# Section 3.2

# Energy

## 3.2.1 Introduction

This section addresses electricity, natural gas, and transportation-related fuel consumption associated with construction and operation of the proposed project. In addition, this section addresses energy conservation and measures to reduce wasteful, inefficient, and unnecessary consumption of energy, consistent with Public Resources Code Section 21100(b)(3), State California Environmental Quality Act (CEQA) Guidelines Section 15126.4(a)(1)(C), and State CEQA Guidelines Appendix F. Appendix C of this Draft Environmental Impact Report (EIR) contains the applicable energy calculations.

## 3.2.2 Environmental Setting

### 3.2.2.1 Electricity

#### Electrical Power

Electrical power within the City of Pasadena is supplied by Pasadena Water and Power (PWP), which currently serves approximately 140,879 people (PWP 2015). Electricity provided by PWP is generated by PWP and other utilities with power generating facilities located both within the City of Pasadena and in other areas. These sources include natural gas-fired, coal-fired, hydroelectric, and nuclear plants. Existing renewable energy resources in the PWP portfolio include wind, solar, biogas, and geothermal facilities. The current resource mix affords reliability and flexibility in providing electrical energy to the citizens of Pasadena. In March 2012, the City of Pasadena adopted the 2012 Update to the 2009 Integrated Resource Plan (2012 IRP; PWP 2012). The 2012 IRP is a 20-year energy resource planning document that provides a framework to ensure that the future energy needs of the City are reliably met in a cost-effective manner, while reflecting PWP's commitment to environmental stewardship. Within the 2012 IRP, PWP outlines adequate electricity supply and transmission capability to meet the needs of its customers through 2030. The 2012 IRP assessed the cost and environmental performance of four portfolio options: 1) status quo, 2) preferred plan from 2009 IRP, 3) least cost portfolio to meet the 33 percent Renewable Portfolio Standard (RPS) ("state mandate"), and 4) least cost portfolio to meet a 40 percent RPS ("2012 RPS"). The 2012 IRP includes updated renewable energy requirements, electrical load forecasts, revenue and rate impacts, and the integration of public input (PWP 2012).

The PWP service area used 1,146,699 megawatt-hours (MWh) of electricity in 2014 (PWP 2015). Projections prepared for the 2009 IRP indicate that the power demand for the City of Pasadena will be approximately 1,295,460 MWh in 2020 and 1,320,003 MWh in 2030 (PWP 2009). Projected future electricity consumption growth for PWP is approximately 0.5 percent per year through 2030. Diversification of PWP's energy portfolio, increasing electricity from renewable energy, and new customer energy efficiency measures will help meet all of the City's needs through the year 2030. The City's projected service area power demand specific to 2017, the expected buildout year for the proposed YWCA Kimpton Hotel project, is 1,281,849 MWh.

PWP has adopted a number of initiatives to increase its use of renewable energy resources to support the goal of reducing greenhouse gas (GHG) emissions, reducing reliance on fossil fuels, and meeting state mandates requiring all utilities to provide 33 percent of their energy from renewable resources by 2020, with interim goals of at least an average of 20 percent renewable resources between 2011 and 2013, and 25 percent renewable resources by 2016. In 2013, PWP secured 27.2 percent of its power from renewable resources, exceeding the state interim goals, and is planning for an RPS goal of 40 percent by 2020 (PWP 2015).

### Electricity Related to Water Consumption

Energy use is also related to water use, as energy is needed to pump, treat, transport, heat, cool, and recycle water.

The PWP is the water supply service provider to residents and businesses within the City of Pasadena and adjacent unincorporated areas outside the City's legal boundaries, including portions of Altadena, East Pasadena, and San Gabriel. The PWP provides approximately 38,460 acre-feet per year (AFY) of potable water. Currently, the water supply is drawn from a variety of sources, including local municipal groundwater wells, surface water diversion, and imported water from the Metropolitan Water District of Southern California (MWD). Additional water supplies for PWP are also available through short-term water exchanges with neighboring agencies.

Water supply and demands were calculated by PWP for the 2010 Urban Water Management Plan (UWMP) under three hydrologic scenarios: normal, single-dry year, and multiple-dry years. Under all these scenarios, the PWP has adequate supply sources to meet future demand needs.

