

## **4.16 ENERGY**

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## 4.16 ENERGY

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This section discusses the Seasonal Storage Project (SSP) operational energy requirements.

### IMPACTS EVALUATED IN OTHER SECTIONS

The following subject is related to the Energy Section, but is addressed in another section of this document:

- **Cost of Energy.** The cost of energy use during Project operation and maintenance is discussed in *Seasonal Storage Project Basis for Costs Technical Memorandum* provided in Volume 5 of this EIR.
- **Greenhouse Gas Emissions.** Section 4.10 Air Quality evaluates the Project's contribution to greenhouse gas emissions (GHG).
- **Climate Change.** The temperature and hydrologic changes that may occur as a result of climate change are included as part of the cumulative scenario explained in more detail in Appendix C.

### SETTING

As the basis for evaluating energy impacts, this section describes the existing energy use at E Pump Station. E Pump Station is located at the Laguna Plant and pumps recycled water to the existing Subregional System's seasonal storage ponds. It also is used to pump recycled water to the existing urban irrigation, agricultural irrigation, and discharge systems and would be used to supply the needed power to deliver recycled water to the SSP storage ponds. Energy use at E Pump Station in 2006 was approximately 7,680 MWh.

To reduce energy use, in 2006 the City completed a 31 kW photovoltaic solar array at Alpha Farm, which generates 53,000 kWh per year. This system off-sets pumping power for farmland irrigation with recycled water. The City also is in the planning stages for development of a solar array at Browns Farm. This system, if implemented, would be a 75 kW system and would off-set power for irrigation pumping.

### GOALS, OBJECTIVES, AND POLICIES

The following are the energy policies from the *Santa Rosa 2020: General Plan* that are relevant to the SSP.

- **OSC-H** Reduce energy use in existing and new commercial, industrial, and public structures.
- **OSC-I** Encourage the development of nontraditional and distributed sources of electrical generation.

## EVALUATION CRITERIA WITH SIGNIFICANCE THRESHOLDS

The evaluation criterion for Energy is presented in Table 4.16-1.

**TABLE 4.16-1**  
**Evaluation Criteria with Significance Thresholds – Energy**

Evaluation Criteria	As Measured by	Significance Threshold	Sources of Criteria
16.1.1. Will the SSP require more energy than providers could deliver?	Report of energy providers	Need for electric facilities beyond capability of provider to supply	California Energy Commission and Public Utilities Commission planning requirements

## METHODOLOGY

Implementation of the SSP would involve the use of electric energy at the existing off-site E Pump Station to move the recycled water to the storage pond sites. Electric energy would also be used to power the proposed onsite pump stations needed to move the stored water from the storage ponds, and for ancillary uses associated with the pump stations such as lighting, ventilation, and pump controls. This analysis summarizes the annual energy consumption for each of the SSP alternatives. See Appendix F for the Annual Energy Consumption by SSP alternative details.

Energy used in construction has not been estimated. However, measures have been incorporated as part of the Project to ensure that construction takes place in an energy-efficient way. Refer to Measure 3.2.17, Equipment Exhaust Control Program, in Chapter 3.

**IMPACTS AND RECOMMENDED MITIGATION MEASURES**

**TABLE 4.16-2**  
**Energy Impacts**

Evaluation Criteria	Significance Threshold	Impact	Type of Impact <sup>1</sup>	Level of Significance <sup>2</sup>
16.1. Will the SSP require more energy than providers could deliver?	Need for electric facilities beyond capability of provider to supply			
<i>Storage component</i>		None	P	==
<i>Pump Station component</i>		102,540 to 380,128 kWh per year	P	○

Notes: 1. Type of Impact:  
 C: Construction  
 O&M: Operation and Maintenance  
 P: Permanent

2. Level of Significance:  
 ● Significant impact before and after mitigation  
 ◎ Significant impact before mitigation; less than significant impact after mitigation  
 ○ Less than significant impact; no mitigation proposed  
 == No impact

**Impact: 16.1. Will the SSP require more energy than providers could deliver?**

Analysis: *Storage component - No Impact: KF1, KF2, BF1, BF2, and AF*

The storage component would not require the use of energy.

