

Demand Response Update

**Bruce Kaneshiro & David Hungerford
California Public Utilities Commission
& California Energy Commission**

Demand Response in the Energy Action Plan

- **The Energy Action Plan¹ is an implementation “road map” for energy policies articulated by the Governor, the CPUC and the CEC.**
- **The EAP places Demand Response among its highest priorities in the “loading order”, a priority sequence of action items to address the state’s increasing energy needs.**

[1] The state energy agencies adopted EAP I in 2003, and adopted EAP II in August 2005.

Demand Response in the Energy Action Plan (Continued)

- **The Energy Action Plan identifies several key Demand Response action items:**
 - Process the IOUs' proposed Advanced Metering Infrastructure (AMI) installation plans.
 - Identify and adopt new programs and revise current programs as necessary to achieve the 5% demand response goal by 2007 and to make dynamic pricing tariffs available for all customers.
 - Educate Californians about the time sensitivity of energy use and how they can participate in demand response programs.
 - Create standardized measurement and evaluation mechanisms to ensure demand response savings are verifiable.
 - Incorporate demand response appropriately and consistently into the planning protocols of the CPUC, the CEC, and the CAISO.

Demand Response Actions Taken To Date

- Rolled out interval meters for large customers (>200 kW) and placed those customers on time-of-use tariffs. (2001-2003)
- Directed the IOUs to develop new demand response programs and tariffs for customers as well as expand existing emergency triggered programs. (2003 - present)
- Adopted aggressive demand response goals (MW) for the IOUs. (2003)*

* (see Slide 6)

Demand Response Actions Taken To Date (Continued)

- **Completed a two-year pilot program, the Statewide Pricing Pilot, to estimate the demand response capability of residential and small commercial customers as input to the utility business case for AMI. (2003)**
- **Evaluating the utilities' Advanced Metering Infrastructure (AMI) applications: (2004 - present)**
 - Authorized \$70 million in pre-deployment activities for PG&E, SCE and SDG&E in 2005.
 - Authorized PG&E to fully deploy AMI in its territory (\$1.7 billion) over the next 5 years.
- **Directed the utilities (and other Load Serving Entities) to incorporate demand response into their Resource Adequacy Requirements (RAR). (2004 – present)**

Demand Response Goals

- **Demand response goal for the utilities: 5% of system peak demand by 2007 (D.03-06-032)**
 - Purpose: to develop demand response as a resource to “enhance electric system reliability, reduce power purchase and individual consumer costs, and protect the environment.”
 - Application: “over and above” demand response achieved through existing emergency programs
 - Implementation: “through programs and tariffs that are triggered by price and not by emergency conditions”
- **Goals clarified in 2005 (D.05-01-056)**
 - “Price-responsive” tariffs and programs categorized as “day-ahead”
 - Reliability programs (interruptibles; load control) categorized as “day-of”

Types of Demand Response Programs in California

- **“Day-Ahead” Programs**
 - Critical Peak Pricing: Participants receive reduced on-peak energy rates for most summer hours in exchange for paying high on-peak rates during 12 “critical peak” periods.
 - Triggered by the IOU under the following conditions: high wholesale electricity prices, temperature, high system peak demand and/or low generation reserves.
 - Demand Bidding Program: Participants ‘bid’ load reductions they can provide the following day and are paid for the actual amount of load they reduce.
 - Triggered by the IOU upon issuance of a day-ahead Alert by the CAISO for the affected territory or a CAISO day-ahead forecast of 43,000 MW.

Types of Demand Response Programs in California (Continued)

- **Day-Ahead Programs (Continued)**
 - Capacity Bidding Program (starting in 2007): aggregators nominate load (via contracts with end-use customers) and are compensated with capacity/energy payments.
 - The program is triggered by a 15,000 BTU/kWh heat rate. In other words it would be triggered when the IOU anticipates the use of its peaker plants to meet demand.
 - C&I Peak Day Credit Program: (SDG&E only) customers receive as much as a 20% discount for a 20% reduction in their average demand during peak hours.
 - Triggered by temperature, utility system load, high spot market prices, or a special alert by the CAISO.

Types of Demand Response Programs in California (Continued)

- **Emergency or Day-Of Programs:** *triggered by the IOUs upon notification by the CAISO of statewide or local emergencies (Stage 2 alert or transmission-related)*
 - Interruptible tariffs and programs: Participants receive rate discounts or bill credits based on the amount of load they are willing to reduce in emergency situations. Penalties are assessed for failure to reduce to their contracted firm service level.
 - Air Conditioner Cycling: Participants receive bill credits based on number and length of interruption to their air conditioner unit.

