3.6 ENERGY

This section evaluates whether implementation of the 2035 Master Plan would result in inefficient, wasteful, and unnecessary consumption of energy. The capacity of existing and proposed infrastructure to serve the project is evaluated in Section 3.14, "Utilities and Service Systems." Detailed calculations and results can be found in Appendix C.

No comments regarding energy use were received in response to the Notice of Preparation (NOP).

3.6.1 Regulatory Setting

FEDERAL

Energy Policy and Conservation Act, and CAFE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. The U.S. Environmental Protection Agency calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992 and 2005

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 also included in EPAct. Federal tax deductions are 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. The Energy Policy Act of 2005 provides 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 designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly fivefold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

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 state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission regulates privately owned utilities in the energy, rail, telecommunications, and water fields.

State of California Energy Action Plan

CEC is responsible for preparing the state energy plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 2003 California Energy Action Plan (2008 update). The plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resources Board (CARB) 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 VMT (CEC and CARB 2003). A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (PRC Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every 2 years and an update every other year. The most recent IEPR was adopted March 16, 2018. The 2017 IEPR provides a summary of priority energy issues currently facing the state, outlining strategies and recommendations to further the state's goal of ensuring reliable, affordable, and environmentally-responsible energy sources. Energy topics covered in the report include progress toward statewide renewable energy targets and issues facing future renewable development; efforts to increase energy efficiency in existing and new buildings; progress by utilities in achieving energy efficiency targets and potential; improving coordination among the state's energy agencies; streamlining power plant licensing processes; results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand; future energy infrastructure needs; the need for research and development efforts to statewide energy policies; and issues facing California's nuclear power plants.

Renewables Portfolio Standard

The state passed legislation referred to as the Renewables Portfolio Standard (RPS) that requires increasing use of renewable energy to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018). More detail about these regulations is provided in Section 3.8, "Greenhouse Gas Emissions."

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

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030. It also establishes energy efficiency targets that achieve statewide, cumulative doubling of the energy efficiency savings in electricity and natural gas end uses by the end of 2030.

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 Plan in partnership with CARB and in consultation with other state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative nonpetroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce greenhouse gas (GHG) emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

California Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the state's Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Code was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and to provide energy efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2019 California Energy Code was adopted by CEC on May 9, 2018 and will apply to projects constructed after January 1, 2020. The 2019 California Energy Code is designed to move the state closer to its zero-net energy (ZNE) goals for new residential development. It does so by requiring all new residences to install enough renewable energy to offset all the electricity needs of each residential unit (CCR, Title 24, Part 6, Section 150.1[c]4). CEC estimates that the combination of mandatory on-site renewable energy and prescriptively-required energy efficiency standards will result in a 53-percent reduction in new residential construction as compared to the 2016 California Energy Code. Nonresidential buildings are anticipated to reduce energy consumption by 30 percent as compared to the 2016 California Energy Code primarily through prescriptive requirements for high-efficiency lighting (CEC 2018). The Energy Code is enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary due to local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in the California Energy Code.

Assembly Bill 32, Senate Bill 32, and Climate Change Scoping Plan and Update

In December 2008, CARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of carbon dioxide equivalent (CO_2e) emissions, or approximately 21.7 percent from the state's projected 2020 emission level of 545 $MMTCO_2e$ under a business-as-usual scenario (this is a reduction of 47 $MMTCO_2e$, or almost 10 percent, from 2008 emissions). In May 2014, CARB released and has since adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching AB 32 goals and evaluate progress that has been made between 2000 and 2012 (CARB 2014). According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 (CARB 2014). The update also reports the trends in GHG emissions from various emission sectors (e.g., transportation, building energy, agriculture).

In August 2016, SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020, were signed into law. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction to at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by Executive Order B-30-15 for 2030, which set the next interim step in the state's continued efforts to pursue the long-term target expressed in Executive Orders S-3-05

and B-30-15 of 80 percent below 1990 emission levels by 2050. Achievement of these goals will have the cobenefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient.

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). In 2015, electricity generation accounted for 11 percent of the state's GHG emissions. California plans to significantly reduce GHG emissions from the energy sector through the development of renewable electricity generation in the form of solar, wind, geothermal, hydraulic, and biomass generation. The state is on target to meet the SB X1-2 33-percent renewable energy target by 2020 and will continue to increase statewide renewable electricity to 60 percent by 2030 and to 100-percent carbon-free electricity by 2045, pursuant to SB 100 of 2018. Additionally, the state will further its climate goals through improving the energy efficiency of residential and nonresidential buildings by continual updates (i.e., every 3 years) to the California Energy Code, which contains mandatory and prescriptive energy efficiency standards for all new construction.

More details about the statewide GHG reduction goals and 2017 Scoping Plan measures are provided in the regulatory setting of Section 3.8, "Greenhouse Gas Emissions," of the Draft EIR.

Senate Bill 375 of 2008

SB 375, signed into law in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. It requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. CARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks for 2020 and 2035. Implementation of SB 375 will have the cobenefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient.

