Section 7 – Energy Conservation

The following discussion and analysis is based on Appendix F of the State CEQA Guidelines, which requires environmental impacts reports (EIRs) to include a discussion of the potential energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The section is also related to the potential impacts to energy consumption, including electricity, natural gas, and gasoline, from implementation of the Proposed Project.

7.1 Setting

Energy sources are classified as non-renewable if they cannot be replenished in a short period of time. Therefore, non-renewable energy resources include fossil fuels. Fossil fuels, which consist of oil, coal, and natural gas and associated byproducts, provide the energy required for the vast majority of motorized vehicles and generation of electricity at power plants. Thus, the discussion of energy conservation most relevant to the Project is focused on Project-generated electricity demand, natural gas demand, and fuel consumption.

7.1.1 Electricity

The City of Riverside (City) is the primary distribution provider for electricity in the City and, as such, operates its own electrical utility, known as the City of Riverside Public Utilities (RPU), which provides service to most of the City, including the Project site (GP 2025, p. PF-23). RPU was established in 1895, has a service area population of 313,975, and operates 98 miles of transmission lines and approximately 1,327 miles of distribution lines. As of 2013-2014 RPU had over 108,358 electrical meter connections and sold over 2,152 million of kilowatt-hours of energy, with a peak power demand of 577.9 megawatts (MG) of electricity (RPU 2013-2014). As of 2015, RPU served 22 percent of its retail sales from renewable energy (15 percent geothermal, 3 percent solar PV, 4 percent wind), 25 percent from coal, 5 percent from nuclear, 3 percent from natural gas, 1 percent from large hydroelectric, and 44 percent from unspecified CAISO system power[1] (2015 RPU CEC PSDP). RPU currently has two major energy projects under development: 1) Magnolia-Plaza Reliability Project entails the relocation of an important energy transmission line and the improvement of the Plaza Substation facility which signifies the closure of the Magnolia Substation and 2) Riverside Transmission Reliability Project includes the construction of a new double-circuit 230 kilovolt (kV) transmission line, a new 230/69 kV electrical substation, and new 69 kV subtransmission lines all of which will provide needed energy resources while improving service reliability for RPU customers. Additionally, RPU recently completed development of the Tequesquite Landfill Solar Project, a 7.5 MW solar power facility on a capped landfill within RPU's distribution service area.

The City and RPU are dedicated to conserving energy generated by fossil fuels and increasing its renewable energy generation (GP 2025, p. OS-2). As of December 31, 2015, 22 percent of

[1] 2015 RPU Power Content Label. Note CAISO system power is primarily comprised of energy from natural gas, renewable and nuclear generation assets.

RPU's supply was generated from renewable energy sources, which include geothermal, wind, and solar power (2015 RPU CEC-RPS ACR). Further, RPU anticipates increasing renewable resources to 31 percent of its supply by 2016 and 42 percent by 2019, in addition to phasing out its reliance on coal-fired plants for electricity supply by 2026. Surpassing a 33 percent Renewable Portfolio Standard (RPS) by 2020 will put RPU in full compliance with all current California renewable energy goals and legislative mandates.

Table 7-A – Electricity Consumption in RPU Service Area (2014) shows the electricity consumption by sector in the City based on the latest data available from the California Energy Commission (CEC).

Table 7-A – Electricity Consumption in RPU Service Area (2014)[a, b]

Agricultural & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Streetlight	Total Usage
35.8	1,073.6	42.7	277.8	12.6	719	23.6	**2,185**

Notes:
[a] California Energy Commission, Energy Consumption Data Management System, *California Energy Consumption Database*, interactive web tool.
[b] all units are million kilowatt-hours

As shown in the table above, RPU produced approximately 2.1 billion kilowatt-hours (kWh) in 2014, of which approximately 277.8 million kWh were consumed by industry and 12.5 million kWh were consumed by mining and construction, those sectors which are relevant to the proposed Project.

7.1.2 Natural Gas

The Southern California Gas Company (SCG) provides natural gas service to the City, including the Project site (GP 2025, p. OS-52). As a public utility, SCG is under the jurisdiction of California Public Utilities Commission (CPUC), but can also be affected by actions of federal regulatory agencies. SCG is the principal distributor of natural gas in Southern California, providing retail and wholesale customers with transportation, exchange and storage services, and also procurement services to most retail core customers (2014 CGR, p. 59). SCG is a gas-only utility and, in addition to serving the residential, commercial, and industrial markets, provides gas for enhanced oil recovery (EOR) and electric generation (EG) customers in Southern California (2014 CGR, p. 59). California's existing gas supply portfolio is regionally diverse and includes supplies from on- and off-shore California sources, southwestern United States supply sources, the Rocky Mountains, and Canada (2014 CGR, p. 10). The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), SCG, San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural gas utilities (CPUC NGC).

Natural gas demand statewide, including volumes not served by utility systems, is expected to grow at a modest rate of 0.2 percent from 2014 to 2035, and demand specific to the core

industrial markets are expected to decline at an annual rate of 0.1 percent, whereas demand in the industrial noncore sector is estimated to decline by 0.25 percent annually as California continues its transition from a manufacturing based to a service based economy (2014 CGR, p. 4). While gas-fired generation will continue to be the technology of choice to meet the ever-growing demand for electric power, overall gas demand for electric generation is expected to grow at a modest 0.2 percent per year for the next 20 years due to more efficient power plants, statewide efforts to minimize greenhouse gas emissions (GHG) through aggressive programs pursuing demand-side reductions, and the acquisition of preferred resources that produce little or no carbon emissions (2014 CGR, p. 4). Gas demand for electric power generation is expected to be moderated by CPUC-mandated goals for electric energy efficiency programs and renewable power, with 33 percent of energy needs met with renewable power by 2020 (2014 CGR, p. 6).

