

PIER DEMAND RESPONSE RESEARCH CENTER

BACKGROUND

The California Energy Commission's Public Interest Energy Research (PIER) program is launching a Demand Response Research Center (or "Center") led by Lawrence Berkeley National Laboratory. Funding is anticipated to be in place in spring 2004, pending full Commission approval.

As a guiding principle, Center activities will be multi-institutional in concept and operation. LBNL will host the Center; guide Center development; and provide technical, operational and planning leadership. The new Center director will solicit stakeholder input and adopt research topics accordingly. The Director will also seek the most qualified performers. A significant proportion of research will be done by researchers outside of LBNL.

Demand Response (DR) includes: (1) **load response for reliability purposes**, (2) **load response for procurement cost minimization purposes (e.g., load bidding)**, and (3) **price response by end-use customers for bill management**. Load response is typically attained through interruptible tariffs and direct load control programs. Price response can be attained through time-of-use rates, dynamic pricing, and demand bidding programs.

Two main drivers for widespread demand responsiveness are the prevention of future electricity crises and the reduction of average electricity prices. Additional goals for price responsiveness include equity, through cost of service pricing, and customer control of electricity usage and bills.

CENTER OBJECTIVES AND SCOPE

The main objective of the Center is to develop, prioritize, conduct, and disseminate research that develops broad knowledge that facilitates DR. The DR research will cover technologies, policies, programs, strategies and practices, emphasizing a strong connection to the DR market and policy makers through substantial stakeholder input. Key stakeholders in the Center include system developers, aggregators, program implementers, utilities, industry trade associations, state policy makers, researchers, building owners, engineers, and operators, building equipment manufacturers, other end-use customers. The Center will focus on the following activities:

- Create a research roadmap for DR in California
- Establish multi-institutional partnerships
- Foster connections with stakeholders through outreach efforts
- Sustain long-term attention to DR research topics
- Conduct research, development, demonstrations, and technology transfer

The Center's research agenda will be crosscutting, practical, and relevant, with a goal of fostering an understanding of the complex factors that influence "what works." The Center research agenda will initially cover four major DR research categories:

- Policies, programs, and tariffs
- Utility markets, technology, and systems
- Customer and end-use technology and systems
- Consumer and institutional behavior



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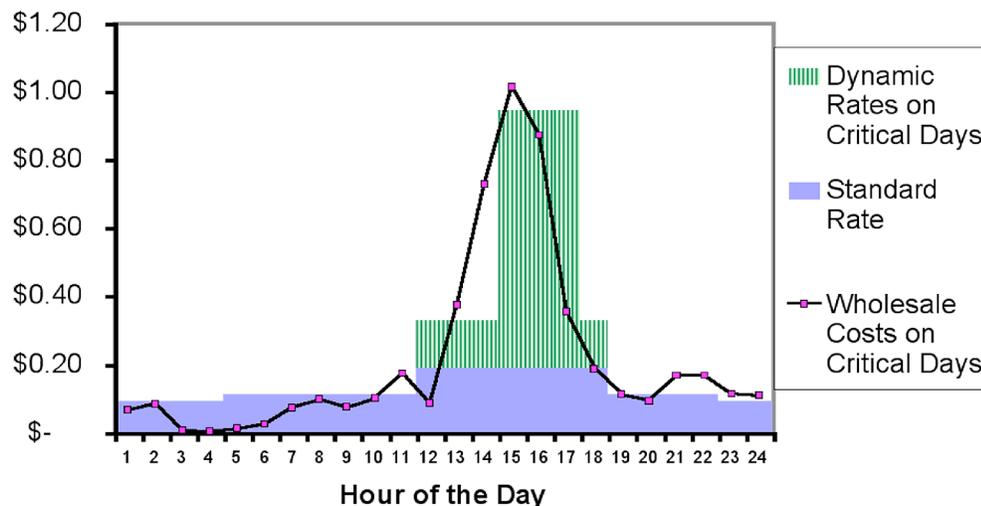


23 January 2004



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E-19 Hourly Price of Electricity on Critical Summer Weekdays (about 10 days per year)



NOTE: All prices shown in the above graph are purely hypothetical and for illustrative purposes only.

STAKEHOLDERS AND MARKET CONNECTIONS

A major element of the Center will be the strong market connection developed for each and every project. A concerted effort will be made to involve a variety of stakeholders in Center planning and on the actual research teams. Technical Staff will also be chosen from these stakeholders including: industry trade associations, researchers, building owners, engineers, and operators, and building equipment manufacturers.

In addition to the broad-based involvement of stakeholders as described above, market connection strategies will include:

- An extensive web site and an Internet-based newsletter
- Research reviews and evaluation summaries
- Project brochures and papers summarizing research results for multiple audiences
- Educational material for utility, building associations, and related organizations
- An annual DR research conference
- Semi-annual project briefings for key stakeholders

FURTHER INFORMATION

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drcc.lbl.gov

Further information on
PIER can be found at:
www.energy.ca.gov/pier

Further information on
current PIER DR
Research can be found
at:

Consortium for Electric
Reliability Technology
Solutions (CERTS,
certs.lbl.gov)

Center for the Study of
Energy Markets (CSEM,
[www.ucei.berkeley.edu/
power.html](http://www.ucei.berkeley.edu/power.html))

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Enabling Technology
Development (DRETD,
ciee.ucop.edu/drettd)