APPENDIX D

Energy Impact Analysis

ENERGY IMPACT ANALYSIS

FOR

CITY OF ATASCADERO 2045 GENERAL PLAN UPDATE

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PREPARED BY:

AMBIENT
AIR QUALITY & NOISE CONSULTING
75 HIGUERA STREET, SUITE 105
SAN LUIS OBISPO, CA 93401

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LIST OF COMMON TERMS & ACRONYMS

AFV	Alternative Fuel Vehicles
CalEEMod	California Emissions Estimator Model
ARB	California Air Resource Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
EMFAC	Emissions Factor
EO	Executive Order
EPA	Environmental Protection Agency
EPACT	Energy Policy Act
GHG	Greenhouse Gas
GPU	General Plan Update
kBTU	Kilo British Thermal Units
kW	Kilowatt
kWh	Kilowatt Hour
MMBTU	Million Metric British Thermal Units
MW	Megawatt
PG&E	Pacific Gas and Electric
PV	Photovoltaic
RTP	Regional Transpotation Plan
SCS	Sustainable Communities Strategy
SLOCOG	San Luis Obispo Council of Governments
SoCalGas	Southern California Gas Company
VMT	Vehicle Mile Traveled

INTRODUCTION

This report provides an overview of existing energy providers and usage within the City of Atascadero and surrounding regions; a summary of the applicable regulatory framework and an analysis of energy impacts associated with implementation of the City of Atascadero 2045 General Plan Update (2045 GPU). The findings of this analysis are intended to help inform the development of goals and policies in the City's 2045 GPU.

PROPOSED CITY OF ATASCADERO GENERAL PLAN UPDATE

The 2045 GPU is a long-range policy document that provides context and establishes guidance for decision-making, design and development of new projects, conservation of natural resources, promotion of economic development, improvements to mobility and infrastructure systems, expansion of public services, and enhancement of community amenities. The 2045 GPU identifies year 2045 as a horizon year; however, the City recognizes that not all initiatives and goals in the 2045 GPU may be achieved by 2045.

ENERGY FUNDAMENTALS

Energy use is typically associated with transportation, construction, and the operation of land uses. Transportation energy use is generally categorized as direct and indirect energy. Direct energy relates to energy consumption by vehicle propulsion. Indirect energy relates to the long-term energy consumption of equipment, such as maintenance activities. Energy is also consumed by construction, routine operation and, maintenance of land use. Construction energy relates to a direct one-time energy expenditure primarily associated with the consumption of fuel to operate construction equipment. Energy consumption related to land use is normally associated with direct energy consumption for heating, ventilation, and air conditioning of buildings.

EXISTING SETTING

Physical Setting

The City of Atascadero is located within San Luis Obispo County. Energy use, including the consumption of electricity, natural gas, and petroleum-based fuels, can directly impact local and regional air quality and generate greenhouse gas (GHG) emissions that contribute to climate change. The City is served primarily by Pacific Gas & Electric (PG&E) for electrical service and Southern California Gas Company (SoCalGas) for natural gas service.

Energy Resources

Electricity

State of California

In 2024, total system electric generation (TSEG) for California was 278,338 gigawatt-hours (GWh), down 1 percent (2,802 GWh) from 2023. TSEG is the sum of all utility-scale in-state generation plus net electricity imports from power plants with a nameplate capacity of at least one megawatt (MW). Clean energy resources accounted for 62 percent of California's power mix, a 4 percent increase from 58 percent in 2023. In-state generation was 216,181 GWh in 2024, virtually unchanged from the 2023 value of 216,047 GWh. Imported energy decreased to 62,157 GWh, down 5 percent (3,361 GWh) from 2023 (CEC 2026a).

City of Atascadero

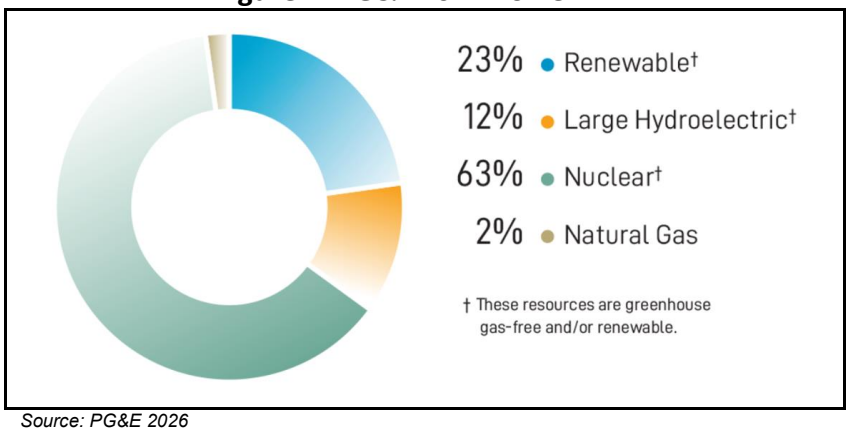
Electric services within the City of Atascadero are provided through a partnership between PG&E and Central Coast Community Energy (3CE). 3CE is committed to providing energy from 100-percent renewable sources. Participation in the 3CE program is voluntary and PG&E continues to provide electrical service and maintains electrical infrastructure (3CE 2026).

