APPENDIX S

Energy Technical Report

CYPRESS POINT PROJECT

Energy Technical Report

Prepared by:

RCH Group
11060 White Rock Road, Suite 150-A
Rancho Cordova, California 95670

April 3, 2019

TABLE OF CONTENTS

INTRODUCTION

This Energy Technical Report addresses potential energy impacts associated with the proposed residential project located northeast of the intersection of Carlos Street and Sierra Street in Moss Beach, CA. The project proposes to develop 71 affordable housing units (on a 10.875-acre parcel), consisting of 18 two-story buildings with 3 to 4 units each and a one-story community building. The applicant anticipates approximately 213 people to occupy the units upon build out. All units, apart from the manager's unit, will be rented to households that earn less than 80 percent of the Area Median Income. Impacts could result from construction energy use and/or operational energy use.

This Energy Technical Report describes existing primary energy sources in the State, and identifies relevant federal, State, and local regulations pertaining to energy conservation. The types of energy sources that would be consumed by the project are identified and estimates are provided for the amounts of each energy source that would be consumed by the project. These factors and the energy-conserving features of the project are discussed as a basis for determining whether the project would have any adverse effects on energy resources, including the need to develop additional capacity.

Because energy consumption is directly tied to the emissions of anthropogenic greenhouse gases (GHGs), California's focus on legislation and regulations to reduce GHGs will lead to improved energy efficiency and reduced energy consumption across the transportation, building heating and cooling, and power generation sectors of the economy. Over the last decade, regulators focused primarily on developing program-specific targets to advance California's energy system (such as separate targets for renewable energy, energy efficiency, demand response, storage, and other attributes), but the State has begun shifting to a more comprehensive approach aimed at improving the performance of the system and achieving the State's greenhouse gas reduction goals.

This Energy Technical Report addresses the project's energy consumption, usage and conservation as per Public Resources Code Section 21100(b)(3), Appendix F, and Appendix G of the CEQA Guidelines. Specifically, CEQA provides that an environmental impact report shall include a detailed statement identifying the environmental impacts of proposed projects, and setting forth mitigation measures proposed to minimize any significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy (Public Resources Code Section 21100(b)(3)). Appendix F of the CEQA Guidelines states that "the California Environmental Quality Act requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3))." Appendix F includes a list of energy impact possibilities and potential conservation measures "designed to assist in the preparation of an EIR." Appendix G contains the following questions regarding energy: (a) would the project have a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources? and (b) would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Recent case law has clarified the requirements to satisfy Public Resources Code section 21100(b)(3) and Appendix F, holding that an EIR must quantify energy use during construction and operations, including energy associated with transportation associated with the project, and also consider the availability of measures to reduce reliance on fossil fuels. (*California Clean Energy* Committee *v. City of Woodland* (2014) 225 Cal.App.4th 173.) Mere reliance on compliance with the California Building Code and other green building requirements is not sufficient to meet an agency's burden under Appendix F and Public Resources Code section 21100(b)(3); an agency must also consider whether a building should be constructed at all, how large it should be, where it should be located, and investigate renewable energy options that might be available or appropriate for the project.

This Energy Technical Report provides an analysis of potential energy consumption impacts that would result from the implementation of the project and identifies mitigation measures, if necessary.

SETTING

ENERGY RESOURCES

The composition of California's in-State generation capacity (in megawatts, or MW) has increasingly shifted toward renewable resources in recent years. Between 2001 and 2016, the generation capacity of electricity from renewable sources (including rooftop solar) has more than tripled, rising from 6,800 MW in 2001 to 26,300 MW in 2016[1]. The addition of renewable energy sources (solar, wind, geothermal, small hydro, and biomass) in California's electric grid has increased generation from renewables from 28,000 Gigawatt hours (Year 2000) to over 80,000 Gigawatt hours (Year 2017).[2]

The following discussion describes the different energy resources that would be consumed by the project.

ELECTRICITY AND RENEWABLE ENERGY

Electricity is a consumptive utility. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for onsite distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands.

California's electricity generation capacity is composed of multiple fuel sources, including coal, hydroelectric, natural gas, nuclear, oil, petroleum coke, waste heat, biomass, geothermal, solar photovoltaic, solar thermal, and wind. In 2017, the State had an installed generation capacity from these multiple sources of 206,328 gigawatt hours (GWh).[3] The composition of California's in-State generation capacity has shifted since the 2002 passage of Senate Bill 1078, which required that 20 percent of electric production come from renewable resources by 2017. With the passage of SB X1-2 in 2011, this was increased to 33 percent renewables by 2020; it was raised again to 50 percent renewables by December 31, 2030 by SB 350 (2015).