The San Luis Obispo Council of Governments (SLOCOG) serves as the MPO for San Luis Obispo County, where the project site is located. Under SB 375, SLOCOG adopted its most recent *2019 Regional Transportation Plan* (RTP) in June 2019. SLOCOG was tasked by CARB to achieve an 8-percent per capita reduction compared to 2005 emissions by 2020 and an 8-percent per capita reduction by 2035, both of which SLOCOG confirmed the region would achieve by implementing the 2014 RTP (SLOCOG 2019:13-1; CARB 2018:1). In March 2018, CARB promulgated revised targets tasking SLOCOG to achieve a 3-percent and an 11-percent per capita reduction by 2020 and 2035, respectively (CARB 2018:1).

Executive Order B-18-12: Green Building Action Plan

In April 2012, Executive Order B-18-12 was issued, which requires state agencies to implement green building practices to improve energy, water, and materials efficiency; improve air quality and working conditions for state employees; reduce costs to the state; and reduce environmental impacts from state operations. Among other actions, Executive Order B-18-12 requires state agencies to reduce agency-wide water use by 10 percent by 2015 and 20 percent by 2020, as measured against a 2010 baseline. The Executive Order directs new state buildings designed after 2025 to be constructed as ZNE facilities, with an interim target of 50 percent of new facilities beginning design after 2020 to be ZNE. The Executive Order also calls for state agencies to identify and pursue opportunities to provide electric vehicle charging stations at employee parking facilities in new buildings.

Senate Bill 743 of 2013

SB 743 of 2013 required that the Governor's Office of Planning and Research (OPR) propose changes to the State CEQA Guidelines to address transportation impacts in transit priority areas and other areas of the state. In response, Section 15064.3, which requires that transportation impacts no longer consider congestion but instead focus on the impacts of VMT, was added to the State CEQA Guidelines in December 2018. Agencies have until July 1, 2020, to implement these changes but can also choose to implement these changes immediately. In support of these changes, OPR published its *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which recommends that

the transportation impact of a project be based on whether the project would generate a level of VMT per capita (or VMT per employee or some other metric) that is 15 percent lower than that of existing development in the region (OPR 2017:12–13) or that a different threshold based on substantial evidence be used. OPR's technical advisory explains that this criterion is consistent with PRC Section 21099, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions" (OPR 2017:18). This metric is intended to replace the use of delay and level of service to measure transportation-related impacts. More detail about SB 743 is provided in the regulatory setting of Section 3.13, "Transportation."

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In May 2014, the California State University (CSU) Board of Trustees adopted the first CSU systemwide Sustainability Policy. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum. The CSU Sustainability Policy established the following goals related to energy:

- reduce GHG emissions to 1990 levels by 2020,
- reduce GHG emissions 80 percent below 1990 levels by 2040,
- procure 33 percent of energy supply from renewable sources by 2020,
- increase on-site energy generation from 44 to 80 megawatts by 2020, and
- promote use of alternative fuels and transportation programs.

Energy Use Index

Energy use is the primary metric used by the CSU to track progress toward energy conservation goals, referred to as the Energy Use Index (EUI). EUI represents total annual electricity and natural gas use per square foot of building space, measured in British thermal units per square foot. To normalize this metric between different CSU campuses, the square footage is adjusted to prorate or remove buildings and structures that are very low or zero energy users, such as parking structures, stadiums, and farm buildings such as barns and storage sheds. The last two CSU Executive Orders on energy and sustainability (i.e., 917 of 2004, 987 of 2006) established goals to reduce British thermal units per square foot by 15 percent over two consecutive 5-year periods. Cal Poly has met or exceeded these goals.

Executive Order 987

Executive Order 987 is the CSU Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management. Cal Poly operates under this Executive Order, which sets minimum efficiency standards for new construction and renovations, and establishes operating practices intended to ensure CSU buildings are used in the most energy efficient and sustainable manner possible while still meeting the programmatic needs of the University.

Cal Poly Climate Action Plan

The Cal Poly Climate Action Plan (PolyCAP) was prepared during the 2015-2016 academic year as a collaborative effort between Facilities Management and Development and Cal Poly's City and Regional Planning Department. The goal of the PolyCAP is to reduce Cal Poly's GHG emissions and to adapt the campus to a changing climate. The PolyCAP aims to exceed the CSU mandate (i.e., reduce GHG emissions to 80 percent below 1990 levels by 2040) and achieve net zero GHG emissions by 2050 (City & Regional Planning 410/411 Studio 2016:3). The following goals, objectives, and strategies related to the 2019 Master Plan are required by the PolyCAP to improve energy efficiency and renewable energy generation on campus:

- **Building (BDG) Goal 1:** Net zero structures and operations
  - **BDG Objective 1.1:** All new and retrofitted buildings reduce annual energy demand per gross square feet by at least 50 percent from that of the former building or similar type of building.

