BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking To Enhance the Role of Demand Response in Meeting the State's Resource Planning Needs and Operational Requirements.	Rulemaking 13-09-011 (Filed September 19, 2013)

RESPONSES OF THE UTILITY REFORM NETWORK TO PHASE TWO FOUNDATIONAL QUESTIONS CONCERNING BIFURCATION AND COST ALLOCATION

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TABLE OF CONTENTS

1. Response to Question 1 Concerning Bifurcation 1

   a. TURN Supports the Intent of the Proposed Bifurcation If It Lowers Total Capacity Procurement Costs of the IOUs and the CAISO and Improves Performance (Question 1a) 1

   b. Demand Response Resources Are Quite Variable and May Suffer from Overly Simplified Bifurcation (Question 1b) 3

   c. The Benefits of CAISO Market Participation Must be Weighed Against Potential Reductions in Available Demand Response Capacity That Cannot Participate in CAISO Markets But Might Still Provide Value in Displacing Generation Capacity (Questions 1b and 1c) 5

   d. Load Impact Protocols (Question 1d) 8

   e. Conclusion 8

2. The Commission Should Not Modify the Cost Allocation of Demand Response Costs Due to Bifurcation (Question 2) 10

3. Use of Back-Up Generators (BUGs) 10

RESPONSES OF THE UTILITY REFORM NETWORK

TO QUESTIONS CONCERNING 2015 BRIDGE FUNDING AND PILOTS

Question 1a asks parties to comment on the "terms and definitions" related to the proposal to bifurcate demand response into "demand-side" and "supply-side resources." Since this is the first opportunity to comment on the staff proposal to bifurcate demand response programs, TURN also offers some limited comments concerning the bifurcation proposal.

As outlined in the OIR itself, demand response has historically been separated into price responsive and reliability programs.[1] The OIR bifurcation proposal departs somewhat from this historic division, in that the proposed "supply-side programs" include both traditional reliability programs (BIP, AC) as well as DR programs that are triggered based on criteria related to system conditions (such as temperature or heat rate) and price. The "demand-side" programs primarily including rate tariffs and non-time-variant load shifting (permanent load shifting).

The key element of the bifurcation proposal is not so much the changed nomenclature; but rather, it is the explicit expectation that "supply-side" programs will be required to participate in new and expanded CAISO markets. In other words, rather than being triggered by an IOU based on program design,

[1] OIR, p. 4.

IOU dispatch algorithms and / or IOU discretion, the demand response customer or aggregated load would bid into an ISO market to be dispatched in comparison to generation and other DR bids.

TURN strongly supports the **intent** of the bifurcation proposal, which is to promote and optimize the use of demand response, so that it is "no longer limited to shaving peak electricity load," but also functions to provide "local and system resource planning and operational requirements," including integrating variable renewable generation.[2] Historically, even though DR programs have triggers linked to system conditions, they have in practice been dispatched primarily for reliability purposes. Moreover, the cost effectiveness of many demand response program is quite low, with only a few programs measuring as cost effective based on adopted protocols.[3]

Even more importantly, there is an unresolved tension between the rhetoric of demand response as a "preferred resource," which to some parties implies a priority for operational dispatch, versus the reality that demand response practically functions primarily as a peak shaving reliability resource.[4]

However, the Commission should be careful that DR programs that cannot participate in CAISO markets **and** that do provide cost-effective demand response benefits are not unintentionally de-emphasized. The primary concern here is with the classification of the residential air conditioner cycling program, which is the second largest demand response program after the interruptible

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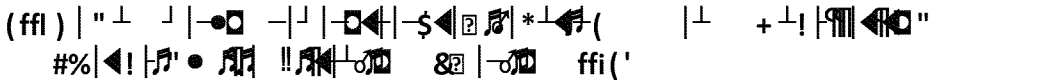
[2] OIR, pp. 16 and 17.

[3] See, for example, D.12-04-045, p. 32-33.

[4] As discussed later, TURN suggests that the economic value of DR derives from displacing conventional capacity procurement in the **planning and procurement** process, as opposed to displacing actual plant dispatch during the operational process.

program, and probably the largest of programs that are routinely triggered for both system and local reliability.

