

3.6 ENERGY

This section was prepared pursuant to CEQA Guidelines Section 15126 and Appendix F of the CEQA guidelines, which requires that EIRs include a discussion of the potential energy impacts of projects, with particular emphasis on considering if potential future development within the SOIA area (or “project site”) would result in inefficient, wasteful, and unnecessary consumption of energy.

Energy related to the project would include energy directly consumed for space heating and cooling, and electric facilities and lighting at residential units, the elementary school, and retail land uses. Indirect energy consumption would be associated with the generation of electricity at power plants. Transportation-related energy consumption includes the use of fuels and electricity to power cars, trucks, and public transportation. Energy would also be consumed by equipment and vehicles used during project construction and routine maintenance activities.

Comments received in response to the Notice of Preparation related to energy included concerns about evaluating the project’s consistency with existing plans and examining the project’s effect on vehicle miles traveled (VMT) by directing growth to an area with higher VMT per household than the regional average. Additionally, the Sacramento Municipal Utility District (SMUD) submitted a comment letter detailing the potential electrical demand that would be generated by the project, outlines the overhead and underground electrical lines that would be needed, and notes that a new substation or upgrades could be potentially needed.

3.6.1 Environmental Setting

PHYSICAL SETTING

Energy Facilities and Services in the Project Area

Electric services in the City of Elk Grove and Sacramento County is provided by the SMUD, while natural gas services are provided by the Pacific Gas and Electric Company (PG&E). There are existing electrical and natural gas infrastructure facilities along the surrounding roadway network. Existing facilities within or adjacent to the project site include a 69 kilovolt (kV) overhead line and a 12kV underground line, both north of Bilby Road, and 12kV/69kV overhead lines along Bruceville Road.

Energy Types and Sources

In 2013, the world total energy consumption was about 543 quadrillion British thermal unit (Btu), or the amount of heat required to raise the temperature of one pound of water by one-degree Fahrenheit, 18 percent of which occurred within the U.S. Fossil fuels provide approximately 80 percent of the energy used in the U.S., nuclear power provides about 8.5 percent, and renewable energy provides approximately 9.8 percent (U.S. Energy Information Administration [EIA] 2016, Barr 2001). California is the most populous state in the U.S., and its energy consumption is second only to Texas; however, California has the lowest per capita energy consumption rate in the U.S. California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Recent trends associated with energy use in California are discussed below.

Local Electrical Service

SMUD provides electrical service to over 1.5 million customers within its 900-square-mile service area. SMUD is one of 46 publicly owned utilities in the state and in 2014 it was the fifth largest utility in California (Sacramento LAFCo 2017). SMUD’s average electrical consumption in 2015 was 11,082 gigawatts and is expected to increase to 12,109 gigawatts by 2022 (Sacramento LAFCo 2017). SMUD receives power from varied sources including hydropower, natural-gas-fired generators, renewable energy such as solar and wind

power, and power purchased on the wholesale market. Current peak demand for energy is approximately 3,000 megawatts (MWs). By 2050, that peak demand is expected to near 5,000 MWs.

SMUD has established several energy-efficiency programs. The Home Performance Program allows customers a low-cost appraisal of the overall energy efficiency of their homes and provides incentives for home energy improvements through a grant from the U.S. Department of Energy. SMUD also offers resources to home and business owners to track energy use and methods to conserve energy. SMUD's voluntary "Greenergy" green pricing program supports reducing electricity generated by fossil fuels by allowing customers to obtain their electricity from a renewable source. Residential customers also have the option of selecting renewable energy supply for 50 percent of their electricity with special purchases in carbon offset projects. (Sacramento LAFCo 2017)

SMUD's Renewable Portfolio Standard (RPS) program was implemented to support renewable energy generation and reduce the need to generate energy from fossil fuels. To meet its annual renewables goals, SMUD both contracts for renewable electricity from independent power producers and builds and owns renewable energy power plants. SMUD met its renewable energy supply goals of 24 percent for 2011 (20 percent RPS + 4 percent Greenergy). SMUD has chosen to meet or exceed the state requirements and anticipates meeting the 2020 goal of 37 percent (33 percent RPS plus 4 percent Greenergy). (Sacramento LAFCo 2017)

Petroleum

Gasoline and diesel fuel sold in California for motor vehicles is refined in California to meet specific formulations required by the California Air Resources Board (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.

Natural Gas

One third of energy commodities consumed in California is natural gas. The natural gas market continues to evolve and service options expand, but its use falls mainly into four sectors – residential, commercial, industrial, and electric power generation. In addition, natural gas is an alternative to petroleum for use in trucks, buses, and some cars. Alternative transportation-related vehicles are increasing in use by consumers along with the development of a safe, reliable refueling infrastructure (California Energy Commission [CEC] 2016).

In 2014, approximately 35 percent of all natural gas consumed in the State was used to generate electricity. Residential land uses represented approximately 17 percent of California's natural gas consumption with the balance consumed by the industrial, resource extraction, and commercial sectors (EIA 2014).

