

5.6 ENERGY

This chapter describes the potential energy impacts due to the buildout of the General Plan Update and Upper Ridge Community Plan (URCP) in the County. This section describes the regulatory framework and existing conditions, identifies criteria used to determine impact significance, provides an analysis of the potential energy impacts, and identifies proposed project policies and strategies and feasible mitigation measures that could minimize any potentially significant impacts.

5.6.1 ENVIRONMENTAL SETTING

5.6.1.1 REGULATORY FRAMEWORK

Federal Regulations

Federal Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 was established in response to the 1973 oil crisis. The act created the Strategic Petroleum Reserve, established vehicle fuel economy standards, and prohibited the export of U.S. crude oil (with a few limited exceptions). It also created Corporate Average Fuel Economy (CAFE) standards for passenger cars starting in model year 1978. The CAFE Standards are updated periodically to account for changes in vehicle technologies, driver behavior, and/or driving conditions.

The federal government issued new CAFE standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. In addition, on March 31, 2022, the National Highway Traffic Safety Administration finalized new fuel standards, which will increase fuel efficiency 8 percent annually for model years 2024 to 2025 and 10 percent annual for model year 2026. Overall, the new CAFE standards require a fleet average of 49 MPG for passenger vehicles and light trucks for model year 2026, which will be a 10 MPG increase relative to model year 2021 (NHTSA 2022).

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of the federal government. The act sets increased corporate average fuel economy standards; the renewable fuel standard; appliance energy-efficiency standards; building energy-efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration (USEPA 2022).

Energy Policy Act of 2005

Passed by Congress in July 2005, the Energy Policy Act includes a comprehensive set of provisions to address energy issues. This Act includes tax incentives for energy conservation improvements in commercial and residential buildings, fossil fuel production and clean coal facilities, and construction and operation of

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nuclear power plants, among other things. Subsidies are also included for geothermal, wind energy, and other alternative energy producers.

National Energy Policy

Established in 2001 by the National Energy Policy Development Group, the National Energy Policy is designed to help the private sector and state and local governments promote dependable, affordable, and environmentally sound production and distribution of energy for the future. Key issues addressed by the energy policy are energy conservation, repair and expansion of energy infrastructure, and ways of increasing energy supplies while protecting the environment.

Natural Gas Pipeline Safety Act of 1968

The Natural Gas Pipeline Safety Act of 1968 authorizes the United States Department of Transportation to regulate pipeline transportation of flammable, toxic, or corrosive natural gas and other gases as well as the transportation and storage of liquefied natural gas. The Pipeline and Hazardous Materials Safety Administration within the Department of Transportation develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6-million-mile pipeline transportation system.

State Regulations

Warren-Alquist Act

Established in 1974, the Warren-Alquist Act created the California Energy Commission (CEC) in response to the energy crisis of the early 1970s and the state's unsustainable growing demand for energy resources. The CEC's core responsibilities include advancing State energy policy, encouraging energy efficiency, certifying thermal power plants, investing in energy innovation, developing renewable energy, transforming transportation, and preparing for energy emergencies. The Warren-Alquist Act is updated annually to address current energy needs and issues, and its latest edition was in January 2022.

California Public Utilities Commission

In September 2008, the California Public Utilities Commission (CPUC) adopted the Long-Term Energy Efficiency Strategic Plan, which provides a framework for energy efficiency in California through the year 2020 and beyond. It articulates a long-term vision, as well as goals for each economic sector, identifying specific near-term, mid-term, and long-term strategies to assist in achieving these goals. This Plan sets forth the following four goals, known as Big Bold Energy Efficiency Strategies, to achieve significant reductions in energy demand:

- All new residential construction in California will be zero net energy by 2020.¹
- All new commercial construction in California will be zero net energy by 2030.

¹ Zero net energy buildings are buildings that the total amount of energy used by the building on an annual basis is equal to or less than the amount of renewable energy created on the site.

- Heating, ventilation and air conditioning commonly referred to as “HVAC” will be transformed to ensure that its energy performance is optimal for California’s climate.
- All eligible low-income customers will be given the opportunity to participate in the low-income energy efficiency program by 2020.

With respect to the commercial sector, the Long-Term Energy Efficiency Strategic Plan notes that commercial buildings, which include schools, hospitals, and public buildings, consume more electricity than any other end-use sector in California. The commercial sector’s five billion-plus square feet of space accounts for 38 percent of the State’s power use and over 25 percent of natural gas consumption. Lighting, cooling, refrigeration, and ventilation account for 75 percent of all commercial electric use, while space heating, water heating, and cooking account for over 90 percent of gas use. In 2006, schools and colleges were in the top five facility types for electricity and gas consumption, accounting for approximately 10 percent of State’s electricity and gas use (CPUC 2011).

The CPUC and CEC have adopted the following goals to achieve zero net energy (ZNE) levels by 2030 in the commercial sector:

- **Goal 1.** New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.
- **Goal 2.** 50 percent of existing buildings will be retrofit to zero net energy by 2030 through achievement of deep levels of energy efficiency and with the addition of clean distributed generation.
- **Goal 3.** Transform the commercial lighting market through technological advancement and innovative utility initiatives.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and X1-2 and Executive Order S-14-08

A major component of California’s Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order (EO) S-14-08, signed in November 2008, expanded the state’s renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production decreases indirect greenhouse gas (GHG) emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

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Senate Bill 350

Senate Bill 350 (de Leon) was signed into law in September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consists of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Senate Bill 1020

Senate Bill 1020 (SB 1020) was signed into law on September 16, 2022. It requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent by 2040. Additionally, SB 1020 requires all state agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.

Energy Efficiency

California Building Energy Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018, and went into effect on January 1, 2020.

The 2019 standards move toward cutting energy use in new homes by more than 50 percent and require the installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings are 30 percent more energy efficient than under the 2016 standards, and single-family homes are 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

Furthermore, on August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2021. The 2022 standards become effective and replace the existing 2019 standards on January 1, 2023. The 2022 standards would require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers (CEC 2021).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.² The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2019. The 2019 CALGreen standards became effective on January 1, 2020.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR Sections 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. They contain energy performance, energy design, water performance, and water design standards for appliances (including refrigerators, ice makers, vending machines, freezers, water heaters, fans, boilers, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings) that are sold or offered for sale in California (California Code of Regulations Title 20, Parts 1600–1608). These standards are updated regularly to allow consideration of new energy efficiency technologies and methods.

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the CAFE standards under *Federal*, above). In January 2012, the California Air Resources Board (CARB) approved the Pavley Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under

² The green building standards became mandatory in the 2010 edition of the code.

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California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions (CARB 2017).

Executive Order N-79-20

On September 23, 2020, Executive Order N-79-20 was issued, which sets a time frame for the transition to zero-emissions (ZE) passenger vehicles and trucks in addition to off-road equipment. It directs CARB to develop and propose the following:

- Passenger vehicle and truck regulations requiring increasing volumes of new ZEVs (zero-emission vehicles) sold in the California toward the target of 100 percent of in-state sales by 2035.
- Medium- and heavy-duty vehicle regulations requiring increasing volumes of new ZE trucks and buses sold and operated in California toward the target of 100 percent of the fleet transitioning to ZEVs by 2045 everywhere feasible, and for all drayage trucks to be ZE by 2035.
- Strategies to achieve 100 percent zero emissions from all off-road vehicles and equipment operations in California by 2035, in cooperation with other State agencies, the EPA, and local air districts.

On August 25, 2022, CARB adopted the Advanced Clean Cars II (ACC II) regulations that codifies the EO goal of 100 percent of in-state sales of new passenger vehicles and trucks be ZE by 2035. Starting in year 2026, ACC II requires that 35 percent of new vehicles sold be ZE or plug-in hybrids.

Local Regulations

Butte County General Plan

The following policies are included in the existing General Plan regarding aesthetics. The numbering is from the existing General Plan and therefore may not be consecutive.

