3.16 ENERGY

Comments received on the Notice of Preparation (NOP) were reviewed during preparation of this SEIR. However, no comments related to energy were received.

3.16.1 ENVIRONMENTAL SETTING

The environmental setting for the proposed Project as it relates to energy has not substantively changed since the 2019 SOIA EIR was prepared.

Electric services in the City of Elk Grove are provided by the Sacramento Municipal Utility District (SMUD). Electricity is generated through a combination of nuclear power plants; natural gas-fired power plants; renewable energy sources, such as wind, solar, geothermal, and small hydroelectric facilities; and additional energy purchased from other energy suppliers. SMUD receives power through varied sources, including hydropower, natural-gas-fired generators, renewable energy from solar and wind power, and power purchased on the wholesale market (which may include one or more of the other sources listed above). In 2018, the SMUD power mix was comprised of 20 percent eligible renewable resources, such as biomass, solar, wind, geothermal, and small hydroelectric power plants that generate 30 megawatts (MW) or less of electricity; 26 percent from large hydroelectric; 54 percent from natural gas; and less than one percent from other unspecified power sources (i.e., electricity that is not traceable to specific generation sources by any auditable contract) (SMUD 2019a).[1] The proportion of SMUD-delivered electricity generated from eligible renewable energy sources is anticipated to increase over the next three decades to comply with the SB 100 goals described below in Section 3.16.2.

In 2018, PG&E delivered approximately 44,794 million therms (MM therms) of natural gas throughout its service area (CEC 2020a). Of this total, the County of Sacramento received 305 MM therms, which accounted for 6 percent of the total natural gas deliveries within the PG&E service area (CEC 2020b). Transportation is, by far, the largest energy consuming sector in California, accounting for more approximately 40 percent of all energy use in the state (U.S. Energy Information Administration 2020a) and, therefore, fuel use and travel demand are very important for consideration in an assessment of energy efficiency.

Gasoline and diesel fuel constitute 83 and 17 percent of petroleum-based fuels sold in California, respectively. In 2018, sales of diesel fuel to California end users was approximately 1,187,100 gallons per day (gpd) and sales of gasoline to California end users was approximately 455,900 gpd (CEC 2019a, 2019b). While gasoline and diesel fuel remain the primary fuels fused for transportation in California, the types of transportation fuel have diversified in California and elsewhere. Various statewide regulations and plans (e.g. Low Carbon Fuel Standard, AB 32 Scoping Plan) encourage the use of a variety of alternatives are used to reduce demand for petroleum-based fuel. Depending on the vehicle capability, conventional gasoline and diesel are increasingly being replaced by alternative transportation fuels including biodiesel, electricity, ethanol, hydrogen, natural gas, and other synthetic fuels. California has a growing number of alternative fuel vehicles through the joint efforts of the California Energy Commission (CEC), ARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. By the end of 2018, California drivers owned almost 500,000 electric and plug-in hybrid vehicles. In 2019, nearly one-fourth of the nation's electric vehicle charging stations were in California

[1] Renewable energy sources for the purposes of California's renewable portfolio standard of 33 percent renewable energy generation by 2020 include biomass, solar, wind, geothermal, and small hydroelectric power plants that generate 30 MW or less of electricity.

(U.S. Energy Information Administration 2020b). As of August 2020, the City of Elk Grove contained 20 public and 2 private alternative fueling stations (Alternative Fuels Data Center 2020).

3.16.2 REGULATORY FRAMEWORK

The regulatory framework for energy supply and efficiency, as it pertains to the proposed Project, is described in the 2019 SOIA EIR. The following highlights changes in the regulatory framework since the preparation of the 2019 SOIA EIR.

FEDERAL LAWS, REGULATIONS, PLANS, AND POLICIES

Energy Policy and Conservation Act and CAFÉ Standards

The Energy Policy and Conservation Act of 1975 established the first fuel economy standards for on-road motor vehicles sold in the United States. The National Highway Traffic and Safety Administration (NHTSA) is responsible for establishing vehicle standards and revising existing standards. The Corporate Average Fuel Economy (CAFE) program was created to determine vehicle manufacturers' compliance with the fuel economy standards. The United States Environmental Protection Agency (EPA) administers the testing program that generates the fuel economy data.

On August 2, 2018, the National Highway Traffic Safety Administration and EPA proposed the Safer Affordable Fuel Efficient Vehicles Rule (SAFE Rule). On September 27, 2019, the EPA and the National Highway Traffic Safety Administration published the "SAFE Vehicles Rule Part One: One National Program" (84 Fed. Reg. 51310). The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. Part 2 of the regulations, which, if implemented, would address fuel efficiency standards for light-duty vehicles model years 2021 through 2026, have not been drafted as of the writing of this document.

STATE LAWS, REGULATIONS, PLANS, AND POLICIES

California Energy Commission Plans and Programs

The CEC is the state's primary energy policy, planning, and energy efficiency standards regulatory agency. The CEC collects and analyzes energy-related data, prepares statewide energy policy recommendations and plans, promotes and funds energy efficiency programs, and adopts and enforces appliance and building energy efficiency standards. The CEC has five major responsibilities: (1) forecasting future energy needs and keeping historical energy data, (2) licensing thermal power plants 50 MW or larger, (3) promoting energy efficiency through appliance and building standards, (4) developing energy technologies and supporting renewable energy, and (5) planning for and directing the state response to an energy emergency.

