# SECTION 4.5
# Energy Demand and Conservation

This section addresses Appendix F of the CEQA Guidelines. Appendix F notes that an EIR requires an evaluation of a proposed project's potential energy implications and encourages measures to avoid or reduce the inefficient, wasteful, or unnecessary consumption of energy.

This section first describes the environmental and regulatory energy setting. The environmental setting covers the existing electricity and natural gas sources in the RSP Area, and transportation fuels, such as gasoline and diesel fuel. The regulatory setting describes federal, state, and local laws, regulations, and policies that govern energy use. The energy impact section then evaluates the significance of the proposed projects' use of gasoline, diesel fuel, natural gas, and electricity for construction and operation, including transportation purposes.

During the Notice of Preparation (NOP) review period, the Sacramento Municipal Utility District (SMUD) submitted a letter regarding energy services. The letter expresses SMUD's request that the following issues are addressed in the SEIR: overhead and or underground transmission, utility line routing, electrical load needs/requirements (energy center), energy efficiency, and climate change. Except for climate change, which is addressed in Section 4.7, all of the issues raised by SMUD are addressed in this section.

This section is based on project-specific construction and operational features, data provided in the City of Sacramento 2035 General Plan and the City of Sacramento 2035 General Plan Master Environmental Impact Report, as well as information from SMUD and Pacific Gas and Electric Company (PG&E).

### *Issues Addressed in the 2007 RSP EIR*

The 2007 RSP EIR discussed the distribution systems for electricity and natural gas, the estimated energy consumption for the proposed project, Appendix F of the CEQA Guidelines, and energy consumption due to gasoline use from vehicle trips during construction and operation. Energy demand and conservation related to the proposed projects, including RSPU, the RSPU Land Use Variant, the proposed KP Medical Center, the proposed MLS Stadium, and the proposed Stormwater Outfall are addressed in this section.

## 4.5.1 Environmental Setting

The energy setting is described on pages 6.14-1 through 6.14-6 of the 2007 RSP Draft EIR. The environmental setting has changed since certification of the 2007 RSP EIR. Specifically, the

discussion of the California Energy Commission (CEC) Integrated Energy Policy Report has not been included because, since the certification of the 2007 RSP EIR, there is region specific energy demand and conservation data available in the City of Sacramento 2035 General Plan.

## Electricity

SMUD is responsible for the generation, transmission, and distribution of electrical power to its 900 square mile service area, which includes the Specific Plan Area. SMUD's service area includes most of Sacramento County and a small portion of Placer County. SMUD is a publicly-owned utility governed by an elected board of seven directors that make policy decisions and appoint the general manager, the individual responsible for the District's operations. In 2011, SMUD served approximately 1.4 million residents with a total annual retail load of approximately 10.385 million megawatt-hours. SMUD generates 1,745 megawatts (MW) of power and buys 1,192 MW of power to meet the region's power demands. SMUD supplies power through a distribution grid that is a looped system, which provides for more reliable power.[1]

In 2014, SMUD obtained its electricity from the following sources: large hydroelectric (10%), natural gas (41%), biomass and waste (12%), geothermal (1%), small hydroelectric (4%), solar (3%), and wind (7%). Additionally, around 23% of SMUD's energy resources are from "unspecified sources of power", which means it was obtained through transactions and the specific generation source is not traceable. Approximately 27% of SMUD's energy portfolio is from eligible renewable resources, including biomass and waste (12%), geothermal (1%), small hydroelectric (4%), solar (3%), and wind (7%).[2]

## Natural Gas

PG&E provides natural gas service to the Specific Plan Area. PG&E provides electricity and natural gas distribution, electricity generation, transportation and transmission, natural gas procurement, and storage. The utility company is bound by contract to update its systems to meet any additional demand. Services are provided within 48 counties in California with a total service area of approximately 70,000 square miles in northern and central California. The utility provides services with 42,141 miles of natural gas distribution pipelines and 6,438 miles of transportation pipelines. PG&E serves approximately 4.3 million natural gas distribution customers. It is anticipated that natural gas distribution lines in new development will be placed underground in accordance with CPUC rules.[3]

1 City of Sacramento, 2015. *City of Sacramento 2035 General Plan Master Environmental Impact Report* (SCH No. 2012122006). Certified March 3, 2015.

2 Sacramento Municipal Utility District, 2014, Power Content Label. Available: https://www.smud.org/assets/documents/pdf/Power-Content-Label-full.pdf. Accessed November 17, 2015.

3 Pacific Gas & Electric, 2015. Company Profile. Available: http://www.pge.com/en/about/company/profile/index.page?. Accessed December 8, 2015.

### Energy from Fuel Consumption by Construction and Operational Transportation

Vehicles operated for both construction and operational transportation result in the consumption of transportation fuels. The consumption of energy by way of transportation can be calculated using the type of construction equipment used and the period of time for construction and Vehicle Miles Travelled (VMT) for operational transportation fuels. As technology becomes more efficient for construction and passenger vehicles, the consumption of transportation fuels decreases overall. Additionally, the implementation of alternative modes of transportation, such as transit, bicycling, and walking, can contribute to the decrease of transportation fuels consumed.[4]

## 4.5.2 Regulatory Setting

The energy regulatory setting is described on pages 6.14-6 through 6.14-8 of the 2007 RSP Draft EIR. The regulatory setting has been updated since certification of the 2007 RSP EIR, and the following discussion is based on the 2007 RSP EIR setting.

### Federal

#### *Federal Energy Regulatory Commission*

The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines as well as licensing hydropower projects. Licensing of hydroelectric facilities under the authority of FERC includes input from State and federal energy and power generation, environmental protection, fish and wildlife, and water quality agencies.[5]

#### *National Highway Traffic Safety Administration (NHTSA) Standards*

The National Highway Traffic Safety Administration (NHTSA) and the U.S. Environmental Protection Agency (EPA) are taking coordinated steps to enable the production of clean energy vehicles with improved fuel efficiency. NHTSA sets the Corporate Average Fuel Economy (CAFE) levels, which are rapidly increasing over the next several years in order to improve energy security and reduce fuel consumption. The first phase of the CAFE standards (for model year 2017 to 2021) is projected to require, on an average industry fleet-wide basis, a range from 40.3 to 41.0 mpg in model year 2021. The second phase of the CAFE program (for model years 2022 to 2025) is projected to require, on an average industry fleet-wide basis, a range from 48.7 to 49.7 mpg in model year 2025. The second phase of standards has not been finalized due to the statutory requirement that the NHTSA set average fuel economy standards not more than five model years at a time.[6]

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4 City of Sacramento, 2015. *City of Sacramento 2035 General Plan Master Environmental Impact Report* (SCH No. 2012122006). Certified March 3, 2015. Section 6-6.

5 Federal Energy Regulatory Commission, 2015. About FERC. Available: http://www.ferc.gov/about/about.asp. Accessed December 15, 2015.

6 National Highway Traffic Safety Administration, 2016. Available: http://www.nhtsa.gov/fuel-economy. Accessed February 25, 2016.