TURN's primary concern in this proceeding is not so much whether demand response load bids into CAISO markets, but 1) whether the capacity and energy prices paid to demand response participants are commensurate with the value of demand response services, and 2) whether demand response programs that are paid capacity reservations costs actually displace supply-side capacity procurement, both by the utility and the CAISO.[5]



To the extent that requiring greater participation of DR in CAISO markets advances the objectives of reducing total (utility plus CAISO) capacity procurement costs, TURN strongly supports such a step. TURN cautions, however, that there may be concerns with forcing all the identified programs into CAISO markets. Demand response customers have a wide range of characteristics, and the programs may not neatly fit into just two categories. As the OIR itself notes:

> The use of demand response as an Ancillary Service would require reductions in notification time, increased speed, and accuracy of measurements; which may not be needed in traditional applications. Therefore, an understanding of the qualities that supply-side demand response resources can offer and the correct matching of these resources with the needs of the grid is essential for successful program design and implementation.[6]

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[5] One of the key issues for TURN is the allegation that lack of "visibility" of demand response results in added costs due to CAISO backstop capacity procurement. The exact nature and quantify of those costs is unclear. TURN will send a data request asking the CAISO to quantify those costs for 2008-2012.

[6] OIR, p. 8-9.

A key question is whether the bifurcation proposal provides this necessary "matching." In other words, will the CAISO be able to design markets that will enhance and optimize the participation of the various customers currently participating in utility-dispatched programs identified as "supply-side" in Figure 1 included in Question 1a.

Demand response customers provide a range of load response services that vary based on customer load characteristics, customer end-uses, the degree of automation, and behavior characteristics. Several studies have evaluated the potential and characteristics of demand response from different customers and end uses.[7] Even the ability of one end-use, such as lighting, to provide demand response varies from facility to facility depending on the lighting technology characteristics.[8] The ability of an office or retail complex to reduce lighting load depends not only the type of equipment (ballasts and lamps), but also on the physical configuration of the space, the control equipment, and the behavior patterns of occupants.

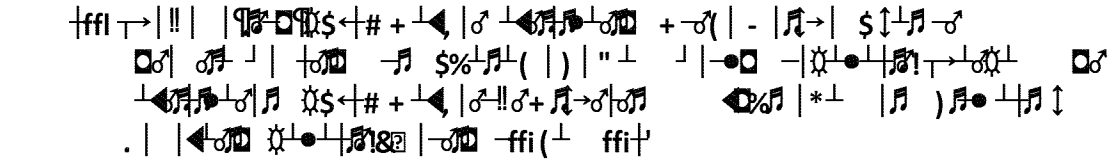
The "integration of renewable resources" is a multi-faceted problem, and the first step is to properly define the roles demand response could play in addressing problems such as overgeneration during certain hours, the need for greater ramping requirements during certain spring low-load conditions, and / or

[7] See, for example, LBNL, "Integrating Renewable Resources in California and the Role of Automated Demand Response," November 2010; See, also, EnerNOC and the Brattle Group, "The Potential for Demand Response to Integrate Variable Energy Resources with the Grid," November 1, 2013.

[8] For example, while lighting automation and control could provide rapid response, the ability to ramp lighting depends on the presence of centralized controls. See, LBNL, "Field Demonstration of Automated Demand Response for Both Winter and Summer Events in Large Buildings in the Pacific Northwest," December 2012, p. 13.

the need for more load following to integrate variable renewable output on a short time frame.[9]

It may be possible for the CAISO to develop markets that would allow for the bidding of various demand response products. At the moment there is a lack of any participation in the existing Proxy Demand Response market. It appears that the IOUs are reluctant to bid any of their retail programs into this market. At the same time, the rules for allowing third parties to bid into the PDR are not yet finalized.



The requirements of participation in CAISO markets and the characteristics of certain demand response programs and customers may limit the ability of some existing demand response customers to participate as "supply-side" resources. The primary concern is to ensure that forcing all "supply-side" demand response to bid into CAISO markets does not eliminate demand response customers who also provide actual resource adequacy value.

The CAISO has certain telemetry and scheduling requirements for market participation that entail both infrastructure costs and management costs. Certain customers may not be willing to incur those costs. Other customers may not be able to meet other market requirements, such as forecasting accuracy and latency

[9] See, for example, LBNL, "Integrating Renewable Resources in California and the Role of Automated Demand Response," November 2010, p. 4-10.

of response.[10] While some of these requirements may be modified in the future, TURN is concerned that the characteristics and variability of load may present continuing challenges for participation in CAISO markets.

