

## California Federal Facilities: Rate-Responsive Building Operation for Deeper Cost and Energy Savings

Dynamic pricing electricity tariffs, now the default for large customers in California (peak demand of 200 kW and higher for PG&E and SCE, and 20 kW and higher for SDG&E), are providing federal facilities new opportunities to cut their electricity bills and help them meet their energy savings mandates. The U.S. Department of Energy's (DOE) Federal Energy Management Program (FEMP) has created this fact sheet to help California federal facilities take advantage of these opportunities through "rate-responsive building operation." Rate-responsive building operation involves designing your load management strategies around your facility's variable electric rate, using measures that require little or no financial investment.

Most facility types have the ability to reduce or shift some electric load during times when rates are higher. Facilities that are able to curtail with a 24-hour notice may be especially good candidates for dynamic pricing programs. Note that the California utilities' areawide contracts with the U.S. General Services Administration (GSA) allow participation in dynamic pricing tariffs (and demand response [DR] programs).

### Federal Facilities Seeing Early Success

A number of California federal facilities are experiencing significant financial "wins" under the default dynamic pricing tariffs in California using electricity demand reduction measures that are non-disruptive and straightforward to implement.



In 2011 the Social Security Administration's (SSA) Frank Hagel Federal Building in Richmond, CA, earned \$35,000 in electric bill credits for responding to nine summer peak day events under PG&E's Peak Day Pricing (PDP) tariff. *Source: General Service Administration*

### California Dynamic Pricing Program Quick Facts

**Dynamic pricing tariffs** in California reward customers with lower electric rates year-round in exchange for exposing them to higher rates during a limited number of peak events. Peak Day Pricing (PDP) is the default dynamic pricing tariff for large customers of PG&E; Critical Peak Pricing (CPP), a very similar tariff, is the default for large customers of SDG&E and SCE.

**Peak events** may be called with 1-day notice on up to 15 weekdays per year from 2pm-6pm (May 1 – Oct 1 for PG&E and June 1 – Oct 1 for So Cal Edison), or from 11am-6pm on no more than 18 days annually on any day of the year (SDG&E).

**Bill Credits** for reducing demand (\$/kW) and energy (\$/kWh) during peak events can often be combined to maximize financial benefits, depending on customer's underlying TOU rate.

**Free online tools** are available to customers of [PG&E](#), [SDG&E](#) and [SCE](#) to run energy use and rate option scenarios. The tools provide analyses based on your historical electricity use and load profiles.

**Reducing electric load** during peak events can cut annual electricity bills and lead to improved energy efficiency overall.

David Rouggy, energy manager at SSA's Frank Hagel Federal Building in Richmond California, reports that the facility garnered \$35,000 in credits in 2011 on PG&E's Peak Day Pricing (PDP) tariff. "Frankly I was stunned! It's getting a lot of positive attention with our management," said Rouggy. "We were able to drop 400 kW by pre-cooling the building and shutting down one chiller during peak events. We also turned off 2 of our 8 elevators and reduced lighting in corridors to emergency levels. We got about \$100 per day just for being on the program, but the big credits we earned were for trimming demand and reducing kWh during peak events." Rouggy plans to increase curtailment efforts further this summer.

## Start Simply and Make a Plan

Creating a response team and having protocols in place can help automate the process and minimize manpower needed each time an event is called. You'll want to develop a curtailment plan customized for your facility's operational and safety needs. Here are a few ideas to get you started:

### Planning phase:

- Ask your building engineers for suggestions on load-shedding opportunities
- Start simply with the most doable actions; you can add curtailment measures over time
- Create an "Event Day Action Plan" that includes communication protocols and assigned roles
- Gain management buy-in by tying your plan to management goals
- Create an awareness campaign to engage and enlist building occupants

### Event day actions (starter list):

- Turn off or dim all non-essential lighting
- Pre-cool work areas, then limit heating, ventilating, and air conditioning use during peak event (e.g., run one chiller instead of two)
- Load-cycle or temperature reset up 2-3 degrees
- Turn off infrequently used office equipment (e.g., printers/copiers, coffee makers)
- Turn off vending and ice machines
- Turn off non-essential motors, pumps and fans
- Reduce speed of variable speed drives
- Reduce use of multiple elevators

- In data centers, discharge part of the uninterruptible power supply (UPS)

## Two-tiered Financial Incentives

In addition to earning payments and bill credits for participating in dynamic pricing or demand response programs, customers can receive two-tiered financial incentives for installing enabling equipment based on the level of automation: up to \$125 per kW of load reduction for regular curtailment-enabling equipment, and up to \$300 per kW total for installing fully automated demand response (auto-DR) equipment. Facilities installing smart sub-metering for Energy Policy Act (EPACT) 2005 compliance may find this an opportune time to add or upgrade energy management control systems (EMCSs). Nearly any type of equipment that automates curtailment may be eligible for incentives (e.g., EMCS reprogramming or upgrades, and lighting, air conditioning, motor and fan controls).

## Getting Started

Here are some recommended first steps for getting the most from rate-responsive building operation:

- Understand your facility's load profile and how it relates to your current electric tariff.
- Get an integrated energy efficiency/demand response audit from your utility. These are often no-cost, and you are not required to follow all of the audit recommendations in order to qualify for financial incentives on the measures and strategies you choose.
- Discuss rate and program options with your utility representative. If you are interested in dynamic pricing and/or DR programs, questions to ask include:

- What programs am I eligible for?
- Can I combine rate-based programs with any DR programs?
- What are the financial incentives for participation, for commitment and for curtailing load during events?
- What are the risks of not curtailing?
- What determines the amount I earn?
- How often can I be asked to curtail load?
- When and how will I be notified of events?

## Additional Resources

- Event Day Action Plan templates and other resources are available from *PG&E* and *SCE*.
- The *Demand Response Strategy Guide* is available from LBNL's Demand Response Research Center.
- *The Data Center Profiler (DC Pro) Suite* offers no-cost software tools that help identify and evaluate energy efficiency opportunities in data centers.
- Information about the utilities' dynamic pricing programs and incentives may be found at the following links: *PG&E Peak Day Pricing* program and *Incentives*; *SDG&E Critical Peak Pricing* program and *Incentives*; and *SCE Critical Peak Pricing* program and *Incentives*.

For more information about energy efficiency, renewable energy and demand response incentives available to California federal facilities, please visit:

[www1.eere.energy.gov/femp/financing/eip\\_ca.html](http://www1.eere.energy.gov/femp/financing/eip_ca.html).

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