### *U.S. Department of Transportation, U.S. Department of Energy, and Environmental Protection Agency on Transportation Energy*

On the federal level, the U.S. Department of Transportation, U.S. Department of Energy, and U.S. Environmental Protection Agency (EPA) are three agencies with substantial influence over energy policies related to transportation fuels consumption. Generally, federal agencies influence transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding for transportation infrastructure projects.

## State

### *California Public Utilities Commission Requirements*

The California Public Utilities Commissions (CPUC) is a State agency created by a constitutional amendment to regulate privately-owned utilities providing telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation services, and in-State moving companies. The CPUC is responsible for assuring that California utility customers have safe, reliable utility services at reasonable rates, while protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities; and local distribution pipelines of natural gas.[7]

### *California Energy Commission*

The California Energy Commission (CEC) is California's primary energy policy and planning agency. Created by the California Legislature in 1974, 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 State response to energy emergencies. Under the requirements of the California Public Resources Code, the CEC in conjunction with the California Department of Conservation (DOC) Division of Oil, Gas, and Geothermal Resources is required to assess electricity and natural gas resources on an annual basis or as necessary.[8]

### *Title 20 and Title 24, California Code of Regulations*

New buildings constructed in California must comply with the standards contained in Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards, of the California Code of Regulations (CCR). Part 11 of Title 24 is the California Green Building Standards Code (CALGreen) sets minimum and mandatory sustainability requirements, in order to reduce environmental impact through better planning, design and construction practices. CALGreen works along with the mandatory construction codes of Title 24 and is enforced at the local level.[9]

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7 California Public Utilities Commissions, 2016. *California Public Utilities Commission.* Available: http://www.cpuc.ca.gov/. Accessed February 5, 2016.

8 California Energy Commissions, 2016. "About the California Energy Commission." Available: http://www.energy.ca.gov/commission/. Accessed February 5, 2016.

9 California Department of Housing and Community Development, 2015. *2015 Report to the Legislature: Status of the California Green Building Standards Code.* Accessed December 18, 2015.

Title 20 contains standards ranging from power plant procedures and siting to energy efficiency standards for appliances to ensuring reliable energy sources are provided and diversified through energy efficiency and renewable energy resources. Title 24 (AB 970) contains energy efficiency standards for residential and nonresidential buildings based on a State mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy efficiency measures that impact energy used for lighting, water heating, heating and air conditioning, including the energy impact of the building envelope such as windows, doors, skylights, wall/floor/ceiling assemblies, attics, and roofs.[10,11]

Any project-related construction would be required to comply with the Title 24 codes currently in place, including the CALGreen code. The existing 2013 standards became effective on July 1, 2014. New codes are adopted triennially and the 2016 standards will become effective July 1, 2017.[12]

### *Assembly Bill 1493 - Clean Car Standards (Pavley)*

This bill was passed in 2002 and requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck greenhouse gas (GHG) emissions, through mandating gradual reductions in global warming pollutants from cars and light trucks sold in California from 2009 through 2016. The average gram-per-mile reduction of GHG emissions from new California cars and light trucks is required to be about 30% in 2016, compared to 2004 model year vehicles. Passenger cars and light trucks sold within California are required to have a GHG reduction of 34% from model year 2016 through 2025. The bill requires that by 2025 there be an estimated reduction of GHG emissions from cars sold from 2008 through 2025 of approximately 51%.[13]

### *Warren-Alquist Energy Resources Conservation and Development Act*

Initially passed in 1974 and amended since, the Warren-Alquist Energy Resources Conservation and Development Act (Warren-Alquist Act) created the California Energy Commission, the State's primary energy and planning agency. The seven responsibilities of the Commission are: forecasting future energy needs, promoting energy efficiency and conservation through setting standards, supporting energy related research, developing renewable energy resources, advancing alternative and renewable transportation fuels and technologies, certifying thermal power plants 50 megawatts or larger, and planning for and directing state response to energy emergencies. The State Energy Commission regulates energy resources by encouraging and coordinating research

10 California Energy Commission, 2015. Title 20 Public Utilities and Energy, 2015. Available: https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I237B3BF0D44E11DEA95CA4428EC25FA0&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default). Accessed December 15, 2015.

11 California Building Standards Commission, 2013. Title 24 California Building Standards Code, 2013. Available: http://www.bsc.ca.gov/Home/Current2013Codes.aspx, Accessed December 15, 2015.

12 California Building Standards Commission, 2015. California Building Standards Code. Available: http://www.bsc.ca.gov/. Accessed January 30, 2016.

13 Transportationpolicy.net, 2014. California: Light-duty: GHG. Accessed: http://transportpolicy.net/index.php?title=California:_Light-dugy:_GHG. Last modified February 2014. Accessed March 1, 2016.

into energy supply and demand problems to reduce the rate of growth of energy consumption. Additionally, the Warren-Alquist Act acknowledges the need for renewable energy resources and encourages the Commission to explore renewable energy options that would be in line with environmental and public safety goals. (Warren-Alquist Energy Resources Conservation and Development Act Public Resources Code section 25000 *et seq*.).[14]

## Local

### *City of Sacramento 2035 General Plan*

The following goals and policies from the City of Sacramento 2035 General Plan are relevant to energy. It is important to note that the City's Climate Action Plan (CAP), originally adopted in 2012, has been integrated into the 2035 General Plan. The CAP policies outline strategies that can contribute to the reduction of greenhouse gas emissions as a result of energy generation and consumption, and how to adapt to expected climate change impacts.[15]

| | |
|---|---|
| **Goal U 6.1** | **Adequate Level of Service. Provide for the energy needs of the city and decrease dependence on nonrenewable energy sources through energy conservation, efficiency, and renewable resource strategies.** |
| Policies | |
| U 6.1.1 | **Electricity and Natural Gas Services.** The City shall continue to work closely with local utility providers to ensure that adequate electricity and natural gas services are available for existing and newly developing areas. |
| U 6.1.5 | **Energy Consumption per Capita**. The City shall encourage residents and businesses to consume 25 percent less energy by 2030 compared to the baseline year of 2005. |
| U 6.1.6 | **Renewable Energy.** The City shall encourage the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities. |
| U 6.1.15 | **Energy Efficiency Appliances.** The City shall encourage builders to supply Energy STAR appliances and HVAC systems in all new residential developments, and shall encourage builders to install high-efficiency boilers where applicable, in all new non-residential developments. |

As described in Impact 4.5-1, the proposed RSPU would address energy conservation through requiring the use of green building technology and renewable energy resources. Generally, the proposed RSPU would strive to promote environmental sustainability through the use of renewable energy resources. The proposed KP Medical Center and MLS Stadium would augment sustainable community practices by using green building technology, which includes the use of energy-efficient infrastructure and appliances. Additionally, all buildings developed pursuant to the proposed RSPU must meet the energy efficiency standards mandated by Title 24 (California Energy Efficiency Standards).

[14] California Energy Commission, 2015. Warren-Alquist Act, 2015. Available: http://www.energy.ca.gov/reports/Warren-Alquist_Act/index.html. Accessed December 15, 2015.

[15] City of Sacramento, 2015. *2012 Climate Action Plan: Executive Summary.* Available: http://portal.cityofsacramento.org/Community-Development/Resources/Online-Library/Sustainability. Accessed December 18, 2015.