Last updated in 2008, the State of California Energy Action Plan establishes goals and specific actions to ensure adequate, reliable, and reasonably priced electrical power and natural gas supplies, initiatives for increasing supply and reducing demand, in the context of global climate change (CEC 2008).

The CEC conducts assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery, and distribution, The CEC adopts the Integrated Energy Policy Report (IEPR) every two years and an update every other year. The 2019 IEPR, adopted February 2020, is the most recent report and provides a

summary of energy issues, outlining strategies and recommendations to further California's goal of ensuring reliable, affordable, and environmentally responsible energy sources (CEC 2020c).

California Public Utilities Commission

The CPUC has authority to set electric rates, regulate natural gas utility service, protect consumers, promote energy efficiency, and ensure electric system reliability. The CPUC has established rules for the planning and construction of new transmission facilities, distribution facilities, and substations. Utility companies are required to obtain permits to construct certain power line facilities or substations. The CPUC also has jurisdiction over the siting of natural gas transmission lines.

The CPUC regulates distributed generation policies and programs for both customers and utilities. This includes incentive programs (e.g., California Solar Initiative) and net energy metering policies. Net energy metering allows customers to receive a financial credit for power generated by their on-site system and fed back to the utility. The CPUC is involved with utilities through a variety of energy procurement programs, including the Renewable Portfolio Standard program.

The CPUC Long Term Energy Efficiency Strategic Plan, which is the roadmap to achieving maximum energy savings in California through 2020, was originally adopted in 2008 and subsequently updated in 2011 to include a lighting chapter (CPUC 2011). Action plans provide a framework for implementing each chapter of the Strategic Plan. Consistent with California's energy policy and electricity "loading order", the Energy Efficiency Strategic Plan indicates that energy efficiency is the highest priority resource in meeting California's energy needs. The CPUC also adopted energy goals for all new residential construction in California to be zero net energy (ZNE) by 2020. The ZNE goal means new buildings must use a combination of improved efficiency and distributed renewable energy generation to meet 100 percent of their annual energy need (CEC 2015b). In addition to the ZNE goals for residential buildings by 2020, the CPUC has adopted goals that all new commercial construction in California will be ZNE by 2030 and 50 percent of existing commercial buildings will be retrofit to ZNE by 2030.

Renewable Portfolio Standard

State legislation has established increasingly stringent renewable portfolio standard (RPS) requirements for California's utility companies. RPS-eligible energy sources include wind, solar, geothermal, biomass, and small-scale hydro projects.

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Executive Order S-14-08 expanded the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs ARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. The 33 percent-by-2020 goal and requirements were codified in April 2011 with SB X1-2. This new Renewable Portfolio Standard applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. SB 350 (2015) increased the renewable-source requirement to 50 percent by 2030, which was further increased under SB 100 in 2018 to 60 percent by 2030 and requiring all the State's electricity to come from carbon-free resources by 2045.

These requirements reduce the carbon content of electricity generation associated with both existing and new development, including that within the Project site.

California Code or Regulations, Title 20 and 24

New buildings constructed in California must comply with the standards contained in California Code of Regulations (CCR) Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards.

Title 20 standards range from power plant procedures and siting to energy efficiency standards for appliances, ensuring reliable energy sources are provided and diversified through energy efficiency and renewable energy resources. California's 2009 Appliance Efficiency Regulations (20 CCR 1601–1608) were adopted by the CEC on December 3, 2008, and approved by the California Office of Administrative Law on July 10, 2009. The regulations include standards for both federally regulated appliances and non-federally regulated appliances.

Title 24 requires the design of building shells and building components to conserve energy. The Energy Conservation Standards for new residential and nonresidential buildings were established by the CEC in June 1977 June 1977 and were most recently revised in 2019 (Title 24, Part 6 of the California Code of Regulations [Title 24]). Title 24 governs energy consumed by commercial and residential buildings in California. This includes the HVAC system; water heating; and some fixed lighting. Non-building energy use, or "plug-in" energy use, is not covered by Title 24. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. California's Building Energy Efficiency Standards are updated on an approximate 3-year cycle. The most recent update was in 2019and took effect July 1, 2020. One of the improvements included within the 2019 Building Energy Efficiency Standards is the requirements that certain residential developments, including some single-family and low-rise residential development, include on-site solar energy systems capable of producing 100 percent of the electricity demand of the residences. With implementation of solar photovoltaic systems with new residential development, homes built under the 2019 standards will use approximately 53 percent less energy than those under the 2016 standards. Nonresidential buildings are anticipated to consume 30 percent less energy as compared to nonresidential buildings constructed under 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 related to local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in the California Energy Code. The City has adopted these energy efficiency standards and the City's Climate Action Plan requires compliance with the Tier 1 set of energy efficiency standards in the California Green Building Standards Code (CALGreen).

CALGreen (24 CCR Part 11) is intended to enhance the design and construction of buildings through the use of building concepts that benefit the environment and public health and encourage sustainability in construction and operations of a building. The provisions of the code apply to the planning, design, construction, use and occupancy of all newly constructed buildings and structures throughout California. Some key provisions of the code include, but are not limited to, requirements related to the installation of electric vehicle charging infrastructure in residential and nonresidential developments, establishment of maximum fixture water use rates to reduce indoor water use consumption, diversion of 65 percent of construction and demolition waste from landfills, and mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, and flooring.

