4.6 Energy

This section describes the existing energy conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential project and cumulative impacts, and identifies mitigation measures for any significant impacts related to implementation of the of the Laguna Creek Diversion Retrofit Project (Proposed Project). The analysis is based on energy consumption modeling conducted for the Proposed Project as part of the preparation of this environmental impact report (EIR). The results of the modeling are summarized in this section, and are included in Appendix B.

A summary of the comments received during the scoping period for this EIR is provided in Table 2-1 in Chapter 2, Introduction, and a complete list of comments is provided in Appendix A. There were no comments related to energy.

4.6.1 Existing Conditions

4.6.1.1 Electricity

According to the U.S. Energy Information Administration (EIA), California used approximately 255,224 gigawatt hours of electricity in 2018 (EIA 2020a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the residential sector is lower than any other state except Hawaii (EIA 2020b).

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to the City of Santa Cruz (City and County of Santa Cruz (County). Incorporated in California in 1905, PG&E is one of the largest combination natural gas and electric utilities in the United States. It currently provides service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. The service area includes 106,681 circuit miles of electric distribution lines, 18,466 circuit miles of interconnected transmission lines, 42,141 miles of natural gas distribution pipelines, and 6,438 miles of transportation pipelines. PG&E and other utilities in the state are regulated by the California Public Utilities Commission (CPUC) (PG&E 2018).

The California Renewables Portfolio Standard (RPS) Program establishes a goal for California to increase the amount of electricity generated from renewable energy resources to 20% by 2010 and to 33% by 2020. Recent legislation revised the current RPS target for California to obtain 50% of total retail electricity sales from renewable sources by 2030, with interim targets of 40% by 2024, and 45% by 2027 (CPUC 2016). PG&E receives electric power from a variety of sources. According to PG&E's power content label for 2018, 39% of PG&E power came from eligible renewable energy sources in 2017, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (PG&E 2019).

Monterey Bay Community Power (MBCP) was formed in March 2017 as a joint powers authority to provide locally controlled, 100% carbon-free electricity to residents and businesses in Monterey, San Benito, and Santa Cruz counties through the Community Choice Energy (CCE) model established by the State of California. The CCE model enables communities to choose clean-source power at a cost equivalent to PG&E while retaining PG&E's role in maintaining power lines and providing customer service. The CCE model helps ensure local economic vitality because surplus revenues that would normally flow to PG&E will stay in the community. Current PG&E customers were automatically enrolled in MBCP. All "exit fees" charged by PG&E will be absorbed by MBCP at the time of enrollment. Currently available PG&E programs, such as energy efficiency programs and California Alternate Rates for Energy (CARE), will continue to be accessible by MBCP customers (MBCP 2017).

PG&E customers consumed a total of 80,369 million of kilowatt hours (kWh) of electricity in 2018 (CEC 2020a). In Santa Cruz County, PG&E reported an annual electrical consumption of approximately 1,213 million kWh in 2018, with 667 million kWh for non-residential use and 546 million kWh for residential use (CEC 2020b).

4.6.1.2 Natural Gas

According to the EIA, California used approximately 2,136.907 million cubic feet of natural gas in 2018 (EIA 2020b). The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers accounted for approximately 35% of the natural gas delivered by California utilities (CPUC 2020). Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 65% of the natural gas delivered by California utilities (CPUC 2020). CPUC regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. California gas utilities may soon also begin receiving biogas into their pipeline systems (CPUC 2020).

PG&E customers consumed approximately 479.286 million cubic feet of natural gas in 2018 (CEC 2020c). PG&E had delivered approximately 5,199 million cubic feet to Santa Cruz County, with 2,100 million cubic feet for non-residential use and 3,100 million cubic feet for residential use (CEC 2020d).

4.6.1.3 Transportation-Related Energy Consumption

According to the EIA, California used approximately a total of 681 million barrels of petroleum in 2018, with the majority (585 million barrels) used for the transportation sector (EIA 2020c). This total annual consumption equates to a daily use of approximately 1.9 million barrels of petroleum.[1] California consumes approximately 78.6 million gallons of petroleum per day, which adds up to an annual consumption of 28.7 billion gallons of petroleum. In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation. As such, the California Energy Commission (CEC) anticipates an overall decrease of gasoline demand in the state over the next decade.