## 4.5.3 Analysis, Impacts, and Mitigation

### Significance Criteria

Appendix G of the CEQA Guidelines does not identify any potential significance criteria for the evaluation of impacts related to energy demand and conservation. Criterion 1, listed below, is the same as that used in the 2007 RSP EIR. Criterion 2 has been added to reflect more fully the intent of the Public Resources Code and CEQA Guidelines Appendix F.[16]

The proposed projects would result in a significant impact on energy demand and conservation if they would:

1. Require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or

2. Result in the wasteful, inefficient, or unnecessary consumption of energy for project construction or operation, including transportation energy.

### Methodology and Assumptions

The analysis in this section focuses on the nature and magnitude of the change in energy resources due to construction and operation of land uses to be developed under the RSPU.

#### *Electricity*

Electricity service within the RSP Area would be provided by SMUD. Power to the RSP Area, including the proposed KP Medical Center and proposed MLS Stadium sites, would be supplied by a series of underground 21 kilovolt (kV) distribution lines fed from the SMUD North City substation located north of 20th St and C streets. SMUD is currently in the process of replacing and expanding the capacity of Station A, currently located south of Block 42 at the corner of 6th/H streets, with a new Station A to be constructed on Block 42, near 6th/G streets. SMUD will also be replacing the North City substation with the Station E substation, located at 151 20th St., within the next three years. There are no existing 115kV transmission lines in the RSP Area. An underground 115 kV transmission loop connects the North City substation with Station A, Station B located at 19th and O streets, and Station D located at 8th and R streets. Station E will eventually replace the North City substation in this 115kV loop.

Key distribution lines that are planned to supply the RSP Area include a 21 kV distribution system infrastructure consisting of duct lines and manholes installed along 6th St, 7th St and Railyards Blvd. Existing feeders and new express feeders will be extended through this infrastructure. Existing 21kV feeders are routed on Richards Boulevard, North B St. and Bercut

[16] California Public Resources Code section 21100(b)(3) states that an EIR must include a detailed statement setting forth "[m]itigation measures proposed to minimize significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy." This same focus on avoiding "wasteful, inefficient, and unnecessary" energy use is reflected numerous times in CEQA Guidelines Appendix F.

Drive. Future Station E feeders are being planned on Richards Boulevard, North B St. and in the UPRR corridor.

**Tables 4.5-1** and **4.5-2** estimate the amount of electricity that would be consumed by all of the components of the proposed RSPU and the Land Use Variant. These estimates have been calculated using CalEEMod 2013 2.2 model. In order to accurately compare the 2007 RSP electricity data to the proposed RSPU, the 2007 RSP project was input into CalEEMod 2013 2.2 model. The 2007 RSP electricity data is based on peak demand estimates from SMUD, however these estimates are not comparable to the data from CalEEMod.

**TABLE 4.5-1.**
**RSPU OPERATIONAL ENERGY USE**

| Land Use | Proposed RPSU | Units | Electricity[1] Megawatt-hours/year | Natural Gas[1] Million Btu/year |
|---|---|---|---|---|
| Multi-family Residential | 6,000 | units | 21,000 | 47,611 |
| Parks | 30 | acres | 0 | 0 |
| Office | 4,543 | ksf | 65,690 | 47,611 |
| Museum | 180 | ksf | 2,156 | 805 |
| KP Medical Center | 1,228 | ksf | 25,135 | 65,403 |
| Hotel | 1,100 | rooms | 15,844 | 50,519 |
| MLS Stadium | 25,000 | ticketed attendees | 6,141 | 12,219 |
| Retail | 905 | ksf | 10,800 | 4,045 |
| **Total** | | | **147,037** | **228,213** |

NOTE:

1. Electricity and natural gas consumption estimates generated using CalEEMod 2013.2.2 model. See Appendix C.1 for model outputs and additional details.

Source: ESA, 2016

**TABLE 4.5-2.**
**RSPU LAND USE VARIANT OPERATIONAL ENERGY USE**

| Land Use | Amount | Units | Electricity[1] Megawatt-hours/year | Natural Gas[1] Million Btu/year |
|---|---|---|---|---|
| Multi-family Residential | 7,000 | units | 24,764 | 55,348 |
| Parks | 30 | acres | 0 | 0 |
| Office | 5,709 | ksf | 82,895 | 59,830 |
| Museum | 180 | ksf | 2,156 | 805 |
| Hotel | 1,100 | rooms | 15,844 | 50,519 |
| Retail | 1,272 | ksf | 15,239 | 5,686 |
| **Total** | | | **140,898** | **172,188** |

NOTE:

1. Electricity and natural gas consumption estimates were generated using CalEEMod 2013.2.2 model. See Appendix C.1 for model outputs and additional details.

Source: ESA, 2016

### *Natural Gas*

The downtown Sacramento area generally is served by a PG&E grid system of high pressure natural gas distribution pipelines that range in size from 4 inches to 12 inches in diameter. A secondary, low pressure system is composed of primarily 1-inch and 2-inch diameter pipelines that in some cases run parallel to high pressure mains. High pressure mains in the vicinity include 4-inch and 8-inch mains that run along J Street, 4-, 6-, and 8-inch mains that run along L Street, 3, 4, and 8-inch mains along 7th Street, a 4-inch main that runs along the southern end of 6th Street, and various 2-inch low pressure distribution lines.[17] High-pressure lines carry gas at approximately 40 pounds per square inch (psi), whereas low pressure lines carry gas at about 0.25 psi. Most services in downtown Sacramento are provided from low pressure lines, except for major users that exceed about 3,000 cubic feet of natural gas per hour.[18]

Tables 4.5-1 and 4.5-2 provide an estimate of the amount of natural gas that would be consumed by all of the components of the proposed RSPU, including the KP Medical Center, and MLS Stadium, as well as the RSPU Land Use Variant. These estimates were calculated using CalEEMod 2013 2.2 model. The natural gas demand information reported in the 2007 RSP EIR was calculated based on assumed square footage and acreages for the project and used estimates from other sources as multipliers to derive estimated natural gas demand. Because of the difference in methods of calculation, they are not comparable to the data generated by the CalEEMod model. In order to provide a direct comparison of the natural gas demand from the 2007 RSP to the natural gas demand for the proposed RSPU, the 2007 project energy demand estimated through use of the CalEEMod 2013 2.2 model, as shown in **Table 4.5-3**.

**TABLE 4.5-3.**
**2007 RSP OPERATIONAL ENERGY USE**

| Land Use | Amount | Units | Electricity[1] Megawatt-hours/year | Natural Gas[1] Million Btu/year |
|---|---|---|---|---|
| Multi-family Residential | 12,500 | units | 44,222 | 98,902 |
| City Park | 41.2 | acres | 0 | 0 |
| Office | 3,268 | ksf | 47,451 | 34,249 |
| Museum | 188 | ksf | 2,252 | 840 |
| Hotel | 1,100 | rooms | 15,844 | 50,519 |
| Retail | 1,573 | ksf | 18,246 | 6,808 |
| **Total** | | | **128,015** | **191,318** |

NOTE:

1. Electricity and natural gas consumption estimates were generated using CalEEMod 2013.2.2 model. See Appendix C.1 for model outputs and additional details.

