

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Rulemaking Regarding Policies and Protocols for Demand Response, Load Impact Estimates, Cost-Effectiveness Methodologies, Megawatt Goals and Alignment with California Independent System Operator Market Design Protocols

Rulemaking R.07-01-041
(January 25, 2007)

**REPLY COMMENTS OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR
ON GOALS, PURSUANT TO ASSIGNED COMMISSIONER’S AND
ADMINISTRATIVE LAW JUDGE’S RULING REVISING PHASE 2
ACTIVITIES AND SCHEDULE**

These reply comments of the California Independent System Operator Corporation (“CAISO”) pertain to the October 1, 2007 *Assigned Commissioner’s and Administrative Law Judge’s Ruling Revising Phase 2 Activities and Schedule* (the “October 1 Ruling”). The October 1, 2007 Ruling included an attached Energy Division staff proposal entitled “ENERGY DIVISION’S PROPOSED DEMAND RESPONSE GOALS.”¹

I. INTRODUCTION

As the CAISO stated in our opening comments filed November 26th, the CAISO is very supportive of the Energy Division’s proposed demand response goals, and so we were encouraged that the majority of party comments also indicated their alignment with and support for the goals as outlined in the Energy Division’s proposal. The majority of differences expressed appear to focus less on the overall goals and more on the means by which to achieve the goals, such as: the right approach, the appropriate forum, and timing

¹ Subsequent to the ruling, the date for submitting reply comments was extended from November 30 to December 7, 2007.

and coordination concerns. These differences should be manageable, given the level of agreement on the overall goals and milestones to be achieved.

II. DISCUSSION

The CAISO offers the following reply comments to clarify or build on party comments and/or to suggest additional detail and depth to specific goals and milestones the Commission should consider in its final draft and ruling on demand response goals. The CAISO's reply comments are organized around the Energy Division's proposed goals as set forth in staff's goal proposal. For each goal we address, the CAISO references various points and comments that other parties have made in their initial comments, followed by the CAISO's comments in reply.

A. Energy Division's Proposed Demand Response Goals and Milestones for Goal Attainment

➤ Goal 1. Customer as a DR Resource

Comment of the Joint Parties- EnerNOC et al.

Beyond the roll-out of AMI meters, it would be beneficial ... to have the pulse outputs from the utility meters universally available to customers and their designees without having to special order pulse outputs and then wait months for equipment to be installed.²

CAISO Comment in Reply:

The CAISO supports this statement made by Joint Parties and believes that the Commission should ensure that information, such as meter pulses, is readily available at no or low-cost to a third-party, provided that approval is given by the end-use customer. The ability to develop and increase cost-effective demand response, especially out of the residential and small commercial markets, will be dependent upon DR providers having

² Comments of EnerNOC, Inc., EnergyConnect, and Comverge, Inc., on the Energy Division's Proposed Demand Response Goals, dated and filed November 26, 2007, re Section III [re Goal 1], at p.5.)

low-cost, easy and timely access to information up the entire chain, from the customer meter to the price and reliability signals communicated by the CAISO. Given that information and access to it is an important component to the overall success of both generating and non-generating resources participating in organized markets, the CAISO would encourage the Commission to provide clear guidance on this issue in its final ruling, by establishing a goal or milestone under “*Customers as a Demand Response Resource*” that addresses access to customer energy-use information.

➤ **Goal 2. Alignment of Retail DR Programs with the Wholesale Market**

Comment of Division of Ratepayer Advocates

*DRA Goal #4: Freeze Utility-Specific Emergency Programs at the Current Level and Transition These Programs to Integrate into the CAISO’s Day-ahead and Real-Time MRTU Processes*³

Comment of The Utility Reform Network

*TURN also urges this Commission to take the necessary actions to transition today’s “reliability” based DR programs, such as large customer interruptible tariffs and some residential ACC programs, such that they can be integrated into the CAISO market by the time MRTU Release 1A is implemented.*⁴ ... (at p.7)

CAISO Comment in Reply

The CAISO encourages the Commission to adopt this goal, as conveyed above by DRA and detailed in its comments and as further discussed by TURN in its comments. Having the Commission provide a clear policy statement on the future direction of emergency triggered programs would be very helpful in bringing parties together to work

³ Opening Comments of the Division of Ratepayer Advocates, dated and filed November 26, 2007, Section III [DRA’s Proposed Goals for IOUs’ 2009-2011 Programs], Item D [DRA Goal #4], at p 7.

⁴ Comments of The Utility Reform Network on Demand Response Goals and Milestones, dated and filed November 26, 2007, at p. 7 [addressing Energy Division Goal No. 2].

toward a mutually agreeable solution to the successful integration of these programs into the wholesale electricity markets.