Electricity and Renewables

Power plants in California meet approximately 68 percent of the in-state electricity demand; hydroelectric power from the Pacific Northwest provides another 12 percent; and power plants in the southwestern U.S. provide another 20 percent (EIA 2014). The contribution of in-state and out-of-state power plants depends upon, among other factors, the precipitation that occurred in the previous year and the corresponding amount of hydroelectric power that is available. SMUD is the primary electricity supplier in Sacramento County (see discussion above).

California regulations require that electricity consist of 33 percent renewables by 2020 and 50 percent renewables by 2030 for all electricity retailers in the state. As of July 2016, the California electricity system was powered by 21.9 percent renewables, including biomass, geothermal, small hydroelectric, solar, and wind. In-state generation of electricity consisted of 24.5 percent renewables (CEC 2016).

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, AB 32

Scoping Plan). Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including:

- ▲ biodiesel,
- ▲ electricity,
- ▲ ethanol (E-10 and E-85),
- ▲ hydrogen,
- ▲ natural gas (methane in the form of compressed and liquefied natural gas),
- ▲ propane,
- ▲ renewable diesel (including biomass-to-liquid),
- ▲ synthetic fuels, and
- ▲ gas-to-liquid and coal-to-liquid fuels.

California has a growing number of alternative fuel vehicles through the joint efforts of CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of September 2016, California contained nearly 14,000 alternative fueling stations (AFDC 2017).

COMMERCIAL AND RESIDENTIAL ENERGY USE

Homes built between 2000 and 2015 used 14 percent less energy per square foot than homes built in the 1980s, and 40 percent less energy per square foot than homes built before 1950. However, the increase size of newer homes has offset these efficiency improvements. Primary energy consumption in the residential sector total 21 quadrillion Btu in 2009 (the latest year the EIA's *Residential Energy Consumption Survey* was completed), equal to 54 percent of consumption in the buildings sector and 22 percent of total primary energy consumption in the U.S. Energy consumption increased 24 percent from 1990 to 2009. However, because of projected improvements in building and appliance efficiency, the EIA 2012 Annual Energy Outlook forecast a 13 percent increase in energy consumption from 2009 to 2035 (EIA 2016).

Commercial buildings represent just under one-fifth of U.S. energy consumption with office space, retail, and educational facilities representing about half of commercial sector energy consumption. In aggregate, commercial buildings consumed 46 percent of building energy consumption and approximately 19 percent of U.S. energy consumption. In comparison, the residential sector consumed approximately 22 percent of U.S. energy consumption (U.S. Department of Energy 2012).

ENERGY USE FOR TRANSPORTATION

Transportation is the second largest energy consumer nationwide, accounting for 27 percent of the total national energy use (U.S. Department of Energy 2016). On-road vehicles are estimated to consume approximately 80 percent of California's transportation energy demand, with cars, trucks, and buses accounting for nearly all of the on-road fuel consumption. Petroleum products (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).

On-road vehicles use about 90 percent of the petroleum consumed in California. The California Department of Transportation (Caltrans) projected 782 million gallons of gasoline and diesel were consumed in Sacramento County in 2015, an increase of approximately 88 million gallons of fuel from 2010 levels (Caltrans 2008).

Vehicle Miles Traveled and Gasoline Consumption

According to Caltrans, total gasoline consumption in California is expected to increase 57 percent from 2007 to 2030, and the number of vehicle miles traveled (VMT) is expected to increase 61 percent over the same time (Caltrans 2009). As noted in the Regulatory Setting of this section, several State mandates and efforts, such as Senate Bill (SB) 375, seek to reduce VMT. 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.

Total gasoline use in California varies from year to year because of a variety of factors such as gas prices, periods of economic growth and decline, and fuel economy of vehicles. Between January 2007 and May 2016, an average of approximately 672 billion gallons of gasoline were purchased in California. During this time, the volume of gasoline purchased ranged from a minimum of approximately 1.1 billion gallons in February 2013 to a maximum of approximately 1.37 billion gallons in August 2007 (California State Board of Equalization 2016).

The Sacramento Area Council of Government's (SACOG) 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy identifies that the regional weekday VMT in 2012 was 57,009,900 miles (25.1 miles per capita) and would increase to 74,519,700 miles (24.2 miles per capita) by 2036 (SACOG 2016). The region is anticipated to become more transportation fuel efficient, because per capita VMT is projected to decline by 2036.

Energy Used by Private and Commercial Vehicles

Commercial vehicles, generally composed of light-, medium-, and heavy-duty trucks, are typically fueled by diesel or gasoline and are part of the general fleet mix of vehicles present within the Sacramento region transportation system.

Average fuel economy is expected to increase for automobiles and all types of trucks. The federal Corporate Average Fuel Economy (CAFE) is the required average fuel economy for a vehicle manufacturer's entire fleet of passenger cars and light-duty trucks for each model year. For many years, the standard for passenger automobile was 27.5 miles per gallon (mpg), and the standard for light-duty trucks, a classification that also includes sport utility vehicles (SUVs) under 8,500 pounds, rose to 22.5 mpg for 2008 models. Effective with the 2011 model year, the CAFE standard was revised from a single number to a model-specific formulation based on the size of the vehicle, in square feet (wheelbase times track, or the distance between the axles multiplied by the distance between the wheels of each axle), referred to as the vehicle's "footprint." For 2012, the average CAFE standard for passenger cars is 33.3 mpg, while for light-duty trucks it is 25.4 mpg (Federal Registrar 2010).