Source: ESA, 2016

17 Nolte, 2011. Downtown Infrastructure Study. September 2011.

18 Nolte, 2011. Downtown Infrastructure Study. September 2011.

### *Transportation*

Transportation fuel consumption for construction and operation are a key element of project energy consumption. For construction, this includes fuel use (diesel and/or gas) associated with construction equipment and vehicles. For operations, this includes fuel use associated with on-road vehicles. Construction- and operational-related fuel use was back-calculated based on greenhouse gas emissions estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2.2. Fuel use from construction activities is further discussed under Construction, below. CalEEMod calculates annual energy (i.e., natural gas and electricity) for operational-related activities for the land uses specified. The approach used to estimate transportation fuel use was similar to the approach used for construction fuel use. The only difference was that the GHG emissions generated by CalEEMod were split into diesel and gasoline emissions using percentages of diesel and gasoline vehicle travel in Sacramento County. These percentages are heavily weighted towards gasoline vehicles.

**Table 4.5-4** presents estimated annual fuel use for project operations, categorized by the proposed RSPU, the RSPU Land Use Variant, the KP Medical Center, and the MLS Stadium. These estimates have been calculated using CalEEMod 2013 2.2 model.

**TABLE 4.5-4.**
**OPERATIONAL FUEL USE**

| | Diesel Fuel (gallons per year) | Gasoline (gallons per year) |
|---|---|---|
| RSPU | 248,114 | 27,981,778 |
| RSPU Land Use Variant | 188,140 | 21,218,000 |
| KP Medical Center | 38,145 | 4,301,889 |
| MLS Stadium | 6,734 | 759,492 |

NOTE:

Assumes worst-case construction fuel use based on the CalEEMod 2013.2.2 model. See Appendix C.1 for model outputs and additional details.

Source: ESA, 2016

### *Construction*

For construction, diesel and gasoline fuel use were estimated as follows. First, total GHG emissions estimated using CalEEMod were split into diesel- and gasoline-generated emissions. This split was based on the percentage of diesel and gasoline vehicles typically operated during construction projects. These percentages are heavily weighted towards diesel vehicles. Then, diesel and gasoline GHG emissions were converted to gallons using standard conversion factors.

**Table 4.5-5** estimates the fuel use for construction, categorized by the proposed RSPU, the RSPU Land Use Variant, the KP Medical Center, and the MLS Stadium. These estimates have been calculated using CalEEMod 2013 2.2 model.

**TABLE 4.5-5.**
**CONSTRUCTION FUEL USE**

| | Diesel Fuel (Gallons) | Gasoline (Gallons) |
|---|---|---|
| RSPU | 23,570,857 | 1,413,221 |
| RSPU Land Use Variant | 17,873,291 | 1,067,127 |
| KP Medical Center | 808,576 | 48,479 |
| MLS Stadium | 64,581 | 3,872 |
| Stormwater Outfall | 1,123 | 67 |

NOTE:
Assumes worst-case construction fuel use based on the CalEEMod 2013.2.2 model. See Appendix **C.1** for model outputs and additional details.
Source: ESA, 2016

## Impacts and Mitigation Measures

**Impact 4.5-1: The proposed project would increase demand for energy, specifically electricity and natural gas, the construction of which could cause significant environmental effects.**

### *Railyards Specific Plan Update*

The 2007 RSP EIR found that impacts with respect to energy facilities would be less-than significant (see impacts 6.14-1 and 6.14-2, pages 6.14-12 through 6.14-15 of the 2007 RSP EIR). As calculated in CalEEMod and explained above, the 2007 RSP estimated that a total of 128,015 MWh/year of electricity and 191,318 million Btu/year of natural gas would be consumed by uses in the RSP Area. The proposed RSPU would alter the land use mix in the RSP Area, and would include the proposed KP Medical Center and MLS Stadium projects, which have different energy consumption rates than the 2007 RSP land uses.

#### Electricity

As noted previously, the RSPU would be served by a number of connections to the SMUD's 21 kV distribution network. Table 4.5-1, above, summarizes the anticipated demand from the project and estimates an electricity demand of 147,037 MWh/year. The proposed RSPU would result in a net increase in demand of approximately 19,022 MWh/year, from the 2007 RSP as shown in Table 4.5-3. This figure accounts for peak demands from the proposed RSPU in order to ensure that efficient supply that would be available during major events.

This project would require the installation of additional facilities on site, including additional pad mounted transformers, transformer vaults, network, and distribution manholes, and additional distribution lines throughout the proposed RSPU site. However, SMUD has reviewed the proposed project and confirmed it would be able to serve the anticipated demand load.[19] It is anticipated that the utility would be able to serve the proposed RSPU without additional requirements for offsite electricity supply or conveyance facilities. The physical environmental

[19] Shimizu, Gary, Principal Distribution System Engineer. Email communication April 11, 2016.

effects of adding electrical facilities within the RSP Area are considered in the resource evaluations in this SEIR; no additional effects would be created. This impact is consistent with the 2007 RSP energy impact, and is considered **less than significant**.

### Natural Gas

Natural gas, provided by PG&E, would be utilized for the proposed RSP for the primary uses of space heating and water heating. Table 4.5-1, above, summarizes the anticipated demand from the project and estimates a natural gas demand of 228,213 million Btu/year. The proposed RSPU would result in a net decrease in demand of approximately 36,895 million Btu/year, from the 2007 RSP as shown in Table 4.5-3. This figure accounts for peak demands from the proposed RSPU, in order to ensure that efficient supply that would be available during major events.

The proposed RSPU would not result in new requirements for major improvements or other new off-site infrastructure. Given the proposed RSPU components, the existing facilities would be sufficient to provide service to the project. Additional on-site facilities (distribution lines) may be constructed within the RSP Area. Construction of these facilities would be included within the scope of the project, and the effects of these improvements are accounted for in other sections of this SEIR. Therefore, potential effects on energy related facilities would be limited, and this impact is considered **less than significant**. This impact is equal to the 2007 RSP energy impact.

### Operational Transportation

Operational transportation of the proposed project would require the use of fuels (primarily gasoline and diesel) for the operation of passenger vehicles associated with the proposed RSP Area. The estimated quantity of operational diesel fuel and gasoline used each year by uses provided for in the proposed RSPU is shown in Table 4.5-4. For the operation of the proposed RSPU, it is estimated that annually there would be approximately 248,114 gallons of diesel fuel and 27,981,778 gallons of gasoline consumed.

The proposed RPSU land use design, roadway system, and transit-oriented network were developed in accordance with smart growth principles. Mixed use developments, like the proposed RSPU, provide an opportunity for people to live, work, shop and find recreation activities in one community. This allows people to travel shorter distances between their origins and destinations. These shorter travel distances reduce vehicle trip lengths and make walking and bicycling more viable travel options. Furthermore, the addition of retail, office, and commercial uses to the proposed RSP Area would provide services and employment opportunities close to downtown Sacramento residents, who would otherwise have to travel longer distances for these services and jobs.

The increased use of fuel as a result of the proposed RSPU would not result in the requirement for additional facilities, and thus would not create new significant impacts not otherwise addressed in this SEIR. Therefore, the impact is equal to the 2007 RSP energy impact and is considered **less than significant**.