Comment of Southern California Edison

It may be advisable to plan for an incremental roll-out of program changes within the 2009-11 program cycle, rather than attempt to make wholesale market program proposals in the 2009-11 DR application.⁵

CAISO Comment in Reply

The CAISO recommends that the Commission adopt SCE's rational, incremental roll-out approach, as the Commission considers and approves the next set of DR programs for the 2009-2011 program cycle. The CAISO would be concerned if there were a push to develop/modify and approve a whole set of DR programs in an all-at-once, "big bang" fashion in 2008, when so much development and collaboration will be happening at the DR working group level, to accommodate the *next generation* of demand response resources that are to be integrated into the wholesale electricity markets and designed to directly contribute to maintaining reliability.

As a first step, the CAISO recommends that the Commission postpone developing new demand response programs and simply extend or make minor modifications to existing successful DR programs into 2009, until the next generation of DR programs can be developed to take advantage of the market design enhancements the CAISO is putting into place and to benefit from any new infrastructure or processes that will, of necessity, be in place on the utility and DR Provider side. The CAISO is hopeful that development of the next generation of DR programs can commence during the 2nd quarter of 2008, through 2009, for roll-out in 2010. This schedule would coincide with the CAISO's proposed MRTU Release 1A market design enhancements. In this regard, the CAISO's proposed market simulation testing of the Release 1A market design features is to be

⁵ Southern California Edison Company's (U 338-E) Comments on Energy Division's Proposed Goals and Milestones for Demand Response, dated and filed November 26, 2007, Section B.1, p. 8

conducted in the January to March 2009 timeframe, with production scheduled for March 31, 2009 or one-year after the start of MRTU. During the market simulation, new DR products could be tested in this environment and tested against any new infrastructure or process/procedures on the utility and/or DR Provider side, and then ultimately rolled-out coincident with the production of the Release 1A MRTU market design. In light of this scheduled activity, the Commission would only have to consider a “go-slow” approach and/or “program extension” approach for 2009. The CAISO believes that a modest delay in developing new DR programs will leave California ratepayers far better off than an approach which spends a lot of time, money and effort on programs that, in the end, may neither fit the wholesale market structure nor contribute tangibly to reliability.

➤ **Goal 3. Send the Proper Market Signal to DR Participants**

Comment of Joint Parties- EnerNOC et al.

In load pockets (e.g. San Francisco), where supply is constrained because transmission and/or generation are inadequate, customers should be compensated for their load reductions based on local prices.⁶

CAISO Comment in Reply

The CAISO fully supports this notion and believes that the Commission should support it as well. Demand response resources that act as Participating Load can be scheduled, bid, and dispatched at a node or custom aggregation of nodes within a specific geographic area. As such, the CAISO will settle these demand response resources at their respective node or nodes, depending on whether the demand resource is at a single node or represents an aggregate of nodes.

As a general rule, the Commission should strive for greater geographic specificity in the development of future demand response resources, since local capacity is a

⁶ Comments of the Joint Parties, note 1 *supra*, at p.6.

significant component of the CPUC's RA program and serves a useful reliability need of the CAISO.

➤ **Goal 4. Explore Greater Market Participation by DR Providers and Small Aggregated Load**

Comment of San Diego Gas & Electric

SDG&E submits that extending the CAISO's reach into the distribution system could have, at minimum, unintended, negative consequences.

First, one must realize that SDG&E's electric distribution system is under the control of its distribution operations control center which, in turn, is under the CPUC's jurisdiction. The CAISO and wholesale markets are under FERC jurisdiction. While the CAISO operates the transmission grid and wholesale generators to meet the needs of the wholesale markets, SDG&E operates its distribution system to meet the needs of providing electric service to its customers. An interface between the two operating systems does not exist. CAISO control of distribution customer loads, whether individual customers or a load aggregator, could negatively impact SDG&E's ability to provide service to its customers. (p. 9)

CAISO Comment in Reply

The CAISO agrees with SDG&E and SDG&E's need to serve its customers and to safely operate its distribution system. The CAISO does not intend or desire to extend its reach down into a utilities' distribution system through demand response or, indirectly, through the CAISO's interaction with a third-party aggregator acting as a scheduling coordinator/curtailment service provider in the CAISO's markets, should such a model develop in the future. As raised in SDG&E's comments, the CAISO believes that the safety and financial concerns associated with coordinating outages is largely a communication protocol issue, that would have to be worked out between the utility and the independent third-party aggregators, similar to communication protocols that exist between utility distribution operators and merchant generators operating within the utilities' service territory.

