

4.9 ENERGY RESOURCES

4.9.1 ENVIRONMENTAL SETTING

CALIFORNIA'S ELECTRICITY SUPPLY

California's electricity is supplied by the following sources: petroleum (46%), natural gas (29.5%), renewables (9%), coal (8%), nuclear (5%), and hydroelectric (2.5%). Despite California policies aimed at diversifying the state's electrical supply, more than 80% of the energy consumed in the state comes from two fossil fuels: petroleum and natural gas. Electricity demand is forecasted to increase an average of 1.25% (peak demand will increase by 1.35%), even with the more aggressive building and appliance energy efficiency standards and programs. In 2006, 37% of electricity consumption was in the commercial sector, 32% in the residential sector, and 16% in the industrial sector (CEC, 2007).

Within the commercial sector, colleges account for 3.8% of total electricity use and 5.5% of total gas use. According to the California Energy Commission (CEC, 2006), interior lighting, ventilation, and cooling were the largest electricity end uses, while space heating accounted for most of the gas usage. Colleges account for 205,942 thousand square feet (ksf), using 2,524 gigawatt-hours (GWh) of electricity and 70.50 million therms (Mtherms) annually.

ELECTRICITY AND GAS PROVIDERS

The Santa Clara Electric Department, known as Silicon Valley Power (SVP), provides electricity to Mission College, while Pacific Gas and Electric Company (PG&E) provides natural gas to the college. In 2008, Mission College used an average of 597,600 kilowatt-hours per month and 13,634 therms per month (Negash, 2008). Approximately 22% of the electricity provided by SVP is generated at the Donald Von Raesfeld Power Plant at 850 Duane Avenue in Santa Clara and the remainder originates from a variety of sources through contract with SVP. The SVP implements the Santa Clara Green Power Program, which offers commercial and industrial customers with the opportunity to purchase electricity from renewable energy (derived from wind and solar projects in northern and southern California).

4.9.2 REGULATORY OVERVIEW

FEDERAL REGULATIONS AND POLICIES

Energy Independence and Security Act of 2007

Signed into law in December 2007, this Act is an energy policy law contains provisions designed to increase energy efficiency and the availability of renewable energy. The Act contains provisions for increasing fuel economy standards for cars and light trucks, while establishing new minimum efficiency standards for lighting as well as residential and commercial appliance equipment (CRS, 2007).

National Energy Policy

Established in 2001 by the National Energy Policy Development Group, this policy is designed to help the private sector and state and local governments promote dependable, affordable, and environmentally sound production and distribution of energy for the future (NEPDG, 2001). Key issues addressed by the energy policy are energy conservation, repair and expansion of energy infrastructure, and ways of increasing energy supplies while protecting the environment.

STATE REGULATIONS AND POLICIES

Building Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the California Code of Regulations, 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 current version of the standards was adopted in October 2005, and the CEC has begun development of an update, which is planned for adoption in 2008.

California's building efficiency standards (along with those for energy-efficient appliances) have saved more than \$56 billion in electricity and natural gas costs since 1978. It is estimated that the standards will save an additional \$23 billion by 2013 (CPUC, 2008).

Long Term Energy Efficiency Strategic Plan

In September 2008, the California Public Utilities Commission (CPUC) adopted the Long Term Energy Efficiency Strategic Plan, which provides a framework for energy efficiency in California through the year 2020 and beyond. It articulates a long-term vision as well as goals for each economic sector, identifying specific near-term, mid-term, and long-term strategies to assist in achieving these goals. This Plan sets forth the following four goals, known as Big Bold Energy Efficiency Strategies, to achieve significant reductions in energy demand:

1. All new residential construction in California will be zero net energy by 2020¹
2. All new commercial construction in California will be zero net energy by 2030

¹ Zero net energy (ZNE) is a general term applied to a building with a net energy consumption of zero over a typical year. To cope with fluctuations in demand, zero energy buildings are typically envisioned as connected to the grid, exporting electricity to the grid when there is a surplus, and drawing electricity when not enough electricity is being produced.