### Construction

Construction of the proposed project would require the use of fuels (primarily gasoline and diesel) for operation of construction equipment (e.g., dozers, excavators, generators, and trenchers), construction vehicles (e.g., dump and delivery trucks), and construction worker vehicles. Direct energy use would also include the use of electricity required to power construction equipment (e.g., welding machines and electric power tools). However, the estimated quantity of diesel fuel and gasoline use is shown in Table 4.5-5. For the construction of the proposed RSPU, it is estimated there would be approximately 23,570,857 gallons of diesel fuel and 1,413,221 gallons of gasoline consumed.

Construction activities are temporary and would not result in a long term increase in demand for fuel, and would not be of sufficient magnitude to require new infrastructure to be constructed to supply construction activities. Therefore, the impact is equal to the 2007 RSP energy impact and is considered **less than significant**.

### Railyards Specific Plan Update Land Use Variant

### Electricity

The electricity demand for the RSPU Land Use Variant would be less to the demand from the proposed RSPU project, as a result of the replacement of the proposed KP Medical Center and MLS Stadium uses with mixed residential and non-residential uses. As shown in Tables 4.5-1 and 4.5-2, the energy demand of the RSPU Land Use Variant is calculated to be 140,898 MWh/year, which is 6,139 MWh/year lower than the proposed RSPU. Additionally, the proposed RSPU Land Use Variant would result in a net increase in demand of approximately 12,883 MWh/year, from the 2007 RSP as shown in Table 4.5-3.

Like the proposed RSPU, this project would require the installation of additional facilities on site, including additional pad mounted transformers, transformer vaults, network, and distribution manholes, and additional distribution lines throughout the proposed RSPU site. However, SMUD has reviewed the proposed project and confirmed it would be able to serve the anticipated demand load.[20] It is anticipated that the utility would be able to serve the proposed RSPU project without additional requirements for offsite electricity supply or conveyance facilities. The physical environmental effects of adding electrical facilities within the RSP Area are considered in the resource evaluations in this SEIR; no additional effects would be created. This impact is equal to the 2007 RSP energy impact and is considered **less than significant**.

### Natural Gas

The natural gas demand for the RSPU Land Use Variant would be less than the demand from the proposed RSPU. As shown in Tables 4.5-1 and 4.5-2, the natural gas demand for the RSPU Land Use Variant is calculated to be 172,188 Btu/year, which is 56,025 Btu/year lower than the proposed RSPU. Additionally, the proposed RSPU Land Use Variant would result in a net decrease in demand of approximately 19,130 million Btu/year compared to the 2007 RSP, as shown in Table 4.5-3.

[20] Shimizu, Gary, Principal Distribution System Engineer. Email communication April 11, 2016.

Given the proposed RSPU Land Use Variant components, the existing facilities would be sufficient to provide service to the project. Additional on-site facilities (distribution lines) may be constructed within the project site. Construction of these facilities would be included within the scope of the project. The potential effects on energy related facilities would be equal to the 2007 RSP energy impact and is considered **less than significant**.

#### Operational Transportation

As shown in Table 4.5-4, annual fuel consumption from operational transportation from the RSPU Land Use Variant would be 188,140 gallons of diesel fuel and 21,218,000 gallons of gasoline. Compared to the proposed RSPU, each year the RSPU Land Use Variant operational transportation would consume 59,974 gallons less diesel fuel and 6,763,778 gallons less gasoline. The reduction in fuel consumption from operational transportation is due to the elimination of the KP Medical Center and MLS Stadium uses, and development of a mix of non-residential and residential uses on those parcels, which demand less fuel consumption from operational transportation.

The increased use of fuel as a result of the proposed RSPU would not result in the requirement for additional facilities, and thus would not create new significant impacts not otherwise addressed in this SEIR. Therefore, potential effects of fuel consumption from operational transportation is considered **less than significant**. This impact is the same as the 2007 RSP energy impact.

#### Construction

As shown in Table 4.5-5, fuel consumption from construction, including construction transportation, from the RSPU Land Use Variant would be 17,873,291 gallons of diesel fuel and 1,067,127 gallons of gasoline. The RSPU Land Use Variant construction transportation would consume 5,697,566 gallons less of diesel fuel and 346,094 gallons less of gasoline. Therefore, potential effects on fuel consumption from construction transportation is considered **less than significant**, would be the same as the 2007 RSP energy impact.

### *KP Medical Center*

#### Electricity

The construction phase of the KP Medical Center would require electricity for the manufacturing and transportation of building materials, preparation of the site, and construction of the buildings. As shown in Table 4.5-1, above, operational electricity demand from the KP Medical Center would be approximately 25,135 megawatt-hours per year (Mwh/year). A component of the KP Medical Center would be a Central Utility Plant (CUP), which would have the capacity to provide energy to the KP Medical Center in the case of an energy shortage.

Kaiser Permanente would implement a multi-tiered approach to the research, development, implementation of and ongoing improvements in energy, such as, potentially, green roofs to reduce heat gain, thermal fluid heaters as a high-efficient water heating source, solar power/ photovoltaics, electric vehicle charging stations, and use of green power for construction. The estimated electrical demand does not take into consideration the effectiveness of the project's energy conservation features, which would likely result in a lower demand for electricity than this

estimate; however, because the KP Medical Center has not been fully designed, the efficacy of future energy conservation features cannot be quantified. To provide a conservative analysis, these project energy conservation features are not accounted for in the analysis.

The physical environmental effects of adding electrical facilities within the RSP Area are considered in the resource evaluations in this SEIR; no additional effects would be created. Therefore, potential effects on energy related facilities are considered **less than significant**.

#### Natural Gas

As shown in Table 4.5-1, it is estimated that approximately 65,403 million Btu/year would be consumed by the KP Medical Center. The primary use of natural gas would be for space heating and water heating, including operation of boilers in the CUP. As noted above, it is not anticipated that the KP Medical Center would result in new requirements for major improvements or other new infrastructure off site. The physical environmental effects of adding natural gas infrastructure within the RSP Area are considered in the resource evaluations in this SEIR; no additional effects would be created. Therefore, potential effects on natural gas infrastructure are considered **less than significant**.

#### Operational Transportation

Table 4.5-4 shows the annual operational fuel use for the proposed KP Medical Center. Annual operations of the KP Medical Center would result in the consumption of 38,145 gallons of diesel fuel and 4,301,889 gallons of gasoline.

As accounted for in CalEEMod and shown in Table 4.5-4, operational fuel consumption would be reduced due to the location of the proposed KP Medical Center, an area that would be accessible through alternative forms of transportation for both employees and patients. Therefore, the potential effect on energy fuel consumption from operational transportation is considered **less than significant**.

#### Construction Transportation

Table 4.5-5 shows the construction fuel use for the proposed KP Medical Center. For construction, the KP Medical Center would consume 808,576 gallons of diesel fuel and 48,479 gallons of gasoline.

Construction activities are temporary and would not result in a long term increase in demand for fuel. Therefore, the potential effect on energy fuel consumption from construction transportation is considered **less than significant**.

