

## 4.13 ENERGY

This section of the EIR includes a summary of applicable energy regulations, a description of existing electricity and natural gas service providers to the planning area, and an analysis of impacts to energy resources that would occur with adoption and implementation of the Draft General Plan and GGRP.

### 4.13.1 REGULATORY SETTING

State, and federal agencies, as well as energy suppliers, routinely conduct programs to make the public aware of the need for energy conservation and sustainability. The increased and growing demands for non-renewable energy supplies are best addressed through conservation according to these programs and their requirements. Some federal and state law, regulations, agency functions are not represented here as they are not relevant to the Citrus Heights planning area (for example, regulation of nuclear energy facilities).

#### FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

##### U.S. Congress

##### *National Energy Act*

The National Energy Act of 1978 was a legislative response by the U.S. Congress to the 1973 energy crisis. It includes the following statutes:

- ▶ Public Utility Regulatory Policies Act (PURPA) (Public Law 95-617)
- ▶ Energy Tax Act (Public Law 95-318)
- ▶ National Energy Conservation Policy Act (NECPA) (Public Law 95-619)
- ▶ Power Plant and Industrial Fuel Use Act (Public Law 95-620)
- ▶ Natural Gas Policy Act (Public Law 95-621)

Some of the more important legislative acts are briefly summarized below.

##### *Public Utility Regulatory Policies Act*

The Public Utility Regulatory Policies Act (PURPA) was passed by Congress in 1978 as part of the National Energy Act to promote greater use of renewable energy. This law created a market for nonutility electric power producers to permit independent power producers to connect to their lines and to pay for the electricity that was delivered.

##### *Energy Tax Act*

The Energy Tax Act (Public Law 95-318) was also passed by Congress in 1978 as part of the National Energy Act. It was a response to the 1973 oil crisis and promoted fuel efficiency and renewable energy through taxes and tax credits.

##### *National Energy Conservation Policy Act*

The National Energy Conservation Policy Act (NECPA [Public Law 95-619]) was signed into law in 1978 as part of the National Energy Act. NECPA requires utilities to provide residential consumers with energy conservation audits and other services to encourage slower growth of electricity demand. NECPA was amended in 1985 by the Energy Policy and Conservation Act Amendments of 1985 (Public Law 99-58).

## **U.S. Department of Energy**

### ***Federal Energy Management Program***

The U.S. Department of Energy's Federal Energy Management Program works to reduce the cost and environmental impact of the federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites.

### ***Energy Policy Act***

The Energy Policy Act of 1992, executive orders, and presidential directives require federal agencies to meet a number of energy and water management goals, among other requirements. For example, federal agencies are called upon to reduce their energy use by 35% by 2010 in comparison to 1985 levels. The Energy Policy Act of 2005 (U.S. House of Representatives HR 6), was signed into law on August 8, 2005, reestablishing a number of federal agency goals and amending portions of NECPA.

### **Federal Energy Regulatory Commission**

The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines as well as licensing hydropower projects. The Energy Policy Act of 2005 gave FERC additional responsibilities as outlined in FERC's Top Initiatives and updated Strategic Plan. As part of that responsibility, FERC:

- ▶ Regulates the transmission and wholesale sales of electricity in interstate commerce;
- ▶ Reviews certain mergers and acquisitions and corporate transactions by electricity companies;
- ▶ Regulates the transmission and sale of natural gas for resale in interstate commerce;
- ▶ Regulates the transportation of oil by pipeline in interstate commerce;
- ▶ Approves the siting and abandonment of interstate natural gas pipelines and storage facilities;
- ▶ Reviews the siting application for electric transmission projects under limited circumstances;
- ▶ Ensures the safe operation and reliability of proposed and operating LNG terminals;
- ▶ Licenses and inspects private, municipal, and state hydroelectric projects;
- ▶ Protects the reliability of the high voltage interstate transmission system through mandatory reliability standards;
- ▶ Monitors and investigates energy markets;
- ▶ Enforces FERC regulatory requirements through imposition of civil penalties and other means;
- ▶ Oversees environmental matters related to natural gas and hydroelectricity projects and other matters; and
- ▶ Administers accounting and financial reporting regulations and conduct of regulated companies.

FERC does not regulate energy sales to consumers, approve the construction of energy generating facilities, regulate municipal power systems, oversee the construction of oil pipelines or pipeline safety, or regulate other in-state energy system activities within the purview of state public utility commissions (see California Public Utility Commission below).