The state's 2006 Global Warming Solutions Act (AB 32), has set aggressive targets for the state to reduce its overall GHG production. As a result, SCG projects gas demand for all of its market sectors to decrease at an annual average rate of approximately 0.33 percent from 2013 to 2035, and be virtually flat for the next 22 years due to modest economic growth, CPUC-mandated energy efficiency standards and programs, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to advanced metering infrastructure (2014 CGR, p. 62). The core industrial market demand in SCG's service area is projected to decrease by 1.9 percent per year from 1.4 billion cubic feet (Bcf) in 2013 to 1.2 Bcf in 2035. This decrease in gas demand results from a slightly lower forecasted growth in industrial production, and the impact of savings from CPUC authorized energy efficiency programs (2014 CGR, p. 111). The gas demand for the retail noncore industrial market was 2.2 Bcf in 2013 and is expected to decline at a an average rate of approximately 1.5 percent per year to under 1.6 Bcf by 2035 (2014 CGR, p. 111). The reduced demand is primarily due to the CPUC authorized energy efficiency programs designed to reduce gas demand (2014 CGR, p. 111).

SCG also implements energy efficiency programs. SCG's conservation and energy efficiency activities are intended to encourage customers to install energy efficient equipment and weatherization measures, and adopt energy saving practices that result in reduced gas usage while still maintaining a comparable level of service (2014 CGR, p. 73). The overall annual energy efficiency cumulative savings goal is to increase the savings from approximately 3 Bcf in 2014 to 42 Bcf by 2035 (2010 CGR, p. 74). This savings goal is based on measures installed under SCG's Energy Efficiency program portfolio (2014 CGR, p. 74).

Natural gas service must be provided in accordance with SCG's policies and extension rules on file with CPUC at the time contractual agreements are made. The viability of natural gas is based on present conditions of gas supply and regulatory policies.

Table 7-B – Natural Gas Consumption in SCG Service Area (2014), shows the natural gas consumption by sector in the City with the latest data available from CEC.

Table 7-B – Natural Gas Consumption in SCG Service Area (2014)[a]

Agricultural & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Total Usage
72.2	844.9	124.9	1,661.9	260.4	2009.9	**4,974**

Notes:
[a] California Energy Commission, Energy Consumption Data Management System, *California Energy Consumption Database*, interactive web tool.
[b] all numbers in million therms

As shown in the table above, SCG produced approximately 4.9 billion therms in 2014, of which approximately 1.6 billion therms were consumed by industry and 260.4 million therms were consumed by mining and construction.

7.1.3 Transportation Fuel

It is common knowledge that fossil fuels are used to create almost all of the United States' transportation fuels. As stated above, energy sources include oil, coal, and natural gas, which are non-renewable resources that formed when prehistoric plants and animals died and were gradually buried by layers of rock; however, fossil fuel industries drill or mine for these energy sources, burn them to produce electricity, or refine them for use as fuel for heating or transportation (USDOE ES). The U.S. and specifically California is defined by the automobile: there are over 26 million automobiles and one million trucks on California roads and highways. Almost half the energy Californians consume is for transportation. In 2010, an estimated 18 billion gallons of gasoline and diesel fuel was consumed in California, resulting in an estimated emission of over 200 million metric tons of GHG equivalence (CEC FTD). Under the low demand case, the CEC estimates that between 2009 and 2030, total annual gasoline consumption in California will fall 4.8 percent to 14.1 billion gallons per year, largely as a result of high fuel prices, efficiency gains, and competing fuel technologies (TEFA, p. 3). Under the high-demand case, the recovering economy and lower relative prices will lead to a gasoline demand growing to 16.9 billion gallons in 2030, which is 14.3 percent above 2009 levels (TEFA, p. 3). Further, when looking at data from the United States Fuel Guide, the number of all alternative-fueled vehicle types has increased in California from 11 to 201 types between 1998 and 2011 (TEFA, p. 194). This growth is particularly pronounced for flex fuel vehicles, which grew from zero models offered to 139 models offered (TEFA, p. 194). Also, it is estimated that approximately 40 to 45 percent of California's alternative transportation fuels are used by transit agencies, for example, between 2000 to 2009, natural gas was the most used alternative fuel due to bus travel accounting for approximately 70 percent natural gas usage, while light rail, streetcar, and trolleys used approximately 27 percent of electricity (TEFA, p. 62). Although the U.S. still depends on oil for fuel for gas-powered vehicles, it important to note this dependency has declined in recent years due to alternative fuels, more efficient cars and trucks, and electric cars and trucks (USDOE ES).

7.2 Related Regulations

7.2.1 Federal Regulations

At the federal level, the United States Department of Transportation (USDOT), the United States Department of Energy (DOE), and the United States Environmental Protection Agency (USEPA) are three agencies with substantial influence over energy policies and programs. Generally, federal agencies influence and regulate 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 improvements. Major federal energy-related laws and plans are discussed below.

