vehicle fuel economy for 2015 models (in kWh per mile) from the DOE Fuel Economy Guide.

c. Construction fuel consumption was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry.

## Abbreviations:

CalEEMod: California Emission Estimation Model; EMFAC: Emission Factor Model 2017; kWh: kilowatt-hour; MWh: megawatt-hour.

Sources: AWMA, 1992; DOE 2016; USEPA 1996.

**On-Road Electric Vehicle Trips.** The EMFAC2017 model includes the fraction of electric vehicles projected to be in the on-road fleet during construction. Using this data, electricity consumption related to electric vehicle traffic was estimated. The electric vehicles included in the EMFAC2017 model are all in the light-duty auto and light-duty truck category, and as such would only exist in the construction worker fleet, not the vendor and haul truck fleets. The efficiency of electric vehicles in kilowatt-hours per vehicle mile travelled (kWh/mile) are the model year 2015 average for current model electric vehicles (USDOE 2016). Total electricity usage from the on-road worker fleet during construction would be approximately 134 kWh (0.134 MWh) over the duration of buildout of the project.

***Diesel Usage***

**On-Road Construction Trips.** The diesel usage associated with on-road construction mobile trips is calculated based on vehicle miles traveled (VMT) from vehicle trips (i.e., worker, vendor, and hauling), the CalEEMod default diesel fleet percentage, and vehicle fuel efficiency in miles per gallon. VMT for the entire construction period is calculated based on the total (refer to Section 4.5, *Greenhouse Gas Emissions*). Construction fuel consumption was calculated based on

CalEEMod emissions outputs and conversion ratios from the Climate Registry. As summarized in Table 4.11.4, the total diesel consumption associated with on-road construction trips would be approximately 51,151 gallons over the duration of buildout of the project.

**Off-Road Construction Equipment.** The construction diesel usage associated with the off-road construction equipment is calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. As summarized in Table 4.11-4, the total diesel consumption associated with off-road construction equipment is approximately 33,490 gallons for duration of buildout the project.

### ***Gasoline Usage***

**On-Road Construction Trips.** The gasoline usage associated with on-road construction mobile trips is calculated based on VMT from vehicle trips (i.e., worker, vendor, and hauling), the CalEEMod default gasoline fleet percentage, and vehicle fuel efficiency in miles per gallon using the same methodology as the construction on-road trip diesel usage calculation discussed above. As summarized in Table 4.11-4, the total gasoline consumption associated with on-road construction trips would be approximately 34,272 gallons over the duration of buildout the project.

### ***Analysis***

In total, construction of the project would consume approximately 7,630 kWh (7.63 MWh) of electricity, 84,641 gallons of diesel, and 34,272 gallons of gasoline. As indicated in the environmental setting above, Californians consumed 285,701 GWh of electricity in 2016, of which Placer County consumed 2,939 GWh. Therefore, construction electricity consumption would represent approximately  $2.7 \times 10^{-6}$  percent of the electricity consumption in the state, and 0.0002 percent of the electricity consumption in Placer County.

In 2015, Californians consumed approximately 15.1 billion gallons of gasoline and 3 billion gallons of diesel fuel. Placer County annual diesel consumption was 39,539,233 gallons and gasoline consumption was 144,412,675 gallons. Project construction gasoline consumption would represent 0.024 percent of gasoline consumption in the County, and construction diesel consumption would represent 0.21 percent of diesel consumption in the County. Therefore, based on the project's relatively low construction fuel use proportional to State and County consumption, the project would not substantially affect existing energy or fuel supplies or resources. New capacity/additional sources of construction fuel are not anticipated to be required.

Furthermore, 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. In addition, some incidental energy conservation would occur during construction through compliance with State requirements that equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest EPA and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel consumption.

The proposed project would entail construction activities that would consume energy, primarily in the form of diesel fuel (e.g., mobile construction equipment) and electricity (e.g., power tools). Construction activities would be required to monitor air quality emissions using applicable regulatory guidance such as the PCAPCD CEQA Guidelines. This requirement indirectly relates to construction energy conservation because when air pollutant emissions are reduced as a result of monitoring and the efficient use of equipment and materials, this results in reduced energy consumption. There are no aspects of the proposed project that would foreseeably result in the inefficient, wasteful, or unnecessary consumption of energy during construction activities.

As described above, the project's fuel from the entire construction period would increase fuel use in the County by less than one percent. It should be noted that the CEQA Guideline Appendix F criteria requires the project's effects on local and regional energy supplies and on the requirements for additional capacity to be addressed. A less than one percent increase in construction fuel demand is not anticipated to trigger the need for additional capacity. Additionally, use of construction fuel would be temporary and would cease once the project is fully developed. As such, project construction would have a nominal effect on the local and regional energy supplies.

As stated above, there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or state. Therefore, it is expected that construction fuel consumption associated with the project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. Therefore, potential impacts are considered **less than significant**.