## **STATE PLANS, POLICIES, REGULATIONS, AND LAWS**

### **State CEQA Guidelines**

Appendix F, Energy Conservation, of the CEQA Guidelines describes the energy conservation information and analyses to be included in an EIR. This includes a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of natural gas and oil. Appendix F of the Guidelines provides the basis for the thresholds used for determining the

significance of impacts in this EIR. For a list of specific issues that will be addressed in this analysis, please refer to the Thresholds of Significance, listed later in this document.

### **California Public Utilities Commission**

The California Public Utilities Commission (CPUC) Decision 95-08-038 contains the rules for the planning and construction of new transmission facilities, distribution facilities, and substations. The decision requires permits for the construction of certain power line facilities or substations if the voltages would exceed 50 kV or the substation would require the acquisition of land or an increase in voltage rating above 50 kV. Distribution lines and substations with voltages less than 50 kV need not comply with this decision; however, the utility must obtain any nondiscretionary local permits required for the construction and operation of these projects. CEQA compliance is required for construction of facilities constructed in accordance with the decision.

### **California Energy Commission**

In 2003 and 2005, the California Energy Commission (CEC) approved the State Energy Plan, which was to ensure that adequate, reliable, and reasonably-priced electrical power and natural gas supplies are achieved and provided through policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. Since that time the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, such that the CEC now considers the State Energy Plan defunct. However, in addition to the goals of AB 32, the Energy Commission's 2008 Integrated Energy Policy Report (IEPR) advanced policies that would enable the state to meet its energy needs in a carbon-constrained world (CEC 2010c). The report also provides a comprehensive set of recommended actions to achieve these policies.

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

The Warren-Alquist Energy Resources Conservation and Development Act (Government Code section 25000 et seq.) requires the CEC to regulate energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption.

### ***Title 24, California Code of Regulations, Energy Efficiency Standards***

Title 24 energy standards, the energy efficiency standards for residential and nonresidential buildings, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

The CEC has adopted changes to the Building Energy Efficiency Standards, to accomplish the following:

- ▶ to respond to California's energy crisis to reduce energy bills, increase energy delivery system reliability, and contribute to an improved economic condition for the state;
- ▶ to respond to the AB 970 (Statutes of 2000) urgency legislation to adopt and implement updated and cost-effective building energy efficiency standards;
- ▶ to respond to various statutes of 2001, which included urgency legislation to adopt energy efficiency building standards for outdoor lighting; and
- ▶ to emphasize energy efficiency measures that save energy at peak periods and seasons, improve the quality of installation of energy efficiency measures, incorporate recent publicly funded building science research, and collaborate with California utilities to incorporate results of appropriate market incentives programs for specific technologies.

In addition, the 2010 California Green Building Standards Code, or CALGreen Code (California Code of Regulations, Title 24, Part 11), requires buildings to reduce energy and water consumption by 15% and 20%, respectively, as well as reduce landscape water consumption by 50%. The code contains mandatory and voluntary measures for site planning and design, energy efficiency, water efficiency and conservation, materials conservation, resource use efficiency, and environmental quality.

### **State of California Energy Plan**

The CEC identifies emerging trends in energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy in the State Energy Plan. The plan calls upon the state to reduce congestion and increase the efficient use of fuel supplies. The plan also encourages urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

### **Global Warming Solutions Act**

The California Global Warming Solutions Act of 2006 (Chapter 488, Statutes of 2006) enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in greenhouse gas (GHG) emissions and a cap on statewide GHG emissions. The mechanisms for reducing GHG emissions will relate to the generation and efficient use of energy. AB 32 requires reduction of statewide GHG emissions to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012.

In 2008, the California Air Resources Board (ARB) adopted the *Climate Change Scoping Plan*, which is the State’s plan to achieve GHG reductions in California required by AB 32. The Proposed Scoping Plan contains the main strategies California will implement to achieve GHG reductions consistent with AB 32. The largest proposed GHG reductions are recommended from improving emission standards for light-duty vehicles, implementation of the Low-Carbon Fuel Standard, energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems, and a renewable portfolio standard for electricity production.

### **California Power Authority**

The California Power Authority provides taxable municipal bond financing for the construction of new generation projects to meet the state’s energy needs and to maintain healthy electricity reserves. The California Power Authority is authorized to issue up to \$5 billion in revenue bond financing for renewable, peaking, and base load generation projects, as well as conservation and energy efficiency measures.