### *MLS Stadium*

#### Electricity

The construction phase of the MLS Stadium would require electricity for the manufacturing and transportation of building materials, preparation of the site, and construction of the Stadium. As shown in Table 4.5-1, above, electricity demand from the MLS Stadium is approximately 6,141 Mwh/year.

The proposed MLS Stadium would be designed and constructed to achieve the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) equivalent energy and environmental design to the extent feasible. The project would target an energy reduction goal of 15% better than the Title 24 requirements and use of up to 1% of on-site generated renewable energy. This would be accomplished through systems to optimize energy performance, including energy metering, demand response, maximizing the use of shade structures and wind resources, and potential use of solar panels for on-site energy. This estimation does not take into consideration the effectiveness of the project's energy conservation features, which would likely result in a lower demand for electricity than this estimate; however, since the energy conservation features provided by the MLS Stadium cannot be quantified and to provide for a conservative analysis, the project energy conservation features is not accounted for in the analysis.

The physical environmental effects of adding electrical facilities within the RSP Area are considered in the resource evaluations in this SEIR; no additional effects would be created. Therefore, potential effects on energy related facilities would be considered **less than significant**.

#### Natural Gas

Table 4.5-1 estimates approximately 12,219 million Btu/year would be consumed by the proposed MLS Stadium, primarily for space heating and water heating. As noted above, it is not anticipated that the MLS Stadium would result in new requirements for major improvements or other new infrastructure off site. Therefore, potential effects on energy related facilities would be considered **less than significant**.

#### Operational Transportation

Tables 4.5-4 shows the annual operational fuel use for the proposed MLS Stadium. Annual operations of the MLS Stadium would result in the consumption of 6,734 gallons of diesel fuel and 759,492 gallons of gasoline.

As accounted for in CalEEMod and shown in Table 4.5-4, the MLS Stadium is located in an area that is accessible through alternative forms of transportation for both employees and spectators. Therefore, the potential effect on energy fuel consumption from operational transportation is considered **less than significant**.

#### Construction Transportation

Table 4.5-5 shows the construction fuel use for the proposed MLS Stadium. For construction, the MLS Stadium would consume 64,581 gallons of diesel fuel and 3,872 gallons of gasoline. Construction activities are temporary and would not result in a long term increase in demand for fuel. Therefore, the potential effect on energy fuel consumption from construction transportation is considered **less than significant**.

### *Stormwater Outfall*

As described in the Project Description, the operation of the proposed Stormwater Outfall would regularly consume electricity, and in emergencies, natural gas. It is estimated that each year operations of the proposed Stormwater Outfall, including the associated pump station, would

consume approximately 253,735 kWh of electricity.[21] This amount of electricity and natural gas would not require any changes to the physical infrastructure. There would be a small amount of fuel consumed during construction, approximately 1,123 gallons of diesel fuel and 67 gallons of gasoline; these are included in the estimated total proposed RSPU construction fuel consumption. The physical environmental effects of adding energy facilities within the RSP Area are considered in the resource evaluations in this SEIR; no additional effects would be created. Therefore, this impact is considered to be **less than significant**.

### *Summary*

Energy consumption, including electricity, natural gas, and fuel, for construction and operation of the proposed RSPU, RSPU Land Use Variant, KP Medical Center, MLS Stadium, and Stormwater Outfall would be accomplished without the addition of energy infrastructure that could result in adverse environmental effects. In view of the above, impacts related to energy consumption would be **less than significant**.

The magnitude of this impact is the same as described in Impacts 6.14-1 and 6.14-2 in the 2007 RSP EIR.

Mitigation Measure

None required.

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**Impact 4.5-2: The proposed projects could result in the wasteful, inefficient, or unnecessary use of energy.**

### *Railyards Specific Plan Update*

The 2007 RSP EIR found that impacts with respect to the project resulting in wasteful, inefficient, or unnecessary use of energy would be less-than significant (see impact 6.14-3 and, pages 6.14-15 through 6.14-16 of the 2007 RSP EIR). The 2007 RSP EIR discusses the building characteristics that contribute to energy efficiency and vehicle miles traveled (VMT) in assessing whether the 2007 RSP would result in a wasteful, inefficient, or unnecessary use of energy. Similar to the 2007 RSP, the proposed RSPU would incorporate energy efficient characteristics in buildings and infrastructure, as discussed further below.

#### Electricity and Natural Gas

As stated in the proposed RSPU objectives, the project strives to promote sustainability through the use of green building technology and renewable energy resources. Buildings and infrastructure constructed pursuant to the proposed RSPU would comply with Title 20 and 24 California Code of Regulations, including CALGreen, as explained above. In addition, the proposed RSPU calls for further reductions in overall electrical energy use, power demand and energy costs through the incorporation of additional energy efficiency measures as part of the

[21] Frisch Engineering, Inc., Load Calculation, April 14, 2016.

building design. Examples of energy conserving features called for in the proposed RSPU include integrated solar electric features, thermal energy storage systems, and advanced energy-saving architectural features in the buildings themselves. As examples and as described further below, two major uses that are anticipated to be developed pursuant to the proposed RSPU, the proposed KP Medical Center would be designed to LEED Silver or equivalent standards, and the proposed MLS Stadium would be designed to achieve LEED equivalent energy efficiency to the extent feasible.

The types of measures described above would be consistent with and would be reinforced through the City's Climate Action Plan policies that require energy efficiency. As is described in the City's Climate Action Plan Consistency Checklist which establishes the following energy performance measure or equivalent:

> For residential projects of 10 or more units, commercial projects greater than 25,000 square feet, or industrial projects greater than 100,000 square feet, would the project include on-site renewable energy systems (e.g., photovoltaic systems) that would generate at least a minimum of 15% of the project's total energy demand on-site?

As allowed by the City as an equivalent measure, in place of the overall 15% on-site renewable energy generation, the residential development would have 10% better energy efficiency and the commercial development would have 5% better energy efficiency than the Title 24 requirements.

Residences built to the 2016 Title 24 standards (that take effect January 1, 2017) would use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards.[22] California has developed a goal of zero net energy (ZNE) use in all new homes by 2020 and commercial buildings by 2030.[23] 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. Although the 2016 standards would not get the RSPU to ZNE, they would get close to this goal and make important steps toward changing residential building practices in California. The 2019 standards are expected to take the final step to achieve ZNE for newly constructed residential buildings throughout California. Since a portion of the RSPU would be built to the 2016 standards, and the majority of the RSPU would be built to the 2019 standards, the RSPU would be highly efficient in terms of energy use in residential structures.

As described above, the location, design, and mix of land uses provided for in the proposed RSPU, in combination with the policies of the proposed RSPU and the City's Climate Action Plan would avoid any wasteful or unnecessary use of energy. Therefore, this impact would be considered **less than significant**. The significance of this impact would be equal to the 2007 RSP impact.