[1] California Energy Commission, *2016 Integrated Energy Policy Report Update*, February 28, 2017.
[2] California Energy Commission, *2018 Integrated Energy Policy Report Update Vol. 1*, CEC-100-2018-001-V1.
[3] California Energy Commission, California Energy Alamac, Electricity Generation Capacity & Energy, In-State Electric Generation by Fuel Type (GWh), Accessed March 8, 2019, https://www.energy.ca.gov/almanac/electricity_data/electric_generation_capacity.html.

Since adoption of the first Renewables Portfolio Standard (RPS) pursuant to SB 1078, the State has significantly increased its portfolio of renewable resources. While natural gas-fired capacity is still the primary source of electricity generation, in the last few years, significant amounts of renewable resources have been brought on-line. Installed capacity of renewable energy in California increased from 6,800 megawatts (MW) in 2001 to almost 21,300 MW in 2016, more than tripling the output of this sector over this time period. When behind-the-meter capacity (such as rooftop solar) and facilities smaller than 1 MW are factored in, installed capacity reached 26,300 MW by the end of 2016.[4]

The most significant increase in renewable sources is from utility-scale solar photovoltaic (PV) panels. Installed operating capacity, including both new facilities and capacity expansions, rose from roughly 40 MW in 2010 to 5,700 MW in 2015. Solar thermal technology was the second largest category of growth, increasing from roughly 400 MW in 2012 to nearly 1,300 MW in 2015. Installed wind capacity increased at a slightly slower pace from around 1,500 MW in 2001 to 4,000 MW in 2011, then jumped to roughly 6,100 MW by 2016. Completion of projects that have environmental permits and are in preconstruction or construction phases is expected to add another 10,000 MW of new renewable capacity.[5] With total in-State electricity generation of 198,227 GWh in 2016, 55,300 GWh of them from renewables, along with increases in capacity currently being implemented, these numbers demonstrate that California is well on its way to meeting the requirement for 33 percent renewables by 2020.

Pacific Gas and Electric Company (PG&E) is the local public utility and energy supplier for the project area. PG&E is an American investor-owned utility (IOU) headquartered in San Francisco. PG&E provides natural gas and electricity to most of the northern two-thirds of California, which represents 5.2 million households. PG&E is overseen by the California Public Utilities Commission. PG&E is one of the four regulated, investor-owned utilities (IOU)s in California; the other three are PacificCorp's Pacific Power, Southern California Edison and Sempra Energy's San Diego Gas & Electric. PG&E delivered 82,226 GWh of electricity in 2017.[6]

PG&E filed for Chapter 11 on January 29, 2019, but they do not expect any impact to natural gas or electric service for customers as a result of the Chapter 11 process.[7]

[4] California Energy Commission, *2016 Integrated Energy Policy Report Update*, February 28, 2017.
[5] Ibid.
[6] PG&E, 2017 Joint Annual Report to Shareholders
[7] PG&E, www.pge.com, viewed March 5, 2019.

NATURAL GAS

Natural gas represents approximately one-third of the energy consumed in California each year. Its use falls mainly into four sectors—residential, commercial, industrial, and electric power generation—but it is also used as an alternative to petroleum for fuel in cars, trucks, and buses. Nearly 45 percent of the natural gas burned in California is used for electricity generation, while residential, industrial, and commercial sectors account for 21 percent, 25 percent, and 9 percent of the consumption, respectively. California relies on out-of-state imports for nearly 90 percent of all-natural gas consumed in the State. Statewide consumption of natural gas in totaled 2,115 Trillion Btu in 2017.[8]

The project would receive natural gas from PG&E. PG&E has approximately 42,500 miles of natural gas distribution pipelines, 6,700 miles of backbone and local gas transmission pipelines, and various gas storage facilities.[9] In 2017, PG&E delivered approximately 216 Trillion Btu to its 4.47 million customers.[10]

PETROLEUM

California's production of gasoline in December 2017 ranged from approximately 6.5 to 8.1 million barrels per week, and the State had an inventory of gasoline and blend stocks of about 10.5 million barrels per week. Over the preceding five years, production ranged from about 5.3 to 8.1 million barrels per week, while inventories ranged from about 9.3 to 14.5 million barrels per week.[11]

The Petroleum Industry Information Reporting Act (PIIRA) requires all retail transportation fueling stations in California to file a Retail Fuel Outlet Annual Report (CEC-A15). These stations report retail sales of gasoline, diesel, and other transportation fuels. The California Energy Commission (CEC) compiles these reports into Statewide data, which it compares to California Board of Equalization data, which tracks all gasoline and diesel sales in California for taxation purposes. Based on the results of this data tracking, the CEC reports that retail sales of gasoline throughout the State in 2016 totaled 13.787 billion gallons; in 2017 sales totaled 13.936 billion gallons.[12] Sales data reported does not include commercial fleets, government entities, or rental facilities/equipment yards.