Executive Order B-18-12

Executive Order B-18-12 orders all new State buildings and major renovations beginning design after 2025 be constructed as Zero Net Energy facilities. The Executive Order sets an interim target for 50 percent of new facilities beginning design after 2020 to be Zero Net Energy. It directs State agencies to take measures toward achieving Zero Net Energy for 50 percent of the square footage of existing State-owned building area by 2025.

LOCAL LAWS, REGULATIONS, PLANS, AND POLICIES

City of Elk Grove General Plan

The City of Elk Grove General Plan (adopted 2019) includes policies that promote energy conservation and reduction strategies.

Urban and Rural Development

- **Policy LU-1-9:** Encourage employee intensive commercial and industrial uses to locate within walking distance of fixed transit stops. Encourage regional public transit to provide or increase coordinated services to areas with high concentrations of residents, workers, or visitors.

- **Policy LU-4-1:** Establish activity centers as community gathering places characterized by the following design element related actions.

    - Prioritize pedestrian and bicycle access.
    - Ensure local and regional transit connections are provided throughout each activity year.

Economy and the Region

- **Policy RC-1-5:** In addition to establishing a primary Major Employment Center, consider options to develop additional Major Employment Centers in portions of the City with enough available undeveloped land and potential sufficient transit access to support such a center.

- **Policy RC-3-1:** Integrate economic development and land use planning in Elk Grove with planning for regional transportation systems.

- **Policy RC-3-4:** Advocate for fixed-transit service in Elk Grove as part of a coordinated regional network designed and routed to serve Major Employment Centers, residential centers, shopping centers, and colleges and universities.

Mobility

- **Policy MOB-1-1:** Achieve State-mandated reductions in VMT by requiring land use and transportation projects to comply with the specific metrics and limits. These metrics and limits shall be used as thresholds of significance in evaluating projects subject to CEQA.

- **Policy MOB-1-4:** Consider all transportation modes and the overall mobility of these modes when evaluating transportation design and potential impacts during circulation planning.

- **Policy MOB-3-1: I**mplement a balanced transportation system using a layered network approach to building Complete Streets that ensure the safety and mobility of all users, including pedestrians, cyclists, motorists, children, seniors, and people with disabilities.

- **Policy MOB-3-2:** Support strategies that reduce reliance on single-occupancy private vehicles and promote the viability of alternative modes of transport.

- **Policy MOB-3-7:** Develop a complete and connected network of sidewalks, crossings, paths, and bike lanes that are convenient and attractive, with a variety of routes in pedestrian-oriented area.

- **Policy MOB-3-15:** Utilize reduced parking requirements when and where appropriate to promote walkable neighborhoods and districts and to increase the use of transit and bicycles.

- **Policy MOB-3-16:** Establish parking maximums, where appropriate, to prevent undesirable amounts of motor vehicle traffic in areas where pedestrian, bike, and transit use are prioritized.

- **Policy MOB-3-17:** Ensure new multifamily and commercial developments provide bicycle parking and other bicycle support facilities appropriate for the users of the development.

- **Policy MOB-4-1:** Ensure that community and area plans, specific plans, and development projects promote pedestrian and bicycle movement via direct, safe, and pleasant routes that connect destinations inside and outside the plan or project area. This may include convenient pedestrian and bicycle connections to public transportation.

- **Policy MOB-4-5:** Encourage employers to offer incentives to reduce the use of vehicles for commuting to work and increase commuting by active transportation modes. Incentives may include a cash allowance in lieu of a parking space and onsite facilities and amenities for employees such as bicycle storage, shower rooms, lockers, trees, and shaded seating areas.

- **Policy MOB-5-1:** Support a pattern of land uses and development projects that are conducive to the provision of a robust transit service.

- **Policy MOB-5-4:** Support mixed-use and high-density development applications close to existing and planned transit stops.

- **Policy MOB-5-6:** Provide the appropriate level of transit service in all areas of Elk Grove, through fixed-route service in urban areas, and complementary demand response service in rural areas, so that transit-dependent residents are not cut off from community services, events, and activities.

- **Policy MOB-5-7:** Maintain and enhance transit services throughout the City in a manner that ensures frequent, reliable, timely, cost-effective, and responsive service to meet the City's needs. Enhance transit services where feasible to accommodate growth and transit needs as funding allows.

- **Policy MOB-5-8:** Support and use infrastructure improvements and technological advancements such as intelligent transportation management tools to facilitate the movement and security of goods through the City in an efficient manner.

- **Policy MOB-5-9:** Assist in the provision of support facilities for emerging technologies such as advanced fueling stations (e.g., electric and hydrogen) and smart roadway signaling/signage.

- **Policy MOB-5-10:** Work with a broad range of agencies to encourage and support programs that increase regional average vehicle occupancy. Examples include providing traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, road and parking pricing, and other methods.

- **Policy MOB-5-11:** Encourage and create incentives for the use of environmentally friendly materials and innovative approaches in roadway designs that limit runoff and urban heat island effects. Examples include permeable pavement, bioswales, and recycled road base, asphalt, and concrete.

Natural Resources

- **Policy NR-2-2:** Maximize and maintain tree coverage on public lands and in open spaces.

- **Policy NR-2-4:** Maintain and enhance an urban forest by preserving and planting trees in appropriate densities and locations to maximize energy conservation and air quality benefits.

- **Policy NR-3-8:** Reduce the amount of water used by residential and nonresidential uses by requiring compliance with adopted water conservation measures.