### **Renewable Portfolio Standard**

California’s Renewable Portfolio Standard (RPS), established in 2002 by Senate Bill (SB) 1078 (Sher, Chapter 516, Statutes of 2002), originally required retail electricity providers to procure at least 1% of their electricity supplies from renewable resources to achieve a 20% renewable mix by no later than 2017. Since then, the CEC, the CPUC, and the California Power Authority approved the first Energy Action Plan (EAP) in 2003, which accelerated the 20% target date to 2010. A second EAP was adopted in 2005, which provided updates in energy policy. SB 107 (Smitian and Perata, Chapter 464, Statutes of 2006) adopted the revised 2010 target date into law. A third EAP update was adopted in 2008, which “examines the state’s ongoing actions in the context of global climate change” (CEC 2009). Executive Order S-14-08 (2008) expands the state’s Renewable Energy Standard to 33% renewable power by 2020 and streamlines the processes for future renewable energy projects, especially those 50 MW or greater.

## **SB 375 (Transportation Planning, Sustainable Communities, and Environmental Review)**

Senate Bill 375 (SB 375), signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) such as the Southern California Council of Governments (SCAG) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS), as defined, in their upcoming, updated regional transportation plans (RTPs) for the purpose of reducing greenhouse gas emissions. SB 375 also aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies. ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as transit priority projects.

## **REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS**

### **Sacramento Metropolitan Utility District**

Sacramento Municipal Utility District (SMUD) generates, transmits, and distributes electric power to a 900-square-mile territory in Sacramento County, including the City of Citrus Heights, and a small portion of Placer County. SMUD serves a population of 589,599 customers (522,228 residential and 67,361 commercial) with 2,226 employees, 473 miles of transmission lines (110 kilovolts [kV] or more), and 9,784 miles of distribution lines (typically 12 kV) (SMUD 2007, 2008). In 2007, SMUD generated approximately 10,917 million kilowatt (kW) hours of electricity within its service area (California Energy Commission [CEC] 2008).

### **4.13.2 ENVIRONMENTAL SETTING**

#### **ELECTRICITY**

SMUD provides electrical service to the planning area. SMUD generates, transmits, and distributes electric power to a 900-square-mile service area that includes Sacramento County and a small portion of Placer County. SMUD receives its electricity from diverse and competitively priced resources, including hydro generation; cogeneration plants; advanced and renewable technologies such as wind, solar and biomass/landfill gas power; and power purchased on the wholesale market. SMUD built the first phase of the 500-megawatt, gas-fired Cosumnes Power Plant, which came on line in 2006 and provides enough power to meet the annual needs of 450,000 single-family homes. SMUD's Upper American River Project (UARP), which consists of 11 reservoirs and eight powerhouses, generates enough electricity to meet nearly 15% of SMUD's customer demand. In a normal water year, the UARP provides roughly 1.8 billion kilowatt-hours of electricity, which is enough energy to power approximately 180,000 homes. The operation and maintenance of the many UARP project facilities are regulated under a license granted to SMUD by the FERC. SMUD was granted an extension in 2007 to continue UARP operations while the relicensing process moves forward.

In the planning area, SMUD's primary high-voltage transmission lines and easements run diagonally from northeast (near Wachtel Way and Olivine Avenue) to southwest (near Madison Avenue and San Juan Avenue). A

SMUD bulk power substation is located on the east side of Citrus Heights, near the intersection of Sunrise Boulevard and Greenback Lane.

Citrus Heights per capita electricity was approximately 5,720 kWh in 2005 (Sacramento County 2009), compared to approximately 7,913 kWh countywide for Sacramento County in 2008 (CEC 2010a).

## **Electricity Supply**

Based on recent energy supply and demand projections in California, statewide annual peak demand is projected to grow on average 890 megawatts (MW) per year for the next 10 years, or 1.4% annually, while per capita consumption is expected to remain relatively constant at 7,200–7,800 kWh per person (CEC 2007: 2). The CEC indicates that power providers, including SMUD, have an available supply of approximately 351,568 gigawatt-hours (GWh) of power to meet a projected statewide demand of about 325,221 GWh in 2018. In the SMUD planning area, the CEC projects annual consumption of 11,174 GWh in 2008, increasing to 12,555 GWh in 2016, a growth rate of 1.5% (CEC 2007: 148).