In 2024, PG&E supplied 98% greenhouse gas-free electricity to residential and business customers to whom we directly sell power, including from renewables, nuclear and large hydroelectric power. The power mix delivered to PG&E's bundled-service customers in 2024 included the following greenhouse gas-free technologies. The breakdown of PG&E's power mix is shown in Figure 1 (PG&E 2026):

- Eligible renewable resources, such as wind, geothermal, biomass, solar and small hydro (23%)
- Non-emitting nuclear generation (63%)
- Large hydroelectric facilities (12%)
- Natural gas fueled facilities (2%)

Electricity usage rates for the City of Atascadero are not currently available. However, in 2024, San Luis Obispo County consumed a total of 1,681.4 GWh of electricity (CEC 2026e).

Figure 1. PG&E 2021 Power Mix



Source: PG&E 2026

Natural Gas

California

Natural gas continues to play an important and varied role in California. Nearly 45 percent of the natural gas burned in California was used for electricity generation, and much of the remainder consumed in the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors. California continues to depend upon out-of-state imports for nearly 90 percent of its natural gas supply, underscoring the importance of monitoring and evaluating ongoing market trends and outlook. Natural gas has become an increasingly important source of energy since the state's power plants rely on this fuel (CEC 2026b).

City of Atascadero

Natural gas services in the City of Atascadero are provided by Southern California Gas Company (SoCalGas). SoCalGas's natural gas system encompasses approximately 20,000 square miles in Southern

California. Natural gas throughput provided by SoCalGas totals approximately 2.8 billion cubic feet per day (SoCalGas 2026).

Natural gas usage rates for the City of Atascadero are not currently available. However, in 2024, San Luis Obispo County consumed a total of 84.2 millions of therms of natural gas (CEC 2026f).

Petroleum Fuels

Gasoline

Gasoline is the most used transportation fuel in California, with ninety seven percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2024, 11.681 billion gallons of gasoline were sold.

Existing and historical gasoline consumption rates for the City of Atascadero are not available. However, in 2024, the County of San Luis Obispo consumed an estimated 118 million gallons of gasoline (CEC 2026d).

Diesel

Diesel is the second largest transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. In 2024, 2.968 billion gallons of diesel were sold (CEC 2026c).

Existing and historical diesel consumption rates for the City of Atascadero are not available. However, in 2024, the County of San Luis Obispo consumed an estimated 21 million gallons of diesel (CEC 2026d).

Regulatory Framework

Federal

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the United States would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the NHSTA, which is part of the U.S. DOT, is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 miles per gallon (mpg). Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The CAFE program, administered by U.S. EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. U.S. EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the U.S. DOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of

alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the Act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is intended to improve vehicle fuel economy and help reduce the United States' dependence on foreign oil. The Energy Independence and Security Act of 2007 also set energy efficiency standards for lighting and appliances.

State

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

Assembly Bill 32: Climate Change Scoping Plan and Update

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)], which created a comprehensive, multi-year program to reduce greenhouse gas emissions in California. In October 2008, ARB published its first Climate Change Scoping Plan (2008 Scoping Plan). The 2008 Scoping Plan contained the main strategies to be implemented to achieve the year 2020 target emission levels identified in AB 32. The 2008 Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementation of energy efficiency measures in buildings and appliances, the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production (ARB 2008).

The ARB's Scoping Plan is updated every five years. The First Update to the Climate Change Scoping Plan was approved by the ARB on May 22, 2014, which looked past the year 2020 targets to set mid-term goals (2030-2035) on the road to reaching the 2050 goals (ARB 2013). The 2017 Scoping Plan identified how the State established a path to reduce GHG emissions by 40 percent from 1990 levels by 2030, and substantially advance toward the 2050 climate goal of reducing GHG emissions by 80 percent below 1990 levels (ARB 2017). The most recent Scoping Plan update is the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon

neutrality and reduce anthropogenic greenhouse gas emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279 (ARB 2026).

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels (SAF) Plan in partnership with ARB and consultation with other state, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing significant degradation of public health and environmental quality.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), the CEC and the ARB prepared and adopted a joint agency report in 2003, Reducing California's Petroleum Dependence. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita vehicle miles traveled (VMT) (ARB 2003). Further, a performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2020.

Senate Bill SB 100

SB 100 The 100 Percent Clean Energy Act of 2018, which sets a state policy that eligible renewable energy and zero-carbon resources supply 100 percent (%) of all retail sales of electricity in California by 2045.

Senate Bill 350: Clean Energy and Pollution Prevention Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires a doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land use allocation in that MPOs regional transportation plan (RTP). ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld.

Senate Bill 1078: California Renewables Portfolio Standard Program

Senate Bill (SB) 1078 (Public Utilities Code Sections 387, 390.1, 399.25, and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum of 20 percent of their supply from renewable sources by 2017. This SB will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order (EO) S-14-08, which set the Renewables Portfolio Standard (RPS) target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. EO S-14-08 was later superseded by EO S-21-09 on September 15, 2009. EO S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State to come from renewable energy by 2020. Statute SB X1-2 superseded this EO in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

Senate Bill 32 and Assembly Bill 197 of 2016

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from the year 2020 to the year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target. Achievement of these goals will have the co-benefit of increasing energy efficiency and reducing California's dependency on fossil fuels.

