

4.5 Energy

4.5.1 Introduction

This section evaluates the potential for the proposed project, which includes the Housing Element Update (HEU), the Stanford Community Plan (SCP) update, and related rezonings (collectively, the “project”) to result in substantial adverse effects related to energy resources. Below, the Environmental Setting portion of this section includes descriptions of existing conditions relevant to energy use. Further below, existing plans and policies relevant to energy conservation associated with implementation of the project are provided in the Regulatory Setting section. Finally, the impact discussion evaluates potential impacts to energy resources that could result from implementation of the project in the context of existing conditions.

Notice of Preparation Comments

A Notice of Preparation (NOP) for the Draft EIR was circulated on August 8, 2022, and a scoping meeting was held on August 23, 2022. A revised NOP reflecting changes to the project’s list of opportunity sites was circulated on March 21, 2023. Both NOPs circulated for a period of 30 days, and the NOPs and the comments received during their respective comment periods can be found in **Appendix A** of this EIR. No comments relating to energy were received during either NOP comment period.

Information Sources

The primary sources of information referenced in this section included those listed below. Please note that a full list of references for this topic can be found at the end of this section.

- Santa Clara County General Plan (1994).
- Stanford University Community Plan (2000).

4.5.2 Environmental Setting

State Energy Profile

In 2020, total energy usage in California was 7,070 trillion British thermal units (BTU) (the most recent year for which these specific data are available), which equates to an average of 198 million BTU per capita per year. These figures place California second among the 50 states and the District of Columbia in total energy use and 48th in per-capita consumption. Of California’s total energy usage, the breakdown by sector is roughly 34 percent transportation, 24.6 percent industrial, 19.6 percent commercial, and 21.8 percent residential (United States Energy Information Administration [USEIA], 2023).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, coal, and nuclear gas generation resources. Approximately 70 percent of the electrical power needed to meet California’s demand is produced in the state; the balance,

approximately 30 percent, is imported from the Pacific Northwest and the Southwest. In 2020, California’s in-state electricity use was derived from natural gas (48 percent); coal (< 1 percent); large hydroelectric resources (9 percent); nuclear sources (9 percent); renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (33 percent) (CEC, 2023a). **Table 4.5-1** summarizes the statewide and regional usage.

**TABLE 4.5-1
 EXISTING ANNUAL STATE AND REGIONAL ENERGY USE**

| Energy Type | Amount |
|--|--|
| Electricity (State/PG&E service area) ^a | 280,738 GWh / 78,588 GWh |
| Natural Gas (State/PG&E service area) ^a | 1,232,858,394 MMBTU / 450,746,500 MMBTU |
| Gasoline (Statewide/Santa Clara County) ^b | 12,572 million gallons / 599 million gallons |
| Diesel (Statewide/ Santa Clara County) ^b | 3,559 million gallons / 99 million gallons |

NOTES:

MMBTU = million British thermal units; MWh = megawatt-hours; PG&E = Pacific Gas and Electric Company.

SOURCES: ^a CEC, 2023b; ^b CEC, 2022a

Electricity

Electricity, as a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of resources—including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources—into useable energy. The delivery of electricity involves several system components for distribution and use. Electricity is distributed through a network of transmission and distribution lines commonly called a power grid.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours. For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 watt-hours. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 watt-hours or 1 kilowatt-hour. On a utility scale, the capacity of a generator is typically rated in megawatts (MW), which is 1 million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours, which is one billion watt-hours.

Beginning in April 2017, unincorporated Santa Clara County communities started receiving 100 percent carbon-free electricity from Silicon Valley Clean Energy (SVCE), a non-profit, public agency, formed in 2016 by twelve South Bay communities, including Santa Clara County, to source clean electricity. Customers with existing PG&E accounts are automatically enrolled in SVCE's GreenStart electric generation service, which is 100 percent carbon-free. The energy is sourced from 50 percent renewables such as wind and solar, and 50 percent from large hydro. For a small premium, residents may also choose to upgrade to GreenPrime to receive 100 percent renewable and 100 percent carbon-free power (County of Santa Clara, 2022). See **Table 4.5-2**, which summarizes SVCE’s power mix and compares it with the 2019 overall power mix for the state.