The CEC is currently considering applications for the development of new power-generating facilities throughout the state. These facilities could supply additional energy to the power supply grid within the next few years. In addition, efforts are being taken to modify existing plants and re-power existing sites to improve generation capacity. A broad-ranging effort has also been undertaken by the State to reduce peak electricity demand in California including actions to encourage voluntary load reduction by customers and to promote incentive programs for demand reducing technologies, energy efficient construction techniques, and the installation of energy-efficient equipment.

## **Renewable Energy**

SMUD is committed to using renewable energy (i.e. biomass, geothermal, solar, small hydro and wind) to meet a portion of its customers' power needs. SMUD had a 12% target for renewable energy supply for 2006 and met its target with 13.1%. The 2010 goal is 23% (20% RPS and 3% Greenergy). SMUD is on track to be the only large California utility to have 23% renewable energy supply by the end of 2010.

In 1997, SMUD began Greenergy residential and commercial customers which is a green pricing program that allows participating residential and commercial customers to select renewable energy supply for 100% or 50% of their electricity based on a simple add-on to existing power bills. SMUD procures additional renewable energy for Greenergy customers, on top of what SMUD procures to fulfill its RPS obligations.

SMUD's Board of Directors established SMUD RPS goals in 2001. A year later, the State of California established an RPS program, which currently requires that retail sellers meet 20% of retail sales with electricity from eligible renewable energy resources by December 31, 2010. The RPS statutes do not obligate local Publicly Owned electric Utilities (POUs), such as SMUD, to have defined percentage goals and deadlines, nor do state laws require POUs to satisfy state eligibility rules for renewable energy resources to count toward their RPS goals. Nonetheless, SMUD has chosen to meet or exceed the state requirements. In December of 2008, SMUD's Board of Directors established a goal of having 33% renewables in SMUD's portfolio by 2020.

## **Wind Energy**

On June 1, 2006, eight new wind turbines went to work converting the Delta breeze into electricity for SMUD customers. Located in the Montezuma Hills near Rio Vista in Solano County, the turbines are the latest addition to SMUD's wind farm that now produces up to 39 megawatts of power. The eight new 3-megawatt wind turbines each produce enough power to meet the annual needs of more than 1,000 SMUD households. The new turbines used in Phase 2 of the wind farm are taller and more powerful than those used in Phase 1 which used 23 turbines to produce 15 megawatts of electricity.

SMUD owns additional land in the area with room for expansion to 200 megawatts, pending approval by the Board of Directors. SMUD now owns 6,345 acres in Solano County and first installed wind generation on the property in 1994. The original turbines have been decommissioned and replaced with larger and more reliable turbines. The turbines are strategically placed to take full advantage of the winds that blow in from the coast, through the Carquinez Straits, and spill into the Delta.

### ***Renewable Energy Generation Research and Development***

SMUD has a sustainable power supply goal of reducing GHG emissions from generation of electricity to 10% of its 1990 level by 2050. In addition, SMUD has a 33% renewable supply goal by 2020. In order to achieve SMUD's goals in a cost effective manner, renewable technologies emerging from research and development (R&D) need to be demonstrated and brought to market. The next generation of renewable energy technologies (e.g., concentrating solar thermal, central photovoltaic, biomass gasification) has good potential for cost reductions. SMUD has been investigating advanced, renewable, and distributed generation technologies that can help achieve its long term goals.

SMUD and the CEC are working together on research, development and demonstration projects for renewable power generation under the Public Interest Energy Research (PIER) program. SMUD's R&D Program consists of a number of projects most of which are intended to develop new technologies that use the sun, wind, and biomass to generate electricity.

### ***Energy Conservation***

SMUD has created two separate programs to grow renewable energy supplies for its customers: a green pricing program called Greenergy and an RPS program. Accounting for SMUD's renewable energy supply is done separately for these two programs and aggregated as SMUD's total, non-large hydro-renewable energy supply.

SMUD has had the green pricing program called "Greenergy" since 1997. Greenergy allows customer choice in selecting renewable energy supply for 100% or 50% of their electricity based on a simple monthly fee of \$6.00 or \$3.00, respectively. Commercial Greenergy customers pay \$0.1 per kWh for 100% renewables and \$0.5 per kWh for 50% renewable energy. In 2006, there were about 36,000 participating customers in the Greenergy program, of which approximately 34,000 were residential customers (SMUD 2008).