[8] United States Energy Information Administration, California State Profile and Energy Estimates, Data, Table F18: Natural Gas Consumption Estimates, 2017, https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_ng.html&sid=US&sid=CA

[9] PG&E, Climate Change Vulnerability Assessment, http://www.pgecurrents.com/wp-content/uploads/2016/02/PGE_climate_resilience.pdf.

[10] PG&E, 2017 Joint Annual Report to Shareholders, http://www.pgecorp.com/investors/financial_reports/annual_report_proxy_statement/ar_pdf/2017/2017_Annual_Report.pdf

[11] California Energy Commission, Energy Assessments Division, Supply Analysis Office, *Petroleum Watch January 2018*, Figure 8: Gasoline Production and Inventories, January 30, 2018, Accessed March 11,2019 at: https://www.energy.ca.gov/almanac/petroleum_data/petroleum_watch/2018_Petroleum_Watch/

[12] California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, Accessed March 11, 2019 at: http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html.

The State's diesel fuel production in December 2017 was approximately 2.6 million barrels per week, with an inventory of about 3.6 million barrels per week. Over the preceding five years, production ranged from roughly 1.6 to 3.3 million barrels per week, while inventories ranged from about 2.7 to 4.7 million barrels per week.[13] Statewide retail diesel sales in 2016 and 2017 totaled 1.743 billion gallons and 1.717 billion gallons, respectively.[14]

RELEVANT PLANS, POLICIES AND ORDINANCES SETTING

Federal and State agencies regulate energy consumption through various policies, standards, and programs. At the federal level, energy standards apply to numerous products (e.g., the U.S. Environmental Protection Agency's [EPA's] EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems and offers the Flex Your Power program that promotes conservation in multiple areas. At the local level, individual cities and counties can establish policies in their general plans and climate action plans (CAPs) related to the energy efficiency of new development and land use planning and to the use of renewable energy sources. Applicable federal, state, and local regulations are discussed in further detail below.

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 2010, fuel economy standards were set at 27.5 miles per gallon for new passenger cars and 23.5 miles per gallon for new light trucks. 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 OF 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy (CAFE) standards for motor vehicles, the act includes 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)

[13] California Energy Commission, Energy Assessments Division, Supply Analysis Office, *Petroleum Watch January 2018*, Figure 9: Diesel Production and Inventories, January 30, 2018, Accessed March 11,2019 at: https://www.energy.ca.gov/almanac/petroleum_data/petroleum_watch/2018_Petroleum_Watch/

[14] California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, Accessed March 11, 2019 at: http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html.

This federal legislation requires increasing use of renewable fuels over time to replace petroleum (Section 202, RFS). The 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 EISA, the RFS program was expanded in several key ways that laid the foundation for achieving significant reductions of greenhouse gas (GHG) emissions through the use of renewable fuels, for reducing imported petroleum, and for encouraging the development and expansion of our nation's renewable fuels sector. 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 (EPA 2015).

EPA AND NHTSA JOINT RULE FOR VEHICLE STANDARDS

On April 1, 2010, the EPA and the National Highway Traffic Safety Administration (NHTSA) announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles for model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. The EPA promulgated the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA promulgated CAFE standards under the Energy Policy and Conservation Act. This final rule follows the EPA and Department of Transportation's joint proposal on September 15, 2009 and is the result of the President Obama's May 2009 announcement of a national program to reduce GHGs and improve fuel economy. The final rule became effective on July 6, 2010 (EPA and NHTSA 2010).

The EPA GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO2) per mile in model year 2016, equivalent to 35.5 mpg if the automotive industry were to meet this CO2 level through fuel economy improvements alone. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers (EPA and NHTSA 2010).

In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (EPA and NHTSA 2012). These standards will reduce motor vehicle GHG emissions to 163 grams of CO2 per mile, which is equivalent to 54.5 mpg if this level were achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025. A portion of these improvements, however, will likely be made through improvements in air conditioning leakage and through use of alternative refrigerants, which would not contribute to fuel economy. The first phase of the CAFE standards (for model years 2017 to 2021) are projected to require, on an average industry fleet-wide basis, a range from 40.3 to 41.0 mpg in model year 2021.