It should be noted that over the past several years, the PWP has been impacted by several factors that have restricted local and regional water supply. PWP's groundwater rights have been curtailed in order to mitigate groundwater depletion experienced over the last half century. With respect to imported supplies, a decade-long drought has reduced the ability to replenish regional groundwater supplies; drought conditions in the American southwest have reduced deliveries of water from the Colorado River to Southern California, and legal and environmental issues have resulted in reduced water deliveries through the State Water Project to the region. The City accounted for these conditions in the 2010 UWMP described above. As of 2011, MWD had lifted allocation restrictions as a result of improvements in Southern California's water reserves. However, record drought conditions during 2013–2014 prompted the Office of the Governor to release the January 2014 Drought Declaration with goals of reducing per capita water consumption in the state by 20 percent (Office of the Governor 2014). Further, on May 5, 2015, the State Water Resources Control Board (SWRCB) adopted a Mandatory Water Conservation Regulation that established a requirement for PWP to reduce overall customer water use by 28 percent from calendar year 2013 levels (SWRCB 2015).

## 3.2.2.2 Natural Gas

The Southern California Gas Company (SoCalGas) supplies natural gas to nearly all of Southern and Central California, including the City of Pasadena. In 2013, approximately 2,773 million cubic feet (MMcf) of natural gas per day (1,012,145 MMcf annually) was consumed in Southern California (California Gas and Electric Utilities 2014). SoCalGas projects total natural gas demand

to decline by 0.33 percent annually from 2013 to 2035. The decline in demand will be caused by modest economic growth, California Public Utilities Commission-mandated energy efficiency standards and programs, renewable electricity goals, declining commercial and industrial demand, and conservation savings linked to advanced metering infrastructure. Projected demand for natural gas in Southern California in 2017, the build out date for the proposed YWCA Kimpton Hotel project, is anticipated to be 2,697 MMcf/day (984,405 MMcf annually). SoCalGas obtains the majority of its natural gas from out-of-state sources, mostly in the western United States and Canada. Future supplies of natural gas are anticipated to be adequate to meet projected Southern California demand through 2035 (California Gas and Electric Utilities 2014).

### 3.2.2.3 Transportation Energy

According to the California Energy Commission (CEC), petroleum-based fuels account for 92 percent of the state's transportation needs (CEC 2015). Gasoline is the most-used transportation fuel in California, with 98 percent of the light-duty vehicle fleet powered by gasoline in 2009 (Southern California Association of Governments [SCAG] 2012). In 2013, California consumed 341,194,000 barrels (14.3 million gallons) of gasoline for transportation (U.S. Energy Information Administration [EIA] undated). Incentive programs, like the CEC's Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP), are helping the state to reduce its dependency on gasoline. For example, the ARFVTP is predicted to displace between 441 million and 693 million gallons of gasoline and diesel per year by 2025 (CEC 2015). Several regulations adopted by California to reduce GHG emissions, such as Senate Bill (SB) 375, have the added benefit of reducing the state's demand on petroleum-based fuels by requiring reductions in vehicle miles traveled (VMT) and by reducing the carbon intensity of transportation fuels.

Petroleum is a worldwide commodity. The EIA's short-term energy outlook projects that world liquid fuels production will outpace demand through 2016 (EIA 2015), with a total world production of 94.83 million barrels per day (mb/d) and total world consumption of 94.58 mb/d in that year. A recent report by the Organization of the Petroleum Exporting Countries (OPEC) has a similar forecast for 2016 (OPEC 2014). The OPEC forecast for 2017, the projected buildout year for the proposed YWCA Kimpton Hotel project, projects a worldwide oil demand of 94.1 mb/d and a worldwide oil supply of 94.3 mb/d. OPEC's long-term projections shows a similar trend; in 2040, worldwide oil demand is projected to be 111.1 mb/d and worldwide oil supply is projected to be 111.3 mb/d.

## 3.2.3 Regulatory Framework

### 3.2.3.1 Federal

#### Transportation Fuel Efficiency

The federal government sets fuel efficiency standards for construction equipment. Tier 4 efficiency requirements are contained in 40 CFR Parts 1039, 1065, and 1068 (originally adopted in 69 Fed. Reg. 38958 [June 29, 2004], and most recently updated in 2014 [79 Fed. Reg. 46356]). Similarly, the federal government sets national fuel efficiency standards for light duty vehicles, pursuant to the Corporate Average Fuel Economy (CAFE) standards, which were recently updated in 2010 (75 Fed. Reg. 25324 et seq. [May, 7, 2010]; see also Health & Safety Code, Sections 39002, 43000 et seq). It is, however, legally infeasible for individual municipalities to adopt more stringent fuel efficiency standards. Section 7543(a) of the Clean Air Act states that

"No state or any political subdivision therefore shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part."