Executive Order S-06-06

EO S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The EO also calls for the State to meet a target for use of biomass electricity. The Bioenergy Action Plans developed by the CEC to identify those barriers and recommend actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan provides a detailed action plan to achieve the following goals:

- increase environmentally- and economically-sustainable energy production from organic waste;
- encourage the development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications;
- create jobs and stimulate economic development, especially in rural regions of the state; and
- reduce fire danger, improve air, and water quality, and reduce waste.

In 2019, 2.87 percent of the total electrical system power in California was derived from biomass (CEC 2020).

Executive Order B-48-18: Zero-Emission Vehicles

In January 2018, Governor Brown signed EO B-48-18 which required all State entities to work with the private sector to put at least 5 million zero-emission vehicles on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 zero-emissions chargers by 2025. In addition, State entities are also required to continue to partner with local and regional governments to streamline the installation of zero-emission vehicle infrastructure. Additionally, all State entities are to support and recommend policies and actions to expand infrastructure in homes, through the Low-Carbon Fuel Standard.

Executive Order B-55-18

Establishes a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.

Energy Action Plan

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.

In the October 2005 EAP II, CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvements to real property. The CBC is adopted every three years by the State's Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green building standards are indistinguishable from any other building standards, are contained in the CBC, and regulate the construction of new buildings and improvements. Whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

The 2019 Building Energy Efficiency Standards (2019 Standards), adopted in May 2018, addressed four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), residential and nonresidential ventilation

requirements, and non-residential lighting requirements. The 2019 Standards required new residential and non-residential construction; as well as major alterations to existing structures, to include electric vehicle (EV)-capable parking spaces which have electrical panel capacity and conduit to accommodate the future installation. In addition, the 2019 Standards also required the installation of solar photovoltaic (PV) systems for low-rise residential dwellings, defined as single-family dwellings and multi-family dwellings up to three stories in height. These requirements are based on various factors, including the floor area of the home, sun exposure, and climate zone. Under the 2019 standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2019).

The 2022 Building Energy Efficiency Standards (2022 Standards), which were approved in December 2021, encourage efficient electric heat pumps, establish electric-ready requirements when natural gas is installed, support the future installation of battery storage, further expand solar photovoltaic and battery storage standards. The 2022 Standards extend solar PV system requirements, as well as battery storage capabilities for select land uses, including high-rise multi-family and non-residential land uses, such as office buildings, schools, restaurants, warehouses, theaters, grocery stores, and more. Depending on the land use and other factors, solar systems should be sized to meet targets of up to 60 percent of the structure's loads. These solar requirements became effective on January 1, 2023, and contribute to California's goal of reaching a net-zero carbon footprint by 2045 (CEC 2022).

The most current standards are the 2025 Standards, which became effective January 1, 2026. The 2025 Standards build upon the previous standards by expanding the use of heat pumps in newly constructed residential buildings, encouraging electric-readiness, strengthens ventilation standards, and more (CEC 2026g).

Advanced Clean Cars Program

In January 2012, ARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires a battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016 (ARB 2016).

Advanced Clean Cars II

In August 2022, ARB approved the Advanced Clean Cars II program. The rule establishes a year-by-year roadmap so that by 2035 100% of new cars and light trucks sold in California will be zero-emission vehicles, including plug-in hybrid electric vehicles. Beginning in model year 2026 automakers sales of new vehicles will be required to be made up of 35% ZEVs and PHEVs. The regulation applies to automakers and covers only new vehicle sales. It does not impact existing vehicles on the road today, which will still be legal to own and drive (ARB 2022).

Small Off-Road Engines

In December 2021, ARB approved the Small Off-Road Engines regulation. This will require most newly manufactured small off-road engines such as those found in leaf blowers, lawn mowers and other equipment be zero emission starting in 2024. Portable generators, including those in recreational vehicles, would be required to meet more stringent standards in 2024 and meet zero-emission standards starting in 2028. Despite their small size, these engines are highly polluting. The volume of smog-forming emissions from this type of equipment has surpassed emissions from light-duty passenger cars and is projected to be nearly twice those of passenger cars by 2031. Older equipment can continue to be used and resold as this rule only impacts new equipment (ARB 2021).

San Luis Obispo County Regional Transportation Plan and Sustainable Communities Strategy

The San Luis Obispo Council of Governments (SLOCOGs) Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) provides a comprehensive assessment of various forms of transportation available within San Luis Obispo County (County), as well as, projected travel and goods movement needs through future years. The most current version of the RTP is the 2023 RTP/SCS. The RTP/SCS provides a collective vision for the region's future, while balancing transportation and housing needs with social, economic, and environmental goals. The RTP/SCS helps guide future planning efforts and policy decisions that affect transportation, including its relationship with housing and land use that will reduce greenhouse gas emissions in the County and local jurisdictions. The 2023 RTP/SCS also provides recommendations for the County and local jurisdictions in making decisions about transportation, housing, and land-use. The RTP/SCS is updated every four years (SLOCOG 2026).