### **Operational Energy**

The energy consumption associated with project operations would occur from building energy (electricity and natural gas) use, water consumption, and transportation-related fuel consumption. The methodology for each category is discussed below. Note that this energy resources analysis is consistent with the analysis presented in Section 4.2, *Air Quality*, and Section



4.5, *Greenhouse Gas Emissions*. Quantifications of operational energy consumption are provided for the proposed project.

### **Transportation Energy Demand**

The gasoline and diesel usage associated with on-road vehicular trips is calculated based on total VMT calculated for the analyses within Section 4.2, *Air Quality*, and Section 4.5, *Greenhouse Gas Emissions*, and average fuel efficiency from EMFAC2017 model. The EMFAC2017 fuel efficiency data incorporate the Pavley Clean Car Standards and the Advanced Clean Cars Program.<sup>8</sup> As summarized in *Table 4.11-7: Project Annual Energy Consumption During Operations*, the total gasoline and diesel consumption associated with on-road trips would be approximately 36,625 gallons per year and 9,916 gallons per year, respectively.

**Table 4.11-7: Project Annual Energy Consumption During Operations**

Source	Project Operational Usage	Placer County Annual Energy Consumption	Percentage Increase Countywide
<b>Electricity Use</b>		<b>Megawatt Hour/Year (MWh/year)</b>	
Building <sup>a</sup>	657	2,939,000	0.0223%
Water <sup>a</sup>	112		0.0038%
Mobile <sup>b</sup>	1		0.0000%
<b>Total Electricity</b>	<b>771</b>		0.0262%
<b>Natural Gas Use</b>		<b>Therms/year</b>	
Building <sup>a</sup>	1,413	84,000,000	0.0017%
<b>Diesel Use</b>		<b>Gallons/Year</b>	
Mobile <sup>b</sup>	9,916	39,539,233	0.0251%
<b>Gasoline Use</b>		<b>Gallons/Year</b>	
Mobile <sup>b</sup>	36,625	144,412,675	0.0254%

Notes:

a. The electricity, natural gas, and water usage are based on project-specific estimates and CalEEMod defaults.

b. Calculated based on the mobile source fuel use based on vehicle miles traveled (VMT) and fleet-average fuel consumption (in gallons per mile) from EMFAC2017. For electric vehicles, model year 2015 electric vehicle fuel economy is used from the DOE Fuel Economy Guide.

Abbreviations: CalEEMod: California Emission Estimation Model; EMFAC2017: California Air Resources Board Emission Factor Model; kBtu: thousand British Thermal Units; kWh: kilowatt-hour; MWh: Megawatt-hour.

The EMFAC2017 model includes the fraction of electric vehicles projected to be in the on-road fleet during the assumed first year of operation; however, the fraction of the fleet that is electric is assumed to continue to increase, allowing a decrease in gasoline and diesel consumption. The

<sup>8</sup> The California Air Resources Board EMFAC 2017 Technical Documentation (March 2018) notes that emissions are estimated with all current controls active, except Low Carbon Fuel Standards (LCFS). The reason for excluding LCFS is that most of the emissions benefits due to the LCFS come from the production cycle (upstream emissions) of the fuel rather than the combustion cycle (tailpipe). As a result, LCFS is assumed to not have a significant impact on CO<sub>2</sub> emissions from EMFAC's tailpipe emission estimates.

electricity consumption related to electric vehicle traffic during operation was estimated based on the EMFAC2017 fleet mix and the model year 2015 average kWh/mile for current model electric vehicles (USDOE 2016). Total electricity usage from the on-road transportation during operation is approximately 1,223 kWh per year (1.223 MWh per year).

### ***Electricity Usage***

**Building Envelope.** The electricity usage associated with the building envelopes constructed pursuant to the project is based on CalEEMod defaults. As summarized in Table 5.5-5, the buildings would consume 617,187 kWh (approximately 0.617 GWh) of electricity per year.

**Water Consumption.** The electricity usage associated with operational water consumption is estimated based on the annual water consumption and the energy intensity factor is the CalEEMod default energy intensity per gallon of water for Placer County. Project area water use is based on the water demand per square foot factors in CalEEMod. The project would consume approximately 27 million gallons (9.45 million gallons for indoor uses and 17.5 million gallons for outdoor uses) of water annually which would require 112,000 kWh per year for conveyance and treatment.

### ***Natural Gas Usage***

**Building Envelope.** The methodology used to calculate the natural gas usage associated with the building envelopes constructed pursuant to the project is based on CalEEMod default usage rates. As summarized in Table 5.5-5, the building envelope would consume 141,347 thousand British Thermal Units (kBtu) (1,413 therms) of natural gas per year.

### ***Analysis***

Operation of uses implemented pursuant to the project would annually consume approximately 0.657 GWh of electricity, 0.141 million kBtu of natural gas, 9,916 gallons of diesel, and 36,625 gallons of gasoline.