Federal Energy Policy and Conservation Act (EPCA)

The Federal Energy Policy and Conservation Act (EPCA) grants specific authority to the President of the U.S. to fulfill obligations of the U.S. under the international energy program; provide for the creation of a Strategic Petroleum Reserve capable of reducing the impact of severe energy supply interruptions; conserve energy supplies through energy conservation programs; provide for improved energy efficiency of motor vehicles, major appliances and other consumer products; provide a means for verification of energy data to assure the reliability of energy data; and to conserve water by improving the water efficiency of certain plumbing products and appliances. Furthermore, the EPCA established fuel economy standards for on-road motor vehicles in the United States. The National Highway Traffic and Safety Administration (NHTSA), which is part of USDOT, is responsible for establishing additional vehicle standards and revising existing standards under the EPCA. The NHTSA has set new fuel economy standards that are estimated to require a combined passenger car and light truck average fuel economy level of 34.1 mpg by 2016 (NHTSA). It should be noted that heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is not determined for each individual vehicle model; instead, compliance is determined on the basis of each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. The Corporate Average Fuel Economy program, administered by USEPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. USEPA calculates a value for each manufacturer, based on city and highway fuel economy test results and vehicles sales. On the basis of the information generated under the program, USDOT is authorized to assess penalties for noncompliance. In the course of over a 30-year history, this regulatory program has resulted in vastly improved fuel economy throughout the United States' vehicle fleet, and also has protected against inefficient, wasteful, and unnecessary use of energy.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility, as well as to address

national and local interests in air quality and energy. The ISTEA contained factors that metropolitan planning organizations were required to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, metropolitan planning organizations adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process for specific projects would then address these policies. Another requirement was to consider the consistency of transportation planning with federal, State, and local energy goals. Through this requirement, energy consumption was expected to become a decision criterion, along with cost and other values that determine the best transportation solution. (DOT)

The Transportation Equity Act for the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) builds upon the initiatives established in the ISTEA legislation discussed previously. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety. (DOT)

7.2.2 State Regulations

At the State level, the CEC and CPUC are two agencies with authority over different aspects of energy. CPUC regulates privately-owned utilities in the energy, rail, telecommunications, and water sectors. CEC collects and analyzes energy-related data, prepares statewide energy policy recommendations and plans, promotes and funds energy efficiency programs, and adopts and enforces appliance and building energy efficiency standards. California is exempt under federal law from setting State fuel economy standards for new on-road motor vehicles. Major State energy-related laws and plans are discussed below.

California Energy Commission (CEC)

The CEC was formed by Assembly Bill (AB) 1575 and is the State's primary energy policy and planning agency. AB 1575, which was adopted in 1975 in response to the oil crisis of the 1970s, also requires EIRs to consider wasteful, inefficient, and unnecessary consumption of energy and was the driving force behind the creation of Appendix F to the *CEQA Guidelines*. CEC was established to address the State's energy challenges, and is responsible for the creation of the State Energy Plan. The State Energy Plan identifies the emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The State Energy Plan recommends that the State assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the fewest environmental and energy costs. The State Energy Plan also identifies a number of strategies, including providing assistance to

public agencies and fleet operators, encouraging urban designs that reduce vehicles miles traveled, and accommodating pedestrian and bicycle access.

California Public Utilities Commission (CPUC)

CPUC regulates investor-owned electric and natural gas utilities operating in the State, including SCG. The CPUC regulates the natural gas rates and natural gas services, including in-State transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering, and billing. CPUC policy on natural gas infrastructure and capacity is to: 1) allow gas utilities to gain better access to new sources of supply, develop a diverse supply portfolio, and have adequate storage capacity for core procurement requirements; 2) ensure adequate, diverse utility natural gas pipeline and storage infrastructure for utilities and consumers; 3) assure delivery of supplies with a high degree of certainty, especially for core customers; 4) minimize transmission constraints; 5) provide access to a diverse portfolio of supplies; 6) reduce the likelihood of price spikes; 7) allow more gas to be stored when prices are low; 8) allow customers to match supplies with requirements; and 9) obtain fair access to utility transmission systems for suppliers and pipelines.

California Energy Code

The California Energy Code (Title 24, Part 6 of the California Code of Regulations (CCR)) was established in 1978 to reduce California's energy consumption. Energy use standards in the code are updated periodically to reduce per-capita energy use and to include new programs, such as the California Renewable Energy Portfolio Standards and the California Solar Initiative. In 2008, the CPUC adopted the state's first "Long-Term Energy Efficiency Strategic Plan" for achieving energy savings in various sectors throughout California. In 2011, the Strategic Plan was updated to include a chapter related to lighting.

Title 24 of the California Code of Regulations

Energy consumption by new buildings in the State is regulated by Title 24 of the California Code of Regulations. These efficiency standards (commonly referred to as Title 24 standards) apply to new construction of both residential and nonresidential buildings and regulate insulation, glazing, lighting, shading, water and space heating systems, as well as parking ratios to promote alternative transportation. The purpose of Title 24, specifically Part 11, known as the 2013 California Green Building Standards (CALGreen) Code, is to encourage sustainable construction practices that reduce negative impacts on the environment through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The CALGreen Code is applicable to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout the State.

According to the CEC, California's building efficiency standards (along with those for energy efficient appliances) have saved more than $74 billion in electricity and $64 billion in natural gas costs since 1975 (CEC NR). Building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards

for new buildings, provided that standards meet or exceed those contained in Title 24. Since Title 24 was adopted after AB 1575, it has generally been accepted throughout the State that compliance with Title 24, along with federal and State regulations, ensures that projects will not result in the inefficient, wasteful, and unnecessary consumption of energy. As with other uniform building codes, Title 24 is designed to provide certainty and uniformity throughout the State while ensuring that the efficient and non-wasteful consumption of energy is carried out through design features.

According to the CEC, reducing energy use is a benefit to all. Building owners save money, Californians have a more secure and healthy economy, the environment is less negatively impacted, and the electrical grid can operate in a more stable State. The 2008 Standards for residential and nonresidential buildings, which became effective July 1, 2014, are expected to reduce the growth in electricity use by 613 gigawatt-hours per year (gWh/y), reduce the electrical peak demand by 195 megawatts, and reduce the growth in gas use by 10.0 million therms per year. The potential effect of these energy savings to air quality may be a net reduction in the emission of nitric oxide by approximately 59 tons per year, sulfur oxides by 2.4 tons per year, carbon monoxide by 41 tons per year and particulate matter less than 2.5 microns in diameter by 10 tons per year. Additionally, the CEC estimates that the implementation of the 2013 Standards may reduce statewide carbon dioxide equivalent emissions by 215 thousand metric tons per year (CEC BEES, p. 7-9).