### 3.2.3.2 State

#### Senate Bill 1389 (SB 1389)

SB 1389 requires the CEC to prepare an Integrated Energy Policy Report (IEPR) every two years and an update in the interim years. The IEPR assesses major energy trends and provides policy recommendations to conserve the state's electricity, natural gas, and transportation fuel resources. The most recent IEPR was completed in 2013 and an update was released in 2014; the CEC is currently preparing the 2015 IEPR with a draft expected to be released in October 2015. The 2014 IEPR Update focuses on the steps required to transform transportation energy use in California. The report also provides updates on incorporating environmental information in renewable energy planning, the electricity infrastructure in Southern California, and the electricity demand forecast.

#### Assembly Bill 32 (AB 32)

AB 32, the Global Warming Solutions Act of 2006, codifies the state's GHG emissions reduction targets. It requires California to reduce GHG emissions to 1990 levels by 2020. In 2012, the latest year data are available, the transportation fuel sector accounted for 37 percent of the state's GHG emissions, with in-state and imported electricity generation contributing an additional 21 percent. Across all economic sectors, natural gas, gasoline, and diesel combustion represents nearly 61 percent of the state's GHG emissions (California Air Resources Board [CARB] 2014). As such, reducing emissions from transportation and the electricity sectors is critical to meeting California's GHG reduction goals.

#### California Energy Commission

The CEC is that state's primary energy policy and planning agency, established by the Legislature in 1974. The CEC is guided by seven core responsibilities:

- Forecasting future energy needs;
- Promoting energy efficiency and conservation by setting the state's appliance and building energy efficiency standards;
- Supporting energy research that advances energy science and technology through research, development and demonstration projects;
- Developing renewable energy resources;
- Advancing alternative and renewable transportation fuels and technologies;
- Certifying thermal power plants 50 megawatts and larger;
- Planning for and directing state response to energy emergencies.

The CEC also maintains building energy efficiency standards, discussed in more detail below.

### California Building Standards Code (Title 24)

*California Energy Code (Part 6)*

California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings, located at Title 24, Part 6, of the California Code of Regulations, were established in 1978 to reduce California's energy consumption. Commonly known as the "Title 24" standards, the standards are typically updated every three years; the 2013 standards were effective on July 1, 2014. Title 24 provides energy efficiency standards for residential and non-residential development with the express goal of "reducing of wasteful, uneconomic, inefficient or unnecessary consumption of energy" (Public Resources Code Section 25402). The CEC is initiating the public rulemaking process for the 2016 Title 24 standards. The updated standards will be proposed for adoption in 2015 with an effective date of January 1, 2017.

*California Green Building Standards Code (Part 11)*

The California Green Building Standards Code (CALGreen) is located in Title 24, Part 11 of the California Code of Regulations. The purpose of the CALGreen Code is to enhance the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The code provides various mandatory and voluntary measures to be enforced on new building construction.

*Water Efficiency (Plumbing Code)*

The California Plumbing Code is codified in Title 24, California Code of Regulations, Part 5. Part 5, Chapter 4 contains provisions requiring the installation of low flow fixtures and toilets. Existing development is also required to reduce its wastewater generation and water use by retrofitting existing structures with water efficient fixtures (SB 407 [2009] [Civil Code Section 1101.1 et seq.]). Additionally, Part 5 Sections 5.303.2 and 5.303.4 provide for a minimum 20 percent reduction in water demand and wastewater discharges. This would result in a concurrent reduction in energy demand to supply, treat, and convey water and wastewater.

### Drought-Related State Regulations

As noted in Section 3.2.2.1, record drought conditions during 2013–2014 prompted the release of the Governor's January 2014 Drought Declaration with the goal of reducing per capita water consumption by 20 percent. Further, on May 5, 2015, the SWRCB adopted a Mandatory Water Conservation Regulation that established a requirement for PWP to reduce overall customer water use by 28 percent from calendar year 2013 levels.

## 3.2.3.3 Local

### City of Pasadena General Plan Energy Element

The City of Pasadena's General Plan - Energy Element provides goals and objectives for energy conservation and added energy demand (City of Pasadena undated). The following goals and objectives in the Energy Element apply to the proposed project:

- Goal 1.0: New buildings which exceed Title 24 standards and improved energy efficiency of existing buildings.
  - Objective 1.5: New buildings to exceed Title 24 standards by an average of 10 percent.
- Goal 2.0: Energy efficient transportation of people and goods

## Pasadena Municipal Code

The City of Pasadena adopted the 2013 California Green Building Standards Code, also known as CALGreen, as its building ordinance (PMC Sections 14.04.500 – 14.04.578). The City's Green Building Ordinance requires new commercial type buildings of over 50,000 square feet or more to meet the CALGreen Tier 2 requirements (14.04.504, Section 307.2). Additionally, these types of buildings must meet the intent of the Leadership in Energy & Environmental Design (LEED©) Silver certification at a minimum and must achieve LEED Water Efficiency Credit 3.1, which requires that water consumption be reduced by 20 percent below the baseline water projection).