ENVIRONMENTAL IMPACTS

Significance Threshold Criteria

According to Appendix G of the California Environmental Quality Act (CEQA) Guidelines, a project would normally have a significant effect on the environment if the project would:

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

The CEQA Guidelines, Appendix F, require environmental analyses to include a discussion of potential energy impacts associated with a proposed project. Where necessary, CEQA requires that mitigation measures be incorporated to reduce the inefficient, wasteful, or unnecessary consumption of energy. The State CEQA Guidelines, however, do not establish criteria that define inefficient, wasteful, or unnecessary consumption. Compliance with the State's building standards for energy efficiency would result in decreased energy consumption for proposed buildings. However, compliance with building codes may not adequately address all potential energy impacts associated with a project. As a result, this analysis includes an evaluation of electricity and natural gas usage requirements associated with future development, as well as fuel usage associated with the operation of on-road and off-road vehicles. The degree to which the proposed project would comply with existing energy standards, as well as applicable regulatory requirements and policies related to energy conservation, was also taken into consideration for the evaluation of project-related energy impacts.

Methodology

Energy consumption is categorized in terms of "operational" and "construction" energy. Operational energy accounts for energy consumed by mobile sources and land use scenarios envisioned under the 2045 GPU, such as fuel consumed by vehicles, natural gas consumed for heating and/or power, and electricity consumed for power. Construction energy is the energy needed for construction and maintenance of the transportation system and land use scenario facilitated by the 2045 GPU. The analysis of operational energy involves the quantification of anticipated net increases of transportation fuel, natural gas, and electricity consumption under the 2045 GPU and a qualitative discussion of the efficiency, necessity, and wastefulness of the energy consumption. The analysis of construction energy involves a qualitative discussion of construction and maintenance energy requirements anticipated under buildout of the 2045 GPU.

Construction-Related Energy Consumption

Development facilitated by the 2045 GPU would involve the use of energy during construction and operation. Energy use during construction would be primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. Much of this information for specific future development projects is unknown at this time. As a result, construction-related impacts were qualitatively discussed.

Operational Energy Consumption

The long-term operation of the proposed 2045 GPU would require electricity usage for lighting, space and water heating, appliances, water conveyance, and landscaping maintenance equipment. Indirect energy use would include wastewater treatment and solid waste removal.

Projections for the 2045 GPU transportation fuel were calculated based on the VMT Impact Assessment conducted by Central Coast Transportation Consultants (CCTC 2025) and ARB's Emission Factors 2025 (EMFAC2025) database. Fuel usage rates for gasoline and diesel fuels were quantified based on County-wide fleet average VMT and fuel usage rates derived from EMFAC2025. For comparison purposes, fuel usage rates were converted to million metric British thermal units (MMBTU) per service population. Service population was calculated based on the total population and employee estimates for the County and net increases attributable to the 2045 GPU. Net increases of natural gas and electricity consumption under buildout of the land use scenario envisioned by the 2045 GPU were calculated based on consumption rates derived from the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.37. Existing and historical fuel consumption rates for the City of Atascadero are not available. For comparison purposes, electricity and natural gas usage rates for the County and net increases attributable to the 2045 GPU, were calculated based on usage per service population, which is defined as the total population plus employees. Modeling assumptions are included in Appendix A.

Relevant Proposed 2045 GPU Goals and Policies

The 2045 GPU includes numerous goals and policies related to energy use. Some of the more relevant goals and policies include the following:

Goal PSI-6: Increased development and use of clean, renewable energy systems.

> *Policy PSI-6.1: Onsite Renewable Energy.* Facilitate the installation of onsite renewable energy systems for residences and places of business.

Policy PSI-6.2: Energy Efficient Planning and Building Design. Encourage energy-efficient site planning and building design/construction.

Goal MO-1: A safe, multimodal, interconnected, and efficient circulation system that serves all community members

Policy MO-1.2: Multimodal Options. Increase pedestrian and bicycle connections and safety between residential areas and commercial areas along major corridors, parks and recreation opportunities, and neighboring communities.

Policy MO-1.4: Congestion Management and Trip Reduction. Encourage mixed-use and jobs focused infill development that is served by multi-modal facilities to support reductions in regional and local vehicle miles traveled (VMT).

Goal MO-4: Safe, functional, and appealing bicycle, pedestrian, and equestrian (in rural areas) facilities that allow convenient multi-modal mobility

Policy MO-4.1: Coordination and Planning. Provide "backbone" pedestrian, bicycle, and equestrian systems that link residential, commercial, recreational, and regional areas.

Policy MO-4.2: Pedestrian Mobility. Ensure pedestrian safety, enhance pedestrian comfort, and promote walking as an alternative to vehicle travel, with priority in retail districts and multi-family neighborhoods.

Policy MO-4.3: Bicycle Mobility. Promote bicycle mobility and increase bicyclist safety with new/upgraded facilities and amenities.

Policy MO-4.4: Rural Trails. Provide for walkways, bikeways, and horse trails without curbs and sidewalks in rural areas.

Policy MO-4.5: School and Park Connections. Provide a comprehensive system of routes to schools and parks.

Goal MO-5: Reliable alternative travel modes that reduce traffic congestion and improve air quality.

Policy MO-5.1: Single-Occupancy Vehicle Alternatives. Promote alternatives to single-occupancy vehicle travel, particularly for commute trips.