*Pump Station component - Less than Significant: KF1, KF2, BF1, BF2, and AF*

Energy would be needed to pump water to the storage ponds (from the existing off-site E Pump Station), to drain the storage ponds through new on-site pump stations, and for ancillary on-site activities such as lighting, gate operation, ventilation, and to run the air compressor. Flexibility to operate the pumps at any time, possibly 24 hours per day is needed to respond to restrictions on recycled water discharge. Therefore the on-site pumps may be operational 24 hours per day for periods of time. Under normal operating conditions, it would take from 53 to 177 days to drain the ponds, depending on the pond size and drain rate. Energy requirements also respond to the elevation of each pond relative to the elevation of E pump station. The detailed energy use for each storage site is summarized below in Table 4.16-3. The Pump Station component at site BF2 would use the least amount of energy at 15,105 kWh and the Pump Station component at site AF would use the most at 28,298 kWh per year. Discussions with PG&E indicate there is existing adequate capacity to provide energy to the pump stations and ancillary uses. In addition, it is not anticipated that the pump stations would require an upgrade to PG&E’s facilities (pers. comm. Cathy Conover, PG&E 2007).

In support of Santa Rosa General Plan Policy OSC-H the Project has incorporated energy efficient components such as sensory lighting and variable frequency drives for pumping systems (where VF pumping systems would result in more efficient pumping), at the pump station sites. As discussed in Chapter 4.11 Air Quality, Mitigation Measure 3.5.19 includes purchase or other means of obtaining renewable energy as a way to off-set greenhouse gas emissions. This mitigation helps implement Santa Rosa General Plan policy OSC-I.

This impact is considered less than significant.

**TABLE 4.16-3**  
**Energy Use by Storage Site (kWh per year)**

	<b>Existing Off-site E Pump Station</b>	<b>On-site SSP Pumps</b>	<b>On-site Ancillary Uses</b>	<b>Total</b>
KF1	44,304	19,138	9,160	72,602
KF2	29,065	12,179	7,532	48,776
BF1	35,506	17,358	8,210	61,074
BF2	16,496	8,929	6,176	31,601
AF	27,808	14,323	10,380	52,511

Mitigation: No mitigation is needed.

**No Project Alternative**

**Impact: Will the No Project Alternative require more energy than providers can deliver?**

Analysis: *No Impact*

The No Project Alternative does not include any new or expanded facilities or need for additional energy. Therefore there would be no impact.

Mitigation: No mitigation is needed.

**CUMULATIVE IMPACTS**

Cumulative development identified in the General Plans for jurisdictions in the Project area would result in ongoing increase in the requirement for energy. New residential, commercial, industrial and public facilities projects identified on the cumulative projects list would all require energy for operation.

**Impact: 16.1C. Will the Project plus cumulative projects require more energy than providers could deliver?**

Analysis: *Less than Significant*

Implementation of the Project plus planned cumulative projects would not create any new unanticipated energy demand or adversely affect energy supplies. Although total energy demand from the Project plus cumulative projects would increase over time, the energy providers would keep pace with demand by installing new facilities according to the California Energy Commission and Public Utilities Commission requirements as regulated by the Warren-Alquist State Energy Resources Conservation and Development Act. Thus, it is expected that energy providers would be able to keep pace with energy demand in the area, and that energy impacts would be less than significant.

## **SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES**

No significant energy impacts have been identified for the SSP.

## **PREPARERS AND REFERENCES**

### **Preparers**

Kristine Gaspar, Winzler & Kelly

### **Reviewers**

Patricia Collins, Winzler & Kelly

### **References**

Warren-Alquist State Energy Resources Conservation Development Act, as amended July 2007.

### **Persons Contacted**

Cathy Conover, Service Planner, PG&E. December 2007.

Randy Piazza, Deputy Director, City of Santa Rosa Utilities Department. April 2007.

Joe Schwall, City of Santa Rosa Utilities Department. April 2007.