[1] There are 42 U.S. gallons in a barrel.

4.6.2 Regulatory Framework

4.6.2.1 Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act

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

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

This federal legislation requires ever-increasing levels of renewable fuels to replace petroleum (EPA 2017). The U.S. Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions in greenhouse gas (GHG) emissions from the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the renewable fuels sector in the United States. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

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

4.6.2.2 State

Warren-Alquist Act

The California legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the CEC. The legislation also incorporated the following three key provisions designed to address energy demand:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are provided, and identified policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. In 2005, a second Energy Action Plan was adopted by the CEC and CPUC to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based, in part, on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than produce a new energy action plan, the CEC and CPUC prepared an update that examines the state's ongoing actions in the context of global climate change.

Senate Bills 1078 (2002), 107 (2006), X1-2 (2011), 350 (2015) and 100 (2018)

Senate Bill (SB) 1078 established the California RPS Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

SB 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) required all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% of electricity had to come from renewables; by December 31, 2016, 25% of electricity had to come from renewables; and by December 31, 2020, 33% will be required to come from renewables.

SB 350 (2015) expanded the RPS by requiring retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity does not increase carbon emissions elsewhere in the western grid. Additionally, 100% zero-carbon electricity cannot be achieved through resource shuffling.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the RPS requirements described above. The Proposed Project's reliance on non-renewable energy sources would be reduced accordingly.

Assembly Bill 32 (2006) and Senate Bill 32 (2016)

In 2006, the state legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, California Air Resources Board (CARB) prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources.

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The current Title 24 standards are the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy (due to energy efficiency measures) than those built to the 2016 standards; if rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

Title 24 also includes Part 11, California's Green Building Standards (CALGreen). CALGreen establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The 2019 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2019 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle (EV) charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply

systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11).

State Vehicle Standards

In response to the transportation sector accounting for more than 1/2 of California's carbon dioxide (CO_2) emissions, AB 1493 was enacted in 2002. AB 1493 required CARB to set GHG emissions standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emissions standards for motor vehicles manufactured in 2009 and all subsequent model years. The 2009 to 2012 standards resulted in a reduction in approximately 22% of GHG emissions compared to emissions from the 2002 fleet, and the 2013 to 2016 standards resulted in a reduction of approximately 30% compared to the 2002 fleet.

In 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global-warming gases with requirements for greater numbers of zero-emissions vehicles into a single package of standards called Advanced Clean Cars. By 2025, when the rules would be fully implemented, new automobiles would emit 40% fewer global-warming gases and 75% fewer smog-forming emissions (CARB 2020a). However, in 2018, the EPA and National Highway Traffic Safety Administration published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. California and 22 other states, as well as the District of Columbia and four cities, filed suit against the EPA. Since a petition for reconsideration of the rule is pending ongoing litigation, the effect of the SAFE Vehicles Rule on the Advanced Clean Cars program is yet to be determined.

Although the primary focus of the state's vehicle standards is on the reduction of air pollutants and GHG emissions, the reduction in demand for petroleum-based fuels is also a benefit of these standards.

4.6.2.3 Local

As described in Section 4.8, Greenhouse Gas Emissions, the City has adopted a climate action plan and the County has approved a climate action strategy, which include energy-consumption-reduction measures. See Section 4.8 for summaries of these local plans.

4.6.3 Impacts and Mitigation Measures

This section contains the evaluation of potential environmental impacts associated with the Proposed Project related to energy. The section identifies the standards of significance used in evaluating the impacts, describes the methods used in conducting the analysis, and evaluates the Proposed Project's impacts and contribution to significant cumulative impacts, if any are identified.