**TABLE 4.5-2
SVCE & PG&E 2020 POWER CONTENT LABELS**

| Energy Resources | SVCE GreenPrime | SVCE GreenStart | 2020 CA Power Mix |
|----------------------------------|-----------------|-----------------|-------------------|
| Eligible Renewables ^a | 100.0% | 42.5% | 33.1% |
| <i>Biomass & Biowaste</i> | 0.0% | 2.8% | 2.5% |
| <i>Geothermal</i> | 0.0% | 1.9% | 4.9% |
| <i>Eligible Hydroelectric</i> | 0.0% | 5.2% | 1.4% |
| <i>Solar</i> | 75.0% | 18.3% | 13.2% |
| <i>Wind</i> | 25.0% | 14.3% | 11.1% |
| Coal | 0.0% | 0.0% | 2.7% |
| Large Hydroelectric | 0.0% | 47.5% | 12.2% |
| Natural Gas | 0.0% | 0.0% | 37.1% |
| Nuclear | 0.0% | 9.5% | 9.3% |
| Other | 0.0% | 0.3% | 0.2% |
| Unspecified Power ^b | 0.0% | 0.2% | 5.4% |
| TOTAL | 100.0% | 100.0% | 100.0% |

NOTES:

- a. The eligible renewable percentage above does not reflect Renewables Portfolio Standard (RPS) compliance, which is determined using a different methodology.
- b. Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

SOURCES: SVCE, 2021.

Although SVCE procures this power, Pacific Gas & Electricity (PG&E) continues to deliver electricity over existing power lines, maintain the lines, send bills, and provides customer service. Customers may also opt out of enrolling in SVCE and remain on PG&E's bundled service.

PG&E's electricity distribution system consists of electric distribution lines and interconnected transmission lines. PG&E's service area stretches 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 providing service to 5.5 million electric customer accounts and 4.5 million natural gas customer accounts (PG&E, 2023a). PG&E produces and purchases energy from a mix of conventional and renewable generating sources. Approximately 31 percent of PG&E's 2020 electricity purchases were from renewable sources, as shown in Table 4.5-2 (PG&E, 2023b). Refer to Table 4.5-1 for a summary of electricity use in the state and PG&E service area.

Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs and delivered through high-pressure transmission pipelines. Natural gas provides almost one-third of California's total energy requirements and is measured in terms of both cubic feet and BTU.

PG&E’s natural gas pipe delivery system includes distribution pipelines and transportation pipelines that deliver gas originating from gas fields in California, the U.S. Southwest, the U.S. Rocky Mountains, and Canada to storage facilities and eventually to individual businesses or residences. PG&E provides natural gas transportation services to “core” customers and to “non-core” customers (industrial, large commercial, and natural gas–fired electric generation facilities) that are connected to its gas system in its service territory. Core customers can purchase natural gas procurement service (natural gas supply) from either PG&E or non-utility third-party gas procurement service providers (referred to as “core transport agents”). When core customers purchase gas supply from a core transport agent, PG&E still provides gas delivery, metering, and billing services to those customers. When PG&E provides both transportation and procurement services, PG&E refers to the combined service as “bundled” natural gas service.

PG&E does not provide procurement service to non-core customers, who must purchase their gas supplies from third-party suppliers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E’s backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to off-system customers (i.e., outside of PG&E’s service territory) and to third-party natural gas storage customers. 2020 natural gas usage for the state and the PG&E service region are also shown in Table 4.5-1.

Transportation Energy

In 2022, 13.6 billion gallons of gasoline and 3.17 billion gallons of diesel fuel were consumed in California (CDTFA, 2023a; CDTFA, 2023b). Petroleum-based fuels currently account for more than 85 percent of ground transportation fuel use in California (USEIA, 2021).

The State is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce vehicle miles traveled (VMT) and reduce air pollutants and GHG emissions from the transportation sector. Accordingly, total gasoline consumption in California has declined. According to fuel sales data from the California Energy Commission (CEC), fuel consumption in Santa Clara County was approximately 599 million gallons of gasoline and 99 million gallons of diesel fuel in 2021 (CEC, 2022a). Refer to Table 4.5-1 for a summary of statewide fossil fuel consumption in 2020.

4.5.3 Regulatory Setting

Federal

Corporate Average Fuel Economy Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. Congress has specified that

CAFE standards must be set at the “maximum feasible level” with consideration given to (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) the need for the nation to conserve energy.¹

In August 2012, standards were adopted for model years 2017 through 2025 for passenger cars and light-duty trucks. According to U.S. EPA, a model year 2025 vehicle would emit half the greenhouse gas (GHG) emissions of a model year 2010 vehicle (U.S. EPA, 2012). Notably, the State of California harmonized its vehicle efficiency standards through 2025 with the federal standards at this time (refer to Section 2.2.13, California Air Resources Board *Advanced Clean Cars Program*).