- **Policy NR-3-9:** Promote the use of greywater systems and recycled water for irrigation purposes.

- **Policy NR-3-12:** Advocate for native and/or drought-tolerant landscaping in public and private project.

- **Policy NR-3-6:** Continue interagency partnerships to support water conservation.

- **Policy NR-4-1:** Require all new development projects which have the potential to result in substantial air quality impacts to incorporate design, and/or operational features that result in a reduction in emissions equal to 15 percent compared to an "unmitigated baseline project." An unmitigated baseline project is a development project which is built and/or operated without the implementation of trip reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.

- **Policy NR-4-4:** Promote pedestrian/bicycle access and circulation to encourage residents to use alternative modes of transportation in order to minimize direct and indirect emissions of air contaminants.

- **Policy NR-4-5:** Emphasize demand management strategies that seek to reduce single-occupant vehicle use in order to achieve State and federal air quality plan objectives.

- **Policy NR-4-6:** Offer a public transit system that is an attractive alternative to the use of private motor vehicles.

- **Policy NR-4-8:** Require that development projects incorporate best management practices during construction activities to reduce emissions of criteria pollutants.

- **Policy NR-5-1:** By 2030 reduce community-wide greenhouse gas emissions to 4.1 metric tons of carbon dioxide equivalents (MT CO_2e) per capita. By 2050 reduce community-wide greenhouse gas emissions to 1.4 MTCO_2e per capita to meet the State's 2050 greenhouse gas emissions reduction goals.

- **Policy NR-5-2:** Improve the health and sustainability of the community through improved regional air quality and reduction of greenhouse gas emissions that contribute to climate change.
- **Policy NR-5-3:** Support efforts by the Sacramento Metropolitan Air Quality Management District and the California Air Resources Board to decrease greenhouse gas emissions from stationary sources.
- **Policy NR-5-4:** Preserve, protect, and enhance, as appropriate, the community's carbon sequestration resources to improve air quality and reduce net carbon emissions.
- **Policy NR-6-1:** Promote energy efficiency and conservation strategies to help residents and businesses save money and conserve valuable resources.
- **Policy NR-6-3:** Promote innovation in energy efficiency.
- **Policy NR-6-5:** Encourage renewable energy options that are affordable and benefit all community members.
- **Policy NR-6-6:** Encourage the use of solar energy systems in homes, commercial businesses, and City facilities as a form of renewable energy.
- **Policy NR-6-7:** Promote energy conservation measures in new development to reduce on-site emissions and 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. \

Sustainable Development

- **Policy SD-2-1:** Incorporate green building techniques and best management practices in the site design, construction, and renovation of all public projects
- **Policy SD-2-2:** Support innovation and green building best management practices for all new private development

City of Elk Grove Climate Action Plan

The City of Elk Grove adopted its first Climate Action Plan (CAP) in 2013. The CAP and General Plan were since updated in 2019, and the CAP was most recently amended in late 2019 to ensure consistency with the final2019 Title 24 California Building Standards Code, specifically with regard to solar photovoltaic requirements and electric vehicle charging infrastructure standards for new development.

The CAP identifies sources of GHG emissions within the City boundary and identifies measures to reduce emissions, including measures that would also reduce energy use. The CAP includes the following policy topics that serve as the framework of specific supporting measures, action items, and target indicators for implementation of the CAP: An innovative and Efficient Built Environment, Resource Conservation, and Transportation Alternatives and Congestion Management. Table 3.16-1 presents applicable energy-related measures.

Table 3.16-1 City of Elk Grove Climate Action Plan Applicable Energy Reduction Measures		
Reduction Measures		Policy Topic
BE-1	Building Stock: Promote Energy Conservation. Promote energy conservation by residents and businesses in existing structures in coordination with other agencies and local energy providers, including SMUD and PG&E.	Built Environment
BE-4	Building Stock: Encourage or Require Green Building Practices in New Construction. Encourage new construction projects to comply with CALGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24 Part 6 Building Energy Efficiency Standards.	Built Environment
BE-5	Building Stock: Phase in Zero Net-Energy Standards in New Construction. Phase in zero net energy (ZNE) standards for new construction, beginning in 2020 for residential projects and 2030 for commercial projects. Specific phase-in requirements and ZNE compliance standards will be supported by updates in the triennial building code updates, beginning with the 2019 update.	Built Environment
BE-6	Building Stock: New Construction. Adopt CALGreen Tier 1 standards to require all new construction to achieve a 15 percent improvement over minimum Title 24 CALGreen Energy requirements.	Built Environment
BE-7	Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development. Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.	Built Environment
BE-8	SMUD Greenergy and SolarShare Programs. Encourage participation in SMUD's offsite renewable energy programs (i.e., Greenergy, SolarShares), which allow building renters and owners to opt into cleaner electricity sources.	Built Environment
RC-1	Waste Reduction. The City shall facilitate recycling, reduction in the amount of waste, and reuse of materials to reduce the amount of solid waste generated.	Resource Conservation
RC-2	Organic Waste Reduction. The City will target reduction of organic waste disposal, consistent with statewide goals, of 50 percent of 2014 levels by 2020 and 75 percent by 2025, using alternatives such as composting, anaerobic digestion, and biomass energy	Resource Conservation
TACM-1	Local Goods. Promote policies, programs, and services that support the local movement of goods in order to reduce the need for travel.	Transportation Alternatives & Congestion Management
TACM-2	Transit-Oriented Development. Support higher-density, compact development along transit by placing high-density, mixed-use sites near transit opportunities.	Transportation Alternatives & Congestion Management
TACM-3	Intracity Transportation Demand Management. The City shall continue to implement strategies and policies that reduce the demand for personal motor vehicle travel for intracity (local) trips.	Transportation Alternatives & Congestion Management
TACM-4	Pedestrian and Bicycle Travel. Provide for safe and convenient pedestrian and bicycle travel through implementation of the Bicycle, Pedestrian and Trails Master Plan and increased bicycle parking standards.	Transportation Alternatives & Congestion Management
TACM-6	Limit Vehicle Miles Traveled. Achieve a 15 percent reduction in daily VMT compared to existing conditions (2015) for all new development in the City, consistent with state mandated VMT reduction targets for land use and transportation projects.	Transportation Alternatives & Congestion Management
TACM-7	Traffic Calming Measures. Increase the number of streets and intersections that have traffic calming measures.	Transportation Alternatives & Congestion Management
TACM-8	Tier 4 Final Construction Equipment. Require all construction equipment used in Elk Grove to achieve EPA-rated Tier 4 Final diesel engine standards by 2030 and encourage the use of electrified equipment where feasible.	Transportation Alternatives & Congestion Management
TACM-9	EV Charging Requirements. Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City.	Transportation Alternatives & Congestion Management