ENERGY USE AND CLIMATE CHANGE

Scientists and climatologists have produced evidence that the burning of fossil fuels by vehicles, power plants, industrial facilities, residences, and commercial facilities has led to an increase of the earth's temperature. For an analysis of greenhouse gas production and the project's impacts on climate change, refer to Section 3.7, "Greenhouse Gas Emissions."

3.6.2 Regulatory Framework

Federal and State agencies regulate energy consumption through various policies, standards, and programs. At the local level, individual cities and counties establish policies in their general plans and climate action plans related to the energy efficiency of new development and land use planning and to the use of renewable energy sources.

Energy conservation is embodied in many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the U.S. Environmental Protection Agency's (EPA) EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems, and offers the Flex Your Power program promotes conservation in multiple areas.

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 CAFE program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the U.S. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years.

Energy Policy Act of 1992

The Energy Policy Act of 1992 (EPAAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally-fueled fleets in metropolitan areas. EPAAct 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 EPAAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. State 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 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 five-fold 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 CAFE standards, the Energy Independence and Security Act of 2007 will build on 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 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 (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

State of California Energy 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 1997 California Energy Plan. 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 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 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; CARB 2003). Further, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Reports*, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to: “[C]onduct 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” (Public Resources Code Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2015 IEPR is the most recent IEPR, which was adopted February 24, 2016. The 2015 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.

Senate Bill 1078: California Renewables Portfolio Standard Program

SB 1078 (Chapter 516, Statutes of 2002) establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 1078 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcome of this legislation will impact regional transportation powered by electricity. As of 2016, the State has reported that 21 percent of electricity is sourced from certified renewable sources (see Section 5.14.1.2, “Environmental Setting”).

Senate Bill X1-2: California Renewable Energy Resources Act

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by

December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond.

Senate Bill 350: Clean Energy and Pollution 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 doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

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 *Energy Action Plan 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 recently 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.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statutes 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 (SAF Plan) in partnership with CARB and in 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 greenhouse gas (GHG) emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Executive Order S-06-06

Executive Order (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 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- ▲ increase environmentally- and economically-sustainable energy production from organic waste;
- ▲ encourage 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.

As of 2015, 3.2 percent of the total electricity system power in California was derived from biomass.

California Green Building Standards

California Code of Regulations, Title 24, Part 6, is California's Energy Efficiency Standards for Residential and Non-Residential Buildings. Title 24 was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. In 2013, CEC updated Title 24 standards with more stringent requirements, effective July 1, 2014. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The *CEC Impact Analysis for California's 2013 Building Energy Efficiency Standards* estimates that the 2013 standards are 23.3 percent more efficient than the previous 2008 standards for residential construction and 21.8 percent more efficient for non-residential construction. In 2016, CEC updated Title 24 standards again, effective January 1, 2017. While the impact analysis of these standards has not yet been released, CEC estimates that the 2016 standards are 28 percent more efficient than 2013 standards for residential construction and are 5 percent more efficient for non-residential construction. The building efficiency standards are 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 because of local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in Title 24.

Assembly Bill 32, 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 CO₂-equivalent (CO₂e) emissions, or approximately 21.7 percent from the State's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, 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 2014:4 and 5). 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:ES-2). The update also reports the trends in GHG emissions from various emissions sectors (e.g., transportation, building energy, agriculture).

On January 20, 2017, CARB released its proposed 2017 Climate Change Scoping Plan Update, which lays out the framework for achieving the 2030 reductions as established in more recent legislation (discussed below). The proposed 2017 Scoping Plan Update identifies the GHG reductions needed by each emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels before 2030.

The measures identified in the proposed 2017 Climate Change Scoping Plan Update will have the co-benefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient. At the time of writing this environmental document, CARB has not yet approved its proposed 2017 Scoping Plan Update. More details about the statewide GHG reduction goals and Scoping Plan measures are provided in the regulatory setting of Section 5.6, "Greenhouse Gas Emissions and Climate Change."

Senate Bill 375

Senate Bill 375 (SB 375), signed by the Governor in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) 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 in their respective regions for 2020 and 2035. Implementation of SB 375 will have the co-benefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient.

The SACOG serves as the MPO for Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo Counties, excluding those lands located in the Lake Tahoe Basin. The project site is in Sacramento County. SACOG adopted its Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2035 in 2012, and completed an update adopted on February 18, 2016. SACOG was tasked by CARB to achieve a 9 percent per capita reduction compared to 2012 emissions by 2020 and a 16 percent per capita reduction by 2035, which CARB confirmed the region would achieve by implementing its SCS (CARB 2013). The MTP/SCS forecasted land use development by community types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS Planning Period.

Executive Order B-30-15

On April 20, 2015 Governor Edmund G. Brown Jr. signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. 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 of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050. Achievement of these goals will have the co-benefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient.

Advanced Clean Cars Program

In January 2012, CARB 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 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 (CARB 2016).