In August 2018, U.S. EPA and the National Highway Traffic Safety Administration proposed maintaining the 2020 corporate average fuel economy and carbon dioxide (CO₂) standards for model years 2021 through 2026. The estimated corporate average fuel economy and CO₂ standards for model year 2020 vehicles are 43.7 miles per gallon (mpg) and 204 grams of CO₂ per mile for passenger cars and 31.3 mpg and 284 grams of CO₂ per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. In September 2019, U.S. EPA finalized the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program and announced its decision to withdraw the Clean Air Act preemption waiver granted to the State of California in 2013 (U.S. EPA & NHTSA, 2019). However, on March 9, 2022, U.S. EPA reinstated California’s authority under the Clean Air Act to implement its own GHG emissions standards and mandate for zero-emission vehicle sales (U.S. EPA, 2022).

State

Warren-Alquist Act

In 1974, the California Legislature enacted the Warren-Alquist Act, which led to the creation of the California Energy Commission (CEC). This law also incorporated the following three key provisions designed to address energy demand:

- The Warren-Alquist Act directed the CEC to formulate and adopt the nation’s first energy conservation standards for buildings constructed and appliances sold in California.
- The law removed the responsibility for 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.

¹ For more information on the CAFE standards, refer to <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy>.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) is a state agency, created by a constitutional amendment that regulates privately owned utilities providing telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation services, and in-state moving companies. CPUC is responsible for assuring that California utility customers have safe, reliable utility services at reasonable rates, while protecting customers from fraud. CPUC regulates the planning for and approval of the physical construction of electric generation, transmission, and distribution facilities, and local distribution pipelines for natural gas.

California Energy Commission

The CEC is the primary energy policy and planning agency in California. Created by the California Legislature in 1974, the CEC has five major responsibilities: (1) Forecast future energy needs and keep historical energy data; (2) license thermal power plants 50 megawatts or larger; (3) promote energy efficiency through appliance and building standards; (4) develop energy technologies and support renewable energy; and (5) plan for and direct the state response to energy emergencies.

Senate Bill 1389

Senate Bill (SB) 1389 (PRC Sections 25300–25323) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the electricity, natural gas, and transportation fuel sectors in California, and to provide policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state economy; and protect public health and safety (PRC Section 25301(a)).

The 2019 Integrated Energy Policy Report provides the results of CEC assessments on a variety of energy issues facing California:

- Energy efficiency;
- Strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan;
- Building energy efficiency standards;
- The impact of drought on California’s energy system;
- Achieving 50 percent renewables by 2030;
- The California Energy Demand Forecast;
- The Natural Gas Outlook;
- The Transportation Energy Demand Forecast;
- Alternative and Renewable Fuel and Vehicle Technology Program benefits updates;
- An update on electricity infrastructure in Southern California;
- An update on trends in California sources of crude oil;
- An update on California nuclear plants; and

- Other energy issues.

California Global Warming Solutions Act of 2006 and Senate Bill 32

In 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code, division 25.5), which focused on reducing GHG emissions in California to 1990 levels by 2020. Under Health and Safety Code division 25.5, the California Air Resources Board (CARB) has the primary responsibility for reducing GHG emissions in California; however, AB 32 also tasked the CEC and CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector.

In 2016, Governor Jerry Brown signed SB 32 and its companion bill, AB 197. SB 32 and AB 197 amended Health and Safety Code Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030, with provisions to ensure that the benefits of state climate policies reach into disadvantaged communities. Refer to Section 4.7, *Greenhouse Gas Emissions*, for additional details regarding these statutes.

Assembly Bill 117 and Senate Bill 790

In 2002, the State of California enacted AB 117, enabling public agencies and joint powers authorities to form Community Choice Aggregation programs. SB 790 strengthened the provisions of AB 117 by creating a “code of conduct” to which the incumbent utilities must adhere in their activities relative to these programs. A Community Choice Aggregation program allows a city, county, or group of cities and counties to pool electricity demand and purchase or generate power on behalf of customers within their jurisdictions to provide local choice. Community choice aggregators work with PG&E to deliver power to its service area. The community choice aggregator is responsible for electricity generation (procuring or developing power) while PG&E is responsible for the delivery of electricity, power line maintenance, and monthly billing.

Senate Bills 1078, 350 and 100

The State of California adopted standards to increase the percentage of electricity that retail sellers, including investor-owned utilities and community choice aggregators, must provide from renewable resources. The standards are referred to as the Renewables Portfolio Standard (RPS). The standards reduce use of non-renewable energy sources, thereby reducing GHG emissions and other negative impacts that are associated with use of non-renewable, finite energy sources. California’s RPS program was established in 2002 by SB 1078, with the initial requirement that 20 percent of electricity retail sales be served by renewable resources by 2017. The program was accelerated in 2015 with SB 350, which mandated a 50 percent RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires that 65 percent of RPS procurement be derived from long-term contracts of 10 or more years.