Policy MO-5.2: Public Transit. Support the evolution of public transit to meet the changing needs for local and regional access, including fixed route and demand responsive service.

Policy MO-5.3: County TDM Requirements. Seek alternatives that bring Atascadero closer to compliance with Transportation Demand Management program requirements of the San Luis Obispo County Clean Air Plan to reduce peak period trip generation.

Goal MO-6: Anticipating and addressing emerging mobility technology proactively to allow new systems and industries to operate in Atascadero on the City's terms.

Policy MO-6.1: Changing Mobile Technology. Encourage the use of mobile or other electronic devices with similar on-demand hailing functions, particularly for seniors, persons with disabilities, and other mobility challenged people.

Policy MO-6.2: Autonomous Vehicles. Update, when warranted, transportation systems and policies as autonomous and automated vehicles and their attendant facilities are developed locally and regionally.

Impacts and Mitigation Measures

Impact E-1: Would the project result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Implementation of the proposed project would increase electricity, diesel, gasoline, and natural gas consumption associated with construction activities, as well as long-term operational activities.

Construction-Related Energy Consumption

Energy consumption associated with construction of the proposed 2045 GPU would including fuel use associated with the on-site operation of off-road equipment and vehicles traveling to and from the construction site. The CBC includes specific requirements related to recycling, construction materials, and energy efficiency standards that would apply to construction of future development envisioned by the 2045 GPU and would minimize wasteful, inefficient, and unnecessary energy consumption. Construction and operation of projects facilitated by the 2045 GPU would be required to comply with relevant provisions of CBC and Title 24 of the California Energy Code, which would avoid wasteful, inefficient, and unnecessary energy consumption. As a result, the construction of proposed facilities and improvements would not result in an inefficient, wasteful, or unnecessary consumption of energy.

Operational Mobile-Source Energy Consumption

Operational mobile-source energy consumption would be primarily associated with fuel use associated with vehicle trips attributable to the proposed land uses. Table 1 summarizes annual fuel use for the County; as well as, net increases in fuel use associated with the proposed 2045 GPU. As noted in Table 1, the County consumed an estimated 14,943,147 MMBTU of gasoline fuel and 10,420,451 MMBTU of diesel fuel in 2024. Net increases in fuel use associated with the 2045 GPU would total approximately 147,833 MMBTU of gasoline and 103,090 MMBTU of diesel fuel. On a service population (SP) basis, the County's fuel usage equates to 36.6 MMBTU/SP for gasoline and 25.5 MMBTU/SP for diesel. By comparison, fuel usage associated with the 2045 GPU would be 15.1 MMBTU/SP for gasoline and 10.5 MMBTU/SP for diesel fuel. While the overall fuel consumption would increase with the adoption of the proposed 2045 GPU the efficiency of the fuel usage would improve when compared to the County average. The development of increasingly efficient automobile engines would further increase energy efficiency and energy conservation.

Table 1. Operational Fuel Consumption

	Gasoline (MMBTU/Year)	Diesel (MMBTU/Year)
San Luis Obispo County (Year 2024)	14,943,147	10,420,451
2045 General Plan Update	147,833	103,090
	Annual Usage Rates/Service Population (SP)	
San Luis Obispo County (Year 2024)	36.6	25.5
2045 General Plan Update	15.1	10.5

Based on County of San Luis Obispo year 2024 population of 281,843 individuals and 126,927 employees (U.S. Census 2024).
Based on City of Atascadero 2045 GPU net increase in population of 6,596 individuals and 3,185 employees.
Totals may not sum due to rounding.
MMBTU= million metric British thermal units
SP=Service Population (population+employees)
Refer to Appendix A for modeling assumptions and results.

Operational Building-Use Energy Consumption

The proposed 2045 GPU would result in increased electricity and natural gas consumption associated with the long-term operation of the proposed land uses. It is important to note that buildings included in the 2045 GPU would be required to comply with Title 24 standards for energy efficiency, which would include increased building insulation and energy-efficiency requirements, including the use of energy-efficient lighting, energy-efficient appliances, and use of low-flow water fixtures.

Table 2 summarizes annual electricity and natural gas use for the County; as well as, net increases in energy use attributable to the proposed 2045 GPU. As noted in Table 2, the County consumed an estimated 1,681,400,000 kWh/year of electricity and 84,200,000 therms/year of natural gas in 2024. Net increases in energy use associated with the 2045 GPU would total approximately 35,374,663 kWh/year of electricity and 1,022,265 therms/year of natural gas. On a service population (SP) basis, the County's energy usage equates to 4,113 kWh/SP for electricity use and 206 therms/SP for natural gas use. By comparison, energy use associated with the 2045 GPU would be 3,617 kWh/SP for electricity use and 105 therms/SP for natural gas. While the overall energy consumption would increase with the adoption of the proposed 2045 GPU the efficiency of energy usage on a service-population basis would improve when compared to the County average. However, at this time, most projects incorporated in the 2045 GPU do not have sufficient detail to allow project-level analysis and thus it would be speculative to analyze project-level impacts on energy consumption. Given that specific projects have the potential to be wasteful, inefficient, or unnecessarily consume energy resources, this impact would be considered **potentially significant**.