Several sections of the PMC address water efficiency. The landscaping chapter of the zoning code (PMC 17.44) also regulates water waste and emphasizes the use of drought-tolerant species for new landscaping. Additionally, PMC 13.22 provides requirements for water efficient landscaping.

PMC Chapter 13.10, Pasadena's Water Waste Prohibitions and Water Supply Shortage Plans Ordinance, establishes 13 permanent mandatory restrictions on wasteful water use activities and four levels of Water Supply Shortages with increasingly restrictive measures to address water shortages. On June 1, 2015, the City adopted the Level 2 Water Supply Shortage Plan requiring additional mandatory water restrictions for residents and businesses including further limiting watering days; requiring leaks, breaks, or other malfunctions to be fixed; and limiting the filling of ornamental lakes or ponds. Additional water-use restrictions set forth in PMC 13.10.060, Additional Water Shortage Measures, have also been implemented, including prohibition of irrigation of turf within 48-hours following a measurable precipitation; prohibition of washing hard or paved surfaces using potable water, except to alleviate safety and/or sanitary hazards; and installation of water-efficient fixtures in multifamily properties.

## Pasadena Green City Action Plan

As part of its Green City Action Plan (City of Pasadena 2006), the City identified several policies that would enable it to increase its sustainability while still meeting growing demands and reducing impacts to natural resources. Specific policies that would reduce the City's energy demand, either directly or indirectly, are identified below. The City's progress towards meeting these goals is also noted, as reported in the Green City Report 2010 (City of Pasadena 2010), which is the last year the report was published.

- Action 1 Increase the use of renewable energy to meet 10 percent of the city's peak electric load by 2012. As described in the Green City Report 2010, the City achieved this goal.

- Action 2 — Reduce the city's peak electric load by 10 percent within seven years through energy efficiency, shifting the timing of energy demands, and conservation methods. Future cost-effective energy efficiency programs include:
  - Conducting a feasibility study for installing devices on municipal and private buildings that reduce the power required to operate equipment and for shifting the equipment usage to off-peak.
  - Creating a "time of use" billing rate that offers lower rates for electric usage during off-peak hours than during peak hours. Other possible rates to consider include tiered energy rates.

  The Green City Report 2010 lists the status of this goal as undetermined.
- Action 8 — Advance higher density, mixed use, walkable, bikeable and disabled accessible neighborhoods which coordinate land use and transportation with open space systems for recreation and ecological restoration. As described in the Green City Report 2010, the City achieved this goal.
- Action 13 — Expand affordable public transportation coverage to within ½ kilometer of all city residents by 2012. As described in the Green City Report 2010, the City achieved this goal.
- Action 15 — Implement a policy to reduce the percentage of commute trips by single occupancy vehicles by 10 percent by 2012. The Green City Report 2010 lists the status of this goal as likely to be achieved.

## 3.2.4 Methodology

Construction of the proposed project would consume gasoline and diesel fuel from off-road construction equipment and on-road vehicles, such as vendor trucks, haul trucks, and construction employee commuting. During operation, transportation fuels would be used by vehicles entering and exiting the project site. Furthermore, natural gas would be used for heating, cooking, and other services, while electricity would be used to power the building, to transport water to the project site, and to deliver wastewater for treatment. The methodologies associated with these analyses are described below.

### 3.2.4.1 Construction

Fuel usage estimates identified in the South Coast Air Quality Management District's (SCAQMD) CEQA Air Quality Handbook (SCAQMD 1993) were used to calculate the quantity of diesel fuel that would be used by construction equipment at the project site. Construction-related energy consumption was estimated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2 (California Air Pollution Control Officers Association [CAPCOA] 2013). CalEEMod is a statewide land use emissions computer model that estimates construction and operational emissions from a variety of land use projects. Because CalEEMod does not directly estimate fuel consumption, fuel rate and VMT data from CARB's EMFAC2014 (v1.0.7) model were used to develop fuel efficiency factors for gasoline and diesel fuel, in units of miles per gallon. Trip rate

and trip length data from CalEEMod were used to estimate the total VMT of on-road motor vehicles that would occur from construction activities. The fuel efficiency factors were applied to the estimated VMT to determine the quantity of gasoline and diesel that would be used during construction. Consistent with CalEEMod, construction worker vehicles were assumed to consist of 50 percent gasoline-fueled light-duty automobiles and 50 percent gasoline-fueled light-duty trucks. Additionally, all vendor trucks and haul trucks were assumed to be heavy-heavy duty diesel fueled trucks. Detailed calculations are included in Appendix C.