LOCAL

Sacramento County General Plan

The goal of the Energy Element of the General Plan is to ensure that energy conservation is considered in the policy-making which guides the physical growth of Sacramento County (Sacramento County 2011). The following policies from the Sacramento County General Plan would apply to the SOIA.

- ▲ **Policy PF-101:** Route new overhead sub-transmission lines within existing transmission line corridors, along railroad tracks, or major roadways. In an effort to reduce the visual impact of new lines combine circuits on existing 69 kV power poles, wherever feasible.
- ▲ **Policy EN-14.** Develop or revise design standards relating to building solar orientation, landscaping, impervious surfaces, and parking space requirements to conserve energy.
- ▲ **Policy EN-16.** Promote the use of passive and active solar systems in new and existing residential, commercial, and institutional buildings as well as the installation of solar swimming pool heaters and solar water and space heating systems.
- ▲ **Policy EN-30.** Develop and implement standardized procedures for evaluating the initial and long-range energy impacts of proposed developments.

City of Elk Grove

City of Elk Grove General Plan

The City of Elk Grove General Plan includes the following policies applicable to the energy efficiency of new development and reducing community-wide energy consumption in Elk Grove (City of Elk Grove 2016):

- ▲ **Policy CAQ-27.** The City shall promote energy conservation measures in new development to reduce on-site emissions and power plant emissions. The City shall seek to reduce the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.
 - **CAQ-27-Action 1.** Provide information to the public and builders on available energy conservation techniques and products.
 - **CAQ-27-Action 2.** Encourage the use of trees planted in locations that will maximize energy conservation and air quality benefits. Encourage the use of landscaping materials which produce lower levels of hydrocarbon emissions.
 - **CAQ-27-Action 3.** During project review, City staff shall consider energy conservation and, where appropriate, suggest additional energy conservation techniques.
 - **CAQ-27-Action 4.** During project review, ensure that “Best Available Control Technology” is properly used and implemented.
 - **CAQ-27-Action 5.** Encourage new commercial uses to limit delivery hours to non-peak hours.
- ▲ **Policy H-6.** Support energy-conserving programs in the production and rehabilitation of affordable housing to reduce household energy costs, improve air quality, and mitigate potential impacts of climate change in the region.
 - **H-6 Action 1.** Continue to promote and support energy efficiency in new construction by encouraging developers to utilize SMUD energy programs and other energy efficiency programs and to be consistent with the Sustainability Element of the General Plan and the City’s Climate Action Plan.

- **H-6 Action 2.** Continue to encourage participation in SMUD’s PV (photovoltaic) Pioneer program by issuing PV system permits at no charge upon SMUD’s approval.
- ▲ **Policy S-8.** Incorporate green building techniques and best management practices in the site design, construction, and renovation of all public projects. (Please see CAP reduction measures.)
 - **S-8-Action 1.** Require all new municipal developments to exceed state Title 24 Energy Efficiency Standards by 15 percent to the extent such efficiencies are possible.
 - **S-8-Action 2.** Design new municipal facilities to be at a minimum the baseline Leadership in Energy and Environmental Design (LEED) certification.
 - **S-8-Action 3.** Implement measures identified during the energy audit process to reduce energy use in existing municipal buildings.
 - ▲ **Policy S-9.** Support innovation and green building best management practices for all new private development.
 - **S-9-Action 1.** Require all new private developments to meet and (as determined feasible by the City) exceed state Title 24 Energy Efficiency Building Standards. (Please see Climate Action Plan [CAP] reduction measures.)
 - **S-9-Action 2.** Include a Green Building & Development Resource List and supporting materials with City planning and building permit applications that outline ways to integrate green building principles into project design.
 - **S-9-Action 3.** Establish a green building incentive program to encourage developers to integrate green design techniques above and beyond the requirements of Action 1. Incentives may include, but are not limited to, expedited review, plan/permit review fee reduction, density bonuses, tax credits, and/or technical assistance.
 - **S-9-Action 4.** Establish partnerships with HUD and utility and water districts and providers to initiate pilot projects that demonstrate green building best practices.
 - **S-9-Action 5.** Create a program to recognize exemplary projects in the city that exhibit innovation and best practices in green building design.
 - **S-9-Action 6.** Provide regular training to ensure that Planning Department and Building Safety & Inspection Department staff are able to implement the State’s Green Building Code and review or rate green building projects.
 - ▲ **Policy S-14.** Maintain and enhance a community forest by preserving and planting trees in appropriate densities and locations to maximize energy conservation and air quality benefits. (Please see CAP reduction measures.)
 - ▲ **Policy S-16.** Promote innovation in energy efficiency. (Please see CAP reduction measures.)
 - **S-16-Action 1.** Support a cost-effective approach to staying on top of best practices toward energy efficiency.
 - **S-16-Action 8.** Require the use of high-albedo material for public outdoor surfaces such as rooftops, parking lots, median barriers, roadway improvements (where feasible), and sidewalks.

The City of Elk Grove is in the process of updating its General Plan that is anticipated to include VMT standards for development.

Elk Grove Climate Action Plan

The Elk Grove CAP was adopted on March 27, 2013 by the Elk Grove City Council and was incorporated into the Elk Grove General Plan Sustainability Element by reference. The CAP includes goals, implementation measures, and action items related to air quality and developed to help the city reach its goals. The CAP includes GHG emission reduction targets, strategies, and implementation measures developed to help the city reach these targets. Reduction strategies address GHG emissions associated with the build environment, resource conservation, transportation, and municipal programs.