4.6.3.1 Thresholds of Significance

The standards of significance used to evaluate the impacts of the Proposed Project related to energy are based on Appendix G of the CEQA Guidelines, as listed below. A significant impact would occur if the Proposed Project would:

A. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

B. Result in conflicts with or obstruct a state or local plan for renewable energy or energy efficiency.

4.6.3.2 Analytical Methods

Construction

Electricity

The amount of electricity used during construction of the Proposed Project would be minimal because demand generally would be generated from use of electrically powered hand tools. As such, construction electricity demand is qualitatively addressed.

Natural Gas

Natural gas is not anticipated to be required during construction of the Proposed Project; therefore, construction natural gas demand is qualitatively addressed.

Petroleum

Potential impacts were assessed for off-road equipment and on-road vehicle trips during construction based on the CalEEMod outputs (see Appendix B). Fuel consumption from construction equipment and vehicle trips was estimated by converting the total CO_2 emissions anticipated to be generated during construction to gallons of gasoline or diesel based on conversion factors. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018). Heavy-duty construction equipment associated with construction activities, vendor trucks, and haul trucks are assumed to use diesel fuel. Worker vehicles are assumed to be gasoline fueled. The details for construction criteria air pollutant emissions modeling discussed in the air quality section apply to the energy analysis as well; see Section 4.3.3.2, Analytical Methods, for air quality.

Operation

The Proposed Project would retrofit existing facilities that are currently subject to ongoing operations and maintenance activities. Under the Proposed Project, operations and maintenance activities would occur with a similar frequency and intensity to existing operations and maintenance activities. Limited use of electricity and use of propane for operation of the emergency backup generator would continue at the site. Overall, demand for energy would not substantially increase over existing conditions. Therefore, potential operational energy consumption is qualitatively evaluated.

4.6.3.3 Project Impact Analysis

This section provides a detailed evaluation of energy impacts associated with the Proposed Project.

Impact ENE-1: Result in Wasteful, Inefficient or Unnecessary Consumption of Energy Resources (Significance Standard A). The Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources. ***(Less than Significant)***

Construction

As described in Chapter 3, Project Description, construction activities for the Proposed Project would occur over approximately 3 months in 2021 and would involve the retrofit of an existing creek diversion facility. Detailed assumptions for equipment usage and vehicle trips are provided in Appendix B.

Electricity. Temporary electric power for as-necessary lighting and electronic equipment would be provided by the existing PG&E service on-site. The amount of electricity used during construction would be minimal as typical demand would be generated primarily from electrically powered hand tools. The electricity used for construction activities would be temporary and minimal, and construction of the Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of electricity.

Natural Gas. Natural gas is not anticipated to be required during construction of the Proposed Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below. Any minor amounts of natural gas that may be consumed as a result of construction would be temporary and negligible, and construction of the Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of natural gas.

Petroleum. Heavy-duty equipment associated with construction would rely on diesel fuel, as would vendor trucks involved in delivery of materials to the project site, and haul trucks exporting demolition material or other materials off site. Construction workers would travel to and from the project site throughout the duration of construction. This analysis assumes that construction workers would travel in gasoline-powered light-duty vehicles.

As described above, fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons of gasoline or diesel based on conversion factors. The estimated diesel fuel usage from construction equipment, haul trucks, and vendor trucks, as well as estimated gasoline fuel usage from worker vehicles, is shown in Table 4.6-1.

In summary, construction of the Proposed Project over the 3-month construction period is conservatively anticipated to consume 658 gallons of gasoline and 8,605 gallons of diesel. By comparison, California as a whole consumes approximately 29 billion gallons of petroleum per year. On a regional scale, Santa Cruz County's petroleum use by on-road vehicles only (i.e., not including off-road construction equipment) is expected to be 91.8 million gallons per year in 2021 (CARB 2020b). Based on these assumptions, the Proposed Project would require a fraction of the petroleum that would be consumed in California and countywide over the course of the construction period. Therefore, impacts to energy resources during construction would be less than significant.