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (AB 939) was enacted to reduce, recycle, and reuse solid waste generated in the State to the maximum extent feasible. Specifically, AB 939 requires local governments to identify an implementation schedule to divert 50 percent of the total waste stream from landfill disposal by 2000. AB 939 also requires local governments to promote source reduction, recycling, and safe disposal or transformation. Cities and counties are required to maintain the 50 percent diversion specified by AB 939 past 2000. The City met its 2000 waste diversion five years early and achieved a diversion rate of 57 percent in 2002 (CAP 2015, p. APP-A-19).

AB 939 further requires each city to conduct a Solid Waste Generation Study and to prepare a Source Reduction and Recycling Element (SRRE) to describe how it would reach the goals. The SRRE contains programs and policies for fulfillment of the goals of AB 939, including the previously-noted diversion goals and must be updated annually to account for changing market and infrastructure conditions. As projects and programs are implemented, the characteristics of the waste stream, the capacities of the current solid waste disposal facilities, and the operational status of those facilities are upgraded, as appropriate. California local government are required to submit annual reports to the California Department of Resources Recycling and Recovery (CalRecycle) to update it on their progress toward the AB 939 goals, i.e., source reduction, recycling and composting, and environmentally safe land disposal (Public Resources Code Section 40050 *et seq*). To date, implementation of AB 939 has proven to be a successful method of reducing landfill waste in the City.

The City has also adopted solid waste reduction strategies as part of the Riverside Green Action Plan to further advance diversion rates. Solid waste prevention and recycling can help reduce climate change impacts as less solid waste decreases the amount of heat-trapping greenhouse gas emissions linked to everyday trash. The City is committed, through programs like Clean Up Riverside's Environment and Keep Riverside Clean and Beautiful to promote the basic principles of recycle, reduce, reuse. Two goals of the City regarding waste reduction are to implement the AB 341 program to reduce waste, based on the 2007 per capita baseline, by 75 percent by 2020, and to implement educational programs throughout the community to encourage "green" practices (CAP, p. APP-A-20). In the short-term, the City seeks to accomplish related tasks such as increase recycling Citywide by 15 percent by 2012, and develop measures to encourage that a minimum of 90 percent of recoverable waste from all construction sites be recycled throughout the City by 2015, beginning with 40 percent in 2010 and increasing by 10 percent each year thereafter (Riverside Green Action Plan is discussed further below) (CAP 2015, p. B.3-23).

Renewable Portfolio Standard

In 2002, California enacted legislation that requires investor-owned utilities and other electric service providers to procure at least 20 percent of retail electricity supplies from eligible renewable energy sources by 2017 and 33 percent by 2020. Utilities are required to disclose to consumers "accurate, reliable, and simple to understand information on the sources of energy that are being used... " (Public Utilities Code Section 398.1 (b))

7.2.3 Local Regulations

Riverside Green Action Plan

The City is committed to becoming a clean, green, and sustainable community. In 2007, the City Council approved the Sustainable Riverside Policy Statement (SRPS), which was framed by the City's Clean and Green Task Force. The SRPS included a practical emphasis on how the City could implement cleaner, greener, and more sustainable programs. The City's first Green Action Plan, a 38-point plan, identified eight focus areas: Energy, Greenhouse Gas Emissions, Waste Reduction, Urban Design, Urban Nature, Transportation, Water, and Healthy Communities. The Green Action Plan was essentially completed in 2009 and updated in 2012 when the California Department of Conservation chose the City as the first "Emerald City." In all, the Green Action Plan encompasses 19 goals with specific associated tasks. The relevant focus areas and goals to which the Project will beneficially contribute are discussed below.

Energy

Goal 1: Increase the use of non-greenhouse gas emitting energy by 2020 to 50 percent with at least 33 percent coming from renewable sources.

Goal 2: Save 1 percent of communities load annually based on a 2004 baseline, and reduce the City's peak electrical load demand by 10 percent overall.

Waste Reduction

Goal 6: Implement programs to reduce waste, based on the 2007 per capita baseline, by 75 percent by 2020.

Goal 7: Implement educational programs throughout the community to encourage green practices.

Urban Design

Goal 9: Meet the environmentally sensitive goals of the GP 2025 specified in the Mitigation Monitoring Program of the Environmental Impact Report, and the Implementation Plan following the timelines set forth in each.

City of Riverside General Plan 2025 (GP 2025)

The GP 2025 sets forth objectives and policies to promote minimizing the use of energy and instead generating electricity from renewable resources to ensure plentiful future supply and reducing the negative impacts on the environment. Specifically, the Open Space and Conservation Element focuses on conserving, among other items, energy resources. In addition, the Public Facilities and Infrastructure Element addresses energy conservation efforts and policies by the City and RPU. The City's efforts to promote cleaner, green sources of energy can be traced back to the 1970s. Reducing energy usage through efficiency and utilizing renewable sources represents the most environmentally sound and cost-effective way to limit the negative consequences of consuming non-renewable energy resources and to protect the reliability of the electric power grid to ensure that adequate power is available to all residents, businesses, and institutions. The relevant GP 2025 objective and policies, which are intended to conserve energy in the City, are discussed below.

Open Space and Conservation Element (OS)

Objective OS-8: Encourage the efficient use of energy resources by residential and commercial users.

