

PG&E's General Comments on Demand Response Vision Update

January 11, 2008

This document provides PG&E's comments on the draft "California Demand Response: A Vision of the Future". The comments are divided into two parts, first general comments on the Vision and then specific changes to the draft document itself.

The draft Vision presented by CEC, CPUC and CAISO staff is a very good start to the Market Redesign and Technology Upgrade (MRTU) Vision Working Group, and PG&E is in general agreement with the document and Vision. The Vision provides a comprehensive high level picture of how demand response (DR) should ultimately work in California. The product of the Vision Working Group will be an essential element for the other MRTU working groups, particularly the Products and the Infrastructure Working Groups.

PG&E has the following general comments:

- The Vision defines an "ideal end state" that will take time to accomplish and in some sense will always be unattained to some degree. The Vision should indicate these points, and part of the vision should be an overall time frame (with milestones) to accomplish the bulk of the vision (e.g., the number of years). This time frame needs to be carefully thought out as part of a consistent plan to assure that all the prerequisites are in place each step of the way to create a successful outcome. Overly hasty DR initiatives that are not systematically coordinated could increase customer resistance to DR programs or create unintended consequences.
- PG&E recommends keeping the Vision at the "high level". The Vision is not the document to describe the details. Resolving DR resource details will need to be included in the work of the other MRTU Working Groups and various CPUC proceedings.
- PG&E recommends that the three agencies work with the stakeholders to establish a "road map" that will coordinate implementing this DR vision across a number of electric resource proceedings and activities. This point was made by PG&E and others in the recent comments on DR Goals in R.07-01-041.
- It is essential that DR be reliable. If the CAISO or the LSE cannot be assured that the reductions or shifts in demand will indeed occur, reliability could be adversely impacted. While participation may be voluntary, once a customer "signs up," there should be some assurance of response. If DR is not reliable but is assumed

to be available for meeting load, system reliability will be diminished. PG&E's revisions to the Vision emphasize the need for reliable DR.

- PG&E suggests that the Vision's section on customer on-site generation -- as a part of demand response -- be expanded. On-site generation, which may be renewables, batteries, combined heat and power (CHP) or fossil fueled, is a choice that a customer should have to respond to electricity prices. If the CPUC chooses to not call fossil fuel emergency backup generation DR, it still needs to allow customers to manage their demand by using on-site generation as one option. Current DR programs allow customers to use on-site generation to reduce demand from the grid and there are no plans to change this. Also, many other states explicitly seek DR from on-site backup generation as a means to prevent rolling blackouts. The potential environmental quality impacts from on-site generation are dealt with through the agencies that permit such facilities. Even today's diesel-fueled facilities may be fueled by renewable liquid fuels in the future.
- The Vision states that the DR market shall be structured to ensure competitive participation *while protecting California's ratepayers*. PG&E recommends that the Vision make clear what these consumer protections are.

The following page begins PG&E's proposed specific revisions on the draft Vision.

California Demand Response: A Vision for the Future

Joint statement by the staff of the California Energy Commission, California Public Utilities Commission, and California Independent System Operator, Inc.

Vision Statement

All California electricity consumers have the opportunity and capability to adjust their usage in response to time-varying signals reflecting economic, reliability or environmental conditions.

Definition

DEMAND RESPONSE allows end-use electric customers to reduce their electricity usage in a given time period, or shift that usage from the grid to another time period, in response to a price signal, a financial incentive, an environmental condition or a reliability signal.