The second phase of the CAFE program (for model years 2022 to 2025) is projected to require, on an average industry fleet-wide basis, a range from 48.7 to 49.7 mpg in model year 2025. The second phase of standards has not been finalized due to the statutory requirement that NHTSA set average fuel economy standards not more than five model years at a time. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including the following:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles
- Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups
- Incentives for natural gas vehicles
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standards' test procedures

STATE

TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Energy consumption by new buildings in California is regulated by the State Building Energy Efficiency Standards, included in Title 24. The efficiency standards apply to new construction of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards for new buildings, provided these standards meet or exceed those provided in Title 24 guidelines. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficiency technologies and methods. The premise for the standards is that energy efficient buildings require less electricity, natural gas, and other fuels. The Title 24, Part 6, standards are updated every three years. The most recent amendments to Title 24, Part 6, referred to as the 2016 standards, became effective on January 1, 2017 and would apply to the project. The previous amendments were referred to as the 2013 standards. Homes built to the 2016 standards use approximately 28% less energy for lighting, heating, cooling, ventilation and water heating than those built to the 2013 standards.[15] The 2016 standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The standards include efficiency improvements to the residential standards for attics, walls, water heating, and lighting. They also include efficiency improvements to the non-residential standards, to bring them into alignment with the American Society of Heating and Air-Conditioning Engineers (ASHRAE) 90.1 2013 national standards.

Title 24 also includes Part 11, known as California's Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low rise residential, and State-owned buildings, as well as schools and hospitals. The 2016 CalGreen standards became effective on January 1, 2017. Some mandatory standards related to the project include:

- Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling;
- 20% mandatory reduction in indoor water use;
- 50% of construction and demolition waste must be diverted from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.
- Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day.

[15] California Energy Commission. 2016 Building Energy Efficiency Standards, Frequently Asked Questions. https://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf

- Reduce the generation of wastewater by installation of water-conserving fixtures or using non-potable water systems.

SENATE BILL 32

Building on Assembly Bill (AB) 32, the landmark legislation intended to reduce California's emissions of greenhouse gases (GHGs), Governor Jerry Brown signed Senate Bill (SB) 32 into law on September 8, 2016. AB 32, enacted in 2006 by then-Governor Arnold Schwarzenegger, required the State to reduce emissions of GHGs to 1990 levels by 2020. California is well on its way to meet this target, and the goals has been raised by SB 32, which requires the State to reduce emissions of GHGs to 40 percent below 1990 levels by 2030. Although Governor Brown had previously established this goal by Executive Order B-30-15, SB 32 codifies the target. This must be done while California's population is projected to grow from about 38 million in 2017 to more than 44 million by 2030.

CLEAN ENERGY & POLLUTION REDUCTION ACT

Senate Bill 350, signed into law on October 7, 2015, enacted the Clean Energy & Pollution Reduction Act, which increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the State to double Statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs) that must detail how each utility will meet their customers resource needs, reduce greenhouse gas emissions, and ramp up the deployment of clean energy resources.

SENATE BILL 1389

Senate Bill 1389 (SB 1389, Bowen and Sher, Chapter 568, Statutes of 2002) requires the California Energy Commission (CEC) to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The commission shall use these assessments and forecasts to develop and evaluate energy policies and programs that conserve resources, protect the environment, ensure energy reliability, enhance the State's economy, and protect public health and safety." In compliance with SB 1389, the CEC—in collaboration with federal, State, and local agencies and a wide variety of stakeholders—prepares a biannual Integrated Energy Policy Report (IEPR) that assesses current energy trends and prescribes policies to further the goals established by SB 1389. The most recent IEPR was adopted in February 2017 and an update was published in 2018.

LOCAL

SAN MATEO COUNTY GENERAL PLAN CHAPTER 17 ENERGY AND CLIMATE CHANGE ELEMENT

The Energy and Climate Change Element demonstrates San Mateo County's commitment to achieve energy efficiency and mitigate its impact on climate change by reducing GHG emissions consistent with State legislation. This element is an optional element of the General Plan and is not mandated by the State of California. Authorized by Section 65303 of the Government Code, the inclusion of this element in the General Plan demonstrates the County's commitment to the long-term sustainability and resilience of the unincorporated county. San Mateo County is working to sustain the long-term health of the natural and built environments, achieve effective and meaningful reductions in GHGs, and increase resiliency to the impacts of climate change in the unincorporated county.