Conservation and Open Space Element

- Goal COS-3 Promote a sustainable energy supply.
 - COS-P3.1 The expansion and increased efficiency of hydroelectric power plants in the county shall be encouraged, provided that such plants can be expanded and that significant adverse environmental impacts associated with such plants can be successfully mitigated.
 - COS-P3.2 The development of renewable fuel sources in the county shall be encouraged, provided that such fuel sources can be built or expanded and that significant adverse environmental impacts associated with such development can be successfully mitigated.
 - COS-P3.3 Utility lines shall be constructed along existing utility corridors wherever feasible.
 - COS-P3.4 Solar-oriented and renewable design and grid-neutral development shall be encouraged.

- COS-P3.5 Developers shall give homebuyers the option of having renewable heat and power incorporated into new homes.
- COS-P3.6 Alternative energy sources such as solar shall continue to be used for County facilities, which set an example for others to follow.
- COS-P3.7 Wind power generation facilities, solar power generation facilities, and other alternative energy facilities shall be encouraged in all General Plan land use designations, consistent with zoning provided that significant adverse environmental impacts associated with such development can be successfully mitigated. All new proposed energy projects shall be compatible with the Military Operations Areas (MOAs) shown on Figure LU-5.
- Goal COS-4 Conserve energy and fuel resources by increasing energy efficiency.
 - COS-P4.1 Energy efficiency efforts of local businesses shall be promoted and rewarded.
 - COS-P4.2 The Zoning Ordinance shall incorporate shading requirements for new parking lots as appropriate to relieve the potential for heat islands.
 - COS-P4.3 New development shall meet the guidelines of the California Energy Star New Homes Program, or equivalent, and demonstrate detailed energy conservation measures.
 - COS-P4.4 Site and structure designs for new development projects shall maximize energy efficiency.

Upper Ridge Community Plan

The following policies are included in the existing URCP regarding energy. The numbering is from the plan (see web address for existing URCP) and therefore may not be consecutive.

Hazards Reduction Strategies

- **Strategy HS-1.5:** Work with partner agencies and other organizations to secure grant funding to provide low-cost energy retrofits reducing energy use.
 - Coordinate with North Valley Energy Watch and Community Action Agency of Butte County, Inc. (CAA) to provide financial assistance or reduced costs for energy and ventilation retrofits in residential and commercial buildings.
 - Coordinate with Pacific Gas and Electric (PG&E) and other utility providers to promote programs that reduce energy demand during extreme heat days, including the PG&E Energy Savings Assistance Program.
 - Coordinate with the U.S. Department of Health & Human Services to help residents with home energy bills, energy crises, weatherization, and energy-related minor home repairs through the Low Income Home Energy Assistance Program (LIHEAP).

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Disaster Preparedness and Response Strategies

- **Strategy HS-2.2:** Encourage solar panels and energy storage in homes and commercial buildings to provide backup electricity supply.

Utility Infrastructure Strategies – Power and Communication

- **Strategy UI-4.2:** Encourage the adoption of backup power service for residences and businesses on the Upper Ridge, including installation of rooftop solar and battery backup systems.
- **Strategy UI-4.3:** Evaluate options for providing backup power service to critical communication infrastructure. These options could include a variety of means of providing backup power, such as battery backup power with solar recharge or generator backup power.

5.6.1.2 EXISTING CONDITIONS

Consumption Trends

To facilitate the assessment of local energy consumption patterns, it is useful to determine the types and purposes of energy consumption in Butte County. The energy that is tracked falls under two primary categories: electricity and natural gas. In Butte County specifically, residential land uses used approximately 253.2 million kilowatt-hours of electricity and 5.1 million therms of natural gas in 2019. Nonresidential land uses used approximately 153.4 million kilowatt-hours of electricity and 3.9 million therms of natural gas. This difference between residential and nonresidential electricity and natural gas consumption is relatively standard to other rural communities in California.

Residential

Table 5.6-1, *Butte County Existing Number of Housing Units and Type of Energy Consumed*, shows the types of energy used to heat residential dwellings in Butte County based on US Census data from 2000 and 2019. This data indicates that the use of “utility gas” (another name for natural gas) and wood showed the most significant decreases in use between 2000 and 2019. The use of electricity and “bottle, tank, or LP gas” (another name for propane) both increased during the same time period.

TABLE 5.6-1 BUTTE COUNTY EXISTING NUMBER OF HOUSING UNITS AND TYPE OF ENERGY CONSUMED

Fuel for Space Heating	2000		2019	
	Housing Units	Percent of Total	Housing Units	Percent of Total
Utility gas	44,827	56.34%	38,415	49.47%
Bottled, tank, or LP gas	7,761	9.75%	9,325	12.01%
Electricity	17,020	21.39%	23,199	29.88%
Fuel oil, kerosene, etc.	263	0.33%	67	0.09%
Wood	9,137	11.48%	4,917	6.33%
Solar energy	26	0.03%	934	1.20%
Other fuel	395	0.50%	368	0.47%
No fuel used	137	0.17%	426	0.55%
Total	79,566	100%	77,651	100%

Source: U.S. Census Bureau, 2000 and 2019, Housing Characteristics, Butte County, California.

There are various factors that influence the type and amount of energy consumed in a residential structure. The most important are the type of dwelling units, the size of the structure, the number of occupants and their habits, the weather conditions and time of year, the thermal integrity of the building (level of insulation and number and location of windows), the number of appliances (e.g., washing machine, clothes dryer, and swimming pool), and the type of appliances (e.g., gas versus electric heaters and ranges).

Typically, the most important factors influencing residential energy consumption are the size of the house, the type of house (detached single-family or multifamily structure), and the number of major appliances. A single-family home requires more energy for space heating than a multifamily unit, due to its bigger size and the amount of heat loss through external walls. It also requires more energy for operation of major appliances, as it usually houses more occupants.

Some residential energy needs can be fulfilled by either natural gas or electricity (e.g., space and hot water heating, cooking and clothes drying), while others are most likely dependent on electricity (e.g., lighting, radio, and television). In most homes, space and water heating use the most energy. Air conditioning and the use of major appliances such as ovens, refrigerators, televisions, and clothes dryers are other primary users of energy. In homes with swimming pools or spas, such facilities are usually among the largest energy users (CEC 2010).³

³ California Energy Commission, October 2010, *2009 California Residential Appliance Saturation Study, Volume 2: Results*, <http://web.archive.org/web/20190602112012/https://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-V2.PDF>, accessed on November 9, 2021.

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Commercial

The specific uses of electricity and natural gas in commercial buildings will vary widely depending on the building type. For example, lighting and office equipment are the largest electricity uses in an office building, while the largest share of a restaurant's electricity is spent on refrigeration and cooking. However, on average, the biggest user of electricity in a commercial building is lighting, followed by cooling, refrigeration, and ventilation. The largest natural gas uses in commercial buildings are space heating, water heating, and cooking. All other energy uses in commercial buildings account for approximately 31 percent of electricity use and 9 percent of natural gas use.

Industrial

In contrast to energy consumption in the residential and commercial sectors, industrial patterns of energy consumption depend upon the specific type of industrial operations. The major industrial activities in Butte County are wood processing, manufacturing, and gravel mining.

Energy use within the general category of "industrial processes" includes a number of specific uses.

- A significant portion of industrial gas use is for the purpose of heating water to various temperatures.
- Wood processing and manufacturing industries are high electrical and natural gas users. In general, these industries use electricity for 60 percent of their energy needs and natural gas for the remaining 40 percent.
- Electricity runs motors, conveyor belts, chipping machines, and manufacturing equipment. Natural gas is consumed for space heating and some specific industrial processes.
- In the stone and mineral extraction industry, electricity runs handling and crushing equipment. Drying and additional processing requires natural gas and/or fuel oils.
- The electricity portion of industrial process consumption includes a mixture of lighting, motor operation and the operation of more sophisticated electronic equipment.

Agricultural

Agricultural energy consumption represents a large portion of the total energy consumption in Butte County. As agricultural production continues to evolve, the energy needs in the county will also shift. Electricity is important in the agricultural sector since it is the main source of energy used to operate irrigation pumps, fans and wind-producing machines used to protect fruits from winter frost. Natural gas, while critical to the greenhouse industry, heating of agricultural buildings and crop drying, is used less than electricity in agricultural activities. To counteract high prices and electricity blackouts, the Butte County Rice Growers Association (BUCRA) incorporated a 200 KW solar array to their rice drying facility in 2004; since then, they've continued to expand their solar energy infrastructure, including a second 200 KW solar array constructed in 2009 and a new 2 MW solar array at the main plant constructed in 2016.