3. Heating, Ventilation and Air Conditioning (HVAC) will be transformed to ensure that its energy performance is optimal for California's climate
4. All eligible low-income customers will be given the opportunity to participate in the low income energy efficiency program by 2020

With respect to the commercial sector, the Plan notes that commercial buildings (which includes schools, hospitals, and public buildings) consume more electricity than any other end-use sector in California. The commercial sector's 5 billion-plus square feet of space accounts for 38% of the state's power use and over 25% of natural gas consumption. Lighting, cooling, refrigeration, and ventilation account for 75% of all commercial electric use, while space heating, water heating, and cooking account for over 90 percent of gas use. In 2006, schools and colleges were in the top five facility types for electricity and gas consumption, accounting for approximately 10% of state's electricity and gas use.

The CPUC and Energy Commission have adopted the following goals to achieve zero net energy (ZNE) levels by 2030 in the commercial sector:

- Goal 1: New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.
- Goal 2: 50% of existing buildings will be retrofit to zero net energy by 2030 through achievement of deep levels of energy efficiency and with the addition of clean distributed generation.
- Goal 3: Transform the commercial lighting market through technological advancement and innovative utility initiatives.

Governor's Green Building Executive Order (S-20-04)

In 2004, this Executive Order was signed into law, committing the state to take aggressive action to reduce state building electricity usage by retrofitting, building, and operating the most energy and resource-efficient buildings by taking all cost-effective measures described in the Green Building Action Plan for facilities owned, funded or leased by the state and to encourage cities, counties and schools to do the same. It also calls for state agencies, departments, and other entities under the direct executive authority of the Governor to cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20% by 2015, through cost-effective efficiency measures and distributed generation technologies. These measures should include but not be limited to:

- Designing, constructing and operating all new and renovated state-owned facilities paid for with state funds as "LEED Silver" or higher certified buildings
- Identifying the most appropriate financing and project delivery mechanisms to achieve these goals

- Seeking out office space leases in buildings with a U.S. EPA Energy Star rating
- Purchasing or operating Energy Star electrical equipment whenever cost-effective

The Order also required the Division of the State Architect in the Department of General Services to adopt guidelines by December 31, 2005, enabling and encouraging schools built with state funds to be resource and energy efficient. Pursuant to this requirement, the Division of State Architect convened a schools workgroup and this group concluded that the best guideline to meeting this requirement is the *Best Practices Manual* by the Collaborative for High Performance Schools (CHPS).

Other State Legislation and Policies

Other statewide legislation and policies related to energy efficiency include the following:

California Global Warming Solutions Act of 2006 (AB 32). The Scoping Plan (adopted December 2008) recommends expanding and strengthening existing energy efficiency programs as well as building and appliance standards and sets a goal to achieve a statewide renewables energy mix of 33 percent (see Section 4.10, Climate Change, for more discussion).

Renewable Portfolio Standard (SB 107) and Governor's Renewable Energy Executive Order (S-14-08). California's Renewable Portfolio Standard (RPS) calls for more energy to come from clean, renewable sources and accelerates the schedule for achieving the state's goal to have 20 percent of California's energy come from renewable energy sources. The RPS standard will accelerate this goal to 2010 rather than 2017, seven years earlier than the statute. On November 17, 2008, Executive Order S-14-08 was signed into law, raising California's renewable energy goals to 33% by 2020 and streamlining licensing for renewable projects.

Renewable Portfolio Standard (SB 107). Million Solar Roofs Initiative. This initiative establishes an incentive plan to install one million solar roofs in California by the year 2018, provide 3,000 megawatts of clean energy and reduce greenhouse gas emissions by 3 million tons.

California Energy Action Plan II. The *Energy Action Plan II* continues the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first-priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

AB 2021, Establishment of Statewide Energy Efficiency Goals. This legislation requires all utilities, both investor-owned and municipal, to invest in all achievable cost effective energy efficiency programs in their service territories. This effort alone would reduce forecasted electricity demand by 10 percent over the next 10 years, offsetting the need to build 11 major power plants. While some municipal utilities have set strong energy efficiency goals, many others have not. Therefore, AB 2021 codifies a process just completed by investor-owned utilities with the CPUC to determine energy efficiency goals over the next three years to prevent the need for generation of over 30,000 gigawatt-hours.

Integrated Energy Policy Report. SB 1389 required the California Energy Commission (CEC) to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. The CEC adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year. The 2007 IEPR was adopted by the CEC in December 2007 and this report focuses on meeting environmental goals to address climate change (reducing greenhouse gas emissions) while meeting the state's growing energy needs related to economic and population growth.

4.9.3 POTENTIAL IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Based upon the criteria presented in Appendix G of the *CEQA Guidelines*, a project will normally have a significant impact on energy if the proposed project would:

- Encourage activities that resulted in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner.

