4.14 ENERGY

This section discusses the energy setting and impacts associated with the proposed project.

4.14.1 EXISTING SETTING

Energy use is a component of everyday life and its efficient use has become more important over the past several years as energy supplies have diminished and prices have increased. In addition to its economic costs, energy production and consumption can have direct and indirect environmental impacts. As examples, impacts can include loss of sensitive resources from energy excavation (e.g., coal mining), air quality degradation from energy combustion, and water pollution from energy generation (e.g., thermal pollution). However, energy use is a common necessity and will continue to be so into the future.

Energy use within the City of Rocklin is generally confined to the use of fossil fuels (e.g., natural gas, gasoline, etc.) and electricity (which can be generated from a large variety of sources including fossil fuels). Commercial and residential customers in Rocklin are served by Pacific Gas and Electric Company (PG&E) for electricity and natural gas.

Pacific Gas and Electric Company

- *Electricity.* PG&E provides electricity to all or part of 47 counties in California, comprising most of the northern and central portions of the State. PG&E obtains 40 percent of electricity from its own generation sources and the remaining 60 percent from outside sources. PG&E's owned-generating capacity includes nuclear, fossil fuel-fired, and hydroelectric facilities. Outside suppliers to PG&E include the State Department of Water Resources, irrigation districts, renewable energy suppliers, and other fossil fuel-fired suppliers. PG&E operates approximately 158,700 circuit miles of transmission and distribution lines. PG&E is interconnected with electric power systems in the Western Electricity Coordinating Council, which includes 14 western states, Alberta and British Columbia, Canada, and parts of Mexico.

In 2006, PG&E delivered 84,310 gigawatt hours of electricity to its customers. Commercial customers accounted for the largest segment of demand, with 40 percent of the total.

- *Natural Gas.* PG&E provides natural gas to all or part of 38 counties in California, comprising most of the northern and central portions of the State. PG&E obtains approximately 62 percent of its natural gas supplies from western Canada, 32 percent from the southwestern United States, and the balance from in-state sources. PG&E operates approximately 47,000 miles of transmission and distribution pipelines.

In 2006, PG&E delivered 836 billion cubic feet (Bcf) of natural gas to its customers. Commercial customers accounted for 12 percent of the total.

4.14.2 REGULATORY SETTING

TITLE 24

Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was promulgated by the California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, provides energy efficiency standards for residential and nonresidential buildings. In 2005, the CEC updated the Title 24 standards with more stringent requirements. All projects pursuing building permits after October 2005 must adhere to the new 2005 standards. The 2005 Standards (for residential and nonresidential buildings) are expected to reduce the growth in electricity use by 478 gigawatt-hours per year (GWh/y) and reduce the growth in natural gas use by 8.8 million therms per year (therms/y). The savings attributable to new nonresidential buildings are 163.2 GWh/y of electricity savings and

0.5 million therms. Additional savings result from the application of the Standards on building alterations. In particular, requirements for cool roofs, lighting, and air distribution ducts are expected to save about 175 GWh/y of electricity. These savings are cumulative, doubling in two years, tripling in three, etc.

The 2005 Energy Efficiency Standards include the following measures:

- **Time Dependent Variation (TDV).** Source energy was replaced with TDV energy. TDV energy values energy savings greater during periods of likely peak demand, such as hot summer weekday afternoons, and values energy saving less during off-peak hours. TDV gives more credit to measures such as daylighting and thermal energy storage that are more effective during peak periods.

- **New Federal Standards.** Coincident with the 2005 Standards, new standards for water heaters and air conditioners took effect. These changes affect all residential buildings, but they also affect many nonresidential buildings that use water heaters and/or "residential size" air conditioners.

- **New Lighting in Historic Buildings.** The exception to the Standards requirements for historic buildings has changed relative to lighting requirements so that only those historic or historic replica components are exempt.

- **Cool Roofs**. The nonresidential prescriptive standards require "cool roofs" (high-reflectance, high-emittance roof surfaces, or exceptionally high reflectance and low-emittance surfaces) in all low-slope applications. The cool roof requirements also apply to roof replacements for existing buildings.

- **Acceptance Requirements.** Basic "building commissioning," at least on a component basis, is required for electrical and mechanical equipment that is prone to improper installation.

- **Demand Control Ventilation.** Controls that measure carbon dioxide concentrations and vary outside air ventilation are required for spaces such as conference rooms, dining rooms, lounges, and gyms.