### 3.2.4.2 Operations

Operational energy consumption was estimated using CalEEMod. CalEEMod default values were used for most of the analysis, with the exception of operational VMT, which was based on the traffic study conducted for the project. As noted in Section 3.2.4.1, *Construction,* fuel efficiency factors were calculated from EMFAC2014. The fuel efficiency factors were then applied to project-specific VMT data to estimate the quantity of gasoline and diesel that would be used during project operations.

The calculation of project-related energy consumption (referred to as the project-specific scenario) assumes compliance with a number of energy efficiency standards as well as policies aimed at reducing GHG emissions, including policies in CARB's 2008 Scoping Plan (CARB 2008; CARB 2011), which was prepared pursuant to the Global Warming Solutions Act of 2006. Specifically, the project-specific scenario assumes that the project would achieve GHG emissions reductions (and related energy consumption reductions) in the 2008 Scoping Plan, and would comply with 2013 Title 24 requirements and the California Renewables Portfolio Standard. The project-specific scenario also assumes compliance with the CALGreen Code, including a 15 percent minimum reduction in energy use from systems covered by Title 24 pertaining to lighting and a 20 percent minimum reduction in water usage and wastewater generation.[2] The proximity of the proposed project to transit is also accounted for in the project-specific scenario.

The project's energy consumption at buildout was also compared to a business-as-usual (BAU) scenario. To determine the project's energy consumption under the BAU scenario, CalEEMod was used to estimate the emissions that would occur in the absence of the 2008 Scoping Plan and other energy conservation measures. Specifically, the BAU scenario does not include the GHG emissions reductions (and related energy consumption reductions) attributed to the 2008 Scoping Plan, and does not assume compliance with 2013 Title 24 requirements or the California Renewables Portfolio Standard. Moreover, although the City currently requires compliance with the CALGreen Code, compliance with CALGreen was not included in the BAU scenario because these energy efficiency measures were not incorporated in CARB's 2008 Scoping Plan. For purposes of the analysis, trip information for the BAU scenario was assumed to be the same as for the project-specific scenario.

[2] The GHG mitigation measures used by CalEEMod are based on the CAPCOA document Quantifying Greenhouse Gas Mitigation Measures (2010). As described in the CAPCOA document, the percent reduction for energy use is based on the 2008 Title 24 standards.

## 3.2.5 Thresholds of Significance

The City of Pasadena has not adopted local thresholds of significance for energy. However, Appendix F of the CEQA Guidelines states that, in order to assure that energy implications are considered, the potentially significant energy impacts of a project should be evaluated in an EIR. Appendix F provides the following list of potential energy impacts that may be considered:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;
- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; and/or
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

For the purposes of this EIR, implementation of the project may have a significant impact related to energy resources if it would:

- Conflict with adopted energy conservation plans;
- Use energy resources in a wasteful and inefficient manner; or
- Require or result in the construction of new energy facilities (electricity, natural gas, propane) or expansion of existing facilities, the construction of which could cause significant environmental effects.

## 3.2.6 Project Impacts

**Impact ENERGY-1. Would the project conflict with adopted energy conservation plans?**

Construction of the proposed project would consume energy from off-road construction equipment and on-road vehicular travel from vendor trucks, haul trucks, and construction employee commuting. Additionally, electricity would be required to deliver water to the project site for water control. During operation, energy would be consumed by vehicles arriving at and departing the hotel. Natural gas would be used for space heating and for other equipment, such as commercial dryers in the laundry facility, and electricity would be used to power the building, including kitchen and laundry equipment, HVAC equipment, and appliances; to supply water to the project site; and to deliver wastewater for treatment. Analyses of the results of this modeling for construction and operational energy consumption are provided below.

## Construction

**Table 3.2-1** summarizes the quantity of petroleum fuels and electricity that would be consumed during construction. As shown in the table, a total of 60,055 gallons of diesel fuel, 16,097 gallons of gasoline fuel, and 2,093 kilowatt-hours (kWh) of electricity would be consumed during construction.

**Table 3.2-1 Summary of Energy Use during Construction**

| Fuel Type and Use | Quantity |
|---|---|
| **Diesel** | |
| On-Site Construction Equipment | 49,120 gallons |
| Off-Site Construction Equipment | 10,935 gallons |
| **Total** | **60,055 gallons** |
| | |
| **Gasoline** | |
| On-Site Construction Equipment | 0 gallons |
| Off-Site Construction Equipment | 16,097 gallons |
| **Total** | **16,097 gallons** |
| | |
| **Electricity** | |
| Water Supply | **2,093 kilowatt-hours** |

Source: CDM Smith 2015.