        - **BDG Strategy 1.1.1:** Require all new and retrofitted buildings to exceed Title 24 standards by 30 percent or meet LEED [U.S. Green Building Council's Leadership in Energy and Environmental Design] Platinum certification requirements.
        - **BDG Strategy 1.1.3:** Require all new and retrofitted buildings to use efficient electric appliances.
    - **BDG Objective 1.2:** Monitoring and energy-efficient behavior reduces energy use by 25-50 percent.
        - **BDG Strategy 1.2.1:** Implement comprehensive metering in all new and retrofitted buildings.
        - **BDG Strategy 1.2.2:** Increase and educate staff to operate and monitor buildings efficiently.
    - **BDG Objective 1.3:** Reduce 100 percent of emissions associated with building operations (after implementation of all other BDG strategies).
        - **BDG Strategy 1.3.1:** Require all new and retrofitted buildings to include rooftop solar panels with the largest feasible array.
        - **BDG Strategy 1.3.2:** Require all buildings to offset emissions from natural gas consumption.
        - **BDG Strategy 1.3.3:** Produce enough energy to meet remaining demand from buildings not slated for replacement or retrofit.
- **Campus Life (CL) Goal 2:** Climate Smart Campus Culture
    - **CL Objective 2.1:** Reduce energy usage of student residents by 20 percent by 2025.
        - **CL Strategy 2.1.2:** Keep utility usage 10 percent less than baseline.
- **Renewable Energy (RE) Goal 1:** Renewable energy sources efficiently power campus needs
    - **RE Objective 1.1:** Balance energy produced on campus and energy provided by PG&E to be Net Zero by 2050.
    - **RE Objective 1.2:** Increase the capacity and efficiency of the grid.
        - **RE Strategy 1.2.2:** Install a microgrid on campus.
- **RE Goal 2:** Implemented renewable energy practice on both campus land and buildings
    - **RE Objective 2.1:** Increase implementation of solar energy panels on existing infrastructure.
        - **RE Strategy 2.1.1:** Outfit parking structures with solar arrays on the top level.
        - **RE Strategy 2.1.3:** Install rooftop solar arrays on identified buildings.
    - **RE Objective 2.2:** Build renewable energy infrastructure on campus-owned land.
        - **RE Strategy 2.2.1:** Maximize the solar energy implementation effort to ensure a 5 megawatt array.
        - **RE Strategy 2.2.2:** Implement the Cal Poly Wind Farm.
        - **RE Strategy 2.2.3:** Research and implement new energy storage strategies.
- **Public-Private Partnership (PPP) Goal 2:** Energy efficient buildings
    - **PPP Objective 2.1:** Establish Net Zero structures.
        - **PPP Strategy 2.1.1:** Incorporate the use of photovoltaic systems.
    - **PPP Objective 2.2:** Exceed Title 24 energy efficiency requirements by 20 percent.
        - **PPP Strategy 2.2.1:** Orient workforce housing buildings to maximize passive cooling and heating.
    - **PPP Objective 2.3:** Increase the efficiency of building use by 25 percent.
        - **PPP Strategy 2.3.2:** Require energy efficient appliances.

LOCAL

Cal Poly is an entity of the CSU, which is a constitutionally created state agency, and is therefore not subject to local government planning and land use plans, policies, or regulations. Cal Poly may consider, for informational purposes, aspects of local plans and policies for the communities surrounding the campus when it is appropriate. The proposed project would be subject to state and federal agency planning documents described herein but would not be bound by local or regional planning regulations or documents such as the City's General Plan or municipal code.

County of San Luis Obispo General Plan

The County of San Luis Obispo General Plan was adopted in 2010, amended in 2015, and includes the following policies related to energy (County of San Luis Obispo 2010):

- **Policy AQ 1.1:** Encourage compact land development by concentrating new growth within existing communities and ensuring complete services to meet local needs.
- **Policy AQ 1.3:** Require new development to provide safe and convenient access to alternative transportation within the project area and safe access to public transportation as feasible.
- **Policy AQ 1.5:** Improve the operating efficiency of the transportation system by reducing vehicle travel demand and expanding opportunities for multi-modal travel.
- **Policy AQ 1.7:** Encourage bicycle and pedestrian use by supporting the policies found in the Regional Transportation Plan, County Bikeways Plan, Land Use and Circulation Element, and County Parks and Recreation Element. In addition, support public and private efforts to facilitate bicycling and walking for transportation and recreation.
- **Policy E 1.1:** Meet our electricity needs through the following prioritized measures:
  - Increased conservation and efficiency in all sectors of energy use.
  - Development and use of locally appropriate sources of renewable resources from both distributed and large-scale projects.
  - Development of non-renewable sources of energy.
- **Policy E 1.4:** Increase the use of methane as an energy source from wastewater treatment plants and active and inactive, closed landfills.
- **Policy E 1.5:** Encourage waste-burning biomass facilities and conversion technologies as methods of producing electrical energy without endangering resource recovery programs where environmental and air quality are protect and the facility is compatible with adjoining uses.
- **Policy E 3.1:** Ensure that new and existing development incorporates renewable energy sources such as solar, passive building, wind, and thermal energy. Reduce reliance on non-sustainable energy sources to the extent possible using available technology and sustainable design techniques, materials, and resources.
- **Policy E 3.2:** Require the use of energy-efficient equipment in all new development, including but not limited to Energy Star appliances, high-energy efficiency equipment, heat recovery equipment, and building energy management systems.
- **Policy E 3.3:** Promote the use of renewable energy systems to pump and treat water and wastewater.
- **Policy E 4.1:** Integrate green building practices into the design, construction, management renovation, operations, and demolition of buildings, including publicly funded affordable housing projects, through the development review and building permitting process.
- **Policy E 4.4:** Orient new buildings to maximize solar resources, shading, ventilation, and lighting.
- **Policy E 6.1:** Promote the development of sustainable energy sources and renewable energy projects through streamlined planning and development rules, codes, processing, and other incentives.