3.16.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Energy impacts were analyzed by assessing energy usage associated with construction and operation of development within the Project site. Future energy demand was calculated consistent with the criteria air pollutant and GHG emissions modeling, conducted using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 and the SMAQMD Road Construction Emissions Model, Version 9.0.0 (see Section 3.4, "Air Quality," and 3.8, "Greenhouse Gas Emissions," for further discussion of modeling details). Detailed project inputs, assumptions, and calculations are provided in Appendix E.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, an energy impact is considered significant if the proposed Project would:

- Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, during project construction or operation; or
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

For a discussion of impacts related to the relocation or construction of new or expanded electrical power and natural gas facilities, see Section 3.15, "Utilities."

IMPACT ANALYSIS

Impact 3.16-1: Result in the Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources.

Construction-Related Energy Consumption

Construction associated with future development of the Project site, including on- and off-site improvements, would result in consumption of energy in the form of electricity, natural gas, and fossil fuels (e.g., gasoline and diesel fuel) for the duration of the construction. The primary energy demands during construction would be associated with refueling construction vehicles and equipment and would be short-term in nature. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on-site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site.

Tables 3.16-2 and 3.16-3 present the fuel consumption anticipated to occur as a result of Project-related construction activities. Table 3.16-2 presents the maximum annual fuel consumption for the most intense construction-year scenario (assuming 25 percent of the assumed land uses within the Project site along with all off-site improvements are constructed within a single year). Table 3.16-3 presents the total and average annual fuel consumption that would occur over the anticipated 20-year construction period for full development of the Project site. Refer to Appendix E for detailed model inputs, assumptions and calculations.

Table 3.16-2 Construction Fuel Consumption, Maximum Annual Construction-Year				
Phase	Source	MT CO_2e/ Year [a]	Predominant Fuel Type	Gallons/Year
Demolition	Off-Road Equipment	445.12	Diesel	43,811
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	12.27	Gasoline	1,380
Site Preparation	Off-Road Equipment	438.18	Diesel	43,128
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	14.72	Gasoline	1,656
Grading	Off-Road Equipment	714.16	Diesel	70,292
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	16.35	Gasoline	1,840
Building Construction	Off-Road Equipment	302.94	Diesel	29,817
	Hauling	0.00	Diesel	-
	Vendors	1136.36	Diesel	111,847
	Workers	786.62	Gasoline	88,513
Paving	Off-Road Equipment	262.41	Diesel	25,828
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	12.27	Gasoline	1,380
Architectural Coating	Off-Road Equipment	262.41	Diesel	25,828
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	12.27	Gasoline	1,380
Total Gallons			**Diesel**	**350,550**
			Gasoline	**96,150**

Notes:
CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; MT = metric tons
Sources:
[a] Modeled by AECOM in 2020

Table 3.16-3 Construction Fuel Consumption, Total and Average Annual				
Phase	Source	MT CO_2e/ Year [a]	Fuel Type	Gallons/Year
Demolition	Off-Road Equipment	1780.48	Diesel	175,244
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	49.06	Gasoline	5,521
Site Preparation	Off-Road Equipment	1752.72	Diesel	172,511
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	58.87	Gasoline	6,625
Grading	Off-Road Equipment	2856.65	Diesel	281,166
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	65.42	Gasoline	7,361
Building Construction	Off-Road Equipment	1211.78	Diesel	119,270
	Hauling	0.00	Diesel	-
	Vendors	4545.45	Diesel	447,387
	Workers	3146.47	Gasoline	354,053
Paving	Off-Road Equipment	1049.64	Diesel	103,311
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	49.06	Gasoline	5,521
Architectural Coating	Off-Road Equipment	1049.64	Diesel	103,311
	Hauling	0.00	Diesel	-
	Vendors	0.00	Diesel	-
	Workers	49.06	Gasoline	5,521
Total Gallons			**Diesel**	**1,402,201**
			Gasoline	**384,600**
Average Annual (over the 20-year construction period)			**Diesel**	**70,110**
			Gasoline	**19,230**

Notes:
CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; MT = metric tons
Sources:
[a] Modeled by AECOM in 2020