➤ **Goal 5. Encourage Technology Development**

Comment of SDG&E

SDG&E sees an open standard and protocol as the unifying force to integrate the many DR technologies under development. Increased technology, interoperability, commoditization, competition and ultimately adoption, are all desirable outcomes associated with open standards and protocols. (p.12)

CAISO Comment in Reply

The CAISO appreciates SDG&E's support for a commercially-available open standard for HAN systems and devices. Like SDG&E, the CAISO believes that much demand response potential will be enabled through the unfettered development and maturation of the HAN market. In this spirit, and as the Energy Division drafts its final goals document related to encouraging technology development, the CAISO believes that the Commission should adopt these or similar principles found in the "CEC Evaluation of the Utility AMI – Customer Equipment Interface" report related to customer and vendor rights as they relate to utility AMI and, equally, to OpenHAN:

To foster the most effective development of pricing, DR, and other energy options, in accordance with the policy goals of the Energy Action Plan II, future demand response automation activities in the State must include an open market as well as a utility program option. The open market option would support the following customer and vendor rights:

R1. Customers have the right to receive default hourly price and emergency signals without enrolling in utility programs.

R2. Customers have the right to purchase, rent or otherwise select from any vendor any and all devices and services used in their premise.

R3. Vendors have the right to compete in an open market to sell HAN systems, devices and services to all utility customers.

In addition to these open market rights, the following rights and obligations apply to utility programs:

R1: Utilities may offer demand response and energy management services to customers that utilize the informational and communication capabilities of their AMI system.

Obligation 1: All communication protocols from the utility AMI system to customer equipment must be open, adhering to industry standards.⁷

Comment of Southern California Edison

SCE fully supports the encouragement of enabling technology development. SCE is a member of the Demand Response Automated Server (DRAS) Technical Advisory Group (TAG), sponsored by the Demand Response Research Council (DRRC), working to develop standards for the DRAS to enable it to be used more widely by market participants. ... (SCE Comments at p. 15)

Comments of Joint Parties- EnerNOC et al.

The concept of AutoDR should be broadened beyond the existing IOU programs to include automated DR that can be provided by DR Providers. ... The Joint Parties recommend that any specific numerical goals for Auto DR be amended to allow for the widest possible range of automation approaches to be counted, including the automation provided by third party DR Providers. (Joint Parties Comments at p. 8)

CAISO Comment in Reply

Both of these comments, and others received, highlight the fact that enabling technologies, like AutoDR are, and will continue to be, critical to the long-term growth and refinement of demand response as viable, integrated and competitive reliability resource. Given the linkage between demand response and technology, the Commission has an important role to play in encouraging technology development. The Commission can further DR technology by adopting a standard protocol for providing customers with price and reliability signals.

The Commission should adopt the AutoDR information model being developed by the Lawrence Berkeley National Laboratory, Demand Response Research Center (DRRC), Demand Response Automation Server (DRAS) project.

⁷ Draft CEC Evaluation of the Utility AMI – Customer Equipment Interface Report, Executive Summary, at p. 1-2 [CEC Contract No. 500-99-013; CEC Work Auth. No. 181]

As mentioned in the comment above by SCE, the DRAS project⁸ is an outgrowth of the successful DRRC AutoDR project that was expanded to all three IOU's in an August 6, 2006 CPUC Assigned Commissioner Ruling.⁹ The DRAS project is a collaborative effort to develop an information model that can be used by all LSEs and DR Providers to provide customers with nonproprietary, nationally accredited open standards-based price and reliability signals. The DRAS project is a national collaborative effort that includes participation by all three California IOU's, software vendors, aggregators, technology companies, research and standards groups. Developing a common information model to govern open standards-based price and reliability signals will simplify technology development, reduce technology cost, provide customers with greater interoperability, and position DR to become a viable, easily dispatchable resource.

In addition, the Commission could further the effectiveness of DR by requiring that utility DR efforts, including, for example, tariffs, programs and contracts, provide technology at the customer site that is capable of: (1) receiving the digital DRAS standards-based price and reliability signals, and (2) is linked or interfaced with customer energy management, building or other control systems, where appropriate and applicable.

This approach does not restrict the types of technologies installed at the customer site, but, instead, ensures that each customer has the capability to receive price and reliability signals and to automate their facility response. The DRRC's AutoDR project has shown that automating facility response can substantially improve DR productivity, DR reliability, reduce customer transaction costs, and facilitate the development of DR as an operational resource.¹⁰

⁸ Additional information on the DRAS Project can be found at: <http://drcc.lbl.gov/dras/index.html> .