- **Policy E 6.2:** Encourage and support the development of solar and wind power and other renewable energy systems as commercial energy enterprises.
- **Policy E 6.3:** Develop renewable energy resources in the county, include the safe, effective, and efficient use of small wind energy systems, solar power systems, passive solar buildings, and other renewable energy systems designed for onsite home, farm, and commercial use.
- **Policy E 6.6:** Encourage distributed energy resources to increase the efficiency of the power and transmission system and use of local renewable fuel sources.
- **Policy E 6.7:** Encourage cogeneration facilities as a method of reducing overall energy use.
- **Policy E 6.8:** Designate and protect areas that contain renewable energy resources such as wind, solar, geothermal, and small hydroelectric. Continue to explore and encourage the development of renewable energy resources through further streamlining actions.
- **Policy E 6.9:** Renewable energy is developed most effectively where sufficient renewable energy resources exist (e.g., solar energy requires a certain amount of sunlight to be efficient and wind energy requires a certain amount of wind). In areas were renewable energy resources have been identified and mapped pursuant to Policy E 6.8, renewable energy development is dependent on the mapped resource and shall be given high priority while balancing the protection of other environmental resources.

EnergyWise Plan

The EnergyWise Plan was adopted by the County of San Luis Obispo in 2011 and updated in 2016 to implement the goals established by the Conservation and Open Space Element of the County General Plan (County of San Luis Obispo 2016).

City of San Luis Obispo General Plan

The City of San Luis Obispo's General Plan includes the following policies related to energy (City of San Luis Obispo 2014):

- **Policy 4.3.1:** The City will employ the best available practices in energy conservation, procurements, use and production, and will encourage individuals, organizations and other agencies to do likewise. "Best available practices" means behavior and technologies that reflect recommendations of specialists and that use the least energy for a desired outcome, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies. Best available practices include use of sustainable sources. Sustainable sources are naturally renewed in a relatively short time and avoid substantial undesirable side effects.
- **Policy 4.3.4:** The City will promote the use of cost effective, renewable, non-depleting energy sources wherever possible, both in new construction projects and in existing buildings and facilities.
- **Policy 4.3.5:** The City will cooperate with Federal, State and local governments and other appropriate entities to accomplish energy conservation objectives throughout the state, and inform employees, its contractors, staff and the general public of the need for and methods of energy conservation.
- **Policy 4.3.6:** The City shall encourage energy-efficient "green buildings" as certified by the U.S. Green Building Council's Leadership in Energy and Environmental Design Program or equivalent certification.
- **Policy 4.3.7:** The City's form will support energy efficiency and the use of sustainable energy sources.
- **Policy 4.4.1:** Residences, work places and facilities for all other activities will be located and designed to promote travel by pedestrians and bicyclists.
- **Policy 4.4.2:** The City's transportation and circulation systems shall foster travel by modes other than motor vehicles, including walking, bicycles and public transit.
- **Policy 4.5.1:** To encourage use of solar energy, reasonable solar access shall be provided and protected. The City will protect reasonable solar exposure for existing collectors and likely locations of future collectors, both active and passive.

- **Policy 4.5.4:** When solar collectors are proposed as part of a development, the development plan will locate solar collectors and include features to assure adequate solar access.
- **Policy 4.5.7:** Sites and buildings should be designed to avoid unwanted heat gain from solar exposure. Features that provide shading at suitable times of the day and year and generally should be "passive" or automatic, avoiding the need for occupants to regularly monitor or adjust them.
- **Policy 5.4.1:** The City will employ the best available practices in materials procurement, use and recycling, and will encourage individuals, organizations and other agencies to do likewise. "Best available practices" means behavior and technologies that, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.
- **Policy 5.4.3:** The City will promote waste diversion and material recycling in private development, business and operations, and will encourage businesses or nonprofit entities to provide building materials recycling and source reduction services.

City of San Luis Obispo Climate Action Plan

The City adopted its Climate Action Plan in August 2012 and is currently updating its plan for 2035. The 2012 Climate Action Plan includes community strategies with the primary goal of reducing GHG emissions from six sectors: buildings, renewable energy, transportation and land use, water, solid waste, and parks and open space to achieve an overall reduction target for the year 2020 (City of San Luis Obispo 2012). Actions identified in the plan have the co-benefit of reducing energy consumption and increasing renewable energy generation.