Although construction would consume energy resources, construction activities would be temporary and would cease at the end of construction; therefore, there would be no long-term energy impacts associated with construction activities. The adopted energy conservation plans do not specifically discuss energy uses from construction activities. For this reason, and because the amount of fuel and electricity used during construction would be minor, impacts from construction would be less than significant.

## Operation

During operation of the proposed project, energy would be consumed for a variety of purposes, including electricity consumption for lighting, hotel kitchen, and laundry equipment, HVAC equipment, commercial and in-room appliances, water supply and delivery, and other commercial operations; natural gas consumption for space heating, cooking, and laundry dryers; and transportation fuel consumption from motor vehicles driving to and from the site.

As discussed in Section 3.2.4, *Methodology*, separate CalEEMod runs were completed for the BAU scenario and for the project-specific scenario. The project-specific scenario considered a 15 percent reduction in energy use from systems covered by Title 24 and a 20 percent minimum reduction in water usage and wastewater generation to account for CALGreen compliance. Additionally, the hotel was assumed to meet LEED Silver standards, as required by the City's Green Building Ordinance.

Specific measures that would be implemented to achieve the CALGreen standards would be identified during project design. As noted above, these measures are assumed in the project-specific scenario. Typical methods that could be incorporated into project design to improve energy efficiency and meet CALGreen standards include use of efficient building techniques, such as insulation in walls and roofs and use of high-performance glazing; installation of energy-efficient appliances, such as kitchen appliances associated with the proposed restaurant and energy-efficient commercial laundry facilities; high efficiency lighting; design that maximizes reliance on natural lighting; and reduced water consumption through methods such as low-flow fixtures (faucets, showers, toilets) and water efficient landscaping and irrigation).

**Table 3.2-2** summarizes the estimated annual energy consumption from operations for both the BAU scenario and for the proposed project with incorporation of energy conservation/efficiency measures, which were previously described. Operation of the proposed project would result in a permanent increase in electricity and natural gas consumption; however, this increase would be less than the BAU scenario. As shown in the table, the project-specific scenario would reduce electricity demand by 10 percent and natural gas usage by 11 percent as compared to the BAU scenario. The proposed project would result in an incremental increase in citywide VMT of 4,249 vehicles daily (see Appendix E, *Traffic Impact Study*) that would result in an increased consumption of transportation fuels.

**Table 3.2-2 Summary of Annual Energy Use during Operation**

| Source | Units | BAU Scenario | Project-Specific Scenario | Percent Reduction from BAU |
|---|---|---|---|---|
| **Electricity** | | | | |
| Building Usage | | | | |
| Hotel | kWh/year | 1,131,110 | 1,019,130 | -10% |
| Quality Restaurant | kWh/year | 118,682 | 111,567 | -6% |
| Building Subtotal | kWh/year | 1,249,792 | 1,130,697 | -10% |
| Water Usage | | | | |
| Indoor Use | kWh/year | 69,123 | 55,299 | -20% |
| Outdoor Use | kWh/year | 6,150 | 4,920 | -20% |
| Water Subtotal | kWh/year | 75,273 | 60,218 | -20% |
| **Total Electricity Usage** | **kWh/year** | **1,325,065** | **1,190,915** | **-10%** |
| **Natural Gas** | | | | |
| Hotel | kBtu/year | 3,329,460 | 2,911,080 | -13% |
| Quality Restaurant | kBtu/year | 589,515 | 572,351 | -3% |
| **Total Natural Gas Usage** | **kBtu/year** | **3,918,975** | **3,483,431** | **-11%** |
| **Mobile** | | | | |
| Diesel | gallons | 12,694[1] | 12,694[1] | 0% |
| Gasoline | gallons | 72,258[1] | 72,258[1] | 0% |

Source: CDM Smith 2015.

Notes:

1. Represents the incremental increase in citywide fuel consumption with project implementation.

Key:

kWh/year = thousand kilowatt-hours per year

kBtu/yr = thousand British Thermal Units per year

During operations, the proposed project would be consistent with the City's General Plan Energy Element because electricity demand would be reduced by at least 10 percent when compared to the BAU scenario. Furthermore, the building would be built in compliance with the CALGreen ordinance, including reducing water consumption by at least 20 percent when compared to BAU. The project would also meet the intent of LEED Silver standards, as required by the City's Green Building Ordinance. By meeting these requirements, the proposed project would not conflict with an adopted energy conservation plan and energy impacts would be less than significant.