Types of Demand Response Programs in California (Continued)

- **Other**
 - Marketing/Customer education programs to either promote demand response programs or educate customers about demand response concepts: includes mass media campaigns (*Flex Your Power Now!*) as well as programs that target specific groups such as water agencies, medium-size businesses, government agencies.
 - Technical Assistance and Technology Incentives: customers receive free 'audits' to identify demand response potential, and rebates for technologies that can enable automated demand response.

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DR Actions Taken in Preparation for Summer 2007

- **Various CPUC rulings issued in August 2006 directing the IOUs to file proposals to augment their existing DR programs in preparation for Summer 2007.**
- **The Commission has issued (on Oct. 30) a Proposed Decision that approves the following proposals:**
 - AC Cycling Program for PG&E
 - Increasing incentives or reducing penalties for both day-ahead and day-of programs
 - Greater flexibility on rules and operation of certain programs
 - Streamlining application and paperwork for customers
 - Authorize an RFP process for IOUs to procure DR resources
 - Encouragement of new technologies/concepts such as permanent load-shifting (eg. thermal energy storage) and “AutoDR”

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DR Actions Taken in Preparation for Summer 2007 (Con't.)

- Approved \$18 m. for SCE to **add 225 MWs to its AC Cycling Program**, bringing its total AC Cycling Load to 600 MWs by July 2007. (Resolution E-4028)
- Approved the **new Capacity Bidding Program (CBP)** which will replace the Demand Reserves Partnership (set to expire in May 2007). IOUs anticipate 85 MWs (statewide) for this program. (Resolution E-4020)
- Pending approval of SCE's proposal to add a **15-minute option** for its interruptible tariff. If approved, the option will provide greater operational flexibility for the CAISO for day-of-emergencies. (Resolution E-4039 – on the 11/9 Commission agenda)

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	MWs* as of Sept. 30, 2006		
Program	PG&E	SCE	SDG&E
Non-Firm/I-6	285 – 300 MWs	581 – 609 MWs	-
BIP	32 – 34 MWs	79 – 83 MWs	.2 MWs
AC Cycling/AP-I	-	446 – 467 MWs	14 – 23 MWs
OBMC and/or Peak Gen	12 MWs	9 MWs	25 – 64 MWs
Other	-	-	6 – 21 MWs
Emergency Programs Total	330 – 346 MWs	1,115 – 1,168 MWs	45 – 108 MWs
Critical Peak Pricing	22 – 60 MWs	3 – 4 MWs	9 – 15 MWs
Demand Bidding Program	23 – 232 MWs	11 – 209 MWs	1 – 11 MWs
Demand Reserves Ptnshp. (ending May '07)	215 – 241 MWs	12 – 178 MWs	10 – 19 MWs
C&I Peak Day Rebate or Business Energy Coalition	15 – 20 MWs	-	11 – 33 MWs
Day-Ahead Programs Total	275 – 553 MWs	26 – 391 MWs	31 – 78 MWs

* Source: IOU Monthly Reports/Agency staff calculated the lower numbers

Challenges and Barriers

- **How to expand customer acceptance/participation in DR?**
 - Residential customers not yet exposed to time-differentiated rates or the concept of the varying cost of energy. AMI and more education are needed for this customer class. AB1-X poses a potential barrier to default CPP rates for this customer class.
 - Large customer groups resistant to default (opt-out) Critical Peak Pricing rates - large customers not convinced that the costs of participation are offset by the benefit potential of DR programs/tariffs.
 - Increase Incentives?
 - Constrained by other considerations – cost-effectiveness, revenue neutrality.

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Challenges and Barriers (continued)

- **Accounting for and dispatching DR resources – how to ensure a smooth process from resource adequacy to CAISO scheduling and dispatch**
 - What data/analysis is required by the CAISO to account for and dispatch price-responsive DR programs/tariffs?
 - What are the CAISO's dispatch constraints and what modifications need to be made to the current design of the DR programs/tariffs to address these constraints?
 - What are the impacts associated with those modifications? For example, if the CAISO requires telemetry metering, how much will that cost? If DR resources need to be scheduled by 10 am day-ahead, what are the implications for end-use customers and IOUs?
- **Price formation in day-ahead and real-time markets**
 - How will forward capacity contracts impact price? For example, will the day-ahead price be robust and “representative” enough to use as a basis for real-time pricing?
 - How to link wholesale and retail prices?

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What's Coming Up

- CPUC proposed decision authorizing augmentation of DR programs for summer 2007 **set for the Commission's 11/30 agenda.**
- CPUC decision on **San Diego Gas & Electric's full deployment AMI application** – expected **1st quarter 2007.**
- Development of dynamic pricing for all customers: in each IOUs' respective General Rate Case. **PG&E's GRC** is the first one; a specific schedule not set at this time.
- Development of a Demand Response **measurement protocol** and **cost-effectiveness methodology** – starting in late 2006/early 2007.