Demand Response in California: Successes and Challenges

Dian M. Grueneich, Commissioner
California Public Utilities Commission

National Town Meeting on Demand Response
June 26, 2006

Overview

- Energy Action Plan (EAP)
- Demand Response in EAP II
- Accomplishments
- Update on AMI Projects
- Challenges
- Next Steps

Energy Action Plan

- CPUC, CEC and the California Power Authority adopted a roadmap, the Energy Action Plan (EAP), to implement the state's energy policies. (2003)
- EAP established policy goals to assure that the state's "energy supplies are adequate, affordable, technologically advanced and environmentally sound."
- CPUC and CEC adopted EAP II. (2005)
- Similar to EAP I, EAP II maintains a loading order that provides direction regarding the state's energy resource preferences.
  - The loading order explicitly identifies energy efficiency, demand response, and renewables as the preferred means to meet the state's increasing energy needs.

Demand Response in EAP II

- EAP II places Demand Response among its highest priorities in the "loading order" and identifies several key action items:
  - Timely processing the IOUs' Advanced Metering Infrastructure (AMI) proposals for statewide implementation of AMI for all small commercial and residential IOU customers.
  - Issuing timely decisions on dynamic pricing tariffs to allow increased participation by customers with AMI technology.
  - Educating Californians about the time-sensitivity of energy use and how they can participate in demand response programs and tariffs.
  - Creating standardized measurement and evaluation mechanisms to verify demand response savings.
  - Integrating demand response into retail sellers' electricity resource procurement efforts so that these programs are considered equally with supply options.

Accomplishments

- Rolled-out interval meters for large customers (>200 kW) and placed those customers on time-of-use tariffs. (2001)
- Developed new demand response programs and tariffs for customers as well as expanded existing emergency triggered programs. (2003 - present)
  - CPUC recently approved the utilities' 2006-08 DR budget proposals.($262 m)
- Adopted an aggressive long-term dynamic pricing MW goal for the utilities: 5% of system peak demand by 2007. (2003)
- Completed a 2-year pilot program, the Statewide Pricing Pilot, to examine the DR capability of residential and small commercial customers. (2003)

Accomplishments (cont'd)

- Directed the utilities to propose AMI implementation plans along with cost-benefit analyses. (2004 - present)
  - Authorized a total of $70 million in pre-deployment activities for the IOUs.(2005)
- Directed the utilities (and other Load Serving Entities) to incorporate demand response into their Resource Adequacy Requirements. (2004 – present)
- Directed the utilities to propose default Critical Peak Pricing tariffs for large customers in their General Rate Cases. (2006)
- Completed Automated Demand Response System (ADRS) pilot that investigated DR capability of residential customers with automated DR technology and their willingness to pay for the technology. (2006)

Draft Decision approves PG&E's AMI Project

- ALJ draft decision adopts a project budget of $1.68 billion for full deployment of AMI, based on a positive business case analysis. **(June 2006)**
  - PG&E projects that operational savings cover 90% of AMI project costs (over 20-year useful life period) and the additional 10% would be covered through DR benefits.
- PG&E selected power line carrier technology for its electric meter communications network and fixed radio frequency network for its gas meters.
- Full deployment of PG&E's AMI system technology and network is scheduled to take 5 years. (2006-2011)
- Draft decision adopts "Voluntary CPP tariffs" for the residential and small C&I customer classes (under 200kW) with a one year bill protection provision.

Update on SDG&E and SCE's AMI Projects

- On March 28, 2006, SDG&E filed supplemental testimony with updated AMI project costs and benefits that show a positive business case.
  - SDG&E's cost estimate for full scale AMI deployment is $635 million with $762 million in operational ($471 million) and demand response ($235 million) benefits. (NPV over 28 years)
  - DR benefit calculation assumes implementation of CPP tariff as the default rate for C&I customers with demands less than 20 kW.
  - A Commission decision is scheduled for the first quarter of 2007.
  - AMI deployment is expected to be completed in 2 ½ years (mid-2008-2010).
- SCE proposed a 7 ½-year multi-phased approach to develop and deploy the next generation of AMI (2006-2013).
  - SCE is defining its AMI functional requirements, determining commercial availability of the AMI technology, and developing its preliminary business case analysis.
  - SCE expects to have its AMI beta product selection in the first quarter of 2007.
  - AMI project application and business case filing is expected in December of 2008.

Challenges

- There has been a modest, but steady, growth in customer participation in DR Programs since 2003. Subscriptions in day-ahead programs are unlikely to meet the 2007 goal.
- Subscribed MW in PG&E, SCE, and SDG&E territories (highest MW potential of the programs) [1]:

	July 2003	July 2004	April 2006	2007 Goal
Emergency-triggered, Day-of Programs	**1,485 MW**	**1,500 MW**	**1,550 MW**	**None**
Day-Ahead Programs	**0 MW**	**530 MW**	**770 MW**	**2,000-2,200 MW [2]**

[1] "Upper-bound" estimates; programs are currently undergoing evaluation/verification to determine actual load impacts

[2] 5% of an assumed 40,000- 44,000 MW of system peak demand – **illustration purposes only**

Challenges (cont'd)

- Expanding customer acceptance/participation
  - Misconceptions or lack of understanding demand response programs/concepts persist amongst customers
  - Increasing incentives to attract participation is constrained by other considerations – cost-effectiveness, revenue neutrality.
- Developing appropriate time-varying rates
  - AB1-X: rate freeze for residential customers?
  - ISO's Market Redesign and Technology Upgrade (MRTU) creation of day-ahead hourly price market will help.

Next Steps

- Final CPUC decision on **PG&E's full deployment AMI application -- Summer 2006**.
- CPUC decision on **SDG&E's full deployment AMI application --** the **first quarter of 2007**.
- CPUC decisions on **default CPP tariff – 2007-2009**
- Staff has proposed a new OIR focusing on development of DR measurement protocol, cost-effectiveness methodology, and reassessment of the DR goals **– Fall 2006**

Conclusion

- Demand response can be a viable resource option for reducing peak electricity use.
- Demand response requires careful planning, significant funding and time commitment, and regulatory diligence.
- California will work on:
  - Expanding customer participation
  - Developing a viable cost/benefit framework
  - Reassessing DR goals
  - Developing CPP tariffs


PUBLIC UTILITIES COMMISSION
EUREKA
STATE OF CALIFORNIA