Table 4.6-1. Construction Petroleum Demand for the Proposed Project

Project Component	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	gallons			
Access Road Improvements, Site Preparation, and Mobilization				
Site Preparation	171.40	14.69	0	37.59
Access Road Grading	171.40	52.89	0	79.73
Cofferdam and Temporary Stream Bypass System				
Cofferdams Installation	120.47	22.53	0	56.95
Pipe Installation	763.96	0.00	0	103.34
Installation of Dewatering and Leakage Control Pump Control Systems	945.15	0.00	0	6.83
New Coanda Screen Intake and Valve Vault Structures				
Excavation	287.95	30.36	0	10.25
Doweling and Anchorage	328.11	22.53	0	10.25
Concrete Pour	420.18	74.44	0	50.11
Installation Coanda Screen and Valve Vault	152.79	7.84	0	4.56
Diversion Pipeline	2,030.36	0.00	0	105.92
Modifications to Existing Intake and Sediment Control Values				
Pipe Installation	435.85	0.00	0	17.08
Backfill Structure	229.19	45.05	0	29.61
Electrical Installations				
Electrical conduit	1,256.61	0.00	32.32	15.95
Access Stairs and Riprap Bank Stabilization				
Access Stairs	36.24	14.69	39.18	7.97
Install Riprap	188.05	22.53	34.28	70.62
Startup and Testing, Site Restoration, and Construction Closeout				
Startup, Testing and Site Restoration	654.26	0.00	0	45.56
Total	**8,191.97**	**307.40**	**105.78**	**658.31**

Source: B&V and SCWD 2020; see Appendix B.

Operation

As described above, once construction is complete, operation and maintenance activities would generally remain similar to existing operations and maintenance activities. The Proposed Project would not require substantial additional routine daily equipment operation or vehicle trips beyond those occurring for operation of the Facility under existing conditions. Because the Proposed Project would not result in any long-term operational increases in energy demand beyond what is required under existing conditions, the Proposed Project would have no energy impacts associated with operations.

Therefore, overall the Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation and would have less-than-significant energy-related impacts.

Impact ENE-2: Conflict with an Applicable Plan (Significance Standard B). The Proposed Project would not result in conflicts with or otherwise obstruct a state or local plan for renewable energy or energy efficiency. ***(Less than Significant)***

Part 6 of Title 24 of the California Code of Regulations establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. Title 24 also includes Part 11, the California Green Building Standards Code (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial and state-owned buildings. The components of the Proposed Project that include replacement structures would meet all applicable Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency, including construction waste reduction, disposal and recycling measures.

Additionally, as discussed in Section 4.8, the Proposed Project would not conflict with the various state and local plans that mandate reduced energy use. Therefore, the Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and would have less-than-significant impacts related to conflicts with applicable plans.

4.6.3.4 Cumulative Impacts Analysis

This section provides an evaluation of cumulative energy impacts associated with the Proposed Project and past, present, and reasonably foreseeable future projects, as identified in Table 4.1-1 in Section 4.1, Introduction to Analysis, and as relevant to this topic. The geographic area considered for the analysis of cumulative energy impacts is Santa Cruz County.

Impact ENE-3: Cumulative Energy Impacts (Significance Standards A and B). The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to energy. ***(Less than Significant)***

Potential cumulative impacts on energy would result if the Proposed Project, in combination with past, present, and future projects, would result in the wasteful or inefficient use of energy. Significant energy impacts could result from development that would not incorporate sufficient building energy efficiency features, achieve building energy efficiency standards, or if projects result in the unnecessary use of energy during construction or operation.

As discussed in Impact ENE-1 and Impact ENE-2, the Proposed Project would not result in wasteful, inefficient, or unnecessary use of energy during construction and would not result in a net increase in operational energy use nor would it conflict with an applicable plan. The majority of the cumulative projects listed in Table 4.1-1 consist of capital improvement projects to the City's water supply infrastructure. Each project would have a construction period during which electricity, natural gas and petroleum would be used; however, it is expected that such usage would be temporary and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Additionally, while some of these capital improvement projects could result in increases in energy consumption during their operation, the Proposed Project would not result in an increase in net energy consumption compared to existing conditions and would therefore not contribute to any potential cumulative energy impacts related to operation of other capital improvement projects. Furthermore, any commercial and residential cumulative projects that may take place in the County that include long-term energy demand would be subject to CALGreen, which provides energy efficiency standards. In addition, cumulative projects would be required to meet or exceed the Title 24 building standards, as applicable, further reducing the inefficient use of energy. Future development would also

be required to meet even more stringent requirements, including the objectives set forth in the AB 32 Scoping Plan, which seek to make all newly constructed residential homes produce a sustainable amount of renewable energy through the use of on-site photovoltaic solar systems. Furthermore, various federal and state regulations, including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program, would serve to reduce the transportation fuel demand of cumulative projects.