However, the CAP does not demonstrate the City's ability to meet 2030 reduction goals (set by SB 32) and subsequently future target years (e.g., 2050) and; thus, is not used for the purposes of this project. Updates to the CAP have been initiated as part of the general plan update process. The updated CAP (and associated key policies to be included in the policy document) is anticipated to be consistent with new State legislation and guidance issued since the existing CAP was adopted in 2013, such as SB 32, EO B-30-15, and updates to the State's Climate Change Scoping Plan.

3.6.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

The conceptual land use plan (see Exhibit 2-4) was assumed for the purposes of modeling energy consumption. Levels of construction- and operation-related energy consumption by the conceptual land use scenario, measured in megawatt-hours of electricity, Therms of natural gas, gallons of gasoline, and gallons of diesel fuel. Energy consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1 computer program (CAPCOA 2016). CalEEMod default values based on the project's land uses and location were used.

For program-level analysis of annexation of lands where it is not possible to know how much construction activity would occur in a given year, SMAQMD recommends a conservative assumption that 25 percent of the total land uses could be constructed in a single year (SMAQMD 2016). For the purposes of this analysis, and to ensure conservative results, 25 percent of the land uses that could be developed were assumed to be constructed in the earliest possible construction year (2018). Total energy consumption during construction was estimated by multiplying the annual worst-case constructions (construction emissions associated with development of 25 percent of the total proposed land uses) by four.

Table 3.6-1 summarizes the levels of energy consumption for the peak year of construction and total levels of energy consumption. Table 3.6-2 summarizes the levels of energy consumption for the first year of operation during an assumed build-out year of 2025. Table 3.6-3 summarizes the gasoline and diesel consumption estimated for the project in 2025.

Table 3.6-1 Construction Energy Consumption

Year	Diesel (Gallons)	Gasoline (Gallons)
2018	601,736	8,090,180
Total ¹	2,406,944	32,360,720

Notes: Gasoline gallons include on-road gallons from worker trips. Diesel gallons include off-road equipment and on-road gallons from worker and vendor trips.

¹ Total construction energy consumption estimated by multiplying the annual worst-case constructions (construction emissions associated with development of 25 percent of the total proposed land uses) by four.

Source: Calculations by Ascent Environmental in 2017

Table 3.6-2 Operational Energy Consumption

Land Use/Energy Type	Energy Consumption	Units
Single-Family Residential		
Electricity	16,324	MWh/year
Natural Gas	43,905	MMBtu/year
Commercial		
Electricity	16,073	MWh/year
Natural Gas	7,164	MMBtu/year
Commercial/Office		
Electricity	12,217	MWh/year
Natural Gas	10,567	MMBtu/year
Elementary School		
Electricity	3,226	MWh/year
Natural Gas	6,369	MMBtu/year
All Land Uses		
Electricity	47,840	MWh/year
Natural Gas	68,005	MMBtu/year
Notes: MWh/year = megawatt-hours per year; MMBtu/year = million British thermal units per year.		
Source: Calculations by Ascent Environmental in 2017		

Table 3.6-3 Gasoline and Diesel Consumption

Vehicle Category	Gasoline (gal/year)	Diesel (gal/year)
Passenger Vehicles	708,516	6,481
Trucks	837,632	314,539
Buses	18,292	22,721
Other Vehicles	5,745	1,103
Total (All Vehicle Types)	1,570,185	344,844
Notes: gal/year = gallons per year.		
Source: Calculations by Ascent Environmental in 2017		

THRESHOLDS OF SIGNIFICANCE

The following significance criteria area based on CEQA Guidelines Appendix F (energy), under which implementation of the project would have a potentially significant adverse impact if the project would:

- ▲ Result in wasteful, inefficient, or unnecessary consumption of energy, during project construction or operation, as evidenced by a failure to decrease overall per capita energy consumption or decrease reliance on fossil fuels such as coal, natural gas, and oil;
- ▲ Fail to incorporate feasible renewable energy or energy efficiency measures into building design, equipment use, transportation, or other project features, or otherwise fail to increase reliance on renewable energy sources; or
- ▲ Exceed the available capacities of energy supplies that require the construction of facilities.

IMPACT ANALYSIS

Impact 3.6-1: Wasteful, inefficient, or unnecessary consumption of energy, during project construction or operation.

Future development of the SOIA area could increase electricity and natural gas consumption at the site relative to existing conditions. Thus, this impact would be **potentially significant**.

Appendix F 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 (Public Resources Code Section 21100, subdivision (b)(3)). Neither the law nor the State CEQA Guidelines establish criteria that define wasteful, inefficient, or unnecessary use. Compliance with California Code of Regulations Title 24 Energy Efficiency Standards would result in energy-efficient buildings. However, compliance with building codes does not adequately address all potential energy impacts during project construction and operation. For example, energy would be required to transport people and goods to and from any potential future development within the SOIA area.

