

STATE OF CALIFORNIA

ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

Informational and Rulemaking	)	Docket Number 08-DR-01
Proceeding on Demand Response	)	
Rates, Equipment, and Protocols	)	Order Number 08-0102-10
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**ORDER INSTITUTING INFORMATIONAL AND RULEMAKING PROCEEDING**

The Energy Commission’s load management standards authority can serve as a valuable tool to bridge the gap between the current level of demand response (DR) in California and its full cost-effective potential. The *2007 Integrated Energy Policy Report (2007 IEPR)* recognized the importance of load management standards and recommends that the Energy Commission institute a formal process to pursue the adoption of load management standards in 2008. The IEPR illustrates a few areas where load management standards may be particularly effective:

- implementing default dynamic tariffs to reflect the higher costs of using electricity during critical peak hours, and
- adopting automated technologies for residential and non-residential customers that enable customers to respond to the opportunities created by dynamic pricing tariffs.

With this order, the Energy Commission institutes an informational and rulemaking proceeding to:

- (1) assess which rates, tariffs, equipment, software, protocols, and other measures would be most effective in achieving demand response, and
- (2) adopt regulations and take other appropriate actions to achieve a price-responsive electricity market.

Recognizing the importance of work being done at the California Public Utilities Commission (CPUC) and the California Independent System Operator (CAISO) on demand response in California, we will coordinate this proceeding very closely with these entities.

We institute this proceeding pursuant to Public Resources Code sections 25210, 25213, 25216, 25216.5(c)-(d), 25218(d)-(e), 25224, 25402(a)-(b), 25402(c), 25403, and 25403.5, and 20 California Code of Regulations sections 1220 – 1225. All subsequent section references are to the Public Resources Code unless otherwise noted.

## **Summary & Background**

The Legislature has declared that "electrical energy is essential to the health, safety and welfare of the people of this state." (Public Resources Code section 25001) The Legislature has also found that "Californians can significantly increase the reliability of the electricity system and reduce the level of wholesale electricity prices by reducing electricity usage at peak times through a variety of measures designed to reduce electricity consumption during those periods" and expressed its intent "...to promote energy conservation and demand reduction. (Public Utilities Code section 454.5) Since 2003, California has relied on the "loading order" adopted in the state's Energy Action Plan to meet its growing electricity needs, first with energy efficiency and demand response; second, with renewable energy and distributed generation; and third, with clean fossil-fueled sources.

In 2002, the California Public Utilities Commission opened proceedings focused on demand response "to enhance electric system reliability, reduce power purchase and individual consumer costs, and protect the environment." (R. 02-06-001, Order Instituting Rulemaking, June 6, 2002 (CPUC OIR), p. 1.)

Working in collaboration with the Energy Commission in that and subsequent proceedings and pursuant to section 454.4 of the Public Utilities Code, the CPUC has:

- approved a series of voluntary demand response programs proposed by the investor-owned utilities (IOUs),
- directed the IOUs to conduct a statewide pricing study that established the potential impacts of dynamic electricity pricing to residential and small commercial customers,
- approved a deployment plan for an advanced metering infrastructure (AMI) that will include interval metering and dynamic pricing capability for all customers served by Pacific Gas & Electric Company and
- incorporated demand response in procurement planning.

Current CPUC proceedings include the development of demand response measurement and evaluation protocols, revision and refinement of the demand response goals (currently 5 percent of annual system peak demand), review of AMI applications from SDG&E and SCE, and development of dynamic rates for large customers. At the same time, the Energy Commission has developed a new standard for Programmable Communicating Thermostats (PCT) that could require new air conditioning systems be capable of automated load reductions during critical periods and facilitating customer response to time-varying rates, and expects to adopt this standard in January, 2008.

Despite these ongoing proceedings and estimates that suggest that demand response could achieve 25 percent of California's peak demand, participation in the state's price-responsive demand response programs has grown to just 2.2 percent of peak demand by 2006.

## **Authority and Actions on Demand Response**

The Energy Commission has implemented a number of demand response programs throughout its history. Shortly after it was created, the Energy Commission adopted one of the first load management programs in the country by establishing cycling programs for residential air conditioners, water heaters, and pool pumps, and by recommending a set of time-of-use (TOU) rates for the largest commercial and industrial customers. All of these recommendations were approved and implemented by the CPUC.

More recently, in response to the 2000 – 2001 electricity crisis, the Energy Commission implemented an emergency program that provided over 1,000 California businesses with metering and control systems that enabled them to reduce their cumulative loads by over 150 megawatts within 15 minutes of receiving an emergency signal. In addition, the Energy Commission directed the implementation of Assembly Bill 29x of 2001, which provided \$35 million to install 23,000 real-time meters for customers with loads above 200 kilowatts – customers whose loads comprise 30 percent of California's peak electricity demand.