- **T-bar Ceilings.** Placing insulation directly over suspended ceilings is not permitted as a means of compliance, except for limited applications.

- **Relocatable Public School Buildings.** Special compliance approaches are added for relocatables so they can be moved anywhere statewide.

- **Duct Efficiency.** R-8 duct insulation and duct sealing with field verification is required for ducts in unconditioned spaces in new buildings. Duct sealing is also required in existing buildings when the air conditioner is replaced. Performance method may be used to substitute a high-efficiency air conditioner in lieu of duct sealing.

- **Indoor Lighting.** The lighting power limits for indoor lighting are reduced in response to advances in lighting technology.

- **Skylights for Daylighting in Buildings.** The prescriptive standards require that skylights with controls to shut off the electric lights are required for the top story of large, open spaces (spaces larger than 25,000 square feet with ceilings higher than 15 feet).

- **Thermal Breaks for Metal Building Roofs.** Continuous insulation or thermal blocks at the supports are required for metal building roofs.

- **Efficient Space Conditioning Systems.** A number of measures are required that improve the efficiency of heating, ventilation and air conditioning (HVAC) systems, including variable-speed drives for fan and pump

motors greater than 10 hp, electronically commutated motors for series fan boxes, better controls, efficient cooling towers, and water cooled chillers for large systems.

- **Unconditioned Buildings.** New lighting standards – lighting controls and power limits – apply to unconditioned buildings, including warehouses and parking garages. Lighting power tradeoffs are not permitted between conditioned and unconditioned spaces.

- **Compliance Credits.** Procedures are added for gas cooling, underfloor ventilation.

- **Lighting Power Limits.** The Standards set limits on the power than can be used for outdoor lighting applications, such as parking lots, driveways, pedestrian areas, sales canopies, and car lots. The limits vary by lighting zones or ambient lighting levels. Lighting power tradeoffs are not permitted between outdoor lighting and indoor lighting.

- **Shielding.** Luminaires in hardscape areas larger than 175 W are required to be cutoff luminaries, which will save energy by reducing glare.

- **Bi-level Controls.** In some areas, outdoor lighting controls are required, including the capability to reduce lighting levels to 50 percent.

- **Lighting Power Limits.** Lighting power limits (or alternative equipment efficiency requirements) apply to externally and internally illuminated signs used either indoors or outdoors.

The proposed project's structures would incorporate the applicable 2005 Title 24 standards listed above. In addition, the Wal-Mart Supercenter would contain a number of energy efficiency measures that are above and beyond 2005 Title 24 standards. These measures are discussed below under Impact 4.5-1.

CEQA

Public Resources Code Section 21100(b)(3) and CEQA Guidelines Section 15126.4(a)(1) require EIRs to describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy. Appendix F of the State CEQA Guidelines provides advisory direction regarding the analysis of energy impacts by stating that potentially significant energy implications of a project should be considered in an EIR, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. Appendix F suggests that the EIR evaluate the energy consuming equipment and process that would be used during project construction and operation, the total energy requirements of the project, energy conservation equipment and design features, and the total estimated daily trips to be generated by the project.

CITY OF ROCKLIN GENERAL PLAN

The following policy from the Open Space, Conservation and Recreation Element of the City General Plan (1991) is applicable to the proposed project:

- **Policy 5:** To encourage energy conservation in new developments.

4.14.3 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The examination of energy conditions in this section is based on a review of the anticipated energy uses associated with the proposed project and the effects of these uses on national energy supplies. A discussion of the

specific energy infrastructure (i.e., electrical power lines and natural gas line) that would be required to meet the site's energy demands is included in Section 4.6, Utilities and Public Services.

THRESHOLDS OF SIGNIFICANCE

An energy impact is considered significant if the proposed project would:

- cause the inefficient, wasteful and unnecessary consumption of energy.