On September 10, 2018, Governor Brown signed SB 100, which further increased the California RPS and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024; 52 percent by

December 31, 2027; and 60 percent by December 31, 2030. SB 100 also specifies that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

CPUC and the CEC jointly implement the RPS program. The responsibilities of the CPUC are to: (1) determine annual procurement targets and enforce compliance; (2) review and approve the renewable energy procurement plan of each investor-owned utility; (3) review contracts for RPS-eligible energy; and (4) establish the standard terms and conditions used in contracts for eligible renewable energy (CPUC, 2023).

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted the Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling to reduce public exposure to emissions of diesel particulate matter (California Code of Regulations [CCR] title 13, section 2485 [13 CCR section 2485]). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure prohibits diesel-fueled commercial vehicles from idling for more than five minutes at any given location. The primary goal of this regulation is to reduce public health impacts from diesel emissions, but compliance with the measure also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

California Building Standards Code (Title 24, Parts 6 and 11)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR] Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2022 Title 24 standards, which became effective on January 1, 2023. This update to the building code provides crucial steps in the state's progress toward 100 percent clean carbon neutrality by midcentury (CEC, 2022b). The 2022 Energy Code builds on California's technology innovations, encouraging energy efficient approaches to encourage building decarbonization, emphasizing in particular on heat pumps for space heating and water heating. This set of Energy Codes also strengthens ventilation standards to improve indoor air quality and extends the benefits of photovoltaic and battery storage systems and other demand flexible technology to work in combinations with heat pumps to enable California buildings to be responsive to climate change. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code. The Energy Code includes measures that will reduce energy use in single family, multifamily, and nonresidential buildings. These measures will:

1. Affect newly constructed buildings by adding new prescriptive and performance standards for electric heat pumps for space conditioning and water heating, as appropriate for the various climate zones in California;

2. Require photovoltaic (PV) and battery storage systems for newly constructed multifamily and selected nonresidential buildings;
3. Update efficiency measures for lighting, building envelope, HVAC; and
4. Make improvements to reduce the energy loads of certain equipment covered by (i.e., subject to the requirements of) the Energy Code that perform a commercial process that is not related to the occupant needs in the building (such as refrigeration equipment in refrigerated warehouses, or air conditioning for computer equipment in data processing centers).

CCR Title 24, Part 11 is commonly referred to as the CALGreen Code. The 2022 CALGreen Code that took effect on January 1, 2023, included new mandatory measures including Electric Vehicle (EV) charging requirements for residential and non-residential buildings (CBSC, 2022). The 2022 CALGreen update simplifies the code and its application in several ways. It offers new voluntary prerequisites for builders to choose from, such as battery storage system controls and heat pump space, and water heating, to encourage building electrification. While the previous 2019 CALGreen Code only requires provision of EV Capable spaces with no requirement for chargers to be installed at multifamily dwellings, the 2022 CALGreen code mandates chargers (CBSC, 2022).

California Air Resources Board Advanced Clean Trucks Program

On June 25, 2020, CARB adopted the Advanced Clean Trucks rule, which requires truck manufacturers to transition from diesel vehicles to electric zero-emission vehicles beginning in 2024, with the goal of reaching 100 percent zero-emission vehicles by 2045. The goal of the legislation is to help California meet its climate targets of a 40 percent reduction in GHG emissions and a 50 percent reduction in petroleum use by 2030, and an 80 percent reduction in GHG emissions by 2050.

Truck manufacturers will be required to sell zero-emission vehicles as an increasing percentage of their annual sales from 2024 through 2035. Companies with large distribution fleets (50 or more trucks) will be required to report information about their existing fleet operations to identify future strategies for increasing zero-emission fleets statewide (CARB, 2021).

Zero-emission vehicles are two to five times more energy efficient than diesel vehicles, and the Advanced Clean Trucks rule will reduce GHG emissions with the co-benefit of reducing dependence on petroleum fuels.