Energy consumption would vary depending on the type of construction activities. For example, although it is unlikely, to conservatively estimate maximum potential fuel demands, it is assumed that a year of maximum-potential development could include construction of up to 25 percent of assumed land uses within the Project site and all off-site improvements in a single year. Under this scenario, and as shown in Table 3.16-2, approximately 350,550 gallons of diesel and 96,150 gallons of gasoline would be consumed in a single year. Because of these conservative assumptions, actual maximum annual construction-related fuel consumption could be less than those estimated, and more likely reflective of the average annual fuel constumption shown in Table 3.16-3. Considering a more steady rate of development over an anticipated 20-year development period, average annual fuel consumption would be approximately 70,110 gallons of diesel and 19,230 gallons of gasoline per year, for a total of 1,402,201 gallons of diesel and 384,600 gallons of gasoline over the 20-year construction period.[2] In addition, estimates for both maximuma annual and average annual fuel consumption assume construction in the earliest possible year (2021). If construction is delayed or occurs over a longer period, fuel use could be reduced because of a more modern and fuel efficient construction equipment and vehicle fleet mix, increased use of alternative fuels, and a less intensive and overlapping construction schedule.

Fuel consumed during construction would be temporary in nature and would not represent a significant demand on available fuel, beyond normal construction fuel usage. There are no known Project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the City. The City and future applicants would be required to demonstrate consistency with policies and actions in the City of Elk Grove's General Plan that are intended to promote efficient energy use. This would include Policy NR-4-8 and related standards, which requires development projects within the City incorporate best management practices during construction activities, including the implementation of the SMAQMD Basic Construction Emission Control Practices for all projects. The SMAQMD Basic Construction Emission Control Practices require equipment idling time be minimized to a maximum of 5 minutes, current certificates of compliance for ARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1], and that all construction equipment be maintained in proper working condition according to manufacturer's specifications and be checked by a certified mechanic to demonstrate it is running in proper condition before it is operated. These actions would help to ensure on-site equipment is operating with maximum fuel efficiency.

However, because the details of future development projects are not currently known, it is possible that construction within the Project site could involve substantial energy demand. This impact is conservatively assumed to be **significant**.

Building Operational Energy Consumption

Operation of land uses and infrastructure in the Project site would consume energy for multiple purposes, including, but not limited to, building heating and cooling, refrigeration, lighting, electronics, office equipment and commercial machinery. Table 3.16-4 provides a summary of the potential electrical and natural gas demands by land use. Electrical and natural gas demand would be approximately 87,164,490 kWh/year and 170,611,820 thousand British thermal units (kBtu)/year, respectively.

[2] These calculations are based on the CalEEMod emissions estimates for proposed construction activities and application of U.S. Energy Information Administration CO_2 emissions coefficients (U.S. Energy Information Administration 2018) to estimate fuel consumption for each phase of construction activities.

Table 3.16-4 Estimated Annual Electrical and Natural Gas Demand		
Location	Electrical Demand (kWh/year)	Natural Gas Demand (kBtu/year)
Commercial	2,778,550	1,067,870
Heavy Industrial	31,844,400	64,745,800
Light Industrial	46,826,200	95,206,700
Mixed Use	5,715,340	9,591,450
Total	**87,164,490**	**170,611,820**

Notes: kWh = kilowatt-hours; kBtu = thousand British thermal unit

Source: AECOM 2020

SMUD would provide electricity and would continue to prioritize renewable energy and aims to provide dependable renewable resources for 60 percent of its load by 2030, excluding additional renewable energy acquired for certain customer programs (SMUD 2019b).

The SMUD power mix is comprised of approximately 20 percent eligible renewable resources, such as biomass, solar, wind, geothermal, and small hydroelectric power plants, as well as an additional 26 percent from large hydroelectric sources, ensuring that electricity consumption in the Project site relies heavily on renewable sources. SMUD provides several customer programs geared toward energy efficiency and access to renewable energy and the SMUD Integrated Resource Plan, which outlines its roadmap for reducing GHG emissions and meeting State RPS requirements, accounts for these programs' impacts on total demand and peak demand for electricity and also anticipates an increased focus on energy efficiency and electrification in the coming years (SMUD 2019b). Some of the SMUD customer programs that would be applicable to development within the Project site include, but are not limited to, incentives for builders and design teams to construct all-electric new homes; the installation of electric vehicle chargers for some commercial and residential customers; the SolarShares program in which customers participate in a community solar product for their electricity; the Greenergy program in which participants can opt-in to receive a blend of renewables from a power content label that is their own; and incentives for the installation of energy-efficient equipment, controls, and processes at commercial and industrial customers' facilities.

Development in the Project site would be constructed to meet currently-applicable energy efficiency standards at the time of construction. In accordance with California Code of Regulations Title 20 and Title 24, development within the Project site would be requipred to comply with the building energy requiprements and California Building Standards Code, including CALGreen. This includes meeting energy standards for water and space heating and cooling equipment, insulation for doors, pipes, walls, and ceilings, and appliances, ues of high-efficiency lighting, implementation of solar photovoltaic systems to off-set a designated portion of on-site electricity demands, and other requirements. Improvements would also be eligible for rebates and other incentives from both the electric and gas providers for the Project site for the use of energy-efficient appliances and systems, which would further reduce the overall operational energy consumption associated with development in the Project site.