A key question is whether the CAISO will develop market products that optimize demand response products and participation. Merely forcing participation in a "wholesale market" may not be sufficient. For example, PJM has large demand response participation, but most of the demand response is "emergency" demand response that has few of the desired characteristics of ancillary service products. In contrast, ERCOT has the lowest participation of demand response of any of the major RTOs, but apparently has the largest amount of flexible resources providing ancillary services.[11]

TURN agrees with the comments of EnerNOC that it is important to determine the attributes of various demand response products.[12] Presumably, the CAISO is considering DR attributes in developing its eligibility and pricing market products. TURN does not at this time have sufficient information to determine whether the bifurcation proposed in the Scoping Memo properly divides demand response programs based on their attributes. TURN looks forward to reviewing the recommendations of other parties.

TURN offers one example of a potential problem of bifurcation. The "AC" (air conditioner cycling) program is defined in Figure 1 of the Attachment as a

[10] See, for example, LBNL, "Field Testing of Automated Demand Response for Integration of Renewable Resources in California's Ancillary Services Market for Regulation Products," April 2012, p. 6.

[11] Presentation of Eric Cutter, October 16, 2013, p. 4. TURN cautions that we have not seen detailed data on the characteristics of DR in other RTO wholesale markets. TURN strongly recommends that Energy Division staff gather information concerning the demand response products, eligibility requirements and participation in other RTO markets to inform this discussion.

[12] Presentation of Mona Tierney-Lloyd, October 16, 2013, p. 5-6.

supply-side demand response resource. The AC program does indeed have many attributes that make it ideal for providing "dispatchable" services. Load can be remotely controlled through utility dispatch[13] or through customer automation via a smart thermostat. The program has traditionally been dispatched for both system and local reliability. There is great hope that once the Home Area Network ("HAN") signals from the meters are activated and linked to control devices (such as smart thermostats or electric vehicles), the potential to ramp residential load will be significantly increased. Computer software algorithms can be used to minimize individual customer impact and provide a rapid aggregated response.

However, residential air conditioner load may not be ideal for bidding into a CAISO market. Individual telemetry is obviously cost prohibitive, and scheduling and forecasting requirements would have to be handled at an aggregated level. Perhaps even more importantly, the business model for installation of control equipment in residential homes may be more difficult to link to wholesale market payments, rather than to benefits derived from bill reductions and / or billing credits. TURN notes that in its classification, EnerNOC has recommended that AC be classified as a "demand-side" product.[14] TURN does not presently have sufficient data to conclude whether any particular product should be reclassified. Again, our ultimate goal is to ensure that the payments to DR programs match the value of such programs, and that performance is optimized to deliver that value. TURN does not *a priori* take a

[13] Either via existing air conditioner compressor direct control or through adjustment of smart thermostats with advanced algorithms to smooth response of multiple residential and / or commercial air conditioners.

[14] Presentation of Mona Tierney-Lloyd, EnerNOC, October 16, 2013, p. 6.

position whether such valuation and optimization will best occur through utility dispatch or participation in CAISO markets.

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TURN has no comment at this time.

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TURN's primary goals in this proceeding are **both** to expand the potential of demand response to meet California's energy goals, **and** to more appropriately value and compensate different demand response products. Demand response is a preferred resource, and TURN assumes that being first in the loading order means that utilities procure demand response capacity, as part of their resource planning function, ahead of conventional power plant capacity.

The ostensible goal of the bifurcation appears to be to promote the dispatch of demand response ahead of the dispatch of fossil generation.[15] TURN does not at this time take a position on whether economic dispatch should be a primary attribute of demand response, as TURN sees demand response products as more likely to provide ancillary service value.

The key is to balance the desire to optimize performance and visibility for the CAISO versus the need not to force demand response customers to bid into

[15] See, Commission Staff Report, "Lessons Learned from Summer 2012," May 1, 2013. However, to the extent the DR resource adequacy value reduces actual fossil capacity (peaker plant) procurement, the DR resources still provide economic value to ratepayers, even if they are not dispatched as often as possible to prevent dispatch of existing fossil plants.