CONSTRUCTION IMPACTS

Impact 4.9-1: Construction of new campus facilities would result in short-term increases in energy demand. (Less than Significant)

Construction of new facilities and demolition of existing facilities as outlined in the Master Plan would require the use of fuels (primarily gas, diesel, and motor oil) for a variety of construction activities, including excavation, grading, demolition, and vehicle travel. During these activities, fuel use for construction worker commute trips would be minor compared to the fuel use by construction equipment. Although the fuels would only be used during construction of campus facility projects, excessive idling and other inefficient site operations could result in the wasteful use of fuels. Therefore, impacts related to the wasteful use of fuels during construction would be potentially significant for all campus projects. However, required implementation of certain exhaust control measures, such as limiting idling time and performing low-emissions tune-ups (Measure 4.5-1), would ensure that fuels are not used in a wasteful manner and would therefore reduce this impact to *less than significant*. This impact would be further reduced by Master Plan re-use and recycling policies, which include sustainable construction practices

such as construction waste management plan and resource efficient construction practices to reduce construction waste and encourage recycling of construction, demolition, or land clearing waste.

Mitigation Measure 4.9-1: None required.

OPERATIONAL IMPACTS

Impact 4.9-2: Operation of campus facilities would increase energy demand. (Potentially Significant)

Implementation of the proposed Master Plan would result in a 46% increase in space due to planned construction or expansion projects over the next 16 years. This increase in space would result in a long-term increase energy demand. As stated above, colleges throughout the state account for 3.8% of total electricity use and 5.5% of total gas use in the commercial sector. Plan implementation would contribute incrementally to future increases in energy demand in this sector, a *potentially significant impact*.

Proposed Master Plan. Plan-related increases in energy demand would be associated primarily with the operation of lighting and space cooling/heating in the added building space. The Master Plan includes the following principles and policies, which would help offset this potential increase in demand:

- **Energy Efficiency.** The Plan encourages use of high performance lighting controls, high performance HVAC strategies and systems, and natural ventilation through operable windows in the electrical lighting designs of future projects, along with complementing other daylighting techniques (natural light in building interiors). The Master Plan's sustainability goals and policies call for use of effective solar shading devices (made possibly with photovoltaics) to promote high quality daylighting, minimize heat gain, and provide reduced energy consumption.
- **Passive/Active Solar Design.** The Plan also promotes incorporation of passive and active solar design principles such as:
 - Proper orientation of buildings to maximize solar exposure
 - Maximizing south-facing glazing with sun screens to reduce solar heat gain while increasing natural light in building interiors
 - Building designs that promote daylighting (natural light) in building interiors
 - Use of photovoltaics in shade structures, glazing screens, parking lots, and building rooftops to achieve the college's long-term goal of energy independence
- **Water Conservation.** The Master Plan also includes sustainable water management principles such as rainwater collection and re-use, inclusion of low-flow and high efficiency plumbing fixtures, and planting of drought-tolerant landscaping). The principles as well as implementation of additional

water conservation measures (Mitigation Measure 4.8-2) would ultimately reduce potential increases in demand for potable water and energy demand associated with water transmission.

State Regulations and Policies. In response to the California Community Colleges Energy and Sustainability Policy, the Master Plan indicates that energy independence is a long-term goal for Mission College. The Master Plan promotes incorporation of passive and active solar design principles as described above.

Pursuant to the Governor's Green Building Executive Order (S-20-04) and associated Green Building Action Plan for facilities owned, funded or leased by the state, energy efficiency measures must be incorporated into future building designs under the proposed Master Plan. The Master Plan does not yet include these measures, a *potentially significant impact*. However, incorporation of these measures into the Master Plan as specified in Mitigation Measure 4.9-2 would reduce this impact to less than significant.

Mitigation Measure 4.9-2: Pursuant to the Governor's Green Building Executive Order (S-20-04) and associated Green Building Action Plan, all new and renovated buildings at Mission College shall be designed to and certified as "LEED Silver" or higher (or an equivalent recognized standard at the time future projects are being designed). In addition, Energy Star electrical equipment shall be utilized in new buildings and interior remodeling projects on campus, where feasible. Where appropriate, building designs should also be consistent with *Best Practices Manual* by the Collaborative for High Performance Schools (CHPS).

Impact Significance After Mitigation: Less than significant.

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