Energy Providers

PG&E Electricity Supply

Electricity

The Pacific Gas and Electric Company (PG&E) provides Butte County with most of its electricity. The cities of Gridley and Biggs operate their own power utilities, Gridley Municipal Utilities and Biggs Electrical Department, which each purchase their electricity through the Northern California Power Agency (NCPA). PG&E is a publicly traded utility company that generates, purchases, and transmits energy under contract with the CPUC. Its service territory is 70,000 square miles in area, roughly extending north to south from Eureka to Bakersfield, and east to west from the Sierra Nevada range to the Pacific Ocean. The electricity distribution system of PG&E consists of 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2022). PG&E owns and maintains above and below ground networks of electric and gas transmission and distribution facilities throughout the County.

PG&E electricity is generated by a combination of sources such as coal-fired power plants, nuclear power plants, and hydro-electric dams, as well as newer sources of energy, such as wind turbines and photovoltaic plants or “solar farms.” “The Grid,” or bulk electric grid, is a network of high-voltage transmission lines, linked to power plants within the PG&E system. The distribution system, comprised of lower voltage secondary lines, is at the street and neighborhood level, and consists of overhead or underground distribution lines, transformers, and individual service “drops” that connect to the individual customer.

Total electricity consumption in PG&E’s service area in gigawatt-hours (GWh) was 102,247 GWh in 2020 (CEC 2022a); one GWh is equivalent to one million kilowatt-hours (kWh). Sources of electricity sold by PG&E for its base plan in 2020, the latest year for which data are available, were (CEC 2022b):

- 31 percent renewable, consisting mostly of solar and wind
- 10 percent large hydroelectric
- 16 percent natural gas
- 43 percent nuclear

Natural Gas

PG&E gas transmission pipeline systems serve approximately 4.5 million gas customers in northern and central California (PG&E 2022). The system is operated under an inspection and monitoring program. The system operates in real time on a 24-hour basis, and includes leak inspections, surveys, and patrols of the pipelines. PG&E also adopted Pipeline 2020 program, which aims to modernize critical pipeline infrastructure, expand the use of automatic or remotely operated shut-off valves, catalyze development of next-generation inspection technologies, develop industry-leading best practices, and enhance public safety partnerships with local communities, public officials, and first responders. Total natural gas consumption in PG&E’s service area was 4,534 million therms for 2020 (CEC 2022c).

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Butte Choice Energy Electricity Supply

The Butte County Board of Supervisors and the Chico City Council entered into a Joint Powers Authority agreement in 2019 to create the Butte Choice Energy Authority, a community choice aggregation (CCA) which would allow for the direct purchase and generation of electricity for residents and businesses. This program, called Butte Clean Energy, will provide the residents and businesses in the unincorporated areas of the county and the City of Chico with a choice for where they purchase their power.

The Butte County General Plan 2030 and the 2014 Climate Action Plan directed County staff to evaluate the feasibility of a CCA program. An increase in local interest by residents and businesses propelled the formation of the CCA primarily due to cost savings and independence in selection of sources and types of energy compared to PG&E. However, CCAs may provide an additional environmental benefit if the CCA supplies more electricity from renewable and other carbon-free sources than other providers, effectively reducing the generation and release of GHG emissions. The program is set to launch in 2023 (BCE 2022). All electricity supplied through Butte Choice Energy would be transmitted through existing PG&E power lines.

Butte County Energy Consumption

Electricity and Natural Gas

The existing electricity, natural gas, and propane demand in Butte County is shown in Table 5.6-2, *Estimated Existing Electricity and Natural Gas Demand*.

TABLE 5.6-2 ESTIMATED EXISTING ELECTRICITY AND NATURAL GAS DEMAND

Subsector	Electricity Usage (Kwh Per Year)	Natural Gas Usage (Therms Per Year)	Propane Usage (Gallons Per Year)
Residential	253,167,490	6,371,650	5,960,640
Non-Residential	153,391,250	3,897,830	N/A
Total	406,558,740	10,269,480	5,960,640

Source: Butte County 2021.

Notes: kWh = kilowatt-hour.

Existing Transportation Fuels

Table 5.6-3, *Existing Operation-Related Annual Fuel Usage*, shows the fuel usage associated with VMT generated under existing baseline conditions based on fuel usage data obtained from EMFAC2021, Version 1.0.2, and VMT data assumed in the Butte County 2021 CAP (Butte County 2021). VMT is based on vehicle trips beginning and ending in the county and from external/internal trips (i.e., trips that either begin or end in the county).

TABLE 5.6-3 EXISTING OPERATION-RELATED ANNUAL FUEL USAGE

Scenario	Gas		Diesel		Compressed Natural Gas		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Existing Baseline	486,946,694	22,682,819	43,367,062	4,789,346	98,716	20,445	3,214,528	1,105,523

Source: Butte County 2021.

Note: Utilizes calendar year 2019 Butte County fuel consumption data from EMFAC2021, Version 1.0.2. and VMT data from the Butte County 2021 CAP.

VMT = vehicle miles traveled; kWh = kilowatt-hour.

5.6.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in a significant energy impact if it would:

1. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.
2. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.
3. In combination with past, present, and reasonably foreseeable projects, result in cumulative impacts with respect to energy.

5.6.3 PROPOSED GENERAL PLAN POLICIES

The following are relevant policies of the Butte County General Plan Update, which may reduce energy impacts as a result of implementation of the proposed project.

5.6.3.1 CIRCULATION ELEMENT

- **CIR-P2.1:** Carpooling shall be encouraged at major job and activity centers by providing information on how to participate in available private and public programs.
- **CIR-P2.2:** Trip reduction among County employees shall be encouraged. Specific measures to encourage trip reduction could include providing subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education, and preferential parking for carpools/vanpools.
- **CIR-P2.3:** Home occupations shall be encouraged through streamlined application processes that are appropriate to the intensity and proposed uses of the home business.
- **CIR-P2.4:** Employers shall be encouraged to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education and preferential parking for carpools/vanpools.
- **CIR-P2.5:** Transportation corridors for renewable energy transmission and for new transit lines shall be preserved.

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- **CIR-P2.6:** The County shall incorporate “Complete Streets” policies that are designed and built to accommodate pedestrians, bicyclists, and transit users.
- **CIR-P3.1:** The County supports improved connections to other regional transportation services, such as rail and regional/national bus lines, to connect Butte County communities with each other.
- **CIR-P3.2:** A continuous, integrated, and accessible pedestrian network shall be provided in urbanized areas to encourage walking as a viable transportation mode and as a form of recreation and exercise.
- **CIR-P3.3:** Travel modes shall be interconnected to form an integrated, coordinated, and balanced multimodal transportation system.
- **CIR-P3.4:** New development projects shall provide adequate pedestrian, bicycle, and multiuse facilities in a way that integrates circulation and recreational use, commensurate with the impacts of the project, local and regional plans, and consistent with surrounding development.
- **CIR-P3.5:** New neighborhoods shall provide bike and pedestrian connectivity between streets.
- **CIR-P3.6:** Arterial and collector streets shall be designed to enhance the integrity and cohesiveness of urban neighborhoods.
- **CIR-P3.7:** Major residential development projects shall be designed with interconnected collector street patterns and short block lengths. Cul-de-sac and dead-end streets shall conform to County design standards.
- **CIR-P3.8:** Public facilities shall be located and designed to allow for convenient access from public transit and/or bicycle and pedestrian facilities.
- **CIR-P4.1:** The County supports public transit as a viable and attractive alternative to the use of single occupant motor vehicles.
- **CIR-P4.2:** The County supports improved public transit service to be determined through the public process to identify unmet needs and prioritize feasible solutions. Potential improvements could include serving an expanded geographic area, more frequent buses at key times of the day, and improved transit amenities such as bus shelters.
- **CIR-P4.3:** The County supports public transportation programs that promote access to shopping, employment, education, health care, and recreation.
- **CIR-P4.4:** The County encourages the Butte County Association of Governments to provide shuttles from local transit stations to special event centers.
- **CIR-P4.5:** The County continues to support local Amtrak passenger services.
- **CIR-P4.6:** New development projects in areas served by existing or planned transit shall provide fixed transit facilities such as bus shelters and pullouts, according to expected demand and in coordination with Butte Regional Transit.
- **CIR-P5.1:** Bicycle facilities shall be developed in accordance with the County’s adopted Bicycle Master Plan.