Californians consumed 285,701 GWh of electricity in 2016, of which Placer County consumed 2,939 GWh. The project's operational electricity consumption would represent 0.0003 percent of the electricity consumption in the state, and 0.026 percent of the energy consumption in Placer County. Regarding natural gas, Californians consumed 12,739 million therms (or 1,273.9 billion kBtus) of natural gas and 84 million therms of natural gas in Placer County in 2016. Therefore, the project's operational natural gas consumption would represent  $1.1 \times 10^{-5}$  percent of the natural gas consumption in the state and 0.0017 percent of the natural gas consumption in the County.

In 2015, Californians consumed approximately 15.1 billion gallons of gasoline and 3 billion gallons of diesel fuel. Project operational consumption of gasoline and diesel would represent 0.0002 percent of gasoline and 0.0003 percent of diesel consumption statewide. Project operational consumption of gasoline and diesel would represent 0.025 percent of gasoline and 0.25 percent of diesel consumption in the County.

Therefore, project operations would not substantially affect existing energy or fuel supplies or resources. The project would comply with applicable energy standards and new capacity would not be required. Impacts would be **less than significant** in this regard.

**Energy Efficiency Measures.** As discussed above, California’s Energy Efficiency Standards for Residential and Non-residential Buildings create uniform building codes to reduce California’s energy consumption, and provide energy efficiency standards for residential and non-residential buildings. These standards are incorporated within the California Building Code and are expected to substantially reduce the growth in electricity and natural gas use. For example, requirements for energy efficient lighting, heating and cooling systems, and green building materials are expected to save additional electricity and natural gas. These savings are cumulative, doubling as years go by.

The project proposes a residential care home that would serve local community needs by providing a housing source for the senior population of Granite Bay/Placer County. Energy would be minimized due to the proposed project’s design features that integrate reduced vehicle trips. A shuttle would be available to residents for doctors appointments and other activities. The facility would provide meals, reducing the need for residents to make grocery store trips. Laundry and dishes are washed onsite. The site has also been designed to provide onsite indoor and outdoor recreational amenities that would further reduce vehicle trips. These include: a multi-use trail, formal garden areas, fire pit with raised seating wall, raised garden beds, and multiple patio areas for gathering and activities. Within the building, amenities such as a library, game room, movie theater, gym, activity room with dance floor, café, and computer room would be provided. All revegetation and landscaping would comply with the Placer County Landscape Design Guidelines including use of native species, which would minimize landscaping water and reduce water energy consumption. Furthermore, the project proposes a residential care home that inherently has a lower trip generation<sup>9</sup>, and therefore results in lower transportation energy consumption.

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<sup>9</sup> The changing lifestyle of older adults affects their transportation needs and usage. Trip generation and parking demand within this age group vary significantly from traditional residential uses because residents no longer have to be at work, pick up their children, or do their shopping at specific times. Also, senior communities typically provide onsite services to meet their residents’ needs.

Furthermore, the project's energy provider is subject to California's Renewables Portfolio Standard (RPS). The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 50 percent of total procurement by 2030. Renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat.

The project would be required to adhere to all Federal, State, and local requirements for energy efficiency, including the latest State Building Code (Title 24, Part 6 of the California Code of Regulations), which further minimize energy consumption towards the California Long-Term Energy Efficiency Strategic Plan's (CEESP) ultimate goal to have 100 percent of new homes achieve zero net energy. The latest Building Code approved by the California Energy Commission reduces energy use in new homes by 7 percent compared to the previous (2016) version of the code. The project would be required to comply with applicable energy-efficiency standards in place at the time of building permit issuance. Additionally, the California Plumbing and Green Building Codes require water efficient fixtures that would reduce water consumption and water related energy use. For example, the code requires automatic irrigation systems utilizing weather and/or soil moisture based irrigation controllers. The code also requires the installation of high efficiency toilets (HET) with a maximum of 1.28 gallons per flush, install kitchen faucets, bath faucets, and shower heads that are 20 percent more efficient than typical low-flow plumbing fixtures.

Considering these requirements in addition to the project design features described above, the project would not result in the inefficient, wasteful, or unnecessary consumption of building energy. Therefore, potential impacts are considered **less than significant**.

#### **4.11.4 CUMULATIVE IMPACTS**

Chapter 5.5 of this EIR provides a list of related projects and other possible development in the area determined as having a direct potential to interact with the proposed project (to the extent that a significant cumulative effect could occur) are identified in *Table 5-1: Cumulative Projects*. **Figure 5-1: Cumulative Projects Map** identifies the location of the cumulative projects.

Construction and operations associated with implementation of the proposed project would result in the consumption of fuel and energy, but it would not do so in a wasteful manner. The consumption of fuel and energy would not be substantial in comparison to statewide electricity, natural gas, gasoline, and diesel demand; refer to Table 4.11-4 and Table 4.11-5. New capacity

or supplies of energy resources would not be required. Additionally, the project would be subject to compliance with all federal, State, and local requirements for energy efficiency.

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

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