IMPACTS AND MITIGATION MEASURES

IMPACT 4.14-1 Increased Energy Demand. *Project implementation would increase energy demand during both construction and operation of the proposed project. Construction and operation of the proposed buildings on the site would be required to comply with the energy efficiency standards included in Title 24 and with air quality mitigation measures identified in Section 4.3, Air Quality (Mitigation Measure 4.3-2) that would effectively reduce the project's energy demands. Therefore, the project would not be expected to cause the inefficient, wasteful or unnecessary consumption of energy. This impact is considered* ***less than significant****.*

Project implementation would increase the consumption of energy within the City of Rocklin for the duration of the project's construction and operation. The primary energy demands during construction would be associated with construction vehicle fueling over the approximately two-year construction period. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on the site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site. Following construction, the primary energy demand on the project site would be associated with building heating and cooling requirements. Energy would also be used to move materials within individual stores (e.g., fork lifts within Home Depot), to provide heating and refrigeration in grocery store and restaurant applications, to deliver water to the site, to provide hot water to meet restroom and food preparation requirements, to meet the site's lighting requirements, and to meet other miscellaneous energy requirements of the individual buildings.

Construction and operation of the proposed buildings on the site would be required to comply with the energy efficiency standards included in Title 24 of the California Code of Regulations. Title 24 identifies specific energy efficiency requirements for building construction and systems operations that are intended to ensure efficient energy usage over the long-term life of the building. Large retailers have responded to these requirements and the rising cost of energy by increasing the energy efficiency of their retail establishments. Wal-Mart in particular includes a variety of energy efficient design components in its stores including the following:

- Daylighting (skylights/dimming) - This system automatically and continuously dims all of the lights within the store as the daylight contribution through skylights increases.
- Night Dimming - Lighting is dimmed to approximately 65% of typical evening illumination during the late night hours.
- Energy Efficient HVAC Units - Super high efficiency packaged heating and air conditioning units with an energy efficiency rating of 10.8 to 13.2.
- Central Energy Management - Stores are equipped with energy management systems, which are monitored and controlled from the Home Office in Bentonville.
- Water Heating - Waste heat is captured from the refrigeration equipment to heat water for the kitchen preparation areas of the store.
- White Roofs - White membrane roofing is used in order to increase solar reflectivity and lower cooling loads.

- Interior Lighting Program - All new stores use efficient T-8 fluorescent lamps and electronic ballasts.
- LED Signage Illumination - LED lighting is used in internally illuminated building signage due to its higher efficiency when compared to fluorescent lighting.
- Water-conserving Fixtures - Restroom sinks use sensor-activated low flow faucets.

Home Depot also includes energy efficient design components in its operations. Home Depot has an Energy Management System for all its main overhead building lighting and HVAC equipment. The system includes a dedicated controller that is connected to a central monitoring station in Atlanta that controls the lighting and HVAC systems to ensure they are operating efficiently and are turned off when they are not needed. A component of this system includes an integrated skylight/photo cell system with photo cells mounted to the outside of the building that measure ambient light levels. Based on these measurements, the Energy Management System can automatically adjust internal lighting levels relative to the amount of light coming through rooftop skylights.

Part of this system also includes carbon dioxide sensor controls that automatically close rooftop flutes to allow for greater re-circulation of already cooled (or heated) air. The flutes automatically re-open when carbon dioxide sensors indicate that more ventilation is necessary. Energy usage is reduced by maximizing the amount of already cooled (or heated) inside air that can be re-circulated rather than having to cool (or heat) new air from outside. In addition, Home Depot uses highly energy efficient rooftop HVAC units and T-5 Fluorescent lighting systems in their stores.

The compliance with the energy efficiency standards included in Title 24 in the construction and operation of the proposed buildings on the site and the implementation of the energy efficient design and operational components by the larger building tenants would help ensure that energy is efficiently used at the project site. Therefore, the proposed site construction and operations would not be expected to cause the inefficient, wasteful or unnecessary consumption of energy.

Energy would also be used both on and off of the project site in vehicles delivering materials or providing services to the site, and store employees and patrons commuting to and from the site. As indicated in Section 4.2, Traffic and Circulation, the proposed project is forecast to generate 18,788 daily vehicle trips during its operations. Mitigation measures have been identified in Section 4.3, Air Quality (Mitigation Measure 4.3-2), that are intended to minimize air quality impacts associated with the project's vehicle trip generation. In addition to reducing the project's air quality impacts, these measures would also reduce the project's overall energy consumption. Therefore, the generation of vehicle trips at the project site would not be expected to cause the inefficient, wasteful or unnecessary consumption of energy. This impact is considered **less than significant**.

Mitigation Measure 4-14.1 Increased Energy Demand.

No mitigation measures are necessary.

Level of Significance After Mitigation

The demand for energy associated with project construction and operations would not cause the inefficient, wasteful and unnecessary consumption of energy. Therefore, the project's energy impacts would be considered less than significant.