

Mid-Pacific Region Central Valley Project Hydropower Production

Introduction

Reclamation's Mid-Pacific Region has eleven hydroelectric power plants in the Central Valley Project (CVP) with a maximum operation capability of 2,100 megawatts (MW) when all reservoirs are at their fullest. The power generated from these plants provides power to convey water within the CVP service area, helps California meet its energy needs and assists the economy.

CVP Powerplants and Capacities:

Northern California Area Office (NCAO)

| | |
|--------------------|--------------------|
| Shasta Dam | 710 MW |
| Trinity Dam | 140 MW |
| Judge Francis Carr | 154 MW |
| Spring Creek | 180 MW |
| Keswick Dam | 105 MW |
| Lewiston Dam | 350 KW (kilowatts) |

Central California Area Office (CCAO)

| | |
|-----------------|--------|
| Folsom Dam | 207 MW |
| Nimbus Dam | 17 MW |
| New Melones Dam | 383 MW |

South-Central California Area Office (SCCAO)

| | |
|----------|---------|
| O'Neill | 14.4 MW |
| San Luis | 202 MW |

What's a kilowatt?

When you use electricity to cook a pot of rice for 1 hour, you use 1,000 watt-hours of electricity!

1,000 watt-hours equal 1 kilowatt-hour, 1 kWh.

Your utility bill usually shows what you are charged for the kilowatt-hours you use. The average residential rate is 8.3 cents per kWh. A typical U.S household consumes about 11,000 kWh per year, costing an average of \$900 annually.

Source: Consumer Guide to Home Energy Savings, 8th Edition. 2003. Washington, D.C.: ACEEE; www.aceee.org.

A megawatt (MW) is 1,000 kilowatts

What Reclamation is Doing

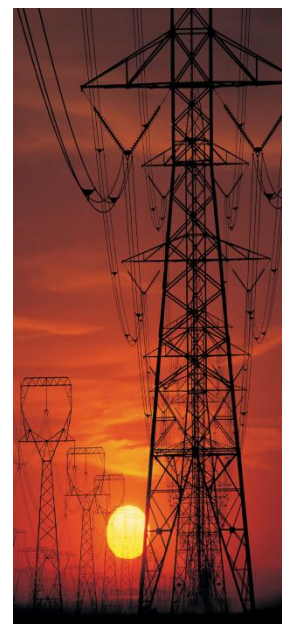
Hydrology in the CVP can vary significantly from year to year which then affects the hydropower production. Typically, in an average water year, about 4,500,000 MW-hours (MWh) of energy is produced. Fiscal Year 2011 was an above average year as a substantial snowpack accumulated in the CVP watersheds throughout the year and as a result, 5,567,688 MWh of energy was produced.

What it takes to get the Job Done

CVP powerplants are operated 24 hours a day, 365 days a year. Facility staff implements a comprehensive preventative maintenance program to ensure constant operation, coordinates operational schedules for optimization of water and power, and accomplishes facility and equipment improvements. In addition, as a part of operations and maintenance, each generator is taken out of service in the fall or early winter for approximately 2-3 weeks for extended maintenance, repairs, and minor improvements. With this strategic blend of preventative maintenance and facility enhancements, hydropower production and reliability is increased, and remains economical.

Reclamation Partners

From a power perspective, Reclamation's customers are both water and power users; both value the products produced by the CVP. To ensure reliability and



Power lines



dependability of the energy generated by CVP power plants, Reclamation's power customers began advance financing of the power O&M portion of the CVP budget in 1998 and soon followed with funding major rehabilitation projects. The Western Area Power Administration (WAPA) markets and transmits the energy the CVP produces. WAPA follows a formal procedure for allocating CVP energy to "preference" customers. Those customers have 20-year contracts (that expire in 2024) for their share of the CVP energy that is in excess of Reclamation's water pumping needs.

How CVP Hydropower Contributes to the Economy

CVP energy is sold "at cost" to our customers. This cost is approximately \$30 per MWh to CVP preference customers and is based on actual capital costs of the construction of the CVP power facilities plus annual O&M costs allocated to power. On top of the price paid for the CVP energy, the preference customers also pay approximately \$15 per MWh for their contribution to the CVP restoration fund.

CVP Hydropower Makes a Difference During Heat Waves

CVP power generation is "shaped" so that maximum production is predominantly available during the peak hours of noon to 6 p.m. Releases from Reclamation's regulating reservoirs – Natomas, Keswick, and Lewiston – are held constant during a 24-hour period so they are at their lowest levels by early morning as upstream generators do not generate during that time (off-peak periods). Then, these same upstream generators can be loaded heavily during higher peak demand times, thus filling the regulating reservoirs by early evening.

For More Information:

MP Region Public Affairs

916-978-5100

www.usbr.gov/mp

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