California Air Resources Board Advanced Clean Car Program

The Advanced Clean Cars emissions-control program, approved by CARB in 2012, is closely associated with the Pavley regulations. The program requires the production of a greater number of zero-emissions vehicle models for years 2015 through 2025, to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle regulations, intended to reduce emissions of criteria air pollutants and GHGs from light- and medium-duty vehicles; and the Zero-Emissions Vehicle regulations, which require manufacturers to produce an increasing number of pure zero-emissions vehicles (battery and fuel cell electric vehicles) and include the provision to produce plug-in hybrid electric vehicles between 2018 and 2025. The increase in

low- and zero-emissions vehicles will result in a decrease in the consumption of non-renewable fuels such as gasoline and diesel. The Advanced Clean Cars II regulations were adopted in 2022, imposing the next level of low-emission and zero-emission vehicle standards for model years 2026-2035 that contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality targets. By 2035 all new passenger cars, trucks and SUVs sold in California will be zero emissions (CARB, 2023).

California Environmental Quality Act

Under CEQA (PRC Section 21100(b)(3)), EIRs are required to discuss the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. If the analysis of a proposed project shows that the project may result in significant environmental effects due to the wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, then the EIR must identify mitigation measures to address that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include project size, location, orientation, equipment use, and any renewable energy features that could be incorporated into the project (CEQA Guidelines Section 15126.2(b)).

CEQA Guidelines Appendix F lists the energy-related topics that should be analyzed in an EIR, and more specifically identifies the following topics for consideration in the evaluation of energy impacts in an EIR, to the extent the topics are applicable or relevant to the proposed project:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base-period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.²

The effects of the project relevant to each of these issues are addressed later in this section of this EIR.

² CEQA Guidelines Appendix F(II)(C).

Regional

Plan Bay Area

The Metropolitan Transportation Commission (MTC) is the federally recognized Metropolitan Planning Organization for the nine-county Bay Area, which includes Santa Clara County. On July 18, 2013, *Plan Bay Area* was jointly approved by ABAG's Executive Board and the MTC (MTC & ABAG, 2013). On July 26, 2017, the MTC adopted *Plan Bay Area 2040*, a focused update that builds upon the growth pattern and strategies developed in the original *Plan Bay Area*, but with updated planning assumptions that incorporate key economic, demographic, and financial trends since the original plan was adopted (MTC & ABAG, 2017). Further, in October 2021, MTC and ABAG adopted *Plan Bay Area 2050*, which is now the official long-range plan that addresses housing, the economy, transportation, and the environment in the Bay Area through the implementation of 35 strategies, including those that address energy use both directly and indirectly through the promotion of greener buildings and use of alternative modes of transportation (MTC & ABAG, 2021).

Local

Santa Clara County General Plan

The Santa Clara County General Plan is a comprehensive long-range general plan for the physical development of the unincorporated areas of Santa Clara County (County of Santa Clara, 1994). The General Plan contains the current County of Santa Clara Housing Element, which was adopted in 2015. The various elements within the General Plan include goals and policies for the physical development of unincorporated Santa Clara County. General Plan strategies and policies related to energy resources and relevant to implementation of the project are listed below.

Strategy 1: Reduce transportation energy demand and oil-dependency.

Policy C-RC-79: Energy use and fossil fuel dependency in the transportation sector should be reduced by the following general means:

- a. growth management policies and implementation to minimize increases in the extent of the urbanized area and to promote balanced, compact urban development;
- b. land use and development standards which support alternative transportation modes;
- c. travel demand management, TDM, and transportation system operational efficiency;
- d. expanded transit service; and
- e. increased availability and use of alternative fuels.

Policy C-RC-80: Sub-regional/countywide planning for Santa Clara County should place major emphasis on the inter-related goals, strategies and policies for improving energy efficiency in transportation, air quality, and reducing traffic congestion.

Strategy 2: Conserve energy in residential and other sectors.

Policy C-RC-81: Energy conservation in existing buildings and homes, particularly those pre-dating adoption of energy-efficiency building code standards, should be improved and encouraged.

Policy C-RC-82: Alternatives to non-renewable energy sources should be encouraged and implemented in the design of new buildings and incorporated in the redesign and reconstruction of older buildings.

Policy C-RC-83: Industrial and agricultural processes should be modified wherever feasible to take advantage of energy savings, to reduce operational costs, and to enhance competitiveness.

Strategy 3: Increase consumer and general public awareness through education.

Policy C-RC-84: Countywide efforts to promote energy efficiency and conservation awareness should be continued and coordinated through public utilities, community organizations, the educational system, industries, and government. Direction and assistance of local gas and electric utilities should be sought in the development of education programs.

Stanford University Community Plan

The current Stanford University Community Plan was adopted in 2000 (County of Santa Clara, 2000). The primary purpose of the Community Plan is to guide future use and development of Stanford lands in a manner that incorporates key County General Plan principles of compact urban development, open space preservation, and resource conservation. The Community Plan was adopted as an amendment of the General Plan in the manner set forth by California Government Code Section 65350 et seq. Any revisions to the Community Plan must also be made according to the provisions of State law for adopting and amending general plans. The Community Plan contains no additional community strategies and policies related to energy resources and relevant to implementation of the project.