⁹ Assigned Commissioner's Ruling Augmenting August 6, 2006 Ruling Requiring Utility Proposals to Augment 2007 Demand Response Programs, Application 05-06-006, filed August 22, 2006.

¹⁰ For more information on the DRRC's AutoDR project, refer to: <http://drcc.lbl.gov/drcc-pubs-auto-dr.html>

Comment of Pacific Gas and Electric

Prior to developing programs and technologies that will enable customer participation in the CAISO's ancillary service market, PG&E believes that the CAISO (via the MRTU Post Release 1 Working Group) will need to further develop and define ancillary services provided by end use customers. Although the existing CAISO rules around ancillary services work well for electric generation customers, these rules may need revision to accommodate end use customers.¹¹

Reply of the CAISO

The CAISO wants to clarify for PG&E and the Commission that loads are able to bid or self-provide non-spinning reserves in the CAISO's ancillary services market under the current market structure. This same capability will exist with the initial MRTU release. For clarification, non-spinning reserves is the only ancillary service that non-generating resources can currently offer the CAISO under WECC standards and definitions.

The requirements for participating load to offer non-spinning reserves to the CAISO is outlined in the CAISO's participating load technical standard document on the CAISO website at: <http://www.caiso.com/docs/2005/10/05/2005100520280423155.html>

The CAISO will likely be making updates to this standards document with the implementation of MRTU; however, much of the basic content and fundamental reliability requirements will likely remain unchanged, as many of the requirements are driven by WECC and MORC standards.

B. Additional Questions for Parties to Address

➤ [Q7] What additional DR polices need to be considered

¹¹ Comments of Pacific Gas and Electric Company on Energy Division's Proposed Demand Response Goals, filed and dated November 26, 2007, [Goal #5 Encourage Technology Development], [Develop innovative demand response technologies that enable participation in CAISO's ancillary service market], p. 11.

Joint Parties- EnerNOC et al.

In the event that DR administration is shifted to the CAISO, Commission may also wish to consider a more flexible framework under which DR Providers offer DR resources along side, and in accordance with, the same rules suppliers follow when offering supply resources.

...

Any IOU or LSE could choose to purchase capacity from these DR resources to meet its RA obligation. DR Providers would be paid the market price for RA capacity to stand by (much like today's DR capacity payments) and the market price for energy when they perform. (p. 13)

CAISO Comment in Reply

The CAISO believes that this is an appropriate model and future vision for demand response resources, i.e. where DR providers are able to develop demand resources whose capacity can be auctioned and/or competitively procured by load-serving entities (LSEs) as local or system RA capacity. In exchange, the demand resource, as a qualifying RA resource, has certain offer obligations to the CAISO, and the opportunity to earn revenues out of the CAISO's wholesale electricity markets and/or by selling the underlying energy and potential A/S capacity to an LSE for their use in managing their resource portfolio. This model is comparable to how supply-side resources compete and operate in the market under the RA paradigm.

The Commission should consider this model as part of its overall vision for demand response resources, with the prerequisite that the relationship between energy efficiency and demand response must clearly harmonize with current energy efficient policies, so that the Commission is reasonably comfortable that additional demand response capability does come at the expense of new cost-effective energy efficiency enhancements. In coordination, energy efficiency and demand response have the potential to provide the end-use customer with the best overall solution and greatest satisfaction.

The CAISO offers one further clarification to the Joint Parties' statement excerpted above: The CAISO does not envision that it will be administering DR programs. Again, the CAISO envisions its role as providing the market for DR resources- that, is, the systems, tools and market rules, and the necessary product specifications, so that DR providers can schedule and bid appropriately configured DR resources into the wholesale electricity markets. This is model in which generation supply-side resources interface with the CAISO. Under the model, DR Providers will similarly have the opportunity to craft and administer their own DR programs that can, in turn, offer demand resources directly into the CAISO-run markets.

The Utility Reform Network

TURN does not see a need for new quantitative demand response goals at this time. As the Energy Division has stated (ACR Attachment, p. A-2), the combined MW impact of existing "reliability" programs and price responsive programs equates to about 5.7% of system peak demand. Rather than establishing a new or higher target, TURN submits that the Commission should focus its efforts on converting the current emergency programs to a form more compatible with the MRTU market structure, and opening the market to more direct participation by DR aggregators. (p. 13)

CAISO Comment in Reply

The CAISO agrees with this statement by TURN and encourages the Commission to consider this point: A fair amount of demand response resource potential already exists, if only it were properly re- configured to integrate directly into the market. Affected parties could focus efforts in 2008 to work toward a solution and transition to integrating these DR programs under the MRTU Release 1A market design, by mid 2009 or beginning 2010, then California would be well under way to having a very robust and integrated demand response capability.