Policy OS-8.1: Support the development and use of non-polluting, renewable energy sources.

Policy OS-8.2: Require incorporation of energy conservation features in the design of all new construction and substantial rehabilitation projects pursuant to Title 24, and encourage the installation of conservation devices in existing developments.

Policy OS-8.3: Encourage private energy conservation programs that minimize high energy demand and that use alternative energy sources.

Policy OS-8.5: Develop landscaping guidelines that support the use of vegetation for shading and wind reduction and otherwise help reduce energy consumption

in new development for compatibility with renewable energy sources (i.e., solar pools.

Policy OS-8.6: Require all new development to incorporate energy-efficient lighting, heating and cooling systems pursuant to the Uniform Building Code and Title 24.

Policy OS-8.9: Encourage construction and subdivision design that allows the use of solar energy systems.

Policy OS-8.10: Support the use of public transportation, bicycling and other alternative transportation modes in order to reduce the consumption of non-renewable energy supplies.

Policy OS-8.11: Support public education programs for City residents and businesses to provide information on energy conservation and on alternative to non-renewable energy sources.

Policy OS-8.12: Require bicycle parking in new non-residential development.

Public Facilities and Infrastructure Element (PF)

Policy PF-6.1: Continue to support the development of green power and expand the use of green power in the City's energy portfolio.

Policy PF-6.3: Promote and encourage energy conservation.

Policy PF-6.4: Encourage energy-efficient development through its site plan and building design standard guidelines.

Policy PF-6.5: Promote green building design.

7.3 Thresholds of Significance

The City has not established local CEQA significance thresholds as described in State *CEQA Guidelines* Section 15064.7. According to *CEQA Guidelines* Appendix F, CEQA "requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3))." Moreover, "[p]otentially significant energy implications of a project shall be considered in an EIR to the extent relevant and applicable to the project."

Pursuant to impact possibilities listed in Appendix F, an impact with regard to energy consumption and conservation will occur if implementation of the proposed Project will:

- Result in the wasteful, inefficient, or unnecessary consumption of energy. Impacts may include:

- 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;
- 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;
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

7.4 Project Design Features

The proposed Project will meet or exceed all applicable standards under California's Green Building Code (CALGreen) and Title 24. This will be accomplished by incorporating, at a minimum, the following sustainability features or other features that are equally efficient:

Energy Efficiency

- Design building shells and components, such as windows, roof systems and electrical systems to meet California Title 24 Standards for nonresidential buildings.
- Design buildings to provide CALGreen Standards with Leadership in Energy and Environmental Design (LEED) features for potential certification. This includes design considerations related to the building envelope, HVAC, lighting, and power systems. Additionally, the architectural expression such as roofs and windows in the buildings will relate to conserving energy.
- Install efficient lighting and lighting control systems. Solar or light-emitting diodes (LEDs) will be installed for outdoor lighting. The site and buildings will be designed to take advantage of daylight, such that use of daylight is an integral part of the lighting systems in buildings. Lighting will incorporate motion sensors that turn them off when not in use.
- Use trees and landscaping on west and south exterior building walls to reduce energy use.
- Install light colored "cool" roofs over office area spaces and cool pavements.
- For future office improvement, install energy efficient heating and cooling systems, appliances and equipment, and control systems that are Energy Star rated.

- For future office improvement, refrigerants and HVAC equipment will be selected to minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming. Ventilation and HVAC systems will be designed to meet or exceed the minimum outdoor air ventilation rates described in the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHREA) standards and/or per California Title 24 requirements.
- For future office improvement, implement design features to increase the efficiency of the building envelope (i.e., the barrier between conditioned and unconditioned spaces). This includes installation of insulation to minimize heat transfer and thermal bridging and to limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption.
- Provide vegetative or human-made exterior wall shading devices or window treatments for east, south, and west-facing walls with windows.
- Incorporate Energy Star rated windows, space heating and cooling equipment, light fixtures, appliances, or other applicable electrical equipment.

Renewable Energy

- Design buildings to have “solar ready” roofs that will structurally accommodate later installation of rooftop solar panels. Building operators providing rooftop solar panels will submit plans for solar panels prior to occupancy.

Water Conservation and Efficiency

- Create water-efficient landscapes in compliance with the City’s Water Efficient Landscape and Irrigation Ordinance 19.570.
- Surface parking lots will be landscaped in accordance with City standards to reduce heat island effect.
- Install water-efficient irrigation systems and devices, such as soil moisture based irrigation controls and sensors for landscaping according to the City’s Water Efficient Landscape and Irrigation Ordinance 19.570.
- Design buildings to be water-efficient. Install water-efficient fixtures and appliances (e.g., EPA WaterSense labeled products).
- Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff.
- Provide education about water conservation and available programs and incentives to the building operators to distribute to employees.

Solid Waste Measures

- Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.
- The property operator will provide readily available information provided by the City for employee education about reducing waste and available recycling services.

Transportation and Motor Vehicles

- Limit idling time for commercial vehicles to no more than five minutes.
- Provide up to three electric vehicle charging facilities to encourage the use of low or zero-emission vehicles.
- Provide bicycle parking per the Cal Green Code Standards including Short-term bicycle parking (Section 5.710.6.2.1) and Long-term bicycle parking (Section 5.710.6.2.2).Designate parking per (Section 5.710.6.3) for 10 or more vehicular parking spaces, for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.2.2of CalGreen Building Code Division 5.1.
- The Building Operator will support and encourage ridesharing and transit for the construction crew.