SAN MATEO COUNTY CLIMATE ACTIONS PLANS

San Mateo County has two Climate Action Plans currently in place – a Government Operations Climate Action Plan and a Community Climate Action Plan (also known as the Energy Efficiency Climate Action Plan [EECAP]). The County Office of Sustainability is responsible for the update and implementation of both programs.

The EECAP provides a path for achieving local energy efficiency and reductions in GHGs by 2020. The EECAP will function as an implementation tool of the General Plan, working as a shorter-term plan that will be updated on a more regular basis. The EECAP also provides technical analysis to demonstrate the impact of the County's policies and programs on GHG emissions. Maintaining the EECAP separately from the General Plan provides flexibility to the County to assess and revisit the effectiveness of EECAP measures and actions toward achieving this element's overall goals and policies. As a stand-alone plan, the EECAP also has the flexibility to integrate near-term opportunities, new technologies, and research. Together, the General Plan and EECAP function as part of the County's toolkit to achieve resilience to climate change and long-term GHG reductions.

The relevant plan for this project would be the EECAP. The EECAP includes a GHG inventory of all the emissions that result from the unincorporated areas and a list of various proposed measures to reduce these emissions. The Office of Sustainability is currently working with the Planning and Building Department to update the existing Community Climate Action Plan.[16]

The reduction measures included in the EECAP build upon existing efforts and provide a diverse mix of regulatory and incentive-based programs for both new and existing development. The reduction measures also aim to reduce GHG emissions from each source to avoid reliance on any one strategy or sector to achieve the target. In total, GHG reduction measures in the EECAP will reduce GHG emissions in the unincorporated county in 2020 by 67,000 metric tons of CO2 equivalents.[17]

[16] County of San Mateo, Office of Sustainability, Climate Action Plans, https://www.smcsustainability.org/climate-change/climate-action-plans/.
[17] County of San Mateo, Energy Efficiency Climate Action Plan, June 2013.

SAN MATEO COUNTY GREEN BUILDING ORDINANCE

San Mateo County's Green Building Ordinance has been in effect since 2008 and applies to all new construction projects as well as to projects involving a remodel of 50% or greater of the value of the building. All new residential projects must receive at least 50 points on the appropriate GreenPoint Rated Checklist or LEED certification. Expedited building permit processing is available as an incentive to projects achieving higher points or certifications. In the commercial and industrial sector, new buildings or remodels of at least 3,000 square feet in area are required to achieve LEED certification. As with residential projects, expedited permit processing and inspections are available to projects that achieve a higher level of certification; in this case, buildings must achieve LEED Silver or above. [18]

[18] Ibid.

STANDARDS OF SIGNIFICANCE

The standards of significance for the analysis of potential energy impacts are based on the new Energy section in Appendix G of the 2019 CEQA Guidelines.

Would the project:

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

Neither the CEQA Guidelines nor Public Resources Code Section 21100(b)(3) provide a specific threshold for impacts associated with energy consumption. However, Appendix F of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a development project may result in significant impacts with regard to energy. Based on Appendix F of the CEQA Guidelines and the new Appendix G questions, the standards of significance for this analysis will evaluate whether the project would:

1. Result in wasteful, inefficient, or unnecessary consumption of energy during construction.
2. Result in wasteful, inefficient, or unnecessary consumption of energy during operation.
3. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.
4. Require the construction of new or expanded energy production facilities or infrastructure, the construction of which could cause significant environmental impacts.

In evaluating the standards, the analysis will consider the scale of the project's energy use (size of the project) and project's commitment to feasible opportunities to conserve energy or use alternative fuels or renewable energy.

IMPACTS AND MITIGATION MEASURES

The project would consume energy in three primary forms:

- Liquid fuels (gasoline and diesel) to power construction equipment, haul trucks and worker vehicles during project construction and to power vehicles during operation of the project;
- Electricity to power construction equipment/power tools and to provide lighting of the project site and to power inside and outside electrical uses for the homes and community building; and
- Natural gas to provide heat and hot water in the homes and community building.

The project is not responsible for developing these energy supplies. The project is not involved in the extraction and refining of petroleum or natural gas and does not build or operate power plants. It is reasonably assumed that the companies and public utilities involved in these activities have previously undergone the appropriate environmental review pursuant to CEQA. Therefore, the analysis presented in this report is focused solely on the consumption of existing energy supplies by the project, and whether that consumption could be considered wasteful, inefficient, or unnecessary.