Construction-Related Energy

If the SOIA were approved and subsequent annexation and development of the site were to occur in line with the conceptual land use plan (see Exhibit 2-4), energy would be required to construct the project, operate and maintain construction equipment, and produce and transport construction materials. The one-time energy expenditure required to construct the physical buildings and infrastructure associated with the project would be non-recoverable. Most energy consumption would result from operation of construction equipment and vehicle trips associated with commutes by construction workers and haul trucks supplying materials. An estimated 32,360,720 gallons of gasoline and 2,406,944 gallons of diesel would be consumed to enable project construction. The energy needs for project construction would be temporary and is not anticipated to require additional capacity or increase peak or base period demands for electricity or other forms of energy. Construction equipment use and associated energy consumption would be typical of that associated with construction of new residential and commercial projects in a suburban setting.

Building Energy

If the conceptual land use plan were developed, operation of the project would be typical of residential, educational, and commercial uses requiring electricity and natural gas for lighting, space and water heating, appliances, and landscape maintenance activities. Indirect energy use would include wastewater treatment and solid waste removal. The project would increase electricity and natural gas consumption in the region relative to existing conditions and would construct new utility connections to existing electrical and natural gas facilities.

The project would be required to meet the California Code of Regulations Title 24 standards for energy efficiency that are in effect at the time of construction that will continue to require improved building energy efficiency. Additionally, as required by the City of Elk Grove General Plan, all new private developments are required to meet and (as determined feasible by the City) exceed state Title 24 Energy Efficiency Building Standards prior to issuance of grading or building permits.

Implementation of Mitigation Measure 3.7-1a provided in Section 3.7, “Greenhouse Gas Emissions,” would further improve the energy efficiency of the project through increase use of on-site renewable energy, efficient lighting, energy efficient plumbing fixtures, and/or consideration of zero net energy development (if feasible). The combination of these measures would reduce wasteful energy consumption for buildings and improve energy efficiency of the project.

Transportation Energy

If the conceptual land use plan were developed, fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar

developments in the region. The project is anticipated to generate an annual VMT of 138,159,419 miles. The project would consume 344,844 gallons of diesel per year and 1,570,185 gallons of gasoline per year.

Fuel use estimates were calculated from the combination of fuel consumption rates and fuel mix by vehicle class from CARB's EMFAC2014 model with overall VMT and mode share by vehicle class modeled for the project in CalEEMod (see Section 3.3 "Air Quality," and Appendix B of this EIR). Federal and state regulations regarding standards for vehicles in California are designed to reduce wasteful, unnecessary, and inefficient use of energy for transportation. It should be noted that the CalEEMod estimates of VMT do not factor existing local land use conditions.

Implementation of Mitigation Measure 3.7-1a provided in Section 3.7, "Greenhouse Gas Emissions," would also further reduce project VMT and transportation energy use through measures such as on- and off-site safety improvements for bike, pedestrian, and transit connections, and/or implement relevant improvements identified in the City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan (see also Mitigation Measure 3.13-1). These mitigation measures are identified below.

Through incorporation of bicycle, pedestrian, and transit facilities and amenities, and reduction of fuel usage by providing for infrastructure for electric vehicle charging at residences and the commercial land uses, future projects within the SOIA area would not result in a wasteful or inefficient use of transportation-related energy (see Mitigation Measure 3.7-1a and Mitigation Measure 3.13-1).

Mitigation Measure 3.6-1: Implement Mitigation Measures 3.7-1a and 3.13-1.

Mitigation Measure 3.7-1a: On-site GHG emission reduction measures.

At the time of any application to annex territory within the Bilby Ridge SOIA area, the City of Elk Grove shall require that the applicants to implement all reduction measures necessary to comply with the City of Elk Grove CAP in place at the time and implement the following additional measures if they are not included in the City of Elk Grove CAP:

Construction

- ▲ Enforce idling time restrictions for construction vehicles
- ▲ Require construction vehicles to operate with the highest tier engines commercially available
- ▲ Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible
- ▲ Minimize tree removal, and mitigate indirect GHG emissions increases that occur because of vegetation removal, loss of sequestration, and soil disturbance
- ▲ Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators
- ▲ Increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available
- ▲ Require diesel equipment fleets to be lower emitting than any current emission standard

Operation

- ▲ Comply with lead agency's standards for mitigating transportation impacts under SB 743
- ▲ Require on-site EV charging capabilities for parking spaces serving the project to meet jurisdiction-wide EV proliferation goals