Certainly, reconfiguring existing emergency-triggered DR programs to convert them to programs triggered by appropriate market and price mechanisms would yield a

fair amount of demand response that would be useful to meeting summer peak conditions, and this would be very useful for maintaining reliability. Saying this, however, the CAISO wants to encourage the Commission to expand its vision and concept of demand response resources and pursue with DR Providers the development of demand response resources that could be activated throughout the year and not just in the summer months and only in the very peak hours.

The CAISO's vision is that a percentage of demand response resources are participating in the market 365 days a year, providing a reliable, predictable and automated response, enabled by simple, unobtrusive, and cost-effective technologies where possible and appropriate. In this way, demand response resources could help respond to the intermittency of certain renewable resources, enabling California to better accommodate the expansion of renewable resources, in addition to providing operating reserves in many hours and assisting the CAISO during inter-hour ramps. Also, demand resources that are available outside of the summer months and are dispatchable within a CAISO identified load pocket can potentially provide resource adequacy local capacity value in every month of the year. Thus, the CAISO hopes that the next generation of demand response resources exhibit greater flexibility and availability and build upon enabling technologies much more than the predecessor DR resources and programs.

The CAISO encourages the Commission to establish a goal that aligns with this vision and pursues the development of DR resources that have much greater flexibility and availability.

C. Other Comments

Comment of Wal-Mart

Large commercial operations should be allowed to aggregate their load for purposes of demand response. (p.3)

CAISO Comment in Reply

The CAISO absolutely agrees with this statement and does not believe that the Commission should limit aggregation only to “small” customers. The only caveat that the CAISO would place on this statement is a technical/operational refinement. Customers, like Walmart stores, whose locations are state-wide, would need to be aggregated by certain geographic regions, often referred to as Sub-LAPs, to ensure that the CAISO can appropriately manage congestion impacts associated with these aggregated participating load resources.¹² Thus, the Commission should support all levels of aggregation but indicate that any custom aggregation of participating load will be subject to CAISO approval.

III. CONCLUSION

In sum, the CAISO is very supportive of the Energy Division’s demand response goals proposal, but would suggest the following modifications, based on the parties’ submitted comments:

- The CAISO agrees with the Joint Parties that certain customer energy-use information, such as meter pulses, be readily available to third-parties for use in development and implementation of DR programs, with appropriate customer consent and/or other protections regarding customer privacy interests and proprietary information;
- The CAISO agrees with DRA and TURN that the Commission should freeze utility specific emergency DR programs at the current level, and transition these programs, to integrate into the CAISO’s Day-Ahead and Real-Time markets;

¹² For more information on this issue, please refer to the CAISO’s *Straw Proposal- Post-Release 1 MRTU Functionality for Demand Response*, p. 7-8 found at: <http://www.aiso.com/1c91/1c919e0e11c30.pdf>

- As suggested in part by SCE, the CAISO recommends that the Commission take an incremental-roll out approach in developing new DR programs for the 2009-2011 program cycle, and allow the working groups the opportunity to develop the market mechanisms that will accommodate next generation DR programs;
- The Commission should incorporate greater geographic specificity in the development of future demand response resources;
- With respect to automated technologies to enable DR, the Commission should adopt a standard protocol for providing customers with price and reliability signals. In this regard, the CAISO recommends adoption of the AutoDR information model being developed by the Lawrence Berkeley National Laboratory, Demand Response Research Center Demand Response Automation Server project;
- The Commission should consider a competitively procured DR resource model as part of its overall vision for DR resources. This should include a discussion which provides guidance on how to implement the EAP II loading order preferences for Energy Efficiency and DR, to ensure that additional DR capability does not come at the expense of new, cost-effective energy efficiency enhancements; and
- In the near term, and as suggested by TURN, the Commission's efforts in DR development should focus on converting the current emergency programs to a form more compatible with the MRTU market design. In this regard, the Commission should also pursue the development of DR resources that have more flexibility and availability than traditional DR programs have had to date.

Dated: December 10, 2007

Respectfully submitted,

CALIFORNIA INDEPENDENT SYSTEM
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By: --/s/--Baldassaro "Bill" Di Capo

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CERTIFICATE OF SERVICE

I hereby certify that on December 10, 2007. I served on the parties listed on the Service List for Proceeding R.07-01-041, by electronic mail, a copy of the foregoing Reply Comments of the California Independent System Operator On Goals, Pursuant To Assigned Commissioner's And Administrative Law Judge's Ruling Revising Phase 2 Activities And Schedule.

Executed on December 10, 2007 at
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 --/s/--Susan Montana

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