IMPACT ANALYSIS

IMPACT ENERGY-1

Project construction would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. (Less than Significant)

CONSTRUCTION ENERGY USAGE

Project construction would require site preparation, site grading and excavation, trenching, interior architectural finishing, paving and landscaping. Construction would be typical for the region and building type, and the project site does not include unusual building challenges that would require unusually high energy usage. The importation of a maximum of 7,000 cubic yards of fill material would be required, which would result in a maximum of 692 haul truck trips, as indicated in the California Emissions Estimator Model (CalEEMod) modelling estimates in the Air Quality Technical Report.[19]

[19] Illingworth & Rodkin, Inc., *Cypress Point Affordable Housing Project Air Quality & Greenhouse Gas Emissions Assessment*, June 29, 2018.

Fuel consumption during construction was calculated by CalEEMod, a Statewide land use emissions computer model developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California Air Districts. The model inputs assumed project construction would occur eight hours per day, five days per week, for a period of 15 months[20]. It assumed a daily construction crew of approximately 40 workers, resulting in approximately 80 daily one-way trips during building construction, with fewer workers during other construction phases. CalEEMod calculated the emissions and related fuel use for each construction phase, including site preparation, grading, building construction, paving, and architectural coating.[21]

Based on CalEEMod results for project construction and standard fuel consumption conversion factors, construction would require approximately 7,564 gallons of gasoline and 45,508 gallons of diesel fuel. This includes all off-road construction equipment, hauling, vendor, and worker trips over a 320-working day construction period. For the finishing phase of construction, some electricity may be used (e.g., for power tools and work lighting). While this electricity usage cannot be quantified at this time, it is anticipated to be relatively minor compared to normal building operations. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. Natural gas would not be used during construction.

If it is conservatively assumed that all of the fuel used during construction would be consumed in one year, gasoline consumption would represent approximately 0.00005 percent of Statewide gasoline consumption in 2016. The diesel consumption would represent 0.00125 percent of Statewide consumption in 2016. This increase in consumption would be temporary, of relatively short duration, and would cease once project construction is completed. This minor increase in fuel consumption would not require development of new petroleum supplies or construction of new production or distribution facilities. As required by Mitigation Measure AQ-1 of the Air Quality Technical Report, the construction contractor would be required to minimize equipment idling time and maintain equipment in proper operating condition, which would ensure that fuel powering the equipment would not be used in an inefficient or wasteful manner.[22]

MidPen Housing Corporation (the project sponsor) has also committed to the following construction actions[23] that would reduce the energy consumption from project construction:

- Preserve a portion of the site as undeveloped land.
- Make best efforts to use of at least 10 percent local building materials.
- Recycle or reuse at least 50 percent of construction waste or demolition materials.

[20] While the project description assumes a construction period of 18 months, a construction period of 15 months is assumed here to be consistent with the air quality analysis. This is a conservative assumption and would not substantially change the results.
[21] Ibid.
[22] Illingworth & Rodkin, Inc., *Cypress Point Affordable Housing Project Air Quality & Greenhouse Gas Emissions Assessment*, June 29, 2018.
[23] Stevens Consulting, Cypress Point Project Introduction and Project Description (County Review Draft), accessed March 6, 2019 at https://planning.smcgov.org/sites/planning.smcgov.org/files/5-Intro-and-Project-Description.pdf

Therefore, for the reasons stated above, the consumption of fuel and other energy during project construction would have a ***less-than-significant impact*** on energy resources.

MITIGATION MEASURES ENERGY-1

None required.

IMPACT ENERGY-2

Project operations would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. (Less than Significant)

Once the project is operational, transportation fuels (predominantly gasoline) would continue to be consumed through vehicle trips by residents, visitors, maintenance workers, delivery truck drivers, etc. Similar to the construction analysis, operational fuel consumption was calculated by CalEEMod (see Energy Appendix at the end of this report). CalEEMod calculates energy consumption and associated emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and transport and disposal of solid waste. Key assumptions used in the analysis included the default trip lengths and trip types specified by CalEEMod for San Mateo County. Based on the Transportation Impact Analysis performed for the project, a daily weekday trip generation rate of 6.65 weekday trips per dwelling unit (or 472 daily weekday trips) was assumed.[24]

CalEEMod does not break down fuel usage into gasoline and diesel components; since the majority of residential vehicles are gasoline-fueled, it was assumed that all of the fuel consumption would be gasoline, resulting in estimated annual fuel consumption of approximately 46,548 gallons of gasoline. This would represent approximately 0.0003 percent of Statewide gasoline consumption in 2016.