Table 2. Operational Electricity & Natural Gas Consumption

	Electricity (kWh/Year)	Natural Gas (Therms/Year)
San Luis Obispo County (Year 2024)	1,681,400,000	84,200,000
2045 General Plan Update	35,374,663	1,022,265
	Annual Usage Rates/Service Population (SP)	
San Luis Obispo County (Year 2024)	4,113 kWh/SP	206 therms/SP
2045 General Plan Update	3,617 kWh/SP	105 therms/SP

Based on County of San Luis Obispo year 2024 population of 281,843 individuals and 126,927 employees (U.S. Census 2024).
Based on City of Atascadero 2045 GPU net increase in population of 6,596 individuals and 3,185 employees.
MMBTU= million metric British thermal units
SP=Service Population (population+employees)
Refer to Appendix A for modeling assumptions and results.

Proposed 2045 GPU Policies that Provide Mitigation

As noted above, the 2045 GPU includes various goals and policies that would reduce energy consumption attributable to new land uses; as well as, goals and policies that would promote the use of alternative means of transportation and reductions in VMT. However, no policies have been proposed that specifically require existing or future land uses to evaluate and mitigate potential energy impacts.

Proposed Mitigation Measures

MM E-1: The following measures shall be implemented to further reduce energy use associated with existing and future land uses:

a. Incorporate renewable energy efficiency into public facilities capital improvements.
b. Encourage public lighting with energy-efficient lighting that meets or exceeds the State's building standards at the time of development.
c. Implement large-scale energy storage in commercial and industrial buildings to control peak loads that exceed the State's building standards at the time of development.
d. Encourage future development to incorporate on-site renewable energy generation (e.g., solar photovoltaic systems), that exceed the State's building standards at the time of development.
e. Encourage future residential and commercial development to use all-electric appliances and end uses as opposed to natural gas-fueled appliances and end uses.

Significance After Mitigation

Mitigation measures have been included to reduce overall operational energy consumption, including those associated with long-term operational building energy use. Implementation of Mitigation Measures E-1a through E-1e would help to ensure consistency with applicable regulatory requirements related to energy use and would also help to promote the use of energy from renewable sources (e.g., solar). Mitigation Measure E-1e would encourage future residential and commercial development to use all-electric appliances and end uses. Using electric instead of natural gas-powered appliances and end uses replaces a more emissions-intensive fossil fuel source of energy with a less emissions-intensive and largely renewable source of energy. With mitigation, this impact would be considered **less than significant.**

Impact E-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Proposed land uses associated with the 2045 GPU would be required to be in full compliance with the California Building Code, including applicable green building standards and building energy efficiency standards. In addition to complying with federal and state regulations, the 2045 GPU itself provides policies that are designed specifically to reduce energy consumption or to reduce other types of pollutants that have the co-benefit of reducing energy consumption. Furthermore, implementation of Mitigation Measures E-1a through E-1e would help to ensure consistency with applicable regulatory requirements related to energy use and would also help to promote the use of energy from renewable sources. For these reasons, implementation of the proposed 2045 GPU would not be anticipated to conflict with or obstruct state or local plans for renewable energy or energy efficiency. This impact would be considered **less than significant**.