Demand Response Providers/Curtailment Service Providers (which includes IOUs, ESPs, CCAs, LSEs, and third party aggregators) may sponsor demand response programs and sell the demand response load to utilities and/or the CAISO, but are not necessarily load-serving entities. ~~A Demand Response Provider may also aggregate demand and bid demand reductions or act as an agent on behalf of retail customers to the CAISO or contracts with the utilities, LSEs, ESPs, SCs, etc., to aggregate retail customer load as part of a demand response program.~~

Objectives

Enhance Infrastructure and Reliability

- Numerous and diverse customers voluntarily reducing or shifting their demand from the grid in response to economic or reliability signals is preferable to controlled outages during power system emergency situations
- Timely and reliable demand response (within seconds, minutes or hours) from customers can defer or obviate the need for investment in generation, transmission, and/or distribution
- Cost-effective and reliable demand response should be used in resource planning, procurement planning, and to help satisfy operating reserve requirements, including Resource Adequacy (RA) or similar requirements
- Demand response can be used to maintain grid and market reliability, ease delivery constraints, used on a locational or regional basis to improve system reliability, meet emergency system needs and reduce electricity costs.
- Demand response can shift load to off-peak hours, and thereby enable LSEs to utilize more RPS-eligible renewable power provide a market for renewables to meet load that has been shifted to off-peak when some intermittent renewable resources are more coincident.

- Technologies to enable demand response may also provide other customer service benefits including outage detection and management, power quality management, increased energy efficiency and other information capabilities

Manage Electricity Costs

- Demand response can give customers an opportunity to reduce their energy costs by adjusting their usage in response to time-variant retail prices
- Customers should have the opportunity to benefit from providing demand response
- Demand response tariffs dynamically incorporate the cost of providing electricity service, thereby encouraging consumers to adjust their usage and lowering overall wholesale electricity costs for all customers
- Timely Additional demand response can help mitigate wholesale market power and ensure reasonable prices
- To encourage demand response, LSEs should design and offer retail rates options that dynamically incorporate the marginal cost of providing electricity service while allowing LSEs an opportunity to recover all their reasonable expenses
- Demand response activities and infrastructure resources should be designed to be cost-effective from a societal perspective

Reduce the Environmental Impact Caused by Electricity Usage

- Demand response can reduce consumer electricity usage during peak periods when the least efficient generation units ~~would be operating~~ operate, thereby reducing greenhouse gas and other air emissions including those that produce smog on hot days.
- Demand response can shift load from peak to off-peak hours, and thereby enable LSEs to utilize more efficient resources and RPS-eligible power
- On-site generation and storage technologies (e.g., fossil-fuel emergency backup generation, permanent load shifting equipment, batteries, renewable generation and combined heat and power) may be part of the DR definition
- ~~Demand response via permanent load shifting can help integrate intermittent, non-peak time, renewable resources into the electric grid~~
- ~~The agencies' definition of demand response does not include or encourage switching to use of fossil-fueled emergency backup generation~~

Goals and Principles

Consumer Education and Customer-Oriented Design

- Electric consumers in California should be made aware of the time-variable nature of electricity costs and of general steps they can take to help lower those costs
- Electric consumers in California should be made aware of grid reliability and environmental benefits of demand response
- All customers that desire it should be able to easily access their information about their own electricity use with the option for hourly or more frequent information, accessible in a timely fashion, and with the option to share their information with a demand response provider, of their choosing

- Demand response resources should be designed to be customer-friendly, simple, voluntary, and easy to understand

Ability to Participate in Dynamic Pricing and Dispatchable Programs

- Dynamic pricing tariffs options should be made available for all customers, thereby allowing customers who choose these options to manage their usage in response to appropriate price signals
- All customers should also have the option to participate voluntarily in demand response where they can provide demand reductions as a dispatchable resource, including:
 1. In ISO markets: real-time, day ahead, day-of, emergency, and ancillary services
 2. In retail markets: utility programs including direct load control, controllable thermostats, and other demand response automatically communicating systems that are based on an open communications architecture and support residential, commercial and/or industrial consumers' ability to provide load reductions