### Mitigation Measures

The project would not conflict with adopted energy conservation plans. No mitigation is required.

### Residual Impacts

Impacts associated with adopted energy conservation plans would be less than significant.

## Impact ENERGY-2. Would the project use energy resources in a wasteful and inefficient manner?

The proposed project would be designed so that the demand for electricity and natural gas would be reduced when compared to the BAU scenario. In addition, the building would be constructed to achieve the intent of LEED Silver certification at a minimum, as required by the City's Green Building Ordinance. Specific measures that could be incorporated into project design are identified in Impact ENERGY-1 above. The proposed project would provide a variety of travel mode choices to project employees and guests. A public transit stop is located one block west of the proposed project site. In addition, the project is within walking distance of amenities such as shopping and restaurants. As a result, the project would result in a lower increase in the consumption of transportation-related fuels than might otherwise occur. Because energy efficiency standards would be incorporated into the project design and total building-related energy consumption would be reduced when compared to the BAU scenario, energy would not be used in a wasteful and inefficient manner, and energy impacts would be less than significant.

### Mitigation Measures

The project would not use energy in a wasteful and inefficient manner. No mitigation is required.

### Residual Impacts

Impacts associated with the inefficient use of energy resources would be less than significant.

## Impact ENERGY-3. Would the project require or result in the construction of new energy facilities (electricity, natural gas, propane) or expansion of existing facilities, the construction of which could cause significant environmental effects?

The availability of electricity depends on adequate general capacity of the grid and sufficient fuel supplies. The PWP estimates that electricity consumption within PWP's planning area will be approximately 1,281,849 MWh per year by 2017, the anticipated project buildout year (PWP 2015). As shown in Table 3.2-2, the proposed project would use 1,190,915 kWh per year, which is 0.09 percent of the 2017 forecasted demand. As discussed in Section 3.2.2.1, PWP expects to have adequate electricity supply and transmission capability to meet the needs of its

customers well beyond 2017. Because the proposed project would use a low percentage of the total electricity demand projected for the future, and because PWP anticipates it will have sufficient capability to meet future needs, construction and operation of the proposed project would not require the expansion of existing facilities or the construction of new electricity generating or transmission facilities.

Natural gas consumption would increase during project operations. However, as discussed in Section 3.2.2.2, the 2014 California Gas Report (California Gas and Electric Utilities 2014) indicates that there is sufficient capacity in the utility network to meet future demand in Southern California. The total gas supply available in 2017 is estimated to be 2,697 MMcf per day, and equals projected demand in the region. This is equivalent to 1,009,999,530 million British thermal units [Btu] per year, assuming that the typical heating value of natural gas is 1,026 Btu per cubic foot (The Climate Registry 2015). As shown in Table 3.2-2, the proposed project would use 3,483,431 thousand Btu per year (3,483 million Btu per year), which is 0.00034 percent of the 2017 forecasted demand. Because the proposed project would use a low percentage of the total natural gas demand projected for the future, and because SoCalGas anticipates it will have sufficient capability to meet future needs, construction and operation of the proposed project would not require the expansion of existing facilities or the construction of new natural gas facilities.

The proposed project would not use any propane.

Although operation of the proposed project would increase electricity and natural gas consumption, usage would be reduced compared to the BAU scenario and would not require new or expanded energy facilities. As a result, impacts relative to energy associated with operation of the proposed project would be less than significant.

### Mitigation Measures

The project would not require or result in the construction of new energy facilities or expansion of existing facilities. No mitigation is required.

### Residual Impacts

Impacts related to energy utility facilities would be less than significant.

## 3.2.7 Cumulative Impacts

The area of analysis for cumulative effects related to electricity is PWP's service area and the area of analysis for cumulative effects related to natural gas is SoCalGas' service area. The area of analysis for transportation fuels considers cumulative projects and growth within the City of Pasadena. Expected growth in these areas would increase the demand for electricity, natural gas, and transportation fuels. As identified in Table 3-1 (see Section 3.0, *Environmental Impact Analysis*) there are 67 known projects that could contribute to cumulative impacts in the City of Pasadena.

### 3.2.7.1 Electricity

Buildout of the proposed project and additional forecasted growth in the City, including the 67 cumulative projects, would increase electricity consumption within the PWP service area. As such, there would be a cumulative increase in the demand for electricity. The PWP estimates that approximately 1,281,849 MWh per year of electricity would be consumed City-wide by 2017. The proposed project would account for 0.09 percent of the forecasted demand in PWP's planning area within this time period. Although future development would result in the irreversible use of renewable and non-renewable electricity resources during project construction and operation, the use of such resources would be consistent with growth expectations for PWP's service area. Furthermore, all new projects would be required to be compliant with CALGreen building standards. Additionally, the Green City Action Plan (City of Pasadena 2006) identifies specific policies to reduce energy consumption, such as increasing the use of renewable energy. As such, there would be a net decrease in electricity consumption when compared to the BAU scenario. As stated in Section 3.2.2.1, PWP has adequate electricity supply capability to meet the needs of its customers through 2030.