3.6.2 Environmental Setting

ENERGY TYPES AND SOURCES

California relies on a regional power system comprised of a diverse mix of natural gas, renewable energy, hydroelectric, and nuclear generation resources. In 2014, approximately 35 percent of natural gas consumed in the state was used to generate electricity.

Gasoline and diesel fuel sold in California for motor vehicles is refined in California to meet specific formulations required by CARB. Major petroleum refineries in California are concentrated in three counties: Contra Costa County in northern California, Kern County in central California, and Los Angeles County in southern California.

Power plants in California meet approximately 68 percent of the in-state electricity demand; hydroelectric power from the Pacific Northwest provides 12 percent, and power plants in the southwestern U.S. provide the remaining 20 percent (EIA 2014). The contribution of in- and out-of-state power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors. Pacific Gas and Electric Company (PG&E) is the primary energy supplier in San Luis Obispo County. In 2017, PG&E derived 33 percent of its electricity from renewable sources (CPUC 2018:3).

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including biodiesel, electricity, ethanol, hydrogen, natural gas/methane, propane, and renewable diesel.

California has a growing number of alternative fuel vehicles through the joint efforts of the CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of November 2019, San Luis Obispo County contained more than 260 alternative fueling stations (AFDC 2019).

Transportation Fuels

On-road vehicles use is about 90 percent of the petroleum consumed in California. Petroleum products (e.g., gasoline, diesel, jet fuel) account for almost 99 percent of the energy used in California by the transportation sector, with the rest provided by ethanol, natural gas, and electricity (Bureau of Transportation Statistics 2015). The California Department of Transportation (Caltrans) projected that 198 million gallons of gasoline and diesel were consumed in San Luis Obispo County in 2015, an increase of approximately 22 million gallons of fuel from 2010 levels (Caltrans 2008).

Vehicle Miles Traveled and Gasoline Consumption

As noted in the regulatory setting of this section, several state mandates and efforts, such as SB 375, seek to reduce VMT in California. Fuel consumption per capita in California decreased by nearly 11 percent from 2008 to 2011 (Bureau of Transportation Statistics 2015). Despite the progress in reducing per capita VMT and per capita fuel consumption, the continued projected increases in total fuel consumption and VMT can be attributed to the overall increase in population. In 2018, the daily VMT in San Luis Obispo County totaled 3,318,550, an increase of 4 percent over 2015 levels (Caltrans 2019, 2017). In 2019, the average fuel efficiency in San Luis Obispo County was 29.9 miles per gallon for a gasoline-powered light-duty vehicle and 23.2 miles per gallon for a gasoline-powered light-duty truck (CARB 2019).

CAMPUS ENERGY FACILITIES AND SERVICES

Cal Poly purchases approximately 92 percent of its electricity needs from PG&E and generates the remaining 8 percent from the 4.5-megawatt Gold Tree Solar Farm and on-site cogeneration. Natural gas at Cal Poly is provided by Southern California Gas Company. Cal Poly has one cogeneration facility in the residential areas of campus that provides combined heat and power to apartments.

Existing Campus Energy Consumption

Cal Poly's building energy consumption that was estimated as part of the PolyCAP is shown in Table 3.6-1, below. Electricity associated with building activities accounted for 40 percent of the total GHG emissions from the building sector, with the remaining 60 percent associated with building heating (PolyCAP Team 2015:12). The average daily VMT associated with student and employee commute was 261,174 in 2015 (PolyCAP Team 2015:10). The fuel consumption associated with the campus fleet is included in Table 3.6-2, below. Additionally, the PolyCAP forecasted future energy consumption associated with campus activities. Existing consumption levels are compared with projected levels in Tables 3.6-1 and 3.6-2, below.

Table 3.6-1 Existing and Projected Cal Poly Building Energy Consumption

Energy Type	Amount 2014	Amount 2035	Unit
Electricity	43,080,017	51,998,445	Kilowatt-hours
Natural Gas	2,329,402	2,458,458	Therms
Diesel	1,441	1,441	Therms
Propane	6,608	6,608	Gallons

Source: PolyCAP Team 2015

Table 3.6-2 Existing and Projected Cal Poly Campus Fleet Fuel Consumption

Fuel Type	Gallons 2015	Gallons 2035
Gasoline	49,715	56,713
Diesel	29,859	32,711
Propane	7,721	143

Source: PolyCAP Team 2015

3.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Construction- and operation-related energy consumption by the project, measured in megawatt-hours of electricity, therms of natural gas, gallons of gasoline, and gallons of diesel fuel, were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 computer program and fuel consumption rates obtained from CARB's Emission FACtors (EMFAC) model. Where project-specific information was not known, CalEEMod default values based on the campus location, were used.