Santa Clara County Reach Codes

Recognizing that the most cost effective and low-risk ways to reduce GHG emissions is through electrification of buildings coupled with encouraging the use of EVs, on December 7, 2021, the County Board of Supervisors approved Ordinance NS-1100.135 (County of Santa Clara, 2021) amending the 2019 California Green Building Code to require building electrification and EV infrastructure in all new construction in unincorporated Santa Clara County. The ordinance requires all new construction to use electricity (not natural gas) for water heating, space heating, cooking, clothes drying, indoor and outdoor fireplaces, and decorative appliances. Known as “reach codes,” these ordinances go beyond state minimum requirements to require rather than encourage electrification of buildings. New dwellings are also required to have wiring installed that will facilitate installation of battery storage for additional resiliency, cost-effectiveness, and environmental sustainability. The ordinance went into effect on February 14, 2022, and applies to all building uses with limited exceptions for accessory dwelling units that are contained entirely within a single-family residence that has existing infrastructure such as natural gas piping, hospitals, and correctional facilities; and buildings in which all-electric appliances are not feasible. All exempted buildings will be required to be pre-wired for transition to all-electric in the future. High-rise residential buildings will also be required to have a solar panel system installed.

The ordinance also includes EV infrastructure standards for new construction. Requirements for EV infrastructure range from a minimum of two EV outlets for single-family homes and townhouses to high-capacity charging systems and parking lot spaces reserved for charging use in larger non-residential projects.

4.5.4 Environmental Impacts and Mitigation Measures

Significance Thresholds

The thresholds used to determine the significance of impacts related to energy are based on Appendix G of the *CEQA Guidelines*. Implementation of the proposed project would have a significant impact on the environment if it would:

- Cause wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Methodology and Assumptions

This analysis considers the State CEQA Guidelines Appendix G thresholds, as described above, in determining whether the project's implementation would result in the inefficient, wasteful, or unnecessary use of energy. The evaluation is based on a review of regulations and their applicability to the project. As discussed earlier, there are several plans and policies at the federal, state, and local levels to increase energy conservation and the use of renewable energy. Consistency with these regulations would also ensure that the project would not result in the inefficient, wasteful, or unnecessary use of energy.

Impacts and Mitigation Measures

Impacts

Impact EN-1: Implementation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction and operation. (*Less than Significant Impact*)

Housing Element Update and Stanford Community Plan Update

The construction and operation facilitated by the project, which would allow for greater densities than currently allowed within unincorporated Santa Clara County would increase energy consumption, as described below. Future development facilitated by the project would be subject to permitting requirements and may also involve project-level environmental review.

Construction

Energy use during future construction would primarily occur in association with fuel use for construction equipment and vehicle operation. Energy use would vary throughout the construction period of projects based on the construction activities being performed and would

cease upon the completion of construction. Fuels used for construction would typically include diesel and gasoline; use of natural gas and electricity would be minimal.

Heavy-duty equipment associated with construction during development allowed by the project would most likely rely on diesel fuel, as would vendor trucks involved in delivery of materials to the individual construction sites and haul trucks exporting demolition material or other materials off site. Construction workers would travel to and from each of the parcels within each of the housing opportunity sites throughout the duration of construction. Construction worker trips in light-duty vehicles would primarily be gasoline-powered. All development proposed under the project would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate, or that the fleet has met the Best Achievable Control Technology requirements.

Construction activities would use fuel-efficient equipment consistent with federal and state regulations, such as fuel efficiency regulations in CARB's Pavley Phase II standards; the anti-idling regulation in 13 CCR Section 2485; and fuel requirements for stationary equipment in 17 CCR Section 93115 (concerning the Airborne Toxic Control Measures). In accordance with 13 CCR Sections 2485 and 2449, idling by commercial vehicles over 10,000 pounds and off-road equipment over 25 horsepower would be limited to a maximum of five minutes. The intent of these regulations is to reduce construction emissions; however, compliance with the anti-idling and emission reduction regulations discussed above would also result in fuel savings from the more efficient use of equipment.

The diesel and gasoline use for construction activities would be temporary and constitute a small fraction of the regional usage; therefore, the construction energy demand of the project would be within the infrastructure service capabilities of regional suppliers and would not require additional local or regional capacity.