The potential for future growth within the City to result in impacts to energy consumption was recently evaluated in the Pasadena General Plan Initial Study (City of Pasadena 2013). As the proposed project is consistent with the site's General Plan designation and zoning[3], the analysis of energy impacts in the General Plan Initial Study is representative of cumulative impacts associated with the project. As identified in the General Plan Initial Study, energy usage associated with buildout of the General Plan, which represents the cumulative condition, would be less than significant.

Electricity infrastructure is typically expanded in response to increasing demand, and system expansion and improvements by PWP are ongoing. As described in PWP's IRP, PWP would continue to expand delivery capacity as needed to meet demand increases within its service area. The IRP takes into account future energy demand, advances in renewable energy resources and technology, energy efficiency, conservation, and forecast changes in regulatory requirements. Development projects within the PWP service area would also be anticipated to incorporate site-specific infrastructure improvements, as necessary. As indicated in Section 3.2.2.1, PWP has adequate electricity transmission capability to meet the needs of its customers through 2030. As such, cumulative impacts with respect to electricity infrastructure would be less than significant.

### 3.2.7.2 Natural Gas

Buildout of the proposed project and additional forecasted growth in the region, including the 67 related projects, would increase natural gas consumption within the SoCalGas service area. As such, there would be a cumulative increase in the demand for natural gas. SoCalGas estimates that 2,697 MMcf per day natural gas would be consumed in Southern California in 2017 (California Gas and Electric Utilities 2014), or 1,009,999,530 Btu. The proposed project would account for 0.0003 percent of the forecasted demand in SoCalGas' planning area within this time period. Although there would be a permanent increase in natural gas consumption, all future projects would be built with energy conservation features required by the CALGreen building

[3] In the General Plan Update, the site is designated as Medium Mixed Use, with a corresponding FAR of 0-2.25 FAR. The proposed project would have a FAR of 1.5, which would be consistent with the General Plan Update land use designation.

code. As such, there would be a net decrease in natural gas consumption when compared to the BAU scenario. As stated in Section 3.2.2.2, future supplies of natural gas are anticipated to be adequate to meet projected future demand.

As stated above, the potential for future growth within the City to result in impacts to energy consumption was recently evaluated in the Pasadena General Plan Initial Study (City of Pasadena 2013). As the proposed project is consistent with the site's General Plan designation and zoning, the analysis of energy impacts in the General Plan Initial Study is representative of cumulative impacts associated with the project. As identified in the General Plan Initial Study, energy usage associated with buildout of the General Plan, which represents the cumulative condition, would be less than significant.

Natural gas infrastructure is typically expanded in response to increasing demand, and system expansion and improvements by SoCalGas occur as needed. It is expected that SoCalGas would continue to expand delivery capacity if necessary to meet demand increases within its service area. Development projects within its service area would also be anticipated to incorporate site-specific infrastructure improvements, as appropriate. As such, cumulative impacts with respect to natural gas infrastructure would be less than significant.

### 3.2.7.3 Transportation Energy

Buildout of the proposed project and additional forecasted growth in the City, including the 67 cumulative projects, would increase demand for transportation fuels. As described in Section 3.2.2.3, California consumed 341,194,000 barrels (14.3 million gallons) of gasoline for transportation in 2013 (EIA undated). With implementation of the proposed project, the incremental increase in the consumption of gasoline citywide would be 72,258 gallons of gasoline, which reflects 0.0005 percent of existing statewide gasoline consumption. Several regulatory measures in California are expected to decrease transportation fuel usage in the future, which would reduce future demand for gasoline. In Pasadena, the City's Green City Action Plan includes a goal to expand public transportation coverage to within ½ kilometer of all City residents, which would also reduce demand for transportation fuels. Petroleum products are global, market-driven commodities. Worldwide oil consumption is projected to increase to 94.1 mb/d by 2017, the anticipated buildout year for the proposed project, and worldwide oil supplies are expected to be 94.3 mb/d in that year. In the long-term, adequate supplies are anticipated well beyond the project buildout date. Although there would be a cumulative increase in the consumption of petroleum-based fuels, because future supplies would be adequate to meet projected demand, cumulative impacts relating to transportation fuels would be less than significant.

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