SMUD's RPS program was approved by SMUD's elected board one year before the state RPS program was approved by the legislature and governor. To meet its annual renewables goals, SMUD both contracts for renewable electricity from independent power producers and builds and owns renewable energy power plants. SMUD has renewable energy supply goals of 23% for 2011 (20% RPS + 3% Greenergy in 2011). The final supply numbers compiled for 2006 show that SMUD provided about 13% of retail sales of eligible, non-large hydro-renewable electricity supply (SMUD 2007).

SMUD has supported several new renewables projects that have begun providing electricity to the grid since 2002. The SMUD-owned Solano wind project installed wind turbines generating 39 MW in 2002, and an additional 63 MW of wind turbines were installed in 2007. This wind project is expected to have turbines generating over 200 combined megawatts installed by 2011. SMUD also recently signed a Power Purchase Agreement (PPA) contract for the second phase of the Kiefer Landfill gas-to-electricity project, which is online now and providing an additional 5.7 MW. SMUD also signed a PPA several years ago for a California wind project that came online in phases from 2003 to 2007, and it now provides a total of 75 MW (SMUD 2007).

## **NATURAL GAS**

PG&E provides natural gas service to the planning area. Natural gas is a fossil fuel, indicating that it comes from the ground, similar to other hydrocarbons such as coal or oil. PG&E purchases natural gas from several bordering states. PG&E gas transmission lines are located in the northwest part of Citrus Heights, in the vicinity of

Greenback Lane and Auburn Boulevard, and along Roseville Road. PG&E distribution mains are located along Madison Avenue between Dewey Drive and Fair Oaks Boulevard, and along Greenback Lane between Dewey Drive and Roseville Road.

The CPUC regulates PG&E which is the default provider, required by State law, for natural gas delivery to the planning area. PG&E has the capacity and resources to deliver gas except in certain situations that are noted in state law. As new land uses are developed, PG&E would continue to extend its service to accommodate the new land uses and supply the necessary gas lines.

PG&E does not base its service levels on the demands of implementing the Draft General Plan; rather it makes periodic upgrades to provide service for particular projects and new development. Approximately two months before construction commences on a particular project, PG&E requests that the developer contact them with detailed information about the project's natural gas requirements. If necessary, PG&E customizes pipelines and mains to better serve newly constructed facilities. The cost for such service differs from project to project. PG&E is continuously expanding its network of gas pipelines to meet the needs of new commercial and residential developments in Northern California. Further, all of the planning area is served by gas (and electrical) infrastructure, with maintenance and periodic upgrades provided as needed.

Citrus Heights per capita natural gas consumption was approximately 162 therms in 2005 (Sacramento County 2009), compared to approximately 225 therms countywide for Sacramento County in 2008 (CEC 2010b).

### **4.13.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

#### **METHODOLOGY**

The Draft General Plan allows for future residential, commercial, office, and other land uses. This analysis estimates the energy consumption of implementing the Draft General Plan based on the types and intensity of envisioned land uses. It should be noted that energy consumption estimates identified in this section are based on standard factors and do not reflect the individual characteristics of future projects that cannot be known today. For future development projects, further environmental analysis would be required under CEQA and would reflect the specific project designs available at that time. This analysis also discusses whether energy efficiency regulations and design strategies would prevent wasteful energy consumption associated with the Draft General Plan. Finally, potential physical expansion of electricity and natural gas infrastructure required by implementation of the Draft General Plan is discussed.

The following sections describe the methods used to estimate the Draft General Plan's energy consumption. Information was obtained from communication with service providers (SMUD and PG&E), the CEC, the CPUC, and the GGRP.

#### **Construction**

Future development projects envisioned under the Draft General Plan would consume petroleum for operation of construction vehicles and to generate electricity for equipment (e.g., welding machines, power tools). Energy consumed by construction power equipment and energy required for lighting and heating of trailers and operation of ancillary electrical equipment would be relatively minimal in comparison to overall energy demands in the City. Energy would also be required for mining, extraction, and transportation of raw materials, and pre-construction manufacturing considered an indirect form of consumption. It is not possible to precisely estimate the amount of energy that would be consumed during construction activities because the exact nature and duration of future development projects is currently unknown. An estimate of indirect energy consumption would be speculative at this time because the designs for individual structures and the sources of building materials cannot be determined at this time.