Overall, construction activities associated with development allowed by the project would not be unusual compared to overall local and regional demand for energy resources and would not involve characteristics that require equipment that would be less energy-efficient than at comparable construction sites in the region or state. Given required compliance with rules and regulations in place, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy during construction. Therefore, impacts would be less than significant, and no mitigation is required.

Operation

Consistent with the County’s Reach Code, future housing development would be constructed as all electric. Electricity would be used for operational building energy uses including but not limited to, lighting, appliances, air conditioning, space heating, and water heating. Natural gas Prior to development at individual parcel sites, applicants would be required to ensure that proposed development would meet Title 24 requirements applicable at that time, as required by state regulations through their plan review process. Title 24 reduces energy use in residential and commercial buildings through progressive updates to both the Green Building Standards Code (Title 24, Part 11) and the Energy Efficiency Standards (Title 24, Part 6). Title 24 standards are updated periodically (every 3 years). Provisions added to Title 24 over the years include consideration and incorporation of new energy efficiency technologies and methods for building features such as space conditioning, water heating, and lighting, as well as construction waste diversion goals. Additionally, some standards focus on larger energy-saving concepts such as reducing loads at peak periods and seasons, improving the quality of energy-saving installations, and performing energy system inspections.

Past updates to the Title 24 standards have proven effective in reducing building energy use; the 2013 update to the energy efficiency standards was estimated to reduce energy consumption in residential buildings by 25 percent relative to the 2008 standards (CEC, 2012). The 2019 Title 24 standards further reduced energy use compared to the 2016 standards, with single-family residential savings of 79 percent for electricity and 9 percent for natural gas. For low-rise multi-family buildings, savings are 79 percent for electricity and 5 percent for natural gas by requiring photovoltaic (PV) systems for new low-rise residential buildings under three stories (CEC, 2018).

As discussed in Section 4.5.3, *Regulatory Setting*, the County has adopted Reach Codes for new residential development that would reduce natural gas use, increase electricity use, and increase on-site solar energy production. All new residential buildings are required to be constructed as “all electric” buildings and produce a minimum amount of on-site solar energy (County of Santa Clara, 2021). The only residential exception to the “all electric” requirement would be for junior accessory dwelling units added to existing mixed-fuel buildings, which are not proposed by the project. Ultimately, at least in the Bay Area, the move towards all-electrification is also driven by the Bay Area Air Quality Management District’s (BAAQMD) updated threshold that stipulates that any new natural gas use in the District constitutes a significant impact that cannot be mitigated. As a result, compliance of housing projects proposed under the project with the “all electric” requirement in the County’s Reach Code would ensure that all future projects proposed for development under the project would be consistent with the BAAQMD’s updated GHG thresholds.

With respect to vehicle usage, vehicle trips generated by housing development allowed by the project would increase the use of transportation fuels, primarily gasoline and diesel. Enhanced fuel economies realized pursuant to federal and state regulatory actions such as increasingly stringent CAFE/Pavley standards for vehicle fuel efficiency, and transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would decrease future gasoline fuel demands per VMT. Additionally, the location of the many parcels identified for development by the project that are proximate to regional and local transit facilities reduces

VMT within the region, acting to also reduce regional vehicle energy demands. The result is seen as a reduction in the countywide VMT per capita with full implementation of the project. Therefore, transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary and the project would be consistent with regulations to reduce transportation energy use.

Conclusion

Through compliance with the regulatory requirements in place and cited above and also discussed under **Impact EN-2** below, energy use associated with the construction and operation of housing facilitated by the project would not be considered unnecessary and wasteful. Therefore, the impact would be **less than significant**.

Though the project would not generate a significant impact with respect to energy use, Mitigation Measure AQ-2c, presented in Section 4.3, *Air Quality*, of this EIR, requires the use of cleaner construction equipment meeting the USEPA's Tier 4 Final standards if subsequent projects proposed as part of the project are found to generate construction emissions in excess of BAAQMD's project-level construction thresholds. Newer equipment meeting the Tier 4 Final standards would also be more energy efficient compared to older equipment, which would further reduce energy use during construction.

Mitigation Measures: None required.

Impact EN-2: Implementation of the proposed project update would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (*Less than Significant Impact*)

Construction

All development proposed under the project would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate, or that the fleet has met the Best Achievable Control Technology requirements.