These programs, reflect the broad authority that the Commission has to address demand response. The Legislature has given the Energy Commission the power to:

- set energy standards for buildings (sections 25402(a)-(b), 25402.1 - 25402.5);
- establish and enforce efficiency standards for new appliances (section 25402(c)) ;
- establish and enforce load management standards for utilities (section 25403.5);
- recommend consideration by the CPUC and publicly-owned electric utilities of rates and other price-related practices (sections 25216.5(c), 25403, and 25403.5); and
- fund a wide variety of energy efficiency and research & development programs (e.g., sections 25410–25449.4, 25601–25602, 25620–25620.9, 25630–25650).

When the Energy Commission adopted its first load management standards, most time-responsive meters were so expensive that they were economic only for the largest commercial and industrial customers. Moreover, load control devices such as "smart thermostats" (pre-programmed to adjust air conditioning temperatures in response to price and emergency signals) and customer-utility communication equipment either did not exist or were, like interval meters, very expensive.

Now, advanced metering is anticipated to be in place for all IOU customers within the next five years and many publicly-owned utilities are considering AMI for the operational savings and service improvement potential, in addition to the potential for demand response such systems provide. Rapid improvements in communications technologies and order of magnitude cost reductions in "smart grid" technologies foreshadow substantial potential for developing a flexible, efficient, reliable and lower-cost electricity system by

facilitating and encouraging energy efficiency and load management.

## **The Scope of This Proceeding**

We intend to conduct this proceeding as both a mechanism for assessing the viability and potential effectiveness of our load management standards options and a process for developing the best of those options into cost-effective load management standards. The scope of this process will include, but is not limited to:

- developing and adopting load management standards, as appropriate;
- developing a draft implementation schedule for implementation of the load management strategies recommended/ordered by the Energy Commission;
- analyzing the level of demand response needed to achieve reliable operation of the electricity system in a more cost-effective manner than relying on generation alone;
- assessing the potential long-term conservation and efficiency impacts of dynamic tariffs and automated load reduction technologies;
- assessing the demand response potential of the rates, tariffs, and meters for publicly-owned utilities, as well as investor-owned utilities;
- assessing the feasibility and cost-effectiveness of equipment, hardware, communications protocols, and software for existing and new buildings and appliances;
- examining the requirements and opportunities for loads to qualify as emergency and operating reserves in programs established by control area operators such as the CAISO;
- developing consumer education materials intended to allow consumers to make intelligent choices about programs and tariffs and to modify their electricity consumption in response to the price signals that such programs and tariffs should provide;
- examining the feasibility and effectiveness of facilitating assistance services to customers in developing demand response strategies;
- developing and adopting compliant building and appliance standards.

## **Closing Docket Number 02-DR-01**

- The Commission hereby closes the existing proceeding Docket Number 02-DR-01. Order Number 02-0717-01.

### **Delegation of Authority to Efficiency Committee**

The Energy Commission's Efficiency Committee (Chairman Pfannenstiel, presiding member, and, Commissioner Rosenfeld, associate member), shall preside over this proceeding and carry out the activities described above. The Efficiency Committee shall take all actions reasonably necessary to comply with all applicable legal requirements, such as the requirements of the Warren-Alquist Act, the Administrative Procedure Act, and the California Environmental Quality Act. The actions shall include but are not limited to the submittal, on behalf of the Energy Commission, of all required documents to the Office of Administrative Law and the California Building Standards Commission.

### **Designation of Participants**

Section 1222(b) of our regulations states that in informational proceedings the Commission shall "require the presence and participation of such persons as the commission may direct, consistent with the nature and purpose of the proceedings." In this proceeding, we initially require all investor-owned and all publicly-owned electric utilities in California to participate. We invite the CPUC and the CAISO to collaborate with us in this proceeding. Smaller utilities may be represented by appropriate associations such as Northern California Power Authority (NCPA) and Southern California Public Power Authority (SCCPA). In addition, we also encourage participation by other stakeholders including customer advocates, environmental advocacy groups, industry associations, energy service providers, load aggregators, technology vendors, local government agencies and academic institutions. The Efficiency Committee may require or request the participation of other persons.

### **Public Participation**

The Energy Commission encourages full and free public participation. Petitions to intervene are not necessary. Although written comments are preferable, at any hearing, workshop, or other public event all persons shall be afforded a reasonable opportunity to make oral comments on the subject matter of the event. All written comments shall be addressed to:

Docket No. 08-DR-1  
California Energy Commission  
1516 Ninth Street, Mail Station 4  
Sacramento, California 95814-5512

Nine copies of all written materials shall be provided unless it would impose an undue hardship. The Efficiency Committee shall establish deadlines for comments.

The Executive Director, in conjunction with the Public Adviser, shall ensure that this order, and notice of the time and place for all hearings and workshops, are distributed to all interested persons. The Executive Director shall also ensure that drafts of proposed

regulations are made available to interested persons and the Public Adviser sufficiently in advance of consideration or adoption by the Energy Commission to allow timely public participation.

The Energy Commission's Public Adviser is available to help any person who wants to participate in this proceeding. Please call (916) 654-4489 or toll-free in California at (800) 822-6288, or e-mail [pao@energy.state.ca.us](mailto:pao@energy.state.ca.us), for assistance.