## Electricity and Natural Gas Consumption in Future Land Uses

Table 4.13-1 below identifies the estimated electricity consumption in 2035 associated with the increment of additional growth anticipated within the Draft General Plan. Actual electricity and natural gas consumption in a building varies by the type of uses, the type of construction materials, and the efficiency of energy-consuming devices it contains. This analysis focuses primarily on differences in consumption rates by land use type; the estimates are based on future land uses consistent with the Draft General Plan.

<b>Table 4.13-1 Estimated Annual Electricity Use Under the Draft General Plan</b>			
Land Use	Consumption Factor	New Land Uses Anticipated in the Draft General Plan	Energy Use
Residential	7,067 kWh/du	3,557 du	25,137,579 kWh/yr
Commercial/Retail	16.75 kWh/sf	2,946,965 sf	49,361,666 kWh/yr
<b>TOTAL</b>			<b>74,499,245 kWh/yr</b>
Notes: du = dwelling units; sf = square foot; kWh = kilowatt hours; yr = year. Source of Generation Factors: California Energy Commission [CEC] 2000. California Energy Demand Staff Report P200-00-002.			

Consumption factors from the Commercial End-Use Survey and the CEQA Air Quality Handbook were applied to the square footage and dwelling unit totals for the project to obtain a consumption figure for land uses described within the Draft General Plan. However, consumption factors are not currently available for all land uses. Electricity would be used by on-site residents and occupants for space heating and cooling, ventilation, water heating, cooking, interior and exterior lighting, office and other equipment, air compressors, motors, and a variety of other uses.

Table 4.13-2 shows the anticipated natural gas consumption in 2035 associated with the increment of additional growth anticipated within the Draft General Plan. Natural gas would be used by on-site residents and occupants primarily for space heating, water heating, and cooking.

<b>Table 4.13-2 Estimated Annual Natural Gas Use Under Existing Conditions and Draft General Plan</b>			
Land Use	Consumption Factor	New Land Uses Anticipated in the Draft General Plan	Energy Use
Residential	419 therms/du	3,557 du	1,490,398 therms/yr
Commercial/Retail	0.375 therms/sf	2,946,965 sf	1,105,112 therms/yr
<b>TOTAL</b>			<b>2,595,510 therms/yr</b>
Notes: du = dwelling units; sf = square foot; yr = year. Source of Generation Factors: California Energy Commission [CEC] 2000. California Energy Demand Staff Report P200-00-002.			

## THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following threshold of significance, based on the State CEQA Guidelines (Appendix F: Energy Conservation) was used to determine whether implementation of the Draft General Plan would have a significant impact.

An impact on energy resources or conservation is considered significant if implementation of the proposed project would:

- ▶ result in wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and maintenance of the project;
- ▶ result in the siting, orientation, and design that does not provide an opportunity to minimize energy consumption, including transportation energy;
- ▶ include features that would increase peak energy demand;
- ▶ not provide for alternative fuels (particularly renewable ones) or energy systems; or
- ▶ not provide for recycling of non-renewable resources.

## **IMPACT ANALYSIS**

**IMPACT 4.13-1** **Increase Demand for and Consumption of Energy.** *Future land uses consistent with the Draft General Plan would increase the demand and consumption of energy. However, the Draft General Plan and GGRP include policies, measures, and actions intended to promote efficient use of energy. This impact is **less than significant**.*

Future land uses consistent with the Draft General Plan would increase energy consumption in the planning area, requiring that additional energy resources be delivered to residents and businesses by SMUD and PG&E. Table 4.13-1 and Table 4.13-2 above estimate the increases in electricity and natural gas use that would result from implementation of the Draft General Plan.

As shown in Table 4.13-1 and Table 4.13-2, future land uses consistent with the Draft General Plan would result in an estimated increase of up to 74.5 million kWh of electricity and 2.6 million therms of natural gas each year, in addition to the City's existing demand. The generation rates are based on California-specific data and are averaged based on size of the residential unit and different types of non-residential uses. These estimates are based on generalized demand rates because more specific estimates are not possible at the General Plan level. SMUD will need to consider the future generation of electricity and PG&E will need to consider the future generation of natural gas with careful consideration of the anticipated peak usage within their service areas. Future projects proposed consistent with the Draft General Plan would be required to go through the environmental review process which would assess whether PG&E can accommodate the energy needs of that project. In addition, future development would be required to comply with the current energy performance standards found in Title 24 as well as policies and actions in the Draft General Plan that address energy conservation.