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APPENDIX A

Energy Use Modeling

Source: EMFAC2025 (v2.0.0) Emissions Inventory
Region Type: County
Region: San Luis Obispo
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202Y Categories
Units: miles/year, 1000 gallons/year for Gasoline and Diesel Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Total VMT	CVMT	Fuel Consumption
San Luis Obis	2045	LDA	Aggregate	Aggregate	Diesel	247573.274	247573.274	6.36570967
San Luis Obis	2045	LDT1	Aggregate	Aggregate	Diesel	13.523242	13.523242	0.00075253
San Luis Obis	2045	LDT2	Aggregate	Aggregate	Diesel	357370.102	357370.102	9.37290826
San Luis Obis	2045	LHD1 Other	Aggregate	Aggregate	Diesel	15461660.7	15461660.7	963.556057
San Luis Obis	2045	LHD1 Public	Aggregate	Aggregate	Diesel	139952.068	139952.068	8.72168035
San Luis Obis	2045	LHD2 Other	Aggregate	Aggregate	Diesel	12590455	12590455	850.984961
San Luis Obis	2045	LHD2 Public	Aggregate	Aggregate	Diesel	257332.329	257332.329	17.3930125
San Luis Obis	2045	MDV	Aggregate	Aggregate	Diesel	7478000.89	7478000.89	294.282916
San Luis Obis	2045	MH	Aggregate	Aggregate	Diesel	928279.353	928279.353	99.4994211
San Luis Obis	2045	Motor Coach	Aggregate	Aggregate	Diesel	490226.795	490226.795	77.415244
San Luis Obis	2045	OBUS	Aggregate	Aggregate	Diesel	633122.031	633122.031	76.0467577
San Luis Obis	2045	PTO	Aggregate	Aggregate	Diesel	679865.46	679865.46	122.002486
San Luis Obis	2045	SBUS	Aggregate	Aggregate	Diesel	383889.776	383889.776	45.5202549
San Luis Obis	2045	T6 CAIRP Clas	Aggregate	Aggregate	Diesel	1234.6026	1234.6026	0.12516682
San Luis Obis	2045	T6 CAIRP Clas	Aggregate	Aggregate	Diesel	2230.89757	2230.89757	0.22616947
San Luis Obis	2045	T6 CAIRP Clas	Aggregate	Aggregate	Diesel	6602.52013	6602.52013	0.65888163
San Luis Obis	2045	T6 CAIRP Clas	Aggregate	Aggregate	Diesel	54544.1005	54544.1005	4.75534475
San Luis Obis	2045	T6 Instate Del	Aggregate	Aggregate	Diesel	224641.362	224641.362	25.1837995
San Luis Obis	2045	T6 Instate Del	Aggregate	Aggregate	Diesel	181378.805	181378.805	20.1670013
San Luis Obis	2045	T6 Instate Del	Aggregate	Aggregate	Diesel	678492.087	678492.087	74.7446716
San Luis Obis	2045	T6 Instate Del	Aggregate	Aggregate	Diesel	192862.951	192862.951	20.5854797
San Luis Obis	2045	T6 Instate Oth	Aggregate	Aggregate	Diesel	943650.296	943650.296	103.600956
San Luis Obis	2045	T6 Instate Oth	Aggregate	Aggregate	Diesel	4374212.47	4374212.47	481.764074
San Luis Obis	2045	T6 Instate Oth	Aggregate	Aggregate	Diesel	2053817.41	2053817.41	222.09511
San Luis Obis	2045	T6 Instate Oth	Aggregate	Aggregate	Diesel	1924646.05	1924646.05	203.259693
San Luis Obis	2045	T6 Instate Trac	Aggregate	Aggregate	Diesel	35748.7226	35748.7226	3.57843379
San Luis Obis	2045	T6 Instate Trac	Aggregate	Aggregate	Diesel	350830.646	350830.646	31.03654
San Luis Obis	2045	T6 OOS Class	Aggregate	Aggregate	Diesel	8105.29313	8105.29313	0.76812944
San Luis Obis	2045	T6 OOS Class	Aggregate	Aggregate	Diesel	14676.1197	14676.1197	1.39043459
San Luis Obis	2045	T6 OOS Class	Aggregate	Aggregate	Diesel	33256.0671	33256.0671	3.15219493
San Luis Obis	2045	T6 OOS Class	Aggregate	Aggregate	Diesel	192335.553	192335.553	16.2892888
San Luis Obis	2045	T6 Public Clas	Aggregate	Aggregate	Diesel	1871.76074	1871.76074	0.24212641
San Luis Obis	2045	T6 Public Clas	Aggregate	Aggregate	Diesel	16271.6422	16271.6422	2.00550758
San Luis Obis	2045	T6 Public Clas	Aggregate	Aggregate	Diesel	3602.41283	3602.41283	0.4508513
San Luis Obis	2045	T6 Public Clas	Aggregate	Aggregate	Diesel	12858.3873	12858.3873	1.59565737
San Luis Obis	2045	T6 Utility Clas	Aggregate	Aggregate	Diesel	25191.1644	25191.1644	2.55459779
San Luis Obis	2045	T6 Utility Clas	Aggregate	Aggregate	Diesel	5385.3512	5385.3512	0.55607771
San Luis Obis	2045	T6 Utility Clas	Aggregate	Aggregate	Diesel	7592.22191	7592.22191	0.76270881
San Luis Obis	2045	T7 CAIRP Clas	Aggregate	Aggregate	Diesel	6336950.21	6336950.21	862.907879
San Luis Obis	2045	T7 NNOOS Cl	Aggregate	Aggregate	Diesel	27467428.4	27467428.4	3589.00068
San Luis Obis	2045	T7 NOOS Clas	Aggregate	Aggregate	Diesel	9723938.07	9723938.07	1278.30251
San Luis Obis	2045	T7 Other Port	Aggregate	Aggregate	Diesel	522962.55	522962.55	69.7398545
San Luis Obis	2045	T7 Public Clas	Aggregate	Aggregate	Diesel	45393.2407	45393.2407	7.99470242
San Luis Obis	2045	T7 Single Con	Aggregate	Aggregate	Diesel	1145524.21	1145524.21	195.455737
San Luis Obis	2045	T7 Single Dum	Aggregate	Aggregate	Diesel	714461.805	714461.805	107.761765
San Luis Obis	2045	T7 Single Othe	Aggregate	Aggregate	Diesel	1510967.52	1510967.52	225.510761
San Luis Obis	2045	T7 SWCV Clas	Aggregate	Aggregate	Diesel	292698.95	292698.95	91.7863316
San Luis Obis	2045	T7 Tractor Cla	Aggregate	Aggregate	Diesel	3114298.05	3114298.05	406.041887
San Luis Obis	2045	T7 Utility Clas	Aggregate	Aggregate	Diesel	23130.6477	23130.6477	3.39621006
						101891534	101891534	10630.6094
					CONSUMPTIONS RATE:		0.10433261	G/MI