Cal Poly 2035 Master Plan

The following "Guiding Principles" were developed early on in the process by the 2035 Master Plan professional team with input from campus leadership, including the college deans, and considered continuity with the 2001 Master Plan. Guiding Principles can be thought of both as starting points for the plan process and as overarching directives relevant to all or most Master Plan topics. The following principles and programs are relevant to reducing energy consumption and increasing renewable energy generation:

- **Guiding Principle (GP) 11:** Cal Poly should be sustainable with regard to its land and resource planning, as well as site and building design, and operations. Cal Poly should meet or exceed all state and system-wide sustainability policies.
- **Implementation Program (IP) 05:** Cal Poly should continue its program of identifying areas for solar and other forms of renewable energy.
- **IP 06:** Cal Poly should continue its program of retrofitting older buildings for energy and water efficiency.
- **IP 07:** Cal Poly should investigate the use of reclaimed water and the use of grey water systems; and turf should be limited to high use areas only.
- **IP 12:** Cal Poly should incorporate pedestrian, bicycle and transit plans into a comprehensive and updated multi-modal active transportation plan designed consistent with leading standards.
- **IP 14:** As a regional leader in fostering active transportation, Cal Poly should partner with local, regional and national public and private organizations (including but not limited to the City, County, Caltrans, SLOCOG, RTA [San Luis Obispo Regional Transit Authority], Amtrak, and Union Pacific Railroad) to make San Luis Obispo a model for modal shift from single occupancy autos to a complete active transportation system.
- **IP 20:** Cal Poly should partner with the City to help develop off-campus bicycle improvements as prescribed in the City's bike plan and that improve connections between the campus and community.
- **IP 21:** Convenient bicycle routes throughout the campus, as well as bike parking located as near as practical to campus origins and destinations, should be provided to encourage bicycle use.
- **IP 23:** Cal Poly should continue to work with the City and RTA to make public transportation more convenient than automobile use through such improvements as shorter headways, increased evening and weekend services, and greater convenience for on-campus residents.
- **IP 27:** Any future or renovated parking facility should meet the certification standards of the Green Parking Council or similar organization.
- **IP 28:** Where activities are located beyond walking distance from the Academic Core, alternative transportation options should be provided.
- **IP 29:** If intra-campus shuttles or similar future services are provided, they should be low or zero emission (such as electric, CNG [compressed natural gas] or gas hybrid).

- Other Recommendations (OR) 13: Infrastructure development should maximize resource conservation, leverage current policy and practice in support of sustainable design, consider long-term return on energy investment, and establish a foundation for future revenue potential.
- OR 14: Cal Poly should strive to be a net zero campus by investing in renewable power and prioritizing on-campus generation.
- OR 15: Cal Poly should continue to exceed Title 24 CALGreen [California Green Building Energy Standards] requirements in new construction.
- Transportation and Circulation (TC) 01: Existing roads in the Academic Core, including North Perimeter, should be re-designed and managed to reflect mode priorities.
- TC 02: Single occupancy vehicle trips to campus should be reduced by increasing ride sharing and by substituting cars with active transportation options.
- TC 04: On-campus residential neighborhoods should have convenient access to public transportation.
- TC 07: Cal Poly should give higher priority to committing resources to active transportation and trip reduction measures over providing more parking on campus.
- TC 08: Conflicts among circulation modes should be avoided through such methods as separated routes, grade separated paths, traffic calming and intersection controls.
- TC 09: A multimodal transportation center should be planned and funded on the campus.

THRESHOLDS OF SIGNIFICANCE

The following significance criteria are based on Appendices F (Energy Conservation) and G of the CEQA Guidelines, under which the project would have a significant adverse energy impact if it would:

- result in the wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources during project construction or operation; or
- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

ISSUES NOT DISCUSSED FURTHER

All issues related to energy listed under the significance criteria above are addressed in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: Result in the Wasteful, Inefficient, or Unnecessary Consumption of Energy or Wasteful Use of Energy Resources

Construction and operation of new and renovated buildings and facilities under the 2035 Master Plan would result in consumption of fuel (gasoline and diesel), electricity, and natural gas. Energy consumption associated with construction would be temporary and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. Through adherence to and exceedance of current building code requirements, energy consumption associated with operation of new buildings and facilities under the 2035 Master Plan would not result in wasteful, inefficient, or unnecessary consumption of energy. Transportation-related energy associated with project implementation would be reduced on a per-service-population basis as compared with existing conditions. For these reasons, this impact would be **less than significant.**

Appendix G of the State CEQA Guidelines requires the consideration of the energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient, and unnecessary energy usage" (PRC Section 21100[b][3]). Neither the law nor the State CEQA Guidelines establish criteria that define wasteful, inefficient, or unnecessary use. Compliance with the California Energy Code would result in energy-efficient buildings. However, compliance with the California Energy Code does not address all potential energy impacts during construction and operation of the project. Energy use is discussed by project component below.