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[22] California Energy Commission, 2016. 2016 Building Energy Efficiency Standards Frequently Asked Questions. Available: www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

[23] California Energy Commission, 2016. 2016 Building Energy Efficiency Standards Frequently Asked Questions. Available: www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

### Operational and Construction Transportation

Based on Table 4.5-4, it is estimated that 110,118 gallons of diesel fuel and 12,418,889 gallons of gasoline would be consumed for the RSPU operational uses. Transportation energy would be used efficiently due to the location, density, and mix of planned uses in the RSP Area. The proposed RSPU land use design, roadway system, and mobility network were developed in accordance with smart growth principles. Mixed-use developments, such as the proposed RSPU, provide an opportunity for people to live, work, shop, and find recreation opportunities within one community. This allows people to travel shorter distances between their origins and destinations. These shorter travel distances reduce vehicle trip lengths and make walking and bicycling more viable travel options. As described in section 4.12, overall trip making would be approximately 32% less than if the comparable land uses were developed in more traditional single use, suburban settings that lack the transit options and ability to internalize trips. In addition, the regionally central location of the RSP Area means that trip lengths would be shorter than if the proposed land uses were developed elsewhere in the region. This reduction in trip making and trip lengths would have a commensurate reduction in transportation fuel consumption.

As explained above in Impact 4.5.1, construction of development and infrastructure pursuant to the proposed RSPU would require the use of fuels for operation of construction equipment, construction vehicles, and construction worker vehicles. Direct energy use would also include the use of electricity required to power construction equipment. As shown in Table 4.5-5, for the construction of the proposed RSPU, it is estimated there would be approximately 23,570,857 gallons of diesel fuel and 1,413,221 gallons of gasoline consumed. Notably, construction activities are temporary and would be spread over a period of two decades or more. Since the use would be temporary, it would not result in a long term increase in demand for fuel. Thus, construction and operation of the proposed RSPU would not result in a wasteful or unnecessary use of energy. Therefore, this impact would be considered **less than significant**. The impact of the proposed RSPU would be equal to that described for the 2007 RSP.

### Railyards Specific Plan Update Land Use Variant

### Electricity and Natural Gas

As described above for the proposed RSPU, the project has a stated objective to promote sustainability through the use of green building technology and renewable energy resources. The same objectives would exist for the RSPU Land Use Variant. Like for the proposed RSPU, the proposed RSPU Land Use Variant would comply with Title 20 and 24 California Code of Regulations, including CALGreen, as explained above. Like the proposed RSPU, the RSPU Land Use Variant would include a variety of additional energy conservation measures that could be included in the individual project design and/or operational features to decrease the amount of overall energy consumed by the project. Thus, the RSPU Land Use Variant would not result in a wasteful or unnecessary use of electricity or natural gas, this impact would be considered **less than significant**.

### Operational and Construction Transportation

As shown in Table 4.5-4, annual fuel consumption from operational transportation from the RSPU Land Use Variant would be 188,140 gallons of diesel fuel and 21,218,000 gallons of gasoline. Compared to the proposed RSPU, the RSPU Land Use Variant operational transportation would consume each year 59,974 less gallons of diesel fuel and 6,733,778 less gallons of gasoline. The increase in fuel consumption from operational transportation is due to the development of a mix of non-residential and residential uses on the parcels that accommodate the proposed KP Medical Center and MLS Stadium under the proposed RSPU. The overall trip production of the mixed uses on those blocks would demand greater fuel consumption from operational transportation than the uses under the proposed RSPU. The difference is largely attributable to the fact that the MLS Stadium would be used only approximately 37 days per year, while mixed residential and retail uses under the Land Use Variant would generate trips all year long.

Despite the fact that the amount of fuel would increase, like the proposed RSPU, the RSPU Land Use Variant would include a land use mix, density, and mobility network developed in accordance with smart growth principles. This would provide residents, employees and visitors to the RSP Area multiple modes of travel and shorter distances between their origins and destinations, reducing vehicle trips and trip lengths, and making walking and bicycling more viable travel modes. As described in section 4.12, overall trip making would be approximately 32.5% less than if the comparable land uses were developed in more traditional single use, suburban settings that lack the transit options and ability to internalize trips. Like with the proposed RSPU, the regionally central location of the RSP Area means that trip lengths would be shorter than if the proposed land uses were developed elsewhere in the region. This reduction in trip making and trip lengths would have a commensurate reduction in transportation fuel consumption.

As explained above in Impact 4.5-1, construction of the proposed project would require the use of fuels for operation of construction equipment, construction vehicles, and construction worker vehicles. Direct energy use would also include the use of electricity required to power construction equipment. However, the estimated quantity of diesel fuel and gasoline use is shown in Table 4.5-5. For the construction of the proposed RSPU Land Use Variant, it is estimated there would be approximately 17,873,291 gallons of diesel fuel and 1,067,127 gallons of gasoline consumed. Compared to the proposed RSPU, the RSPU Land Use Variant construction transportation would consume 5,697,566 fewer gallons of diesel fuel and 346,094 fewer gallons of gasoline. Notably, construction activities are temporary and would not result in a long term increase in demand for fuel, and would not be of sufficient magnitude to require new infrastructure to be constructed to supply construction activities. Thus, the RSPU Land Use Variant would not result in a wasteful or unnecessary use of energy for construction and operational transportation, and this impact would be considered **less than significant**.

## *KP Medical Center*

### Electricity and Natural Gas

As explained in Chapter 2.0 Project Description, the KP Medical Center would be designed to include energy efficiency features as part of their multi-tiered approach to the research, development, and implementation of energy conservation strategies. The KP Medical Center would be designed to achieve LEED Silver certification or equivalent. Achieving this level of sustainability could include, but may not be limited to, such features as the use of high efficiency HVAC systems, cogeneration electricity production and head recovery, green roofs to reduce heat gain, and cool roofs for solar reflectivity and building cooling. The KP Medical Center would involve the construction and operation of a Central Utility Plant (CUP), an efficient supplier of hot water and steam for the entire medical campus. Other potential future green strategies may include solar power, electric vehicle parking, and the use of green power for construction. Additionally, the KP Medical Center would comply with CALGreen building code regulations. The construction phase of the KP Medical Center would require electricity for the manufacturing and transportation of building materials, preparation of the site, and construction of the buildings.

As shown in Table 4.5-1, above, the KP Medical Center would generate a demand of approximately 25,135 Mwh/year of electricity, and approximately 65,403 million Btu/year of natural gas. The estimated energy demand does not account for the effectiveness of the project's energy conservation features, which would likely result in a lower demand for electricity than this estimate. However, since the KP Medical Center has not yet been designed, the efficacy of energy conservation features cannot be quantified and to provide for a conservative analysis, the project energy conservation features are not accounted for in the analysis. Nevertheless, the energy efficiency commitments that have been made by Kaiser would ensure that the proposed KP Medical Center would not result in a wasteful or unnecessary use of electrical or natural gas energy. This impact would be considered **less than significant**.

### Operational and Construction Transportation

Tables 4.5-4 and 4.5-5 show the operational and construction fuel use, respectively, for the proposed KP Medical Center. For operations, the KP Medical Center would consume 38,145 gallons of diesel fuel and 4,301,889 gallons of gasoline on an annual basis. Construction of the KP Medical Center would consume 808,576 gallons of diesel fuel and 48,479 gallons of gasoline. For the reasons described above for the proposed RSPU, the KP Medical Center would not result in a wasteful or unnecessary use of energy for operational and construction transportation. Therefore, this impact would be considered **less than significant**.