- **CIR-P5.2:** New bicycle routes and paths shall create a bicycle environment that minimizes harm when people ride.
- **CIR-P5.3:** The bicycle system shall be integrated with other transportation modes by connecting bicycle routes and transit stops, providing secure bicycle parking facilities and supporting efforts to expand accommodation of bicycles aboard buses.
- **CIR-P5.4:** Transportation service providers shall be encouraged to incorporate bicycle storage facilities into bus stops and rail stations.
- **CIR-P5.5:** Construction or expansion of major arterials shall incorporate Class II bicycle facilities whenever feasible. Class III Bike routes will be considered where appropriate.
- **CIR-P5.6:** Residential development projects shall incorporate internal circulation networks that encourage bicycle use and that connect to the external bicycle circulation system.
- **CIR-P5.7:** Owners of apartment complexes and major commercial, office, industrial, and educational sites shall provide plentiful, convenient, and centrally located bicycle parking facilities.
- **CIR-P5.8:** All County facilities and park-and-ride lots shall provide appropriate bicycle amenities, including bicycle racks and storage facilities.

5.6.3.2 CONSERVATION AND OPEN SPACE ELEMENT

- **COS-P2.1:** County staff shall work cooperatively with the municipalities to ensure consistent standards for green building codes and other methods to reduce greenhouse gas emissions throughout the county.
- **COS-P2.2:** New development shall comply with Green Building Standards adopted by the California Building Standards Commission at the time of building permit application, including requirements about low- or no-toxicity building materials.
- **COS-P2.3:** All new County buildings and major renovations designed for public access and/or primary workspace shall meet, at a minimum, LEED-Silver or equivalent and the County shall use these buildings to demonstrate green building practices to builders, developers, homeowners, and others. Minor buildings of an accessory nature that are not used as public spaces and that do not serve as a primary workspace are not required to meet LEED-Silver or equivalent, but shall implement practical building design, construction, and maintenance solutions as set forth under the LEED rating system or equivalent.
- **COS-P2.4:** All new subdivisions and developments should meet green planning standards such as LEED for Neighborhood Design.
- **COS-P2.5:** The County shall work with property owners and property management groups to increase overall building electrification and adoption of modern, efficient appliances in residential rental properties.
- **COS-P3.1:** The expansion and increased efficiency of hydroelectric power plants in the county is encouraged, provided that such plants can be expanded and that significant adverse environmental impacts associated with such plants can be successfully mitigated.

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- **COS-P3.2:** The development of renewable energy sources in the county shall be encouraged, provided that such fuel sources can be built or expanded and that significant adverse environmental impacts associated with such development can be successfully mitigated.
- **COS-P3.3:** The County supports the introduction and implementation of Butte Choice Energy, the County’s community choice aggregation program.
- **COS-P3.4:** The County shall promote and incentivize small-scale, on-site renewable energy and storage systems for existing residential units, nonresidential buildings, and in the agricultural sector.
- **COS-P3.5:** The County supports efforts to increase renewable and carbon-free energy generation, including wind, solar, and biomass, and to ensure customer access to such renewable energy.
- **COS-P3.7:** Alternative energy sources such as solar shall continue to be used for County facilities, which set an example for others to follow.
- **COS-P3.8:** Wind power generation facilities, solar power generation facilities, and other alternative energy facilities shall be encouraged in all General Plan land use designations, consistent with zoning provided that significant adverse environmental impacts associated with such development can be successfully mitigated. All new proposed energy projects shall be compatible with the Military Operations Areas (MOAs) shown on Figure LU-4.
- **COS-P4.1:** The County shall continue efforts to promote energy conservation and efficiency opportunities for all residents, building/property owners, and renters, including support and promotion of programs for lower- income and disadvantaged populations.
- **COS-P4.2:** The County shall continue efforts to promote energy conservation and efficiency opportunities for all nonresidential uses, including County facilities, office space, commercial space, and industrial space.
- **COS-P4.3:** Energy efficiency and reduction efforts of local businesses, including agricultural businesses, shall be promoted and encouraged.
- **COS-P4.4:** The County shall coordinate with Pacific Gas and Electric Company (PG&E) and other utility providers to promote programs that reduce energy demand.
- **COS-P4.6:** The County shall work with property owners and property management groups to increase overall building electrification of new and existing development, and adoption of modern, efficient appliances in residential rental properties.
- **COS-P4.7:** Site and structure designs for new development projects shall maximize energy efficiency.

5.6.3.3 ECONOMIC DEVELOPMENT UPDATE

- **ED-P2.7:** The County supports programs and projects that utilize agricultural by-products for “green” building material production and/or renewable energy production, such as using straw bales for building or converting rice straw to biofuels.

5.6.3.4 ENVIRONMENTAL JUSTICE ELEMENT

- **EJ-P5.4:** The County shall support efforts to retrofit existing housing units in Communities of Opportunity with improvements that reduce indoor air and noise pollution and improve energy efficiency.

5.6.3.5 HEALTH AND SAFETY ELEMENT

- **HS-P19.1:** The County supports physical infrastructure that encourages active transportation, such as bike paths, walking paths, and trails to promote public health.
- **HS-P19.2:** The County shall promote opportunities for physical activities, such as walking and biking, and encourage patterns of new development that promote physical activity and encourage bicycling, walking, and transit.
- **HS-P21.1:** The County supports the development of community and neighborhood microgrids that use renewable energy sources, including energy storage, which can provide sustainable and reliable electricity supply that is not shut off during PSPS events.

5.6.3.6 LAND USE ELEMENT

- **LU-P3.1:** The County shall encourage housing that meets the needs of the local workforce, jobs that are suitable for local residents, and programs that reduce commuting and improve opportunities to live and work in the same community.
- **LU-P3.3:** Newly-developed neighborhoods shall include parks and recreation facilities. Sidewalks, bike paths, and other routes shall provide circulation to surrounding areas.
- **LU-P4.3:** Generally, higher density housing shall be along collector and arterial streets and within easy walking distance of public facilities.
- **LU-P8.5:** Stores providing goods and services to support daily life in neighborhoods should be within walking distance to the majority of neighborhoods.
- **LU-P8.6:** The County shall encourage the construction of housing near employment centers, along with additional employment-generating uses near areas that are primarily residential.
- **LU-P8.7:** Land use patterns and development shall support the State’s ability to achieve its vehicle miles traveled (VMT) and greenhouse gas (GHG) reduction goals, and the County’s own VMT thresholds of significance.

5.6.4 IMPACT DISCUSSION

ENE-1	The project would not result in a significant environmental impact from wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.
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Short-Term Construction Impacts

Development projects constructed under the General Plan Update would create temporary demands for electricity. Natural gas is not generally required to power construction equipment, and therefore is not anticipated during construction phases. Electricity use would fluctuate according to the phase of construction. Additionally, it is anticipated that most electric-powered construction equipment would be hand tools (e.g., power drills, table saws, compressors) and lighting, which would result in minimal electricity usage during construction activities.

Development projects would also temporarily increase demands for energy associated with transportation. Transportation energy use depends on the type and number of trips, VMT, fuel efficiency of vehicles, and travel mode. Energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. It is anticipated that most off-road construction equipment, such as those used during demolition and grading, would be gas or diesel powered. In addition, all operation of construction equipment would cease upon completion of project construction.

Furthermore, the construction contractors would minimize nonessential idling of construction equipment during construction in accordance with the California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449. Such required practices would limit wasteful and unnecessary energy consumption in development in Butte County. Moreover, future development projects within the County would be similar to the construction processes of any current development projects within Butte County. Therefore, the implementation of the General Plan Update would not result in wasteful, inefficient, or unnecessary consumption of fuel use during construction.