The CalEEMod was also used to estimate the consumption of electricity and natural gas associated with space and water heating and landscape maintenance (i.e., electricity to control irrigation equipment) expected to occur during operation of the project. The project land use type and size and other project-specific information were input to the CalEEMod. The CalEEMod results indicated that the project's estimated electricity consumption would be approximately 322,439 kWh of electricity and approximately 1.44 billion BTUs of natural gas per year. This would represent approximately 0.00039 percent of PG&E's electricity sales in 2017 and approximately 0.000670 percent of PG&E's natural gas sales in 2017. The project's annual electricity usage would represent approximately 0.00013 percent of Statewide electricity sales in 2017. The project's natural gas usage would represent approximately 0.000068 percent of Statewide natural gas sales in 2017.

[24] Kittleson & Associates, Inc. Cypress Point Traffic Impact Analysis. April 2019.

While implementation of the project would result in consumption of non-renewable energy resources, such consumption is an inherent characteristic of typical development projects. The energy demands of the project would be reduced by energy conservation features that are required in the project type (new multi-family construction using the current Title 24 Building Code), the location (coastal zone with minimal annual air conditioning and heating needs) and energy conservation features that are included in MidPen additional environmental commitments.

As listed in the Project Description[25], MidPen has agreed to a list of environmental commitments to minimize the environmental effects. From that list, the commitments outlined below would reduce the consumption of non-renewable energy resources.

OPERATIONAL ENERGY SAVING FEATURES

In order to achieve energy efficiency beyond Title 24 building standards, MidPen has agreed that the project shall be developed in accordance with the minimum requirements of one of the following programs: Leadership in Energy & Environmental Design; Green Communities; Passive Housing; Living Building Challenge; National Green Building Standard, or the GreenPoint Rated program. The following are features that may be included[26]:

- Natural cross-ventilation of every unit with windows in 3 sides of most units (2-3 BR), and 2 sides of 1 BR units;
- Cool roofs with low reflectance for reduced heat-island effect;
- High-efficacy lighting fixtures throughout; “Night-sky” compliant site lighting;
- Drought-tolerant landscaping with native species and minimized and efficient irrigation;
- Passive on-site storm water management;
- PV ready roofs;
- No air conditioning;
- Shared laundry facilities;
- Secure bike parking facilities to encourage less vehicle use;
- Install toilets using less than 1.6 gallons per flush;
- Install showerheads providing maximum flows of 2.5 gallons per minute or less;
- Install self-closing faucets in non-residential lavatories; and
- Install high-efficiency washing machines with a water factor of 5 or less.

The energy savings from the operational energy savings features above cannot be estimated at this time because the actual program and features that would be included have not been selected. However, it is clear that adopting the minimum requirements of one of the programs would improve the project energy efficiency beyond Title 24 building standards.

[25] Stevens Consulting. Cypress Point Project Introduction and Project Description (County Review Draft). Accessed March 7, 2019 at https://planning.smcgov.org/sites/planning.smcgov.org/files/5-Intro-and-Project-Description.pdf
[26] Ibid.

ADDITIONAL OPERATIONAL ENERGY CONSERVATION FEATURES

As identified in the Project Description, the intention of the project sponsors and San Mateo County is to improve the jobs/housing balance and jobs/housing fit by providing preference for those who live or work on the San Mateo Coast[27]. Although not quantified, the project would provide opportunities for reduced commutes for existing coastal workers and residents.

The Transportation Impact Analysis[28] recommended three mitigation measures that could conserve energy by improving opportunities for short walking trips and mass transit, as opposed to single occupancy vehicles.

1. Mitigation Measure TRAF-1B – Develop a Transportation Demand Management (TDM) plan for review and approval by San Mateo County which may include:
   - Local live-work preference for residents
   - One or more dedicated car share parking space(s)
   - Free or discounted SamTrans transit passes
   - Provide public transit information and education for residents – maps and schedules for residents, brochures about environmental and health benefits
   - Provide a pedestrian trunk (grocery cart) to eliminate driving to local market
   - Provide both short and long-term secure bicycle parking
   - Support for active transportation through provision of bicycle and pedestrian-supportive infrastructure, streets, etc. within the Project
   - Additional measures that may become available as technology evolves
2. Mitigation Measure TRAF-5A – Construct a sidewalk that connects the Project entrance on Carlos Street to the sidewalk located on the north side of Sierra Street. This includes land both on and adjacent to the Project property.
3. Mitigation Measure TRAF-5B – The project sponsor should distribute informational literature to tenants upon move-in detailing available transit service and bus stop locations. The informational literature should discourage the use of the southbound bus stop at Carlos Street and State Route 1 because of the inadequate corner sight distance provided at the intersection. Residents should be redirected to use the bus stop at Etheldore Street and California Street instead which is approximately a ten-minute walk from the project entrance.