On-Site Equipment and Loading Docks

- The Project will require building operators (by contract specifications) to turn off equipment, including heavy-duty equipment, motor vehicles, and portable equipment, when not in use for more than 5 minutes. Truck idling shall not exceed 5 minutes in time. All facilities will post signs requiring that trucks shall not be left idling for more than 5 minutes pursuant to Title 13 of the California Code of Regulations, Section 2485, which limits idle times to not more than five minutes.
- Electrical hookups will be installed at all loading docks in order to allow transport refrigeration units (TRUs) with electric standby capabilities to use them. Trucks incapable of utilizing the electrical hookups shall be prohibited from accessing the site as set forth in the lease agreement.
- Service equipment (i.e., forklifts) used within the site shall be electric or compressed natural gas-powered.

Construction

- Require Construction Equipment to turn off when not in use.

- Use locally produced and/or manufactured building materials for at least 10% of the construction materials used for the Project.
- Use "green" building materials where feasible, such as those materials that are resource efficient and recycled and manufactured in an environmentally friendly way.
- During grading, heavy-duty construction equipment (i.e., excavators, graders, scrapers, dozers, tractor/loader/backhoes, etc.) shall be CARB/U.S. Environmental Protection Agency Tier 3 certified.

7.5 Environmental Impacts before Mitigation

Threshold: *Would the Project result in wasteful, inefficient, and unnecessary consumption of energy? Impacts may include:*

- o 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;
- o The effects of the Project on local and regional energy supplies and on requirements for additional capacity;
- o The effects of the Project on peak and base period demands for electricity and other forms of energy;
- o The degree to which the Project complies with existing energy standards;
- o The effects of the Project on energy resources;
- o The Project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

As stated previously, Appendix F of the State CEQA Guidelines provides for assessing potential impacts that a project could have on energy supplies, focusing on the goal of conserving energy by ensuring that projects use energy wisely and efficiently. The analysis below addresses each of these potential energy impacts identified in Appendix F.

- o 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:

Construction

The analysis in this section utilizes the assumptions from *Sycamore Canyon Business Park Warehouse CalEEMod Emissions Estimates, LST Analysis, and Screening HRA* (the AQ Report) evaluated in Section 5.3 Air Quality and Section 5.7 Greenhouse Gas Emissions, respectively (refer to Appendices B and F respectively). Because the California Emissions Estimator Model (CalEEMod) program used in these technical reports does not display the amount and fuel type

for construction-related sources, additional calculations were conducted and are summarized below. These calculations are contained in Appendix L of this DEIR.Project construction would require the use of construction equipment for grading, rock crushing, hauling, stockpiling, and building activities, as well as construction workers and vendors traveling to and from the Project site. Construction equipment requires diesel as the fuel source.

Fuel consumption from on-site heavy-duty construction equipment was calculated based on the equipment mix and usage factors provided in the CalEEMod construction output files as part of the AQ Report included in Appendix B of this DEIR. The total horsepower was then multiplied by fuel usage estimates per horsepower-hour included in Table A9-3-E of the SCAQMD's CEQA Air Quality Handbook. Fuel consumption from construction worker and vendor/delivery trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total vehicle miles traveled (VMT) was then calculated for each type of construction-related trip and divided by the corresponding county-specific miles per gallon factor using California Air Resources Board's (CARB's) EMFAC 2014 model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Consistent with CalEEMod, construction worker trips were assumed to include 50 percent light duty gasoline auto and 50 percent light duty gasoline trucks. Construction vendor trucks were assumed to be medium-duty and heavy-duty diesel trucks. Please refer to Appendix L of the DEIR for detailed calculations.

As shown below in **Table 7-C - Construction Energy Use**, a total of 48,565 gallons of diesel fuel, and 1,107gallons of gasoline is estimated to be consumed during Project construction.

Table 7-C – Construction Energy Use[a]

Fuel	Fuel Consumption
Diesel	
On-Road Construction Trips[b]	533 Gallons
Off-Road Construction Equipment[c]	48,032 Gallons
Diesel Total	**48,565 Gallons**
Gasoline	
On-Road Construction Trips[b]	1,107 Gallons
Off-Road Construction Equipment[d]	-- Gallons
Gasoline Total	**1,107 Gallons**

Notes:

[a] Source: Table 1 – Total Construction-Related Fuel Consumption, Appendix L of DEIR.

[b] On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod for all years of construction and fleet average fuel consumption in gallons per mile from EMFAC2014 for each of the construction years in the SCAQMD. See Table 2 – On Road Construction Trip Estimates, Appendix L of DEIR for calculation details.

[c] Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (HP)-hour, based on SCAQMD CEQA Air Quality Handbook, Table A9-3E.

[d] All emissions from off-road construction equipment were assumed to be

diesel.

Fuel energy consumed during construction would be temporary in nature and would not represent a significant demand on energy resources. The Project also includes design features which encourage ridesharing and transit use for the construction crews and require utilizing cleaner, more efficient off-road equipment by requiring Tier 3 certified equipment during the grading phase. Construction equipment is also required to comply with regulations limiting idling to five minutes or less (CCR Title 13 §2449(d)(3)). Furthermore, there are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the State. For comparison, the State of California consumed 14.70 billion gallons of gasoline and 2.77 billion gallons of diesel fuel in 2014.[2] The fuel usage during Project construction would account for approximately 0.00001 percent of the existing gasoline related energy consumption and 0.002 percent of the existing diesel fuel related energy consumption in the State of California.

Therefore, it is expected that construction-related fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Operation

The Project will promote building energy efficiency through compliance with energy efficiency standards (Title 24 and CALGreen) and the provision of energy efficiency measures that exceed required standards. The Project also reduces vehicle fuel usage due to compliance with regulatory programs and Project design features that reduce VMT. AB 1493 ("the Pavley Standard") requires reduction in GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 and thereafter. Executive Order S-01-07 went into effect in 2010 and requires a reduction in the carbon intensity of transportation fuels used in California by at least 10 percent by 2020. It imposes fuel requirements on fuel that will be sold in California that will decrease GHG emissions by reducing the full fuel-cycle and the carbon intensity of the transportation fuel pool in California. The Advanced Clean Cars program, introduced in 2012, combines the control of smog, soot causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2017 through 2025.