Level of Significance Before Mitigation: ENE-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Long-Term Operation Impacts

Non-transportation Energy

The General Plan Update would allow new development within Butte County, providing for a range of land uses with varying energy needs. Table 5.6-4, *Year 2040 Forecast Electricity Consumption*, shows the forecast electricity demand for Butte County with implementation of the General Plan Update under horizon year 2040 conditions. As shown, total electricity demand associated with Butte County would increase by 120,517,960 kWh per year (kWh/yr), or 30 percent, under horizon year 2040 conditions compared to existing conditions.

TABLE 5.6-4 YEAR 2040 FORECAST ELECTRICITY CONSUMPTION

Scenario	Electricity Usage (kWh per year)		
	Existing Baseline	Year 2040 Forecast	Net Change
Residential	253,167,490	356,544,930	103,377,440
Non-residential	153,391,250	170,531,770	17,140,520
Total	406,558,740	527,076,700	120,517,960

Source: Butte County 2021.

Note: kWh = kilowatt-hour.

As shown in Table 5.6.5, *Year 2040 Forecast Natural Gas Consumption*, natural gas use in Butte County would increase by 2,534,620 therms annually, or approximately 28 percent, from existing conditions to a total of 11,572,980 therms per year.

TABLE 5.6-5 YEAR 2040 FORECAST NATURAL CONSUMPTION

Scenario	Natural Gas Usage (Therms per year)		
	Existing Baseline	Year 2040 Forecast	Net Change
Residential	5,140,530	7,239,590	2,099,060
Non-Residential	3,897,830	4,333,390	435,560
Total	9,038,360	11,572,980	2,534,620

Source: Butte County 2021.

Table 5.6-6, *Year 2040 Forecast Propane Consumption*, shows the forecasted propane demand for Butte County. As shown, total propane demand associated with Butte County would increase by 120,517,960 kWh/yr, or 30 percent, under horizon year 2040 conditions compared to existing conditions.

TABLE 5.6-6 YEAR 2040 FORECAST PROPANE CONSUMPTION

Scenario	Propane Usage (Gallons per year)		
	Existing Baseline	Year 2040 Forecast	Net Change
Residential	6,371,650	8,973,430	2,601,780

Source: Butte County 2021.

Electricity, natural gas, and propane demand for Butte County would increase compared to existing conditions due to the anticipated growth under the General Plan Update. However, developments accommodated under the General Plan Update would be required to comply with the current and future updates to the Building Energy Efficiency Standards and CALGreen, which would contribute in reducing the energy demands and increasing energy efficiency. New and replacement buildings in compliance with these standards would generally have greater energy efficiency than existing buildings. It is anticipated that each update to the Building Energy Efficiency Standards and CALGreen would result in greater building energy efficiency and move closer toward buildings achieving zero net energy.

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In addition to the energy conservation efforts under Title 24, the General Plan Update includes the following policies and actions pertaining to renewable energy generation and energy conservation:

- **COS-P2.3:** All new County buildings and major renovations designed for public access and/or primary workspace shall meet, at a minimum, LEED-Silver or equivalent and the County shall use these buildings to demonstrate green building practices to builders, developers, homeowners, and others. Minor buildings of an accessory nature that are not used as public spaces and that do not serve as a primary workspace are not required to meet LEED-Silver or equivalent, but shall implement practical building design, construction, and maintenance solutions as set forth under the LEED rating system or equivalent.
- **COS-P2.4:** All new subdivisions and developments should meet green planning standards such as LEED for Neighborhood Design.
- **COS-P2.5:** The County shall work with property owners and property management groups to increase overall building electrification and adoption of modern, efficient appliances in residential rental properties.
- **COS A2.3:** Explore and adopt, as feasible, Building Code amendments requiring replacement of natural gas space and water heaters with electric models at end of life during the 2022 and successive Buildings Standards Code updates.
- **COS-P3.2:** The development of renewable energy sources in the county shall be encouraged, provided that such fuel sources can be built or expanded and that significant adverse environmental impacts associated with such development can be successfully mitigated.
- **COS-P3.3:** The County supports the introduction and implementation of Butte Choice Energy, the County's community choice aggregation program.
- **COS-P3.4:** The County shall promote and incentivize small-scale, on-site renewable energy and storage systems for existing residential units, nonresidential buildings, and in the agricultural sector.
- **COS-P3.5:** The County supports efforts to increase renewable and carbon-free energy generation, including wind, solar, and biomass, and to ensure customer access to such renewable energy.
- **COS-P3.7:** Alternative energy sources such as solar shall continue to be used for County facilities, which set an example for others to follow.
- **COS-P3.8:** Wind power generation facilities, solar power generation facilities, and other alternative energy facilities shall be encouraged in all General Plan land use designations, consistent with zoning provided that significant adverse environmental impacts associated with such development can be successfully mitigated. All new proposed energy projects shall be compatible with the Military Operations Areas (MOAs) shown on Figure LU-4.
- **COS-P4.1:** The County shall continue efforts to promote energy conservation and efficiency opportunities for all residents, building/property owners, and renters, including support and promotion of programs for lower- income and disadvantaged populations.
- **COS-P4.2:** The County shall continue efforts to promote energy conservation and efficiency opportunities for all nonresidential uses, including County facilities, office space, commercial space, and industrial space.

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- **COS-P4.3:** Energy efficiency and reduction efforts of local businesses, including agricultural businesses, shall be promoted and encouraged.
- **COS-P4.4:** The County shall coordinate with Pacific Gas and Electric Company (PG&E) and other utility providers to promote programs that reduce energy demand.
- **COS-P4.6:** The County shall work with property owners and property management groups to increase overall building electrification of new and existing development, and adoption of modern, efficient appliances in residential rental properties.
- **COS-P4.7:** Site and structure designs for new development projects shall maximize energy efficiency.
- **COS-A4.1:** Continue to participate in available and future programs to provide low-cost financing for energy retrofits throughout Butte County.
- **COS-A4.2:** Pursue grants to address existing energy inefficiencies in County facilities.
- **COS-A4.3:** Consider giving preference to renewable energy for County purchases when feasible.

Transportation Energy

The growth accommodated under the General Plan Update would consume transportation energy from the use of motor vehicles (e.g., gasoline, diesel, compressed natural gas, and electricity). Table 5.6-7, *Operation-Related Annual Fuel Usage: Net Change from Existing*, shows the net change in VMT, fuel usage, and fuel efficiency under horizon year 2040 General Plan Update conditions from existing baseline year 2019 conditions and existing uses under year 2040 conditions.

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TABLE 5.6-7 OPERATION-RELATED ANNUAL FUEL USAGE: NET CHANGE FROM EXISTING

Fuel Type	Existing Baseline Year 2019 ¹	Existing Year 2040 ¹	Project Horizon Year 2040	Net Change from Existing Baseline Year 2019	Net Change from Existing Year 2040
Gasoline					
VMT ²	486,946,694	441,100,496	564,731,303	77,784,609	123,630,807
Gallons	22,682,819	14,213,937	18,197,793	(4,485,026)	3,983,855
Miles Per Gallon	21.47	31.03	31.03	9.57	0
Diesel					
VMT ²	43,367,062	33,266,923	42,590,931	(776,149)	9,323,990
Gallons	4,795,846	3,921,910	5,021,136	225,289	1,099,226
Miles Per Gallon	9.04	8.48	8.48	(0.56)	0
Compressed Natural Gas					
VMT ²	98,716	142,246	182,115	83,399	39,869
Gallons	20,445	25,261	32,341	11,896	7,080
Miles Per Gallon	4.83	5.63	5.63	0.80	0
Electricity					
VMT ²	3,214,528	59,117,335	75,686,629	72,472,101	16,569,294
kWh	1,105,523	18,388,849	23,542,840	22,437,317	5,153,992
Miles Per kWh	2.91	3.21	3.21	0.31	0
Total VMT	533,627,000	533,627,000	683,190,960	149,563,960	149,563,960

Source: EMFAC2021 Version 1.0.2.

Notes: VMT = vehicle miles traveled; kWh = kilowatt-hour.

¹ Represents existing uses as they currently exist in baseline year 2019 and operating under year 2040 conditions.