Construction activities would use fuel-efficient equipment consistent with federal and state regulations, such as fuel efficiency regulations in CARB's Pavley Phase II standards; the anti-idling regulation in 13 CCR Section 2485; and fuel requirements for stationary equipment in 17 CCR Section 93115 (concerning the Airborne Toxic Control Measures). In accordance with 13 CCR Sections 2485 and 2449, idling by commercial vehicles over 10,000 pounds and off-road equipment over 25 horsepower would be limited to a maximum of five minutes. The intent of

these regulations is to reduce construction emissions; however, compliance with the anti-idling and emission reduction regulations discussed above would also result in fuel savings from the more efficient use of equipment.

Operation

Implementation of development allowed by the project update would occur between 2023 and 2040. Thus, further energy use reductions beyond the current 2022 standards can be anticipated from future Title 24 code revision cycles, as building permits are issued at future dates corresponding to those code updates. Goals and policies encouraged by the County, including those set forth in the General Plan; as well as adherence to the County's Reach Codes also support increased energy conservation in new development, such as that which would occur under the project. These requirements would increase onsite energy generation, decrease the amount of energy required for building operation, and ensure that building energy use related to development facilitated by the project would not be inefficient or wasteful and would comply with applicable regulations and energy efficiency goals.

In addition, as part of the RPS program detailed earlier, electric utilities including investor-owned utilities and community choice aggregators are required to increase the percentage of electricity provided from renewable resources. Though the RPS program does not necessarily increase energy efficiency, implementation of this program reduces use of non-renewable energy sources. The legislation requires utilities to increase the percentage of electricity obtained from renewable sources to 33 percent by 2020 and 50 percent by 2030. SB 100 furthered these standards to require electric utilities to procure eligible renewable electricity for 44 percent of retail sales by 2024, 52 percent by 2027, and 60 percent by December 2030. SB 100 also specifies that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045. CPUC and the CEC jointly implement the RPS program and PG&E and SVCE, the electric utility providers to Santa Clara County, are required to adhere to these standards and deadlines. As such development facilitated by the project would be consistent with these regulations.

Conclusion

As development under the project would be required to implement the regulatory requirements discussed above, construction and operation of housing facilitated by the project would be consistent with all applicable plans, policies and regulations developed to encourage energy conservation and renewable energy use. The impact would be **less than significant**.

Though the project update would not generate a significant impact with respect to compliance with state or local plans for renewable energy or energy efficiency, future development under the project would implement Mitigation Measures GHG-1a and GHG-1b. As discussed in section 4.7, *Greenhouse Gas Emissions*, subsequent development projects proposed under the project would implement Mitigation Measure GHG-1a, which states that future development under the project shall not be eligible for exceptions from the "all electric" requirement in the County's Reach Codes, and Mitigation Measure GHG-1b, which states that subsequent development under the project would comply with the EV charging requirements in the most recently adopted

version of CALGreen Tier 2 at the time the building permit application is filed. These measures ensure that all future projects proposed for development under the project would be consistent with the BAAQMD's updated GHG thresholds and would further reduce use of gasoline and diesel fuels during operation.

Mitigation Measures: None required.

Cumulative Impacts

This section presents an analysis of the cumulative effects of the project in combination with other past, present, and reasonably foreseeable future projects that could cause cumulatively considerable impacts. Significant cumulative impacts related to energy resources could occur if the incremental impacts of the project combined with the incremental impacts of one or more of the cumulative projects or cumulative development projections included in the project description and described in Section 4.0.3, *Cumulative Impacts*.

Cumulative impacts of the project related to the wasteful, inefficient, or unnecessary consumption of energy during construction and operation and the potential to conflict with or obstruct adopted energy conservation plans or violate energy efficiency standards would be the same as discussed for the project above. Energy consumption effects related to individual projects are localized and would not combine with similar effects in other locations. However, contributed growth in the Santa Clara County and throughout PG&E and SVCE's service areas could contribute to ongoing increases in demand for electricity and natural gas, which are discussed below.

Impact EN-3: Implementation of the proposed project, when combined with other past, present, or reasonably foreseeable projects, would not in result energy use that would be considered wasteful and unnecessary, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency under cumulative conditions. (*Less than Significant Impact*)

The project, in conjunction with cumulative development in the County, would increase housing in an already developed area and result in increased energy consumption. Potential impacts to energy resources from future development would be site-specific and would require applications for development permits that would be evaluated on a case-by-case basis. Additionally, any future development would be subject to compliance with all federal, state, and local requirements for energy efficiency, including the California Energy Code Building Energy Efficiency Standards (CCR Title 24, Part 6), the CALGreen Code (CCR Title 24, Part 11), and SB 743. Consequently, future development, including development facilitated by the project, would not result in significant environmental impacts from the wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation, and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the cumulative energy impact would be **less than significant**.

Mitigation Measures: None required.

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