In addition, conformance with the GGRP would reduce impacts associated with increased demand for electricity by establishing energy efficient standards for residential and non-residential buildings. These standards and measures would help reduce the amount of energy required for lighting, water heating, and heating and air conditioning in buildings and promote additional energy conservation.

## **DRAFT GENERAL PLAN POLICIES AND ACTIONS**

The Draft General Plan includes the following policies and actions designed to reduce energy consumption and promote use of renewable energy.

## ***Policies***

- ▶ **40.1:** Encourage new buildings to maximize solar access to promote passive solar energy use, natural ventilation, effective use of daylight, and on-site solar generation.
- ▶ **40.2:** Promote a climate-appropriate tree planting and maintenance program in order to reduce ambient air temperature on hot sunny days, and require that all tree plantings and outdoor lighting be integrated.
- ▶ **41.1:** Require energy-efficient site and building designs in new construction.
- ▶ **41.2:** Provide financial incentives to maximize energy conservation and the use of clean and renewable energy.
- ▶ **41.3:** Retrofit existing buildings using low maintenance, durable building materials and high-efficiency energy systems and appliances.
- ▶ **41.4:** Reduce energy consumption supporting municipal operations.

## ***Actions***

**40.1.A.** Amend the Zoning Code to include standards for building construction and siting that promote energy conservation.

**41.1.A.** Explore use of grant funds and programs with SMUD and non-profit agencies to establish programs for energy conservation (such as home weatherization and Energy Star appliances) and transition to the use of clean and renewable energy (such as photovoltaic retrofits, solar hot water heating and pumps).

**41.1.B.** Consider ordinances that would require energy audits, solar access, insulation, solar retrofit, and solar water heating.

## **GREENHOUSE GAS REDUCTION PLAN MEASURES AND ACTIONS**

The GGRP identifies the following measures and actions that apply to energy conservation and renewable energy.

### ***Measures***

- ▶ **4-1.B:** Modify City codes to require new buildings to maximize solar access to promote passive solar energy design, natural ventilation, effective use of daylight, and on-site solar generation.
- ▶ **4-1.C:** Require use of recycled content building materials in new construction projects.
- ▶ **4-2.A:** Develop a Solar Buying Assistance program to provide zero-interest loans to homeowners who purchase grid-tie solar power systems.
- ▶ **4-2.B:** Collaborate with utility companies to provide financial incentives/rebates for residential and commercial buildings to upgrade from inefficient water heaters to solar water heaters.
- ▶ **4-2.C:** Create a community-wide Solar Power program and remove physical and code barriers to support installation of solar panels in commercial and residential districts.
- ▶ **4-3.A:** Develop a Residential Energy Benchmark program to assist homeowners to identify voluntary retrofit opportunities and funding options to increase building energy performance by 30% from baseline.

- ▶ **4-3.B:** Develop a Commercial Energy Benchmark program to assist business owners to identify voluntary retrofit opportunities and funding options to increase building energy performance by 30% from baseline.
- ▶ **4-3.C:** Develop a Multi-family Energy Efficiency program to provide comprehensive, performance-based energy testing and installation of energy saving improvements for qualified multi-family residents.
- ▶ **4-3.D:** Develop an Energy Efficient Upgrade program for residents and business owners to promote upgrades from inefficient appliances, lighting and roofing to Energy Star certified systems.
- ▶ **4-3.E:** Collaborate with local utility companies and adjacent cities to accelerate smart-grid integration in the community.
- ▶ **4-4.A:** Coordinate with San Juan Unified School District (SJUSD) to create high-energy performing schools by adopting green school design principles.
- ▶ **4-5.A:** Collaborate with SMUD to increase the use of green energy within City facilities.
- ▶ **4-5.B:** Reduce energy consumption in City buildings by 40% from baseline.
- ▶ **4-5.C:** Improve lighting efficiency and decrease energy consumption in public spaces.

### **Actions**

**4-1.B.A.** Explore creation of a solar access ordinance.

**4-1.B.B.** Conduct public workshops to promote the health and economic benefits of passive solar design, natural ventilation and daylighting.

**4-1.C.A.** Amend the Building Code and inspection procedures to require use of recycled materials.

**4-1.C.B.** Create a directory of locally available construction materials (within a 500-mile radius) that can be used for new construction and substantial renovations.

**4-2.A.A.** Continue to participate in CaliforniaFIRST or similar program to provide outreach, financial incentives and other technical assistance to home and business owners.