Technologies and Infrastructure

- All customers should be provided cost-effective advanced metering systems capable of supporting time varying tariffs with metering done on an hourly basis or better, and with minimal hardware upgrades necessary to participate in various dynamic pricing tariffs
- Any advanced metering systems should support the ability to automatically retrieve data information and provide the customer with timely access to this retrieved data
- All residential customers should be enabled through communications media interfaces to remotely control devices in their home area network¹ and manage their energy usage. Furthermore, customers who choose to should be able to conveniently access their usage information using communications media (*e.g.*, over the internet, via on-site devices, or other means chosen by the customer)
- The broadest possible range of metering and communications technologies, that are compatible with Title 24 devices, which can enable demand response should be encouraged, provided that all technologies should be compatible with utility billing and other back-office systems
- Advanced metering infrastructure, automated demand response and direct load control should be encouraged to provide customers with the opportunity to reduce usage with minimal intrusion and effort. Proliferation of user friendly technologies will have beneficial effects on grid reliability and operation
- The use of a smart grid allows for greater implementation of demand response. Smart grid technologies provide real-time information on the transmission and the distribution level that can enable efficient use of demand response resources, offset

¹ A home area network is a network contained within a user's home that connects a person's digital devices, from multiple computers and their peripheral devices to telephones, home entertainment units, home security systems, smart appliances and other digital devices that are wired into the network.

grid enhancements, increase the visibility of customer usage to ISO, LSE and ESPs and overall grid stability

- State building code (Title 24) updates provide a cost-effective opportunity to introduce demand response technologies during the construction of new buildings or renovation of existing buildings

Demand Response in the Wholesale Market

- Demand response program designs and implementation activities must integrate and align with the CAISO's wholesale market structure
- Market rules, including technical and operational standards, should not unnecessarily limit the ability for demand to bid directly into the wholesale market, including into capacity, ancillary services and energy markets
- Market rules should allow for small load to be aggregated and bid into the wholesale market
- Load-serving entities LSEs and demand response providers should be able to freely participate and compete directly in the wholesale market
- Demand response providers should have access to customer data, with appropriate confidentiality protections, to enable the development and implementation of demand response products that meet customer needs
- Demand response should be treated as a resource for planning and procurement purposes (including meeting RA requirements)
- Demand response participants should be given appropriately aligned wholesale market pricing signals, which may incorporate locational marginal prices
- The demand response market shall be appropriately structured to ensure competitive participation while protecting California's ratepayers from market abuses
- The CAISO's market rules should allow the integration of demand response programs into the CAISO market structure; however, the CAISO should not act as a direct DR program sponsor

Investor-Owned Utility (IOU), Energy Service Provider (ESP) and Community Choice Aggregator (CCA) Issues

- All LSEs should proactively seek the use of demand response resources in meeting their service obligations
- IOUs, ESPs, and CCAs should incorporate demand response resources into their overall procurement portfolio and as a portion of their reserve requirements
- IOUs, ESPs, and CCAs should treat demand response resources similar to other resources in their procurement portfolio when considering a mix of resources necessary to satisfy their load-serving obligation. The State "loading order" also needs to be incorporated into how DR is treated in the portfolio
- All IOUs, ESPs, and CCAs demand response efforts should be periodically evaluated to determine past performance and improve future effectiveness
- IOUs, ESPs, and CCAs should competitively procure and/or price demand response resources in an open and competitive demand response market

Coordination between CPUC, CEC and CAISO

- Effective demand response efforts will require coordination among the agencies promulgating this vision statement
- The CAISO will follow FERC Order 890 in coordinating transmission planning as it relates to considering demand response resources
- Coordination will also be necessary related to:
 - IOU procurement planning and resource adequacy
 - IOU rate design modifications, either in general rate cases, or separate venues
 - Energy efficiency (and other public purpose) programs
 - Other peak demand reduction programs
 - ISO efforts to develop transparent wholesale market pricing mechanisms
- Changes to ISO market rules to allow additional participation by non-IOU demand response providers
- Necessary legislative changes to rationalize rate design structures