² Based on VMT data utilized for the Butte County 2021 CAP.

As shown in Table 5.6-7, when compared to existing baseline year 2019 conditions, the General Plan Update would result in an increase in VMT for gasoline-, compressed natural gas-, and electric-powered vehicles. Although annual VMT would increase for gasoline-powered vehicles by 77,784,609 miles per year (mi/yr), total gasoline fuel usage would decrease and fuel efficiency would increase. For electric-powered vehicles, annual VMT would increase by 72,472,101 mi/yr and annual consumption would increase by 22,437,317 kWh. However, efficiency would increase by 0.31 mile per kWh (mi/kWh). Similarly, while VMT and fuel consumption for vehicles powered by compressed natural gas (CNG) would increase, fuel efficiency for these vehicles would also improve in year 2040. The decrease in fuel usage for gasoline-powered vehicles and large increase in VMT and fuel usage for electric-powered vehicles are primarily based on the assumption in EMFAC that a greater mix of light-duty automobiles would be electric-powered in future years based on regulatory (e.g., Advanced Clean Cars) and consumer trends.

For diesel-powered vehicles, overall VMT would decrease by 776,149 mi/yr while anticipated fuel consumption would increase by 225,289 gallons per year (g/yr). While the total overall efficiency is shown to decrease by 0.56 mpg, as shown in Table 5.6-8, *EMFAC 2021 Fuel Efficiency of Diesel Vehicles*, fuel efficiency as assumed in EMFAC2021 would generally increase across the various vehicle categories. The

primary factor for the overall decrease is due to the general assumption in EMFAC2021 that VMT for diesel-powered heavy-heavy duty trucks (i.e., T7 vehicle category), which is less efficient than other diesel-powered vehicles, would increase, while VMT for other diesel vehicles with better fuel efficiency would decrease. Thus, while the fuel efficiency would generally improve for diesel vehicles, the average in overall fuel efficiency of diesel vehicles is lower under horizon year 2040 conditions when weighed against the increase in diesel-powered heavy-heavy duty truck VMT.

TABLE 5.6-8 EMFAC2021 FUEL EFFICIENCY OF DIESEL VEHICLES

EMFAC 2021 Vehicle Category	Year 2019			Year 2040			Net Change in Miles Per Gallon
	VMT Per Day	Gallons Per Day	Miles Per Gallon	VMT Per Day	Gallons Per Day	Miles Per Gallon	
All other buses	2,747	336	8.17	3,304	346	9.54	1.37
LDA	15,545	378	41.13	2,224	42	52.59	11.46
LDT1	216	9	23.96	2	0	30.07	6.10
LDT2	3,333	112	29.73	5,710	142	40.11	10.38
LHD1	264,871	16,704	15.86	65,434	4,051	16.15	0.30
LHD2	70,614	5,501	12.84	27,171	1,972	13.78	0.94
MCY	0	0	0	0	0	0	0
MDV	27,519	1,163	23.67	10,842	366	29.59	5.92
MH	3,291	353	9.33	1,663	179	9.27	(0.05)
Motor coach	1,023	185	5.52	1,139	182	6.25	0.73
OBUS	0	0	0	0	0	0	0
PTO	3,826	821	4.66	3,184	558	5.70	1.04
SBUS	3,642	462	7.88	2,587	290	8.91	1.04
T6	72,169	8,862	8.14	63,056	6,731	9.37	1.22
T7	325,348	56,578	5.75	430,412	58,665	7.34	1.59
UBUS	3,266	408	8.00	325	35	9.19	1.19

Source: EMFAC2021 Version 1.0.2.

Note: Based on EMFAC2021, V1.0.2., data for Butte County.

VMT = vehicle miles traveled.

Compared to existing uses under year 2040 conditions, the General Plan Update would result in an increase in VMT and fuel usage for all fuel types (see “Net Change from Existing Year 2040” column of Table 5.6-7). However, the fuel efficiency would be the same, and implementation of the General Plan Update would not result in less fuel efficiency across the various fuel types.

The increases in VMT as shown in Table 5.6-7 would be primarily attributable to the overall growth associated with the General Plan Update. While VMT and fuel usage would generally increase from implementation of the General Plan Update, as shown in the tables above, the fuel efficiency of vehicles for all fuel types under year 2040 conditions would improve compared to baseline year 2019. The improvement would be attributable to regulatory compliance (e.g., CAFE standards) that trend toward producing cars that are more fuel efficient and the natural turnover of older, less-fuel-efficient vehicles for newer, more-fuel-

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efficient vehicles. The CAFE standards are not directly applicable to residents or land use development projects, but to car manufacturers. Thus, residents and employees of the Butte County do not have direct control in determining the fuel efficiency of vehicles manufactured and that are made available. However, compliance with the CAFE standards by car manufacturers would ensure that vehicles produced in future years have greater fuel efficiency and would generally result in an overall benefit of reducing fuel usage by providing the population of the Butte County more fuel-efficient vehicle options.

Although VMT associated with electric vehicles (EV) and thus electricity usage would increase under the with-project horizon year 2040 scenario when compared to existing baseline, it is also anticipated that EVs will improve in energy efficiency. In conjunction with the regulatory (i.e., RPS, SB 350, SB 100, SB 1020) and general trend toward increasing the supply and production of energy from renewable sources, it is anticipated that a greater share of electricity used to power EVs will be from renewable sources in future years (e.g., individual photovoltaic systems, purchased electricity from a CCA such as Butte Choice Energy, and/or purchased electricity from PG&E that is generated from renewable sources).

In addition to regulatory compliance that would contribute to more fuel-efficient vehicles and less demand in fuels, the General Plan Update includes the following policies and actions that could contribute to reducing fuel consumption by reducing single passenger vehicle trips and VMT, reducing vehicle idling, supporting the transition to low and zero-emission vehicles, and increasing active and public transit infrastructure:

- **COS-P1.7:** New development projects shall provide electric vehicle charging stations and prioritized parking for electric vehicles, hybrid vehicles, alternative fuel vehicles and carpools.
- **COS-A1.2:** Continue to update the County program to replace County fleet vehicles with the lowest emission technology vehicles, wherever possible, including landscaping and other equipment.
- **COS-A1.4:** Coordinate with the Butte County Air Quality Management District on anti-idling programs that will reduce idling by heavy duty vehicles.
- **COS-A1.5:** Cooperate with the school districts to develop school access plans that substantially reduce automobile trips to, and congestion surrounding, schools. Each District's School Access Plan could address necessary infrastructure improvements, potential funding sources, replacing older diesel buses with low or zero-emission vehicles, and mitigation fees to expand school bus service.
- **COS-P5.7:** The County shall cooperate with Butte County Air Quality Management District in efforts to reduce traffic-related emissions below levels that violate national ambient air quality standards in Butte County.
- **LU-P3.1:** The County shall encourage housing that meets the needs of the local workforce, jobs that are suitable for local residents, and programs that reduce commuting and improve opportunities to live and work in the same community.
- **LU-P3.3:** Newly-developed neighborhoods shall include parks and recreation facilities. Sidewalks, bike paths, and other routes shall provide circulation to surrounding areas.
- **LU-P4.3:** Generally, higher density housing shall be along collector and arterial streets and within easy walking distance of public facilities.