**4-2.B.A.** Develop a resident outreach program to support solar water heater installation on residential buildings.

**4-2.B.B.** Develop a business outreach program and remove code barriers to solar water heater installation on commercial buildings.

**4-2.B.C.** Collaborate with utilities to offer low-interest loans for homeowners with swimming pools to switch to solar water heating systems.

**4-2.B.D.** Collaborate with utilities and other agencies to provide public information about local, regional, state and national funding sources and financial incentives to support installation and maintenance of solar water heaters.

**4-2.C.A.** Partner with SMUD, businesses offering solar panel leases, and other relevant organizations to identify appropriate locations for solar installations within Citrus Heights.

- 4-2.C.B.** Work with businesses and home owners who do not have suitable solar access on their property to participate in SMUD's Solar Shares program (utility-scale solar system) in exchange for offsets on their electricity bill.
- 4-3.A.A.** Partner with SMUD and PG&E (or other related organizations such as Flex Your Power) to organize public outreach programs to promote building envelope-related energy efficiency upgrades (such as windows, attic insulation) in residential buildings.
- 4-3.A.B.** Provide information and technical assistance through the City's Building Green web link about retrofitting homes with energy-efficient measures.
- 4-3.A.C.** Collaborate with local financing companies and real estate agencies to promote Energy Efficient Mortgages.
- 4-3.B.A.** Partner with SMUD and PG&E (or other related organizations such as Flex Your Power) to organize public outreach programs to promote building envelope-related energy efficiency upgrades in commercial and office buildings.
- 4-3.B.B.** Promote building re-commissioning (e.g. checking, repairing, and adjusting the HVAC, lighting, and hot water systems) prior to tenant improvement approval by providing a database for commissioning companies.
- 4-3.B.C.** Collaborate with SMUD and PG&E (or other energy service companies) to offer free energy audits to residents and life-cycle Investment Grade Audits (IGAs) for business owners.
- 4-3.C.A.** Collaborate with utility companies and require that all new multi-tenant buildings be sub-metered to allow each tenant the ability to monitor their own energy use.
- 4-3.C.B.** Continue to use existing City rehabilitation programs to provide weatherization improvements in low-income units.
- 4-3.C.C.** Collaborate with utility companies to provide financial incentives for energy improvements and appliance upgrades.
- 4-3.D.A.** Collaborate with utility companies and other non-profit agencies to develop a comprehensive outreach and financial incentives program to encourage voluntary replacement of inefficient appliances with new Energy Star appliances.
- 4-3.E.A.** Partner with SMUD and PG&E to develop a community smart grid integration plan.
- 4-3.E.B.** Develop an outreach program that informs property owners and businesses about benefits of smart grid and smart appliances.
- 4-3.E.C.** Adopt an ordinance to require smart grid energy management systems and compatible heating, ventilation, air conditioning and lighting in new construction.
- 4-4.A.A.** Encourage SJUSD to integrate best practices for energy efficiency and conservation based on the Green Schools initiative, LEED for Schools, or similar rating systems within the designs for new school buildings and administrative facilities.
- 4-5.A.A.** Install cost-effective renewable energy systems on City buildings and City-funded facilities and purchase a portion of remaining electricity from SMUD's Greenergy program.

**4-5.A.B.** Collaborate with SMUD to determine if there is a suitable location (within or outside the City) for installation of a utility-scale solar facility.

**4-5.B.A.** Conduct an Investment-Grade Audit of City buildings and facilities and employ energy conservation practices to reduce consumption.

**4-5.B.B.** Install building energy performance data displays in City Hall.

**4-5.B.C.** Upgrade City office equipment and appliances to Energy Star systems.

**4-5.C.A.** Convert all street and traffic lights to LED bulbs or LED-Solar combined systems

**4-5.C.B.** Install high-efficiency lighting in all City-owned or funded facilities.

## **CONCLUSION**

Implementation of the Draft General Plan and GGRP would result in the consumption of energy, but such consumption would not be expected to be wasteful or inefficient. As identified in Tables 4.13-1 and 4.13-2, future land uses consistent with the Draft General Plan would increase the demand for energy resources above the current consumption demands. However, despite the overall increase in demand for energy, the Draft General Plan and GGRP emphasize energy efficient design of future land uses and energy efficiency which would minimize wasteful, inefficient energy consumption while promoting use of renewable energy resources (e.g., solar) and recycled non-renewable resources. With implementation of the Draft General Plan and GGRP measures, this would be a **less-than-significant** impact. No mitigation is required.