Construction-Related Energy

Energy would be required to demolish, renovate, and construct each project within the 2035 Master Plan. Energy would also be required to operate and maintain construction equipment and to produce and transport construction materials. The one-time energy expenditure required to construct buildings would be nonrecoverable. Most energy consumption would result from the use of construction equipment and vehicle trips associated with commutes by construction workers and haul trucks carrying supplies. The modeled level of energy consumption associated with construction would be ~~583,989~~195,348 gallons of gasoline and ~~676,450~~435,821 gallons of diesel fuel. Details about construction phasing can be found in Appendix C. The energy needs for project construction would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy. This impact would be less than significant.

Table 3.6-3 shows the amount of gasoline and diesel consumption associated with project construction by year.

Table 3.6-3 Construction-Related Energy Consumption for All Land Uses under the 2035 Master Plan

Construction Years	Gasoline (gal/year)	Diesel (gal/year)
~~2021–2024~~	~~263,081~~	~~295,715~~
~~2026–2026~~	~~37,403~~	~~65,611~~
~~2027–2029~~	~~89,754~~	~~103,416~~
~~2030–2032~~	~~89,902~~	~~102,283~~
~~2033–2035~~	~~103,850~~	~~109,426~~
2021	11,425	32,827
2022	11,370	26,827
2023	11,370	26,827
2024	11,481	27,010
2025	11,425	26,918
2026	11,425	26,918
2027	11,425	26,918
2028	11,370	26,827
2029	11,425	26,918
2030	15,451	31,324
2031	15,451	31,324
2032	15,527	31,438
2033	15,375	31,210
2034	15,375	31,210
2035	15,451	31,324
Total (All Vehicle Types)	~~583,989~~195,348	~~676,450~~435,821

Note: gal/year = gallons per year.

Source: Calculations by Ascent Environmental in 20~~19~~20

Building Energy

The operation of new buildings and facilities would result in the consumption of electricity and natural gas for lighting, space heating, and water heating. Indirect energy use would include wastewater treatment; water pumping, treatment, and distribution; and solid waste removal. Electrical and natural gas service is provided by PG&E as well as onsite generation of renewables, including a 4.5-megawatt solar photovoltaic system and a 500-kilowatt cogeneration facility.

All new buildings on the campus would be constructed in accordance with the most recent building code (i.e., California Energy Code) at the time of construction, which includes energy efficiency requirements. Additionally, implementation of the Guiding Principles of the 2035 Master Plan would seek to retrofit older buildings to improve energy efficiency, exceed the California Energy Code for new buildings, and increase on-site renewable energy generation. Further, all project buildings would be designed to achieve a 30-percent reduction in energy use from compliance with the 2019 California Green Building Standards Code pursuant to Mitigation Measure 3.8-1. Mitigation Measure 3.8-1 in Section 3.8, "Greenhouse Gas Emissions," includes several energy-reducing actions, such as installing energy-efficient appliances, high-efficacy lighting, and electric-powered space and water heating.

Table 3.6-4 compares the annual amount of operational energy consumed for all new and renovated buildings and facilities at full buildout with and without the 2035 Master Plan. Compliance with the 2019 CALGreen standards would reduce electricity and natural gas consumption associated with buildings constructed under the 2035 Master Plan by 30 percent.

Implementation of the 2035 Master Plan would result in more electricity consumption on a per-service-population basis, but all electricity associated with buildings constructed under the 2035 Master Plan would be powered by 100-percent renewable electricity through on-site generation. Additionally, electricity provided to the University will continue to become cleaner as the state's RPS targets become more stringent, with 100 percent carbon-free electricity by 2045.

Per service population natural gas consumption (6.86 million British thermal units [MMBTU]/service population) would decrease under the 2035 Master Plan when compared with existing conditions (7.09 MMBTU/service population). This trend is similar to the statewide trend of decreased natural gas consumption from new buildings due to more stringent California Energy Code requirements. Natural gas per service population calculations can be found in Appendix C.

Table 3.6-4 Operational Energy Consumption for All Land Uses under the 2035 Master Plan

Energy Type	Energy Consumption Without Plan	Energy Consumption With Plan	Units
Electricity	~~35,452~~35,487	~~33,197~~32,936	MWh/year
Natural Gas	~~42,568~~53,371	~~33,237~~41,075	MMBTU/year

Notes: MWh/year = megawatt-hours per year; MMBTU/year = million British thermal units per year.

Source: Calculations by Ascent Environmental in 20~~19~~20

Transportation Energy

Fuel estimates were calculated from the combination of consumption rates and fuel mix by vehicle class from CARB's EMFAC2017 model with overall VMT and mode share by vehicle class modeled for the project in CalEEMod (see Section 3.3, "Air Quality," and Appendix C of this EIR). State and federal regulation regarding standards for vehicles in California are designed to reduce wasteful, unnecessary, and inefficient use of energy for transportation.

The project would include on-campus pedestrian and bicycle features and enhanced transit services that would promote use of these modes over vehicles, and Cal Poly would continue to enforce policies that reduce on-campus parking and vehicle use for all students. Various parking facilities may be constructed to replace surface parking lots displaced by development, but the project would result in no appreciable increase in parking spaces on campus (with only 174 additional parking spaces proposed under the 2035 Master Plan). Table 3.6-5 shows the annual amount of gasoline and diesel consumption associated with project-generated VMT at full buildout of the 2035 Master Plan.