For the reasons above, the Proposed Project, together with the cumulative projects would not result in wasteful, inefficient, or unnecessary use of energy or conflicts with applicable plans. Therefore, the Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to energy.

4.6.3.5 Mitigation Measures

As described above, the Proposed Project would not result in significant energy impacts, and therefore, no mitigation measures are required.

4.6.4 References

B&V and SCWD (Black & Veatch and Santa Cruz Water Department). 2020. Technical Data Inputs for EIR. June. (See Appendix B.)

CARB (California Air Resources Board). 2020a. "Advanced Clean Cars Program: About." Accessed May 2020 at https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about.

CARB. 2020b. EMFAC 2017 Web Database (v1.0.2). Accessed May 2020 at https://www.arb.ca.gov/emfac/2017/.

CEC (California Energy Commission). 2017. *California Energy Demand 2018-2028 Preliminary Forecast*. CEC-200-2017-006-SD. August 2017. Accessed June 8, 2020 at https://efiling.energy.ca.gov/getdocument.aspx?tn=220615.

CEC. 2018. 2019 Building Energy Efficiency Standards – Frequently Asked Questions. March 2018.

CEC. 2020a. "Electricity Consumption by Entity." Accessed May 2020 at http://ecdms.energy.ca.gov/elecbycounty.aspx.

CEC. 2020b. "Electricity Consumption by County." Accessed May 2020 at http://ecdms.energy.ca.gov/elecbycounty.aspx.

CEC. 2020c. "Gas Consumption by Entity." Accessed May 2020 at http://ecdms.energy.ca.gov/gasbycounty.aspx.

CEC. 2020d. "Gas Consumption by County." Accessed May 2020 at http://ecdms.energy.ca.gov/gasbycounty.aspx.

CPUC (California Public Utilities Commission). 2016. *Biennial RPS Program Update*. Report prepared in compliance with Public Utilities Code Section 913.6. January 1, 2016. http://www.cpuc.ca.gov/uploadedfiles/cpuc_website/content/utilities_and_industries/energy/reports_and_white_papers/final12302015section913_6report.pdf.

EIA (U.S. Energy Information Administration). 2020a. "State Electricity Profiles – California Electricity Profile 2018." December 31, 2019; corrected March 23, 2020. Accessed May 2020 at https://www.eia.gov/electricity/state/california/index.php.

EIA. 2020b. "California State Energy Profile." Last updated January 16, 2020. Accessed May 2020 at https://www.eia.gov/state/print.php?sid=CA.

EIA. 2020c. "Natural Gas Consumption by End Use." May 2020. Accessed May 2020 at https://www.eia.gov/dnav/ng/ng_cons_sum_a_EPG0_VC0_mmcf_a.htm.

EIA. 2020d. "California State Profile and Energy Estimates – Table F16: Total Petroleum Consumption Estimates, 2017." Accessed May 2020 at https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA.

MBCP (Monterey Bay Community Power). 2017. "About Us." Accessed June 8, 2020 at http://www.mbcommunitypower.org/about/.

PG&E (Pacific Gas and Electric Company) 2018. "Company Profile." Accessed June 8, 2020 at https://www.pge.com/en_US/about-pge/company-information/profile/profile.page.

PG&E. 2019. 2018 Power Content Label. Pacific Gas and Electric Company. July 2019. Accessed June 8, 2020 at https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2019/1019-Power-Content-Label.pdf.

The Climate Registry. 2018. *The Climate Registry's 2018 Default Emission Factors.* May 1. Accessed June 8, 2020 at https://www.theclimateregistry.org/wp-content/uploads/2018/06/The-Climate-Registry-2018-Default-Emission-Factor-Document.pdf.