- ▲ Allow for new construction to install fewer on-site parking spaces than required by local municipal building code, if appropriate
- ▲ Dedicate on-site parking for shared vehicles
- ▲ Provide adequate, safe, convenient, and secure on-site bicycle parking and storage in multi-family residential projects and in non-residential projects
- ▲ Provide on- and off-site safety improvements for bike, pedestrian, and transit connections, and/or implement relevant improvements identified in the City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan
- ▲ Require on-site renewable energy generation
- ▲ Prohibit wood-burning fireplaces in new development, and require replacement of wood-burning fireplaces for renovations over certain size developments
- ▲ Require cool roofs and “cool parking” that promotes cool surface treatment for new parking facilities as well as existing surface lots undergoing resurfacing
- ▲ Require solar-ready roofs
- ▲ Require organic collection in new developments
- ▲ Require low-water landscaping in new developments. Require water efficient landscape maintenance to conserve water and reduce landscape waste
- ▲ Achieve Zero Net Energy performance targets before dates required by CALGreen
- ▲ Where Zero Net Energy is deemed infeasible, building energy may also be reduced in the following ways:
 - Reduce building energy-related GHG emissions through the use of on-site renewable energy (e.g., solar photovoltaic panels) where technologically feasible and at a minimum of 15 percent of the project’s total energy demand. Building design, landscape plans, and solar installation shall take into account solar orientation, and building roof size to maximize solar exposure.
 - Provide incentives to future residents to purchase Energy Star™ appliances (including clothes washers, dish washers, fans, and refrigerators).
 - Install high efficiency lighting (i.e., light emitting diodes) in all streetlights, security lighting, and all other exterior lighting applications.
 - Provide electrical outlets on the exterior of project buildings to allow sufficient powering of electric landscaping equipment.
 - Install low-flow kitchen faucets that comply with CALGreen residential voluntary measures (maximum flow rate not to exceed 1.5 gallons per minute at 60 psi).
 - Install low-flow bathroom faucets that exceed the CALGreen residential mandatory requirements (maximum flow rate not to exceed 1.5 gallons per minute at 60 psi).
 - Install low-flow toilets that exceed the CALGreen residential mandatory requirements (maximum flush volume less not to exceed 1.28 gallons per flush).

- Install low-flow showerheads that exceed the CALGreen residential mandatory requirements (maximum flow rate not to exceed 2 gallons per minute at 80 psi).
- Reduce turf area and use water-efficient irrigation systems (i.e., smart sprinkler meters) and landscaping techniques/design.
- ▲ Require new construction, including municipal building construction, to achieve third-party green building certifications, such as the GreenPoint Rated program or the LEED rating system
- ▲ Require the design of bike lanes to connect to the regional bicycle network
- ▲ Expand urban forestry and green infrastructure in new land development
- ▲ Require preferential parking spaces for park and ride to incentivize carpooling, vanpooling, commuter bus, electric vehicles, and rail service use
- ▲ Require a transportation management plan for specific plans which establishes a numeric target for non-SOV travel and overall VMT
- ▲ Develop a rideshare program targeting commuters to major employment centers
- ▲ Require the design of bus stops/shelters/express lanes in new developments to promote the usage of mass-transit
- ▲ Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service is available
- ▲ Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment
- ▲ Require the design of the electric boxes in new residential unit garages to promote electric vehicle usage
- ▲ Require electric vehicle charging station (conductive/inductive) and signage for non-residential developments
- ▲ Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands
- ▲ Require each residential unit to be “solar ready,” including installing the appropriate hardware and proper structural engineering
- ▲ Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans
- ▲ Require each residential and commercial building equip buildings with energy efficient AC units and heating systems with programmable thermostats/timers
- ▲ Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use
- ▲ Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets
- ▲ Require the use of energy-efficient lighting for all street, parking, and area lighting
- ▲ Require the landscaping design for parking lots to utilize tree cover

- ▲ Incorporate water retention in the design of parking lots and landscaping
- ▲ Require the development project to propose an off-site mitigation project which should generate carbon credits equivalent to the anticipated GHG emission reductions. This would be implemented via an approved protocol for carbon credits from CAPCOA, CARB, or other similar entities determined acceptable by the local air district
- ▲ Require the project to purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry, Climate Action Reserve or other similar carbon credit registry determined to be acceptable by the local air district
- ▲ Encourage the applicant to consider generating or purchasing local and California-only carbon credits as the preferred mechanism to implement its off-site mitigation measure for GHG emissions and that will facilitate the State's efforts in achieving the GHG emission reduction goal

Evidence of compliance with this mitigation measure shall be provided in the annexation application to LAFCo.

Mitigation Measure 3.13-1: Participation in transportation system improvements.

At the time of any application to annex territory within the Bilby Ridge SOIA area, the City of Elk Grove shall consult with Sacramento County and Caltrans to establish local and state highway transportation improvement plans and funding mechanisms to provide service levels consistent with the City's and County's general plans consistent with City of Elk Grove General Plan Policy CI-2. This will include on-site transportation improvements for pedestrian, bicycle, and transit facilities that will interconnect with existing and planned City pedestrian, bicycle, and transit improvements consistent with the City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan.

Future development within the SOIA area will be responsible for constructing or contributing on a fair-share basis to roadway improvements necessary to serve development within the SOIA area. This may include participation in the I-5 Freeway Subregional Corridor Mitigation Program.

In addition, a detailed traffic study will be completed after a more defined land use plan has been developed. Improvements needed from development in the SOIA area will be established by subsequent traffic studies and LOS standards of affected agencies in effect at the time. Annexation and development activity within the SOIA area will require the preparation of traffic impact report/s to establish the fair share and costing of required improvements. Evidence of compliance with this mitigation measure shall be provided in the annexation application to LAFCo.

Significance after Mitigation

As noted above, implementation of the above mitigation measures would improve operational and transportation energy efficiency of the project that would ensure that project's energy consumption would not be considered wasteful, inefficient, or unnecessary. Thus, this impact would be reduced to **less than significant**.