CAISO markets if they are unable to do so, so that as a result we lose demand response that has real value.[16]

TURN thus recommends that the Commission continue on the path that has already been charted to develop Rule 24, and for the CAISO to develop a Resource Reliability Product ("PPR") tariff. Furthermore, TURN recommends that the Commission:

- Hold a workshop to explore in detail the reasons for lack of bidding into the Proxy Demand Resource market;
- Hold a workshop, ideally with participation by experts from LBNL, to better define the attributes of various DR products and customers and the needs required for various operational functions;
- Explore whether residential and commercial air conditioner cycling customers can practically participate in CAISO wholesale markets;
- Conduct research and issue a staff paper, ideally in consultation with the CAISO, that details the characteristics and eligibility rules for demand response participation in other wholesale markets to determine whether such markets promote the type of flexible demand response that California seeks to advance.

[16] TURN understands that requiring participation in CAISO markets may eliminate some demand response customers. However, if those customers are really not performing, or are not displacing fossil procurement by the CAISO, then it may be beneficial to eliminate those customers from demand response programs.

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The Commission presently allocates demand response program costs to all customers, including direct access and CCA customers. The Commission has adopted this policy based on the recognition that the benefit of demand response is to reduce the need for excess reserve capacity for system reliability. These reliability benefits impact all users of the distribution system, as they reduce system resource adequacy costs and prevent outages affecting all distribution customers. They do not provide specific energy benefits for any particular class of customers.

TURN does not see any basis for revising this cost allocation. Under the proposed bifurcation, "demand-side" demand response provides traditional peak load reduction capacity benefits; while "supply-side" demand response provides both reliability benefits, as well as ancillary services for renewable integration. Since the need for renewable integration arises from RPS requirements imposed by state law on **all** entities,[17] those integration benefits also accrue to all customers.

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TURN does not have any additional data to share concerning the present use of BUGs by demand response customers. TURN presumes that the majority of any BUGs are used by commercial and industrial customers.

There is, however, a significant public policy disconnect between the goal enunciated in D.11-10-003 and certain uses of demand response. Most

[17] The RPS legislation and related statutes imposes the renewable procurement requirement on all LSEs (IOUs, ESPs, CCAs and munis). PU Code § 365.1(c)(1); see, also, ve 399.11(a) and (c).

specifically, the Commission has classified demand response as a "preferred resource," and there is a widely held assumption that demand response provides environmental emissions reductions benefits as compared with the use of a peaker plant. This claim is only partially true, and may actually be false with respect to GHG emissions or even priority pollutant emission on a WECC-wide scale.

Simply put, the assertion is that demand response shifts generation from less efficient plants with higher heat rates to more efficient plants with lower heat rates, thus reducing emissions of both priority pollutants and GHGs. Even if true, such emissions reductions are quite small due to the very limited number of hours that DR programs can be dispatched.[18] To the extent that DR actually reduces peaker plant output near a local polluted area (itself an assumption), there may be some benefits associated with reductions of emission during summer high smog days. However, demand response generally results in **load shifting**, resulting in higher output at other times. The assumption that output during off-peak periods occurs from less polluting plants has not been tested or verified by any party in CPUC proceedings. In fact, at least one study conducted for the CEC suggests that any pure "peak" load reduction mechanism could actually increase net CO2 emissions in the Western grid by increasing imports of dirtier system power from the southwest.[19]

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[18] Total dispatch is generally limited to less than 100 hours in the year. Actual dispatch of DR is much less. See, for example, Presentation of Mona Tierney-Lloyd, October 16, 2013, p. 11. PG&E dispatched its main non-residential DR programs (BIP, DBP, CBP and AMP) for a total of less than 80 hours in 2013 and less than 100 hours in 2012.

[19] Synapse Energy Economics, "Emissions Reductions from Renewable Energy and Energy Efficiency in California Air Quality Management Districts," Final PIER Project Report, November 2011, p. 46-47. TURN recognizes that as

Certain DR programs (such as BIP) are **intended** to serve as reliability programs for both generation and transmission shortages. It may not be wise public policy to classify these pure reliability programs as preferred resources. Indeed, to the extent these programs are designed to be dispatched only prior to emergency conditions (rather than triggered by price or heat rate), it may on balance be preferable to allow some use of BUGs. The alternative is to construct a peaker plant to sit idle most of the time. Indeed, to the extent reliability programs can be locationally dispatched, a peaker plant may be inadequate.

TURN does not at all promote the use of BUGs. However, TURN suggests that the wholescale identification of all demand response as a "preferred resource" has obscured the different functions played by demand response and has led to serious confusion among policy-makers about the potential uses and benefits of various demand response products.

October 21, 2013

Respectfully submitted,

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coal plants are retired and renewables added to the Western system, off-peak energy may become cleaner, reducing this negative impact.