For operational activities, annual electricity and natural gas consumption were calculated using demand factors provided in the CalEEMod output as part of the greenhouse gas analysis included in Section 5.7, Greenhouse Gas Emissions, of this DEIR. The Project's electrical consumption was estimated to be approximately 4,359,450 kWh (approximately 4.36 million kWh) of electricity per year and the natural gas consumptions was estimated to be

[2] *California Board of Equalization, Net Taxable Gasoline Gallons 10 Year Report and Taxable Diesel Gallons of Diesel 10 Year Report*, available at http://planning.lacity.org/eir/5901sunset/deir/files/D_IVJ.pdf and http://www.boe.ca.gov/sptaxprog/reports/Diesel_10_Year_Report.pdf

approximately 2,160,430,000 British thermal units (BTUs) or approximately 21,604 therms. [3] The electricity use associated with the Project water consumption was also estimated to be approximately 361,749 KWh per year[4]. As shown previously in **Table 7-A and Table 7-B**, RPU produced approximately 2,185 million kWh of electricity in 2014 and SCG produced approximately 4.9 billion therms in 2014. At full build-out, the Project's electricity demand would be approximately 0.2 percent of the existing electricity in the City of Riverside and the natural gas demand would be approximately 0.004 percent of the existing natural gas use in SCG's service area.

Energy impacts associated with transportation during operation were also assessed using the traffic data contained in the greenhouse gas analysis included in Section 5.7, Greenhouse Gas Emissions, of this DEIR. Based on the annual VMT, gasoline and diesel consumption rates were calculated using the South Coast Air Quality Management District-specific miles per gallon in EMFAC2014. As shown below in **Table 7-D – Annual Fuel Consumption**, a total of 3,325,249,685 gallons of diesel fuel, and 355,394,340 gallons of gasoline is estimated to be consumed each year.

Table 7-D – Annual Fuel Consumption[a]

Fuel Type[b, c]	Fuel Consumption (gallons/year)
Gasoline	355,394,340
Diesel	3,325,249,685

Notes:

[a] Source: Table 3 - Annual Energy Consumption from Operation, Appendix L of DEIR.

[b] Mobile source fuel use based on annual vehicle miles traveled (VMT) from CalEEMod output (DEIR Appendix B) for operational year 2018 and fleet-average fuel consumption in gallons per mile from EMFAC2014 web based data in the South Coast Air Quality Management District.

[c] Operational VMT for the Project was calculated at 34,580,335,830 miles per year based on the trip generation rate as calculated in the CalEEMod output and the project-specific Traffic Impact Analysis (DEIR Appendix J).

The Project design features related to energy conservation measures and fuel efficiency measures include but are not limited to: "solar ready" roofs, LED lighting, bicycle parking, electric vehicle charging stations, water efficient landscaping, cool roofs, Energy Star rated appliances, windows, and heating and cooling systems, and encouragement of ridesharing and transit usage.

Collectively, compliance with regulatory programs and implementation of these design features would ensure that the Project would not result in the inefficient, unnecessary, or wasteful

[3] 1 therm equals 100 kBTU.

[4] Per Table 3 – Annual Energy Consumption from Operation, Appendix L of the DEIR.

consumption of energy. This DEIR also evaluated alternatives to the proposed project that reduce operational related energy use by reducing the amount and type of development constructed (see Section 8.0, Alternatives to the Proposed Project, of this DEIR).

- The effects of the Project on local and regional energy supplies and on requirements for additional capacity:

As addressed above, the Project's electrical consumption was minimal in-comparison to RPU's supply. The Project will comply with applicable state, RPU, and City General Plan policies that require energy conservation to reduce electrical demand within the Project site. As discussed above, RPU's total electrical consumption was approximately 2,185 million kWh in 2014. The Project demand would be approximately 0.2 percent of RPU's existing electricity use. As such, there will be adequate capacity to serve the proposed project.

As addressed in above, the Project's natural gas consumption was estimated to be approximately 21,604 therms. The Project will comply with applicable CPUC, state, SCGC, and City policies and standards that require energy conservation to reduce natural gas demand within the Project area. As discussed above, the Project demand would be approximately 0.004 percent of SCG's existing natural gas use. As the proposed Project's overall consumption of natural gas use is comparatively insignificant to existing SCG-wide use and as SCG continuously expands its network, as needed, to meet the need in Southern California, there will be adequate capacity to serve the proposed Project. Further, towards this same end, it should also be noted that SCG projects total gas demand to decline at an annual rate of 0.33 percent from 2013 to 2035 as a result of modest economic growth, CPUC-mandated energy efficiency standards and programs, renewable electricity goals, decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure (2010 CGR, p. 62).

The Project would therefore not have a significant effect on local and regional energy supplies.

- The effects of the Project on peak and base period demands for electricity and other forms of energy:

As described above, RPU produced approximately 2,185 million kWh of electricity in 2014, and the Project is expected to produce 0.2 percent of RPU's total electricity usage. Therefore, it can be stated that the Project will not have a substantial effect on energy supplies. The Project will meet regulatory standards (Title 24) and incorporate Project design features such as incorporating Energy Star rated windows, space heating and cooling equipment, light fixtures, appliances, and other electrical equipment that will result in energy efficient buildings. With regard to peak hour demands, purveyors of energy resources, including RPU, have established long standing energy conservation programs to encourage consumers to adopt energy conservation habits and reduce energy consumption during peak demand periods. The proposed Project supports these efforts and includes a number of Project design features that will not only reduce energy consumption during peak hour demands, but also during the base

period. To this end, the Project will not substantially affect peak and base period demands for electricity or other forms of energy, such as natural gas.