Development of the Project site would be required to demonstrate consistency with policies and actions in the City of Elk Grove's General Plan and reduction measures in the City's CAP that are intended to promote more efficient use of energy. This would include reduction measures BE-4, BE-5, BE-6, BE-7, and BE-8, which are intended to increase building energy efficiency and promote generation of renewable energy. Reduction

Future developments within the Project site would be subject to adherence with the most recent CALGreen Code and the Building Energy Efficiency Standards, including the more stringent Tier 1 standards required per the City's Climate Action Plan (CAP). This will, would ensure that future development would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. The City's CAP would require approximately 10 percent of any future residential units to be all-electric; thus, such units would not involve any natural gas demand. Compliance with these code and policy requirements would reduce potential energy demand. The CalGreen Code, was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. The CEC projects that the 2019 Building Energy Efficiency Standards will reduce energy demand of new residential construction by 53 percent and that of new nonresidential development by 30 percent as compared to comparable buildings constructed under the 2016 California Energy Code, and more so for older buildings (CEC 2018). Implementing these provisions would increase energy efficiency.

All new development will be required to comply with code requirements that would reduce total energy consumption, improve energy efficiency, and reduce peak and base demand for electricity and other forms of energy. However, because there are no development proposals within the Project site, it is not currently possible to demonstrate how, or to what degree the City's CAP reduction measures would apply to the Project, or what energy reductions would result from the application of such CAP reduction measures.

The City will require future developments to incorporate applicable CAP reduction measures, including implementing measures to exceed State mandated energy standards (Reduction Measures BE-4); phase in zero net-energy standards in new construction (Reduction Measure BE-5); electrification of and implementation of solar photovoltaic systems in new development (Reduction Measure BE-6 and BE-7); and encouraging future development to participate in SMUD's offsite renewable energy programs (Reduction Measure BE-8).

While the application of the City's Project Objectives and CAP would reduce operational energy demand, since there are no land use plans or development proposals available for analysis at this time, it is not possible to ensure the extent to which these measures could be implemented or quantify the potential reductions. Therefore, the impact is considered **significant**.

Operational Transportation-Related Energy Consumption

As noted previously, transportation is the largest energy consuming sector in California, and therefore, travel demand is a critical consideration in assessing energy efficiency.

Using the land use scenario developed for the purpose of analysis in this EIR, possible future development in the Project site could generate an approximate average daily VMT of 651,225 which would generate an estimated annual fuel use of 5,796,158 gallons of gasoline and 1,862,106 gallons of diesel fuel per year, or an average annual energy demand of 981,668 MMBtu.[3,4]

[3] This analysis assumes diesel (heat content) is 5.825 MMBtu/barrel, that for vehicular gasoline there are 5.218 MMBtu/barrel, that there are 42 gallons/barrel, that there are 10 therms/MMBtu, and an annualization factor of 347 days/year. These assumptions are consistent with guidance provided in the Climate Registry - 2017 Climate Registry Default Emission Factors: Table 13.1 (Available at: http://www.theclimateregistry.org/wp-content/uploads/2017/05/2017-Climate-Registry-Default-Emission-Factors.pdf).

[4] Trip summary information modeled in CalEEMod can be reviewed in Appendix E of this EIR.

Development of the Project site would generate job opportunities for Elk Grove residents that are currently commuting, and potentially shorten commute trips. Actual travel demand will depend on the density and development intensity of development, mixing of land uses, the relationship between land uses in the Project site and adjacent areas, the level of pedestrian, bicycle, and transit infrastructure, parking standards, the relative affordability of housing, and other factors that are not currently known. The Project site was included as part of the East Study Area in the evaluation of the City's 2019 Update to its General Plan and CAP. Whether future residents would commute to jobs outside the city or county is unknown, but residents would likely be influenced by commute times, the price of fuel, and other social and economic factors. Future development within the Project site would be required to demonstrate consistency with policies and actions in the City of Elk Grove's General Plan and reduction measures in the City's CAP that are intended to promote more efficient use of energy. This would include reduction measures TACM-1 through 9, which are intended to reduce VMT attributable to development in Elk Grove. The CAP Reduction Measure TACM-6 and General Plan Policy MOB-1.1 identify VMT reductions to ensure consistency with SB 743, reducing overall VMT associated with the proposed Project. However, because there are no land use plans or development proposals within the Project site, it is not currently possible to demonstrate how, or to what degree the City's CAP reduction measures would apply to the Project, or what energy efficiency benefits would result from the application of such CAP reduction measures. Implementing these provisions would increase transportation-related energy efficiency. However, possible future development within the proposed Project site could substantially increase transportation-related energy consumption. The impact is considered **significant**.

Please refer also to Section 3.4 of this EIR, "Air Quality," which comprehensively analyzes and provides feasible mitigation for air pollutant emissions; Section 3.8, "Greenhouse Gas Emissions," comprehensively analyzes and provides feasible mitigation for GHG emissions; and Section 3.12, "Noise and Vibration," which comprehensively analyzes and provides feasible mitigation for noise and vibration impacts.