- **LU-P8.5:** Stores providing goods and services to support daily life in neighborhoods should be within walking distance to the majority of neighborhoods.
- **LU-P8.6:** The County shall encourage the construction of housing near employment centers, along with additional employment-generating uses near areas that are primarily residential.
- **LU-P8.7:** Land use patterns and development shall support the State’s ability to achieve its vehicle miles traveled (VMT) and greenhouse gas (GHG) reduction goals, and the County’s own VMT thresholds of significance.
- **CIR-P2.1:** Carpooling shall be encouraged at major job and activity centers by providing information on how to participate in available private and public programs.
- **CIR-P2.2:** Trip reduction among County employees shall be encouraged. Specific measures to encourage trip reduction could include providing subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education, and preferential parking for carpools/vanpools.
- **CIR-P2.4:** Employers shall be encouraged to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education and preferential parking for carpools/vanpools.
- **CIR-P2.5:** Transportation corridors for renewable energy transmission and for new transit lines shall be preserved.
- **CIR-P2.6:** The County shall incorporate “Complete Streets” policies that are designed and built to accommodate pedestrians, bicyclists, and transit users.
- **CIR-A2.1:** Prepare, adopt, and maintain a VMT environmental threshold and development project screening process.
- **CIR-P3.1:** The County supports improved connections to other regional transportation services, such as rail and regional/national bus lines, to connect Butte County communities with each other.
- **CIR-P3.2:** A continuous, integrated, and accessible pedestrian network shall be provided in urbanized areas to encourage walking as a viable transportation mode and as a form of recreation and exercise.
- **CIR-P3.3:** Travel modes shall be interconnected to form an integrated, coordinated, and balanced multimodal transportation system.
- **CIR-P3.4:** New development projects shall provide adequate pedestrian, bicycle, and multiuse facilities in a way that integrates circulation and recreational use, commensurate with the impacts of the project, local and regional plans, and consistent with surrounding development.
- **CIR-P3.5:** New neighborhoods shall provide bike and pedestrian connectivity between streets.
- **CIR-P3.6:** Arterial and collector streets shall be designed to enhance the integrity and cohesiveness of urban neighborhoods.

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- **CIR-P3.7:** Major residential development projects shall be designed with interconnected collector street patterns and short block lengths. Cul-de-sac and dead-end streets shall conform to County design standards.
- **CIR-P3.8:** Public facilities shall be located and designed to allow for convenient access from public transit and/or bicycle and pedestrian facilities.
- **CIR-A3.1:** In conjunction with the Butte County Association of Governments, seek funding to develop a plan to support and promote rail service that will connect Butte County with other regions and connect Butte County communities with each other.
- **CIR-P4.1:** The County supports public transit as a viable and attractive alternative to the use of single occupant motor vehicles.
- **CIR-P4.2:** The County supports improved public transit service to be determined through the public process to identify unmet needs and prioritize feasible solutions. Potential improvements could include serving an expanded geographic area, more frequent buses at key times of the day, and improved transit amenities such as bus shelters.
- **CIR-P4.3:** The County supports public transportation programs that promote access to shopping, employment, education, health care, and recreation.
- **CIR-P4.4:** The County encourages the Butte County Association of Governments to provide shuttles from local transit stations to special event centers.
- **CIR-P4.5:** The County continues to support local Amtrak passenger services.
- **CIR-P4.6:** New development projects in areas served by existing or planned transit shall provide fixed transit facilities such as bus shelters and pullouts, according to expected demand and in coordination with Butte Regional Transit.
- **CIR-A4.1:** Support efforts by the Butte County Association of Governments to evaluate alternate sources of funding for public transit, such as advertising revenue from buses and bus shelters.
- **CIR-P5.1:** Bicycle facilities shall be developed in accordance with the County's adopted Bicycle Master Plan.
- **CIR-P5.2:** New bicycle routes and paths shall create a bicycle environment that minimizes harm when people ride.
- **CIR-P5.3:** The bicycle system shall be integrated with other transportation modes by connecting bicycle routes and transit stops, providing secure bicycle parking facilities and supporting efforts to expand accommodation of bicycles aboard buses.
- **CIR-P5.4:** Transportation service providers shall be encouraged to incorporate bicycle storage facilities into bus stops and rail stations.
- **CIR-P5.5:** Construction or expansion of major arterials shall incorporate Class II bicycle facilities whenever feasible. Class III Bike routes will be considered where appropriate.
- **CIR-P5.6:** Residential development projects shall incorporate internal circulation networks that encourage bicycle use and that connect to the external bicycle circulation system.

- **CIR-P5.7:** Owners of apartment complexes and major commercial, office, industrial, and educational sites shall provide plentiful, convenient, and centrally located bicycle parking facilities.
- **CIR-P5.8:** All County facilities and park-and-ride lots shall provide appropriate bicycle amenities, including bicycle racks and storage facilities.
- **CIR-A5.1:** Periodically update the Bicycle Master Plan.
- **CIR-A5.2:** Continue to utilize BCAG’s GIS mapping database of current and proposed bicycle routes and facilities countywide.
- **CIR-A5.3:** Pursue sources of funding to improve and maintain the existing bicycle system and to plan and construct new bicycle facilities that encourage commuting and recreation.
- **EJ-P2.1:** The County shall prioritize improvements to bikeways and sidewalks that are in Communities of Opportunity to make active transportation more accessible, user friendly, and safer in these communities.
- **EJ-P2.2:** Where supported by the community, street lighting for public safety shall be provided, prioritizing implementation in Communities of Opportunity, particularly at parks, transit stops, bike and pedestrian paths, and along commercial corridors.
- **EJ-P2.3:** The County shall encourage development in Communities of Opportunity that combines employment, housing, and services close to transit facilities.
- **EJ-P2.4:** The County shall work with transit providers to expand the hours of transit operation, operational boundaries, convenience, and quality of transit services that connect Communities of Opportunity with educational and economic opportunities, medical services, and other needed goods and services.
- **EJ-P2.5:** The County shall encourage transit providers to offer small or less frequent buses on routes with low passenger demand and connections between unincorporated and incorporated bus routes, with a focus on bridging service gaps in Communities of Opportunity.
- **EJ-P2.6:** The County shall provide support to carpooling and vanpooling programs, particularly among Communities of Opportunity, such as by assisting with outreach and program facilitation.
- **EJ-A2.1:** Seek opportunities to identify and construct multi-modal improvements in Communities of Opportunity.
- **EJ-P8.3:** The County supports the development of high-quality, local jobs within and near Communities of Opportunity to reduce long commutes and resultant vehicle emissions.

Summary

Overall, regulatory compliance (e.g., Building Energy Efficiency Standards, CALGreen, RPS, and CAFE standards) would increase building energy efficiency and vehicle fuel efficiency and reduce building energy demand and transportation-related fuel usage. Additionally, the General Plan Update includes policies related to land use and transportation planning and design, energy efficiency, public and active transit, and renewable energy generation that would contribute to minimizing building and transportation-related energy demands overall and demands on nonrenewable sources of energy. Implementation of proposed

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policies under the General Plan Update in conjunction with and complementary to regulatory requirements would ensure that energy demand associated with growth under the General Plan Update would not be inefficient, wasteful, or unnecessary. Therefore, energy impacts associated with implementation and operation of land uses accommodated under the General Plan Update would be less than significant.

Level of Significance Before Mitigation: ENE-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Upper Ridge Community Plan

As discussed in Chapter 3, Project Description, of this DEIR, the Upper Ridge Community Plan would increase development potential in the Upper Ridge community with 28 parcels redesignated from Retail and Office to Mixed-Use land uses in the Old Magalia and Magalia Center neighborhoods.

Short-Term Construction Impacts

The short-term construction impact related to energy as discussed above for the General Plan Update would also be applicable to the URCP. Therefore, implementation of the URCP would not result in wasteful, inefficient, or unnecessary consumption of fuel use during construction.

Level of Significance Before Mitigation: ENE-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Long-Term Operation Impacts

Non-transportation Energy

Potential future development under the URCP would consist of new development in the Magalia Center and the Old Magalia neighborhoods. As discussed above for the General Plan Update, new buildings for new land uses accommodated under the URCP would also be subject to and required to comply with the current and future editions of the Building Energy Efficiency Standards and CALGreen. Furthermore, while the previously identified policies and actions of the General Plan Update pertaining to increasing energy efficiency and/or reducing energy demand would also be applicable to the URCP, the URCP also includes the following proposed strategies, which would contribute to reducing energy demand in general and from nonrenewable resources:

- **Strategy HS-1.5:** Work with partner agencies and other organizations to secure grant funding to provide low-cost energy retrofits reducing energy use.
- **Strategy HS-2.2:** Encourage solar panels and energy storage in homes and commercial buildings to provide backup electricity supply.

- **Strategy UI-4.2:** Encourage the adoption of backup power service for residences and businesses on the Upper Ridge, including installation of rooftop solar and battery backup systems.
- **Strategy UI-4.3:** Evaluate options for providing backup power service to critical communication infrastructure. These options could include a variety of means of providing backup power, such as battery backup power with solar recharge or generator backup power.