Table 3.6-5 Gasoline and Diesel Consumption in 2035

Vehicle Category	Gasoline (gal/year)	Diesel (gal/year)
Passenger Vehicles	702,125	5,559
Trucks	153,236	138,658
Buses	4,803	5,776
Other Vehicles	2,459	735
Total (All Vehicle Types)	**862,623**	**150,729**

Note: gal/year = gallons per year.

Source: Calculations by Ascent Environmental in 2019

Table 3.6-6 compares the fuel consumption and VMT per service population associated with existing conditions and existing conditions with the project.

As a result of Master Plan principles and design features that would promote multi-modal transportation and reduce reliance on the automobile, the increase in VMT associated with the project would result in an increase in VMT per service population efficiency as compared to existing conditions. Specifically, VMT per service population associated with the new student population and the entire campus population would be lower than current conditions. In addition, the VMT reduction associated with Cal Poly campus would also result in VMT reductions within the county. See Section 3.13, "Transportation," for more details. Similarly, transportation-related fuel efficiency (per service population) would increase as a result of the project. That is, VMT on a per-person basis would decrease as a result of the Master Plan. Thus, fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary and, in fact, would become more efficient as a result of the project. Operational energy consumptions would be less than significant.

Table 3.6-6 Fuel Consumption and VMT per Service Population, Existing Conditions and Project Buildout

	Existing Conditions	Existing With Project Buildout
Daily Vehicle Miles Traveled	957,900	1,090,800
Daily Fuel Consumption (gallons)	27,341	31,134
Service Population	32,840	44,970
Daily Vehicle Miles Traveled per Service Population	29.17	24.26
Daily Fuel Consumption per Service Population	0.83	0.69
Improved Fuel Efficiency per Service Population	**16.5%**	

Source: Calculations by Ascent Environmental in 2019

Summary

The project would increase energy demand during temporary construction activities for new buildings and facilities. Construction activities would not increase long-term, ongoing demand for energy or fuel because Master Plan buildout is anticipated to last 15 years and would be both temporary and intermittent. Electric-powered equipment would be supported by on-site generators and would not use off-site power sources. Additionally, implementation of Mitigation Measures 3.3-2a and 3.3-2b in Section 3.3, Air Quality, would reduce fuel consumption through the use of idling restrictions, electric equipment, and higher-rated tiers of diesel engines and would increase the use of alternative forms of energy, such as high-performance renewable diesel.

According to the State CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on oil, and increasing reliance on renewable energy sources.

All buildings constructed under the 2035 Master Plan would, at a minimum, comply with the California Energy Code in effect at the time of construction and with the CCR requirements for energy efficiency. With implementation of Mitigation Measure 3.8-1 (see Section 3.8, "Greenhouse Gas Emissions"), project buildings would reduce energy consumption by 30 percent as compared to the 2019 California Energy Code requirements. Additionally, Mitigation Measure 3.8-1 in Section 3.8, Greenhouse Gas Emissions, calls for all electricity consumption associated with buildings

constructed under the 2035 Master Plan to be offset by on-site renewable energy generation. VMT and fuel consumption per service population under the existing-plus-project condition would be lower than VMT and fuel consumption per service population under existing conditions. Because the project would reduce transportation-related energy consumption as compared with existing conditions, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.6-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

Renewable energy generation from the implementation of Mitigation Measure 3.8-1, in Section 3.8, Greenhouse Gas Emissions, would result in an increase in renewable energy use, which would directly support the goals and strategies in the state's *2008 Update Energy Action Plan* (EAP) and the CSU Sustainability Policy. Construction and operating project buildings in compliance with the 2019 California Energy Code or later iterations of the code would improve energy efficiency compared to buildings built to earlier iterations of the code. Therefore, construction and operation of the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. **No impact** would occur.

Relevant plans that pertain to the efficient use of energy include the EAP, which focuses on energy efficiency; demand response; renewable energy; the supply and reliability of electricity, natural gas, and transportation fuels; and achieving GHG reduction targets (CEC and CPUC 2008); as well as the CSU Sustainability Policy, which seeks to increase on-site renewable energy generation, exceed RPS requirements, increase energy efficiency, and provide alternative transportation and use alternative fuels to meet GHG reduction goals (CSU 2014).

As discussed in Impact 3.6-1, although implementation of the 2035 Master Plan has the potential to result in the overall increase in consumption of energy resources during construction and operation of new buildings and facilities, implementation of Mitigation Measure 3.8-1 would ensure various energy conservation and production features would be incorporated into new development under the 2035 Master Plan including the installation of renewable energy features, that all buildings be built to Tier 2 of the California Green Building Standards Code, or other similar CSU standards, which would align with the EAP and CSU Sustainability Policy. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. **No impact** would occur.

Mitigation Measures

No mitigation is required.