Mitigation Measures

Mitigation Measure 3.16-1a: Implement Mitigation Measures 3.4-2, 3.8-1a and 3.8-1b (2019 SOIA EIR Mitigation Measure 3.16-1a)

Mitigation Measure 3.16-1b: Incorporate Energy Conservation Strategies (2019 SOIA EIR Mitigation Measure 3.16-1b)

Incorporate strategies for direct energy conservation, as well as strategies that indirectly conserve energy into the design and construction of new development, including, but not limited to:

- use recycled building materials that minimize energy-intensive generation and shipping/transport of new materials;
- install energy-efficient lighting, including a lighting control system with dimmer switches to minimize the energy expended for unused fields;
- install water-efficient landscaping and irrigation systems to minimize the energy consumption associated with water supply systems;

- design energy-efficient buildings, including complying with California Energy Commission Title 24 requirements for energy-efficient roofing and insulation; and

- conserve existing trees and plant new trees to provide shade and minimize watering requirements.

Significance after Mitigation

Future development in the Project site would increase energy demand. However, the City would require, as part of plans for development within the Project site, compliance with the policies and actions of the City's General Plan and CAP. Additionally, projects will also need to incorporate energy efficient design elements and energy conservation measures included in the City's General Plan, including those related to reducing VMT, as well as ongoing cooperation with SMUD and local agencies to support renewable energy production, in addition to the implementation of State building and energy efficiency standards.

Development within the Project site would be subject to policies and standards designed to improve energy efficiency and avoid inefficient, excessive, and unnecessary consumption of energy due in construction and operations. Mitigation Measure 3.4-2 would require reductions in ozone precursors from operational emissions sources, which would include implementation of City General Plan policies MOB-1-1, MOB-3-1, MOB-3-2, MOB-3-7, MOB-3-15, MOB-3-16, MOB-4-1, MOB-4-5, NR-4-1, NR-4-4, NR-6-5, and NR-6-7 (or equivalent measures as may be amended). Implementation of these measures would have the co-benefit of reduced operational energy demand. Mitigation Measures 3.8-1a and 3.8-1b would require implementation of GHG emission reduction strategies, including those from the City's most recent CAP and the SMAQMD Best Management Practices for greenhouse gas emissions reduction. These GHG emission reduction measures would also reduce energy use. The City will require future developments to incorporate applicable CAP reduction measures, including implementing strategies and policies to improve the energy efficiency of new buildings, both residential and nonresidential, through building design and construction that meets or exceeds the State Building Energy Efficiency Standards (BE-4) and phases in zero net-energy standards for new construction (BE-5), incorporates electrification of and the use of solar photovoltaic systems on new residential construction (BE-6 and BE-7), participation in SMUD's renewable energy programs (BE-8), and waste reduction strategies (RC-1 and 2), as applicable to new development. Incorporation of applicable CAP reduction measures in plans for development will also the demand for personal motor vehicle travel for intracity (local) trips (Reduction Measure TACM 3); providing for safe and convenient pedestrian and bicycle travel (Reduction Measure TACM 4); and achieving a 15-percent reduction in daily VMT compared to existing conditions (2015) for all new development (Reduction Measure TACM 6) . Mitigation Measure 3.16-1b would reduce energy demand and improve energy conservation by reducing energy associated with transportation of building materials, lighting, irrigation, and heating and cooling.

Energy efficiency is a possible indicator of environmental impacts. The actual adverse physical environmental effects associated with energy use and the efficiency of energy use detailed throughout this EIR in the environmental topic-specific sections. For example, use of energy for transportation leads to air pollutant emissions, the impacts of which are addressed in Sections 3.4 and 3.8 of this EIR. There is no significant impact associated with energy efficiency that is not addressed in the environmental topic-specific sections of this EIR. However, Development in the Project site would increase demand for energy resources, including fossil fuels, electricity, and natural gas. A large body of existing regulations would have the effect of improving energy efficiency of new construction and transportation-related energy demand, thereby reducing energy demand and

potential adverse environmental effects associated with energy use. However, the location and intensity of future development is not known at this time, and given the scale of possible development that could be proposed within the Project site in the future, it is possible that future development could cause the inefficient, wasteful, or unnecessary consumption of energy. There is no additional feasible mitigation. As with the 2019 SOIA EIR, the impact is **significant and unavoidable**.

Impact 3.16-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

As described above in the discussion of Impact 3.16-1, implementation of the proposed Project would result in the development of new land uses that would induce new demand for electricity and natural gas, as well as induce additional VMT that would result in the consumption of fossil fuels. However, design and construction of buildings would be required to comply with the most recently adopted California Building Energy Efficiency Standards Code and California Green Building Standards Code (CalGreen), and Mitigation Measure 3.8-1a requires future development projects to comply with 2016 CalGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24. Future developments within the Project site would be subject to adherence with the most recent CALGreen Code and the Building Energy Efficiency Standards, including the more stringent Tier 1 standards required per the City's CAP. This would ensure that future development would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. The City's CAP would require approximately 10 percent of any future residential units to be all-electric; thus, such units would not involve any natural gas demand. The City's General Plan and CAP encourage energy efficient design standards and transportation systems, promote energy efficiency in new construction that meet or exceed State Building Energy Efficiency Standards, promote energy efficiency and conservation programs associated with utilities, and require compliance with federal, State, and local energy-related regulations, all of which are consistent with the aforementioned plans and policies to promote renewable energy and energy efficiency. Finally, the City's intent is for future projects in the East Study Area to facilitate development that would create a better balance between the types of local jobs available and the skills and interests of the local labor force (Project Objective #5). If residents of Elk Grove are able to reduce their vehicle commute or use non-vehicular modes to reach employment, this could help to reduce the significant energy consuming sector of transportation. Implementation of the proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, as with the 2019 SOIA EIR, this impact is **less than significant**.