It should be noted that transportation energy consumption could be higher without the project because of the transportation energy use associated with coastal workers commuting from more distant locations.

Given all of the foregoing considerations, the project would not consume energy resources in a wasteful or inefficient manner and would therefore have a **less-than-significant impact** on the consumption of energy resources.

[27] Stevens Consulting. Cypress Point Project Introduction and Project Description (County Review Draft). Accessed March 7, 2019 at https://planning.smcgov.org/sites/planning.smcgov.org/files/5-Intro-and-Project-Description.pdf

[28] Kittleson & Associates, Inc. Cypress Point Traffic Impact Analysis. April 2019.

MITIGATION MEASURES ENERGY-2

None required.

IMPACT ENERGY-3

The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (Less than Significant)

The Relevant Plans, Policies and Ordinances Setting of this Report describes the regulatory framework for energy usage and conservation at the federal, State, and local level. For building projects, Title 24 (California Code of Regulations) is of particular importance, as it sets standards for energy performance.

As indicated in IMPACT ENERGY-2, MidPen has agreed to a list of environmental commitments to minimize the project's environmental effects, including a commitment that the project would be developed in accordance with a green building program, to be selected in the future, which would include a variety of energy efficient features that are beyond the requirements of Title 24. As such, the project would exceed applicable State standards and would be more energy efficient than what is currently required by the State.

The project has been reviewed relative to the San Mateo County General Plan Energy and Climate Change and the San Mateo County EECAP. This analysis finds that the project would not conflict with or obstruct either of these plans. Furthermore, based on the size of the project, the Air Quality Technical Report indicated that the project is below the Bay Area Air Quality Management District (BAAQMD) operational GHG emissions screening level and all GHG emissions impacts would be less than significant.[29] The project would provide energy efficiency beyond Title 24 requirements and would support the intent of the General Plan and EECAP, which is to reduce GHG emissions in San Mateo County. Therefore, the project would not conflict with or obstruct a state or local plan and any project effect would be a **less-than-significant impact**.

MITIGATION MEASURES ENERGY-3

None required.

IMPACT ENERGY-4

The project would not require the construction of new or expanded energy production facilities or infrastructure, the construction of which could cause significant environmental impacts. (No Impact)

Based on the minimal energy use identified in Impacts ENERGY-1 and ENERGY-2, no expanded energy production facilities would be anticipated, therefore, the project would have **no impact** from the construction of energy production facilities.

[29] Illingworth & Rodkin, Inc., *Cypress Point Affordable Housing Project Air Quality & Greenhouse Gas Emissions Assessment*, June 29, 2018.

MITIGATION MEASURES ENERGY-4

None required.

CUMULATIVE IMPACTS

While the project would incrementally contribute, in addition to other cumulative projects, to the regional demand for energy (electricity, natural gas, gasoline, and diesel fuel), the project's energy impacts would not be individually considerable. As indicated in IMPACT ENERGY-2, the project's annual electricity usage would represent approximately 0.00039 percent of PG&E's electricity sales in 2017 and the project's natural gas usage would represent approximately 0.000670 percent of PG&E's natural gas sales in 2017. Electricity and natural gas are provided to end users on demand, and delivery amount is a function of use. During peak usage, more of the utility can be made available to users in order to avoid any potential outages. While the management of energy resources is a Statewide challenge, and cumulative demand for such resources could be considered cumulatively significant, the project's energy consumption is small and it includes many features that would minimize energy consumption. Therefore, the project's contribution to energy demand would not be cumulatively considerable and the project's cumulative impact to energy resources would be a **less-than-significant impact**.

Further, the Plan Bay Area 2040 Draft Environmental Impact Report (Metropolitan Transportation Commission/Association of Bay Area Governments 2017) contains an analysis of the impact of growth and transportation improvements in the 9-county Bay Area, including San Mateo County. This analysis is cumulative by its nature, and concludes that implementation of the plan "would not result in wasteful, inefficient, or unnecessary consumption of energy, during project construction or operation." Therefore, the cumulative impact related to energy from all Bay Area growth would be less than significant, and the Cypress Point project would not change that determination.