Transportation Energy

The analysis discussed for General Plan Update pertaining to transportation energy is also applicable to the URCP. The previously identified proposed policies and actions of the General Plan Update that would contribute to minimizing VMT would also be generally applicable to the URCP. In addition, the URCP also includes the following proposed strategies that would contribute to minimizing VMT and transportation fuel use by improving the active and public transit infrastructure:

- **Strategy CIR-2.1:** Improve the shoulders of Skyway within the Plan Area, from the Coutolenc/Skyway intersection to Lake De Sabla.
- **Strategy CIR-2.2:** Support the development of plans for and implementation of the grant-funded Magalia Reservoir-Paradise Lake Loop Trail. As part of this effort, provide trailheads and connector trails from the Upper Ridge Plan’s residential neighborhoods to the Loop Trail, potentially from Steiffer Road and one of the streets leading east from Holmwood Drive.
- **Strategy CIR-2.3:** Develop plans for north and south connectors to the Magalia Reservoir-Paradise Lake Loop Trail. These connectors should include a southern leg leading from Yellowstone Kelley Trail to the Loop Trail at Magalia Reservoir and a northern leg leading from Paradise Lake to Lake De Sabla. When planning this trail, ensure trailheads and connector trails from the Upper Ridge Plan’s residential neighborhoods to the Loop Trail are provided.
- **Strategy CIR-2.4:** Develop plans for a new east-west trail connecting the existing Magalia Community Center to the Lakeridge Circle area, including the proposed new Lakeridge Park (see Chapter 5 for details regarding Lakeridge Park).
- **Strategy CIR 2.5:** Provide enhanced transit bus stops with improved bus stop signage, lighting, and seating at the two transit stops in each direction on Lakeridge Circle to create better access and encourage transit ridership to Magalia Center.

Summary

Overall, and for similar reasons discussed for the General Plan Update, implementation of proposed strategies of the URCP in conjunction with and complementary to regulatory requirements would ensure that energy demand associated with the URCP would not be inefficient, wasteful, or unnecessary. Therefore, energy impacts associated with implementation and operation of land uses accommodated under the URCP would be less than significant.

Level of Significance Before Mitigation: ENE-1 would be less than significant.

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Mitigation Measures

No mitigation measures are required.

ENE-2 The project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

General Plan Update

California Renewables Portfolio Standards Program

The state's electricity grid is transitioning to renewable energy under California's RPS Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The RPS goals have been updated since adoption of SB 1078 in 2002. In general, California has RPS requirements of 33 percent renewable energy by 2020 (SB X1-2), 40 percent by 2024 (SB 350), 50 by 2026 (SB 100), 60 percent by 2030 (SB 100), 90 percent by 2035 (SB 1020), 95 percent by 2040 (SB 1020), and 100 percent by 2045 (SB 100). SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 1020 requires all state agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.

The statewide RPS requirements do not directly apply to individual development projects, but to utilities and energy providers such as PG&E, whose compliance with RPS requirements would contribute to the State objective of transitioning to renewable energy. The land uses accommodated under the General Plan Update would comply with the current and future iterations of the Building Energy Efficiency Standards and CALGreen. As discussed in Impact 5.6-1, the General Plan Update includes policies such as COS-P3.2, COS-P3.4, and COS-P3.5, which would support the statewide goal of transitioning the electricity grid to renewable sources. Therefore, implementation of the General Plan Update would not conflict or obstruct implementation of California's RPS Program, and impacts would be less than significant.

Level of Significance Before Mitigation: ENE-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Butte County 2021 Climate Action Plan

As discussed in detail under Impact GHG-2 and in Table 5.8-9, *General Plan Update URCP Consistency with the Butte County 2021 Climate Action Plan*, of this DEIR, the General Plan Update includes policies and actions that would be consistent with the energy-related goals and strategies of the Butte County 2021 CAP. Therefore, implementation of the General Plan Update would not conflict or obstruct implementation of the 2021 CAP, and impacts would be less than significant.

Level of Significance Before Mitigation: ENE-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Upper Ridge Community Plan

California Renewables Portfolio Standards Program

The discussion above for the General Plan Update would also be applicable to the URCP. Furthermore, the URCP would include Strategy HS-2.2, UI-4.2, and UI-4.3 that would be support the RPS goals. Therefore, implementation of the URCP would not conflict or obstruct implementation of California’s RPS Program, and impacts would be less than significant.

Level of Significance Before Mitigation: ENE-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Butte County 2021 Climate Action Plan

As discussed in detail under Impact GHG-2 and in Table 5.8-9, *General Plan Update URCP Consistency with the Butte County 2021 Climate Action Plan*, of this DEIR, the URCP includes strategies that would be consistent with the energy-related goals and strategies of the Butte County 2021 CAP. Therefore, implementation of the URCP would not conflict or obstruct implementation of the 2021 CAP, and impacts would be less than significant.

Level of Significance Before Mitigation: ENE-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

5.6.5 CUMULATIVE IMPACTS

ENE-3 The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to energy.

As growth occurs throughout the Butte County region, there will be an increased demand for electricity and natural gas. The General Plan Update and URCP would avoid a significant project-level impact associated with the wasteful use of energy by implementing General Plan Update policies and actions, URCP strategies, and complying with State regulations. Similarly, other jurisdictions in the region are required to meet State Title 24 regulations regarding energy conservation. As a result, the proposed project would contribute to a less than significant cumulative impact to the wasteful, inefficient, or unnecessary use of energy.

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Level of Significance Before Mitigation: ENE-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

5.6.6 REFERENCES

- Butte Choice Energy (BCE). 2022, October 5 (accessed). About Us. <https://www.buttechoicenergy.org/about-us>.
- Butte, County of. 2021, December. Butte County 2021 Climate Action Plan. <https://www.buttecounty.net/Portals/10/Planning/CAP/Butte-County-Final-CAP.pdf?ver=2021-12-20-135801-597>.
- California Air Resources Board. 2017, January 18. California’s Advanced Clean Cars Midterm Review: Summary Report for the Technical Analysis of the Light Duty Vehicle Standards. https://ww2.arb.ca.gov/sites/default/files/2020-01/ACC%20MTR%20Summary_Ac.pdf.
- California Energy Commission (CEC). 2018a, May 9. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. Accessed on October 11, 2022. <https://www.energy.ca.gov/news/2018-05/energy-commission-adopts-standards-requiring-solar-systems-new-homes-first>.
- . 2018b. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf.
- . 2021, May 19. Amendments to the Building Energy Efficiency Standards (2022 Energy Code) Draft Environmental Report. CEC-400-2021-077-D.
- . 2022a, October 9 (accessed). Electricity Consumption by Planning Area. <http://www.ecdms.energy.ca.gov/elecbyplan.aspx>.
- . 2022b. 2020 Power Content Label: Pacific Gas and Electric. Accessed October 9, 2022. <https://www.energy.ca.gov/filebrowser/download/3882>.
- . 2022c, October 9 (accessed). Gas Consumption by Planning Area. <http://www.ecdms.energy.ca.gov/gasbyplan.aspx>.
- California Public Utilities Commission. 2011, January. CA Energy Efficiency Strategic Plan. <https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/c/5303-caenergyefficiencystrategicplan-jan2011.pdf>, accessed October 11, 2022.
- National Highway Traffic Safety Administration. 2022, April 1. USDOT Announces New Vehicle Fuel Economy Standards for Model year 2024-2026. Accessed October 11, 2022. <https://www.nhtsa.gov/press-releases/usdot-announces-new-vehicle-fuel-economy-standards-model-year-2024-2026>.
- Pacific Gas and Electric Company. 2022, October 10 (accessed). Company profile. https://www.pge.com/en_US/about-pge/company-information/profile/profile.page.

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United States Census Bureau. 2000. Housing Characteristics, Butte County, California.

United States Census Bureau. 2019. Housing Characteristics, Butte County, California.

United States Environmental Protection Agency (USEPA). 2022, May 12 (updated). Summary of the Energy Independence and Security Act Public Law 110-140 (2007). Accessed on October 11, 2022. <https://www.epa.gov/laws-regulations/summary-energy-independence-and-security-act>.