Impact 3.6-2: Demand for energy services and facilities.

Electrical and natural gas infrastructure would need to be extended by PG&E and SMUD to meet the energy needs of future development within the SOIA area upon annexation. If determined to be necessary, off-site improvements to electrical and natural gas facilities would be the responsibility of the utility and would be analyzed by the utility provider under separate environmental review. Physical environmental impacts from construction or operation of off-site improvements could remain significant after implementation of mitigation (i.e., significant and unavoidable) or no feasible mitigation may be available to fully reduce impacts to a less-than-significant level. Neither LAFCo nor the City of Elk Grove would have control over the approval, timing, or implementation of any electrical or natural gas facility improvements. This impact would be **significant**.

Future development of the SOIA area would increase electricity and natural gas consumption and require new utility connections. While the conceptual land use plan provides no details on the extension of electrical and natural gas infrastructure into the project area, there are existing electrical and natural gas infrastructure facilities along the roadway network surrounding the SOIA area that are available for connection. Electrical infrastructure around the SOIA area includes a 69 kilovolt (kV) overhead line and a 12kV underground line north of Bilby Road, as well as 12kV and 69kV overhead lines along Bruceville Road. Natural gas facilities could be extended from nearby facilities to serve the proposed SOIA Area (LAFCo 2016: 4.0-41).

Based on their review of the NOP, SMUD estimates that the electrical demand potentially generated by the project is approximately 12 MWs, and states that this potential increase in load could require a new substation or upgrades to the existing substation in the vicinity of the SOIA area (McIntire 2017). Additionally, SMUD anticipates that the following off-site extensions or improvements of facilities could be required:

- ▲ Double overhead 69kV lines along Kammerer Road,
- ▲ 12kV underground line on the south side of the project site along Kammerer Road,
- ▲ Overhead 69kV line on the existing 69kV route along Bruceville Road,
- ▲ 12kV underground line on the east of the project site along Bruceville Road,
- ▲ 12kV underground line on the west of the project site,
- ▲ 20-foot public utility easements for future overhead 69kV lines, and
- ▲ 12.5-foot public utility easements for overhead/underground facilities along all new streets.

However, the Public Utilities Commission obligates SMUD and PG&E to maintain the capacity to provide energy to planned developments. Therefore, SMUD and PG&E would review final development plans once the applicant submits them to the appropriate design and construction services departments, and determine infrastructure connection specifics at that time. Specific energy demand would be calculated in coordination with SMUD and PG&E to ensure that the project site is adequately served. The potential environmental effects of any new or expanded off-site utilities would be considered by the utility provider through separate CEQA review. Potential significant environmental impacts from construction of off-site infrastructure could include, but not limited to, the following:

- ▲ Aesthetics: temporary and/or permanent alteration of public views from construction of infrastructure improvements
- ▲ Air Quality: air pollutant and toxic air contaminant emissions from construction activities that exceed thresholds recommended by the Sacramento Metropolitan Air Quality Management District
- ▲ Archaeological, Historical, and Tribal Cultural Resources: damage or loss of significant cultural resources from construction activities
- ▲ Biological Resources: loss of habitat and direct impacts to special status plant and animal species
- ▲ Greenhouse Gases: temporary emission of greenhouse gases during construction
- ▲ Hazards and Hazardous Materials: potential exposure or release of hazardous materials or contamination during construction
- ▲ Hydrology and Water Quality: construction-related stormwater quality impacts
- ▲ Noise: temporary excessive noise levels during construction on sensitive noise receptors
- ▲ Transportation: temporary disruption of roadways and congestion from construction activities and equipment.

The physical environmental impacts from construction or operation of off-site improvements could remain significant after implementation of mitigation (i.e., significant and unavoidable), or no feasible mitigation may be available to fully reduce impacts to a less-than-significant level as it is unknown at this time what the extent of these impacts may be. Neither LAFCo nor the City of Elk Grove would have control over the approval, timing, or implementation any facility improvements. This would be a **significant** impact.

Mitigation Measure 3.6-2: Prepare utility service plans that demonstrate adequate electrical and natural gas service and infrastructure are available.

At the time of submittal of any application to annex territory within the SOIA area, the City of Elk Grove shall require that the applicants prepare utility service plans that identify the projected electrical and natural gas demands and that appropriate infrastructure sizing and locations to serve future development will be provided. The utility service plans shall verify that SMUD and PG&E have adequate electrical and natural gas supplies and infrastructure to serve the annexation territory. For any new off-site facility improvements, the City shall provide LAFCo information on the environmental review for the improvement and mitigation measures have been identified to address identified significant environmental impacts. Evidence of compliance with this mitigation measure shall be provided in the annexation application to LAFCo.

Significance after Mitigation

The impacts of construction or operation of off-site improvements, if required, could result in significant environmental effects that cannot be determined at this time. Neither LAFCo nor the City of Elk Grove would have control over the approval, timing, or implementation these improvements. Therefore, the potential impact of constructing new or expanded electrical or natural gas facilities to serve development of the SOIA area in in the future, if required and assuming eventual annexation and development, would be **significant and unavoidable**.