## *MLS Stadium*

### Electricity and Natural Gas

As explained in Chapter 2.0 Project Description, the MLS Stadium has included energy efficiency features. The proposed MLS Stadium would achieve the US Green Building Council's LEED equivalent energy and environmental design to the extent feasible. The applicant has established a set of sustainability targets for the proposed MLS Stadium that would ensure its energy efficiency. These goals are presented in Chapter 2, Project Description, Table 2-12, and

include use of on-site generated renewable energy for up to one (1) percent of the electrical demand, recycling of at least 75% of construction waste, use of at least 10% regionally supplied building materials (reducing transportation fuel use), use of at least 10% recycled content in building materials (reducing manufacturing energy), and 25% better than CalGreen baseline water demand (reducing energy consumption for water conveyance). Additional strategies that are being investigated to achieve the targets include quality transit and alternative mode use, including bicycle facilities, green vehicles, systems to optimize energy performance, including energy metering, demand response, maximizing use of shade structures and wind resources on the site, use of LED and sensor lighting and potential use of solar panels for on-site energy generation.

Consistent with the City's Climate Action Plan, the proposed MLS Stadium also would achieve an energy reduction goal of 15% better than Title 24. Additionally, the project would comply with CALGreen building code regulations, as explain previously.

As shown in Table 4.5-1, above, the MLS Stadium would demand approximately 6,141 Mwh/year of electricity and approximately 12,219 million Btu/year of natural gas. These estimates do not account for the implementation of the above energy efficiency measures, and thus the estimates reflected in this document are conservative. Because the proposed MLS Stadium would achieve LEED equivalent energy efficiency, to the extent feasible, the project would not result in a wasteful or unnecessary use of energy. Therefore, this impact is considered **less than significant.**

#### Operational and Construction Transportation

Tables 4.5-4 and 4.5-5 show the operational and construction fuel use, respectively, for the proposed MLS Stadium. For operations, the MLS Stadium would consume 6,734 gallons of diesel fuel and 759,492 gallons of gasoline each year. For construction, the KP Medical Center would consume 64,581 gallons of diesel fuel and 3,872 gallons of gasoline.

Operational fuel consumption may be reduced due to the location of the proposed MLS Stadium, an area that would be accessible through alternative forms of transportation for both employees and spectators. Construction activities are temporary and would not result in a long term increase in demand for fuel. Thus, the proposed MLS Stadium would not result in a wasteful or unnecessary use of energy for operational and construction transportation. Therefore, this impact would be considered **less than significant**.

### *Stormwater Outfall*

As described in the Project Description, the operation of the proposed Stormwater Outfall would consume electricity, and in emergencies, natural gas to fuel generators. Approximately 253,735 kWh of electricity would be consumed annually.[24] Because the proposed Stormwater Outfall and associated pump station would be designed to comply with Title 24 and would employ modern pump technology, it would minimize the available energy consumed by operation of the pump

[24] Frisch Engineering, Inc., Load Calculation, April 14, 2016.

station. Further, because the proposed RSPU includes a minimum of landscaped area that could result in runoff, the design would result in reduced levels of irrigation runoff that may require pumping through the Stormwater Outfall. For these reasons, the construction and operation of the proposed Stormwater Outfall would avoid the wasteful or inefficient consumption of energy, and the impact would be **less than significant**.

### *Summary*

The proposed projects, including the proposed RSPU, RSPU Land Use Variant, KP Medical Center, MLS Stadium, and Stormwater Outfall, would be designed and operated to minimize the use of electrical, natural gas, and transportation fuel energy. The projects would comply with State and local regulations that increase the efficiency of operations. The proposed KP Medical Center project would achieve LEED Silver certification or equivalent, and the proposed MLS Stadium would achieve LEED equivalent energy efficiency, to the extent feasible. For these reasons, the proposed projects would not result in the wasteful or inefficient use of energy. In view of the above, this impact is considered **less than significant**.

The magnitude of this impact is the same as described in Impacts 6.14-3 in the 2007 RSP EIR.

Mitigation Measure

None required.

## Cumulative Impacts

The cumulative impacts regarding the wasteful, inefficient, or unnecessary consumption of energy during construction (Impact 4.5-2) would be the same as the project-specific context. Energy consumption effects related to individual projects are localized and would not combine with similar effects in other locations.

**Impact 4.5-3: The proposed project would contribute to cumulative increases in demand for energy.**

Continued growth throughout SMUD's and PG&E's service areas could contribute to ongoing increases in demand for electricity and natural gas. These anticipated increases would be countered, in part, by ongoing increases in national, statewide, and local requirements and incentives to support construction or retrofit of buildings with increased energy efficiency. For electricity supply, overall electricity supply during most conditions is adequate. However, as demand continues to increase in SMUD's service area, temporary shortfalls could occur on SMUD's system (and other portions of the statewide grid) during temporary periods of high peak demand. SMUD is actively planning for anticipated increases in peak demand through 2050. Peak demands occur during the summer during hot weather conditions when people run their air conditioners. Although SMUD's facilities reach peak demand for only about 40 hours per year, meeting demand during peak periods is a key planning consideration for the utility.[25] SMUD is

[25] Sacramento Municipal Utility District, 2013. The Challenge of Peak Demand. Available: https://www.smud.org/en/about-smud/company-information/challenge-of-peak-demand.htm. Accessed October 16, 2013.

currently actively planning to offset growth in peak demands by encouraging and deploying energy efficiency and conservation measures within its service area.[26] Through a combination of increases in efficiency and deployment of power management strategies including power imports during peak periods, SMUD expects to maintain sufficient capacity to provide power to its service area, including the project, at least through 2050.

With respect to natural gas, PG&E sources natural gas from a combination of producers and suppliers located in Canada and the U.S. Southwest. The utility maintains contracts with producers and suppliers over daily, monthly, and longer term agreements. PG&E also maintains gas storage facilities and a network of conveyance and distribution pipelines within its service area. In order to address future increases in demand, PG&E maintains an active planning process to identify and deploy additional conservation measures to minimize increases in demand, to secure continued natural gas supply, and to maintain sufficient distribution system capacity within its service area. With respect to the proposed RSPU and vicinity, existing and planned infrastructure is anticipated to be sufficient to maintain service to the proposed project and other cumulative scenario projects. Therefore, cumulative scenario impact on natural gas supply would not be cumulatively considerable.[27]

Additionally, conservation policies encouraged by the City, including those set forth in the City's 2035 General Plan (electricity and natural gas services, energy consumption per capita, renewable energy, energy efficiency appliances) are expected to support increased energy conservation among development, including the proposed RSPU, could result in an overall increase in energy demand on suppliers, anticipated increases would be affected positively by these requirements. Cumulative impacts on energy production and transmission facilities therefore are not significant and the project's contribution is not cumulatively considerable. As such, this impact is considered **less than significant**.

Mitigation Measure

None required.

[26] Sacramento Municipal Utility District, 2013. The Challenge of Peak Demand. Available: https://www.smud.org/en/about-smud/company-information/challenge-of-peak-demand.htm; Accessed October 16, 2013.

[27] Pacific Gas & Electric, 2016. Operating Data. Available: http://www.pge.com/pipeline/operations/cgt_pipeline_status.page#flows. Accessed March 25, 2016.