January 2, 2008

ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

/s/  
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JACKALYNE PFANNENSTIEL  
Chairman

/s/  
\_\_\_\_\_  
JOHN GEESMAN  
Commissioner

/s/  
\_\_\_\_\_  
ARTHUR H. ROSENFELD, Ph.D.  
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\_\_\_\_\_  
JAMES D. BOYD  
Commissioner

/s/  
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JEFFREY BYRON  
Commissioner

## **STATUTORY PROVISIONS ON DEMAND RESPONSE AND RELATED MATTERS**

### **Building and Appliance Standards:**

#### **Public Resources Code Sections 25402(a), (b), & (c)(1)**

The commission shall, after one or more public hearings, do all of the following, in order to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy:

(a) Prescribe, by regulation, lighting, insulation climate control system, and other building design and construction standards which increase the efficiency in the use of energy for new residential and new nonresidential buildings. The standards shall be cost-effective, when taken in their entirety, and when amortized over the economic life of the structure when compared with historic practice. The commission shall periodically update the standards and adopt any revision which, in its judgment, it deems necessary. Six months after the commission certifies an energy conservation manual pursuant to subdivision (c) of Section 25402.1, no city, county, city and county, or state agency shall issue a permit for any building unless the building satisfies the standards prescribed by the commission pursuant to this subdivision or subdivision (b) of this section which are in effect on the date an application for a building permit is filed.

(b) Prescribe, by regulation, energy conservation design standards for new residential and new nonresidential buildings. The standards shall be performance standards and shall be promulgated in terms of energy consumption per gross square foot of floorspace, but may also include devices, systems, and techniques required to conserve energy. The standards shall be cost-effective when taken in their entirety, and when amortized over the economic life of the structure when compared with historic practices. The commission shall periodically review the standards and adopt any revision which, in its judgment, it deems necessary. A building that satisfies the standards prescribed pursuant to this subdivision need not comply with the standards prescribed pursuant to subdivision (a) of this section. The commission shall comply with the provisions of this subdivision before January 1, 1981.

(c)(1) Prescribe, by regulation, standards for minimum levels of operating efficiency, based on a reasonable use pattern, and may prescribe other cost-effective measures, including incentive programs, fleet averaging, energy consumption labelling not preempted by federal labelling, and consumer education programs, to promote the use of energy efficient appliances whose use, as determined by the commission, requires a significant amount of energy on a statewide basis. The minimum levels of operating efficiency shall be based on feasible and attainable efficiencies or feasible improved efficiencies which will reduce the electrical energy consumption growth rate. The standards shall become effective no sooner than one year after the date of adoption or revision. No new appliance manufactured on or after the effective date of the standards may be sold or offered for sale in the state, unless it is certified by the manufacturer thereof to be in compliance with the standards. The standards shall be drawn so that they do not result in any added total costs

to the consumer over the designed life of the appliances concerned.

**Rate Recommendations:**

**Public Resources Code Section 25403**

The commission shall submit to the Public Utilities Commission and to any publicly owned electric utility, recommendations designed to reduce wasteful, unnecessary, or uneconomic energy consumption resulting from practices including, but not limited to, differential rate structures, cost-of-service allocations, the disallowance of a business expense of advertising or promotional activities which encourage the use of electrical power, peakload pricing, and other pricing measures. The Public Utilities Commission or publicly owned electric utility shall review and consider such recommendations and shall, within six months after the date it receives them, as prescribed by this section, report to the Governor and the Legislature its actions and reasons therefor with respect to such recommendations.

**Load Management Standards:**

**Public Resources Code Section 25403.5**

The commission shall, by July 1, 1978, adopt standards by regulation for a program of electrical load management for each utility service area. In adopting the standards, the commission shall consider, but need not be limited to, the following load management techniques:

(1) Adjustments in rate structure to encourage use of electrical energy at off-peak hours or to encourage control of daily electrical load. Compliance with such changes in rate structure shall be subject to the approval of the Public Utilities Commission in a proceeding to change rates or service.

(2) End use storage systems which store energy during off-peak periods for use during peak periods.

(3) Mechanical and automatic devices and systems for the control of daily and seasonal peakloads.

The standards shall be cost effective when compared with the costs for new electrical capacity, and the commission shall find them to be technologically feasible. Any expense or any capital investment required of a utility by the standards shall be an allowable expense or an allowable item in the utility rate base and shall be treated by the Public Utilities Commission as such in a rate proceeding.

The commission may determine that one or more of such techniques are infeasible and may delay their adoption. If the commission determines that any techniques are infeasible to implement, it shall make a finding in each instance stating the grounds upon which the determination was made and the actions it intends to take to remove the impediments to implementation. The commission's findings shall be published and

forwarded to the Governor and the Legislature.

The commission may also grant, upon application by a utility, an exemption from the standards or a delay in implementation. The grant of an exemption or delay shall be accompanied by a statement of findings by the commission indicating the grounds for the exemption or delay. Exemption or delay shall be granted only upon a showing of extreme hardship, technological infeasibility, lack of cost effectiveness, or reduced system reliability and efficiency.

This section does not apply to proposed sites and related facilities for which a notice of intent or an application requesting certification has been filed with the commission prior to the effective date of the standards.