TURN's Comments on:
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.

TURN Comments: The Vision Statement should be wary of making statements of "principle" that should really be researched for factual accuracy. For example, assertions regarding potential T&D benefits, reduced emissions, etc.

In general, the statement is heavily weighted toward the benefits of a "smart grid" with no mention of the potential downsides – cost, security, fragility, etc.

Vision Statement

All California electricity consumers have the opportunity to obtain the~~and~~ capability to adjust their usage in response to time-varying signals reflecting economic, reliability or environmental conditions. (Not all consumers may want or be willing to pay for this capability)

Definition

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

Demand Response Provider/Curtailment Service Providers 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 in response to economic signals is preferable to controlled outages during power system emergency situations

If the reference to "controlled outages" means "rolling blackouts," TURN would agree. However, if "controlled outages" includes programs such as A/C cycling and interruptible rates, TURN is not aware of any basis for the statement that voluntary responses to price signals are preferable to such programs.

- Timely demand response (within seconds, minutes or hours) from customers can defer the need for investment in generation, transmission, and/or distribution

Realistically DR won't avoid T&D unless the DR is consistent (EVERY time there is an overload) and the system is in need of an upgrade anyway --in other words, under rare circumstances. In addition, DR has to be dispatched very quickly – a response in "hours" is not going to avoid local distribution costs. There is a need to evaluate customer diversity at the substation and distribution line level.

a. Finally some time-differentiated rates (i.e., PG&E E-7) actually overloaded some local distribution circuits because the peak rates applied to the period from 12-6 pm and residential customers' peaks occurred during 7 pm hour. Because local circuits were overloading PG&E requested to change the time periods for E-7.

b. The only program that TURN has seen to date that avoids distribution investment is Edison's dispatching of its AC cycling program on a small locational basis (29 MW at a time on a program that has over 400 MW). Edison's monthly interruptible reports to CPUC show the dispatch record for summer 2007.

- Cost-effective demand response should be used in resource planning, procurement planning, and help satisfy operating reserve requirements.

In order to provide operating reserves DR will have to be extremely reliable. TURN is not certain that the ISO is on board with this yet – as we understand it, the ISO still procures AS to the ISO load forecast, BEFORE subtracting potential DR. The CPUC should walk before it decides to run in this regard. In particular, TURN is concerned that most if not all of the

Demand Response programs approved to date are NOT COST-EFFECTIVE. The CPUC should find a way to make programs cost-effective first before tackling more ambitious goals.

- 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. Reducing costs remains to be seen –what is the cost of the DR and related incentives compared to the benefits?
- Demand response can provide a market for renewables to meet load that has been shifted to off-peak when some intermittent renewable resources are more coincident. This assumes that DR is a load shifting program and not a load reduction program, yet most DR is load reducing not shifting. Also, shifting load to off-peak hours may increase baseload coal generation, so GHG emissions may actually increase. This requires further study
- 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. Watch out for double counting of these benefits –most have already been claimed for AMI. Also, a system such as Edison's that already has lots of SCADA and other automated systems already has 90% of the outage detection and automated notification in place. Further, outage notification and outage *restoration* are not always the same. AMI is not going to install a transformer faster or drive a truck faster after the notification of the outage (not to mention utility computer systems that dispatch work crews).

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. Of course the reduced energy cost needs to be weighed against the loss of comfort and additional hassle factor for the customer.
- Customers should have the opportunity to benefit from providing demand response—demand response is not an end in itself. Customers do this to save money, as already covered above.
- 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. Of course there are many goals in rate design, of which "cost of service" is

only one. Rate design should also advance the State's energy efficiency and GHG reduction goals at *all* times.

- Timely demand response can help mitigate wholesale market power and ensure reasonable prices—this is same benefit as above—reducing wholesale energy prices.
- To encourage demand response, LSEs should design and offer retail rates that dynamically incorporate the marginal cost of providing electricity service, but not to the exclusion of other rate design goals.
- Demand response activities and infrastructure should be designed to be cost-effective from a societal perspective. TURN emphatically agrees! However, any increased value due to externalities needs to be quantified and not just verbally bandied about as justification for programs that are not otherwise cost-effective.

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, thereby reducing greenhouse gas and other air emissions. This is not certain. Increasing baseload generation (which is often coal-fired) won't help emissions.
- Demand response via permanent load shifting can help integrate intermittent, non-peak time, renewable resources into the electric grid—this permanent load shifting is best accomplished through rate design, and TOU rates that have been mandatory for large customers for over 20 years.
- 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, but not to the degree that energy efficiency and GHG reduction goals are given short shrift.
- 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 and with the option to share their

information with a demand response provider, of their choosing. In the Statewide Pricing Pilot only a very small portion of customers ever accessed their usage. This type of granular information is most useful for *automated* demand response.

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

Ability to Participate in Dynamic Pricing and Dispatchable Programs

- Dynamic pricing tariffs should be made available for all customers, thereby allowing customers to manage their usage in response to appropriate price signals if they so choose.
- 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, if cost-effective.

Technologies and Infrastructure

- All customers should be provided, if cost-effective, with 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— To date, on an operational basis (and that should be the standard for evaluating the c/e of AMI) none of the systems are remotely cost-effective. They are only c/e by including unsubstantiated claims about DR's ability to provide reliable and meaningful demand response. Thus, this is a circuitous argument.
- 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

network[1] and manage their energy usage. What % of CA customers will be able to do this, either intellectually or financially? This is really a system for the rich and internet savvy and what % (beyond CPUC and CEC staff) are capable and interested enough to do this? Automation is therefore the key to making such a system work. 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 Is this a fact? What about hacking and cyber-security?
- 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 grid enhancements, increase the visibility of customer usage to ISO, LSE and ESPs and overall grid stability—Seems like small incremental benefits of smart grid compared to existing SCADA systems already in place.
- 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 Is this fact? Watch out for double counting of the benefits –once for the Title 24 device and again for the communications network.

Demand Response in the Wholesale Market

[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.

- Market rules, including technical and operational standards, should not unfairly 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 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 protection, 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 if it meets relevant requirements
- Demand response participants should be given appropriately aligned wholesale market pricing signals, which incorporate locational marginal prices
- The demand response market shall be appropriately structured to ensure competitive participation while protecting California's ratepayers

Investor-Owned Utility (IOU) Issues

- IOUs should incorporate demand response resources into their overall procurement portfolio and as a portion of their reserve requirements
- IOUs 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
- All IOU demand response efforts should be periodically evaluated to determine past performance and improve future effectiveness
- IOUs should competitively procure 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

    - 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.

TURN Comment: This is nothing is nothing more than a code word for attacking the statutory 130% of baseline rate protections and does not belong in a document addressing other issues. This Vision Statement is not the place for taking legislative positions.