San Luis Obis	2045	LDA	Aggregate	Aggregate	Gasoline	104542762	104542762	3686.73095
San Luis Obis	2045	LDT1	Aggregate	Aggregate	Gasoline	54626810.2	54626810.2	2443.87021
San Luis Obis	2045	LDT2	Aggregate	Aggregate	Gasoline	141582186	141582186	5639.04425
San Luis Obis	2045	LHD1 Other	Aggregate	Aggregate	Gasoline	14955862.6	14955862.6	1464.29178
San Luis Obis	2045	LHD1 Public	Aggregate	Aggregate	Gasoline	1283104.69	1283104.69	125.625629
San Luis Obis	2045	LHD2 Other	Aggregate	Aggregate	Gasoline	2942456.06	2942456.06	306.264356
San Luis Obis	2045	LHD2 Public	Aggregate	Aggregate	Gasoline	539350.399	539350.399	56.1380695

San Luis Obis	2045	MCY	Aggregate	Aggregate	Gasoline	11386641.5	11386641.5	281.768804
San Luis Obis	2045	MDV	Aggregate	Aggregate	Gasoline	118419756	118419756	5825.40141
San Luis Obis	2045	MH	Aggregate	Aggregate	Gasoline	1894196.58	1894196.58	428.881174
San Luis Obis	2045	OBUS	Aggregate	Aggregate	Gasoline	195653.55	195653.55	39.9132221
San Luis Obis	2045	SBUS	Aggregate	Aggregate	Gasoline	386147.243	386147.243	36.248538
San Luis Obis	2045	T6TS	Aggregate	Aggregate	Gasoline	2136593.82	2136593.82	398.358483
San Luis Obis	2045	T7IS	Aggregate	Aggregate	Gasoline	8490.30632	8490.30632	2.53634567
						454900011	454900011	20735.0732
				CONSUMPTIONS RATE:			0.04558161	G/MI

TOTAL ALL:	556791545	556791545	31365.6826
PERCENT GAS:	81.70%	81.70%	66.11%
PERCENT DIESEL:	22.40%	22.40%	51.27%

ATASCADERO GPU - NET INCREASE IN VMT 87028 DAILY

ANNUAL VMT - TOTAL 31765220 ANNUAL

	VMT	CONSUMPTIC	TOTAL CONSU	MMBTU	SP	MMBTU/SP	VMT/SP
ANNUAL -GAS	25952260	0.04558161	1182945.7	147832.724	9781	15.114275	2653.33401
ANNUAL - DIESEL	7114985.51	0.10433261	742324.988	103089.64	9781	10.5397853	727.429252

BASELINE DAILY VMT 8796917

BASELINE ANNUAL VMT 3210874705

	VMT	CONSUMPTIC	TOTAL CONSU	MMBTU	SP	MMBTU/SP	VMT/SP
ANNUAL -GAS	2623292240	0.04558161	119573874	14943147	408,770	36.5563692	6417.52633
ANNUAL - DIESEL	719193099	0.10433261	75035291	10420451	408,770	25.4922108	1759.40773

COUNTY SERVICE POPULATION (SP)	
POP (JUL 2024 US CENSUS)	281843
EMPLOYMENT	126927
TOTAL	408770

With Natural-gas

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	1,242,987	203.983	0.0330	0.0040	8,179,524
Apartments Mid Rise	7,977,704	203.983	0.0330	0.0040	67,216,897
Strip Mall	3,985,087	203.983	0.0330	0.0040	2,875,665
General Office Building	12,411,497	203.983	0.0330	0.0040	13,432,288
Industrial Park	9,757,388	203.983	0.0330	0.0040	10,559,891

MODELING ASSUMPTIONS & CALCULATIONS

LAND USE - NET CHANGE

No. of Units		Sq. Ft.			
du_sf	**du_mf**	**bldg_retail**	**bldg_office**	**bldg_public**	**bldg_industrial**
205	2,688	481,454	594,666	0	467,501

Existing Year:	2024
Future Year:	2045
Employment:	3,185
Population:	6,596
TOTAL SP	9,781

ELECTRICITY AND NAT GAS USE - NET INCREASE

Land Use	Electricity (kWh/y	Natural Gas (kBTU/yr)		
Single Family Housing	1,242,987	8,179,524		
Apartments Mid Rise	7,977,704	67,216,897		
Strip Mall	3,985,087	2,875,665		
General Office Building	12,411,497	13,432,288		
Industrial	9,757,388	10,559,891		
Total	35,374,663	102,264,265	1022642.65	therms
Derived from CalEEMod modeling.				
net inc/sp	5363.364875		155.0489871	

EXISTING COUNTY USAGE RATES

			2024 SP		
ELECTRICITY	1681.4	GWh	408770	0.004113316 Gwh/SP	4113.3156 kWh/sp/yr
NATURAL GAS	84200000	therms	408770	205.9838051 Therms/SP	

	ELECTRICITY	NAT GAS			ELECTRICITY	NAT GAS
General Plan Update	35,374,663	1,022,265	San Luis Obispo County (Year 2024)		1,681,400,000	84,200,000
General Plan Update SP	9,781	9,781		SP	408770	408770
General Plan Update TOTAL/SP	3616.696836	104.5161219		TOTAL/SP	4113.32	205.98

COUNTY SP	
POP (JUL 2024 US CENSUS)	281843
EMPLOYMENT	126927
TOTAL	408770