- The degree to which the Project complies with existing energy standards:

The proposed Project would be required to comply with City, state and federal energy conservation measures related to construction and operations. Many of the regulations regarding energy efficiency are focused on increasing building efficiency and renewable energy generation, promoting sustainability through energy conservation measures, as well as reducing water consumption and VMT. As described above in Section 7.4, the proposed Project includes energy conservation design features to meet and/or exceed these regulatory requirements.

The California Energy Code building energy efficiency standards include provisions applicable to all buildings, residential and non-residential, which are mandatory requirements for efficiency and design. The proposed Project will comply with Title 24. This would be accomplished through among other things, implementation of energy reduction measures, such as energy efficient lighting and appliances. The Project would comply fully with existing energy standards.

In addition, the Project will be consistent with applicable goals and polices within the General Plan and the Riverside Green Action Plan. Through implementation of energy conservation measures and sustainable practices, the Project will not use large amounts of energy in a manner that is wasteful or otherwise inconsistent with adopted plans or policies.

- The effects of the Project on energy resources:

The effects of the Project on energy supplies and resources from a capacity standpoint are described above in the preceding analysis. In regards to the effects of the Project on energy resources, the Project incorporates a number of design features to ensure that the Project does not result in the inefficient, unnecessary, or wasteful consumption of energy. Notable design features include the following:

- Incorporate Energy Star rated windows, space heating and cooling equipment, light fixtures, appliances, or other applicable electrical equipment.
- Design building to have solar ready roofs that will structurally accommodate later installation of rooftop solar panels.
- Provide up to three electric vehicle charging facilities to encourage the use of low or zero-emission vehicles.
- Install efficient lighting and lighting control systems. Solar or light-emitting diodes (LEDs) will be installed for outdoor lighting. The site and buildings will be designed to take advantage of daylight, such that use of daylight is an integral part of the lighting

systems in buildings. Lighting will incorporate motion sensors that turn them off when not in use.

- Use trees and landscaping on west and south exterior building walls to reduce energy use.

These design features described above are intended to reduce the effects of the Project on energy resources. In this way, the Project would not result in the inefficient, unnecessary, or wasteful consumption of energy.

o The Project's projected transportation energy use requirements and its overall use of efficient transportation alternatives:

As stated above, energy impacts associated with transportation during construction and operation of the Project would not result in the inefficient, unnecessary, or wasteful consumption of energy. Further with regard to transportation alternatives, a focus of the Project is to support alternative transportation choices by coordinating the facility location in close proximity to RTA's bus 208 which connects commuters to the Riverside Downtown Metrolink. In addition, the Project provides bike racks and electric vehicle charging facilities to further encourage a variety of transportation choices. Specific design features incorporated in the Project include:

- Provide up to three electric vehicle charging facilities to encourage the use of low or zero-emission vehicles.

- Provide bicycle parking per the Cal Green Code Standards including both short-term and long-term bicycle parking.

- Designate parking per for 10 of more vehicular parking spaces, for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles.

- The Building Operator will support and encourage ridesharing and transit for the construction crew.

Further the Project will provide access to a fully improved trail that will be located in an easement along the southern perimeter of Parcel 1, and several areas that will allow bicycle use. The above design features will provide the Project with options for non-vehicular circulation which will reduce car trips. Therefore, the Project promotes efficient alternative transportation choices.

7.6 Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures that could minimize significant adverse impacts (State *CEQA Guidelines* Section 15126.4). Development of the proposed Project with incorporation of the energy efficient and conserving

features discussed previously under Section 7.4 – Project Design Features will not result in wasteful or inefficient and unnecessary consumption of energy. Therefore, no mitigation measures are necessary.

7.7 Environmental Impacts after Mitigation Measures are Implemented

Implementation of the proposed Project with incorporation of the Project design features discussed previously under Section 7.4, will not result in wasteful or inefficient and unnecessary consumption of energy.

7.8 References

In addition to other documents, the following references were used in the preparation of this section of the DEIR:

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2015 RPU CEC-RPS ACR	City of Riverside, Riverside Public Utilities, *Riverside Public Utilities CEC-RPS Annual Compliance Report for Calendar Year 2015*, 2016. (Available at the City of Riverside.)
2015 RPU CEC PSDP	City of Riverside, Riverside Public Utilities, *Proposes Annual Report to the California Energy Commission, Power Source Disclosure Program for Year ending: 12/31/2015*, June 2016. (Available at the City of Riverside.)
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CEC ECDMS(a) California Energy Commission, Energy Consumption Data Management System, *California Energy Consumption Database, Electricity Consumption by Entity*, interactive web tool. (Available at http://www.ecdms.energy.ca.gov/elecbyutil.aspx, accessed June 22, 2016.)

CEC ECDMS(b) California Energy Commission, Energy Consumption Data Management System, *California Energy Consumption Database, Natural Gas Consumption by Entity*, interactive web tool. (Available at http://www.ecdms.energy.ca.gov/gasbyutil.aspx, accessed June 22, 2016.)

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CEC NR California Energy Commission, News Release, California Energy Commission Statement Regarding Multi-State Agreement with Energy Department to Advance Delayed Energy Efficiency Standards, webpage. (Available at http://www.energy.ca.gov/releases/2013_releases/2013-08-09_commission_statement_on_multi-state_agreement_nr.html, accessed July 18, 2016.)

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