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 13, 2013)

REPLY COMMENTS OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
TO THE PHASE 2 FOUNDATIONAL QUESTIONS

The California Independent System Operator Corporation (the ISO) hereby files these reply comments to parties' responses to the foundational issues raised in Attachment One of the Joint Assigned Commissioner and Administrative Law Judge ruling and scoping memo dated November 14, 2013.

I. INTRODUCTION

The near-term policies that the Commission promulgates regarding the two foundational issues of bifurcation and cost allocation will have a lasting impact on the future of demand response in California. The ISO believes that these two foundational issues must be defined and guided by the first principles of competitive neutrality and fulfillment of the loading order. Unless and until policies are instituted that enable preferred resources, like demand response, to be configured to meet and reshape the power flow needs of the grid, and be designed and operated to persistently ensure grid reliability, these resources will likely languish and the loading order go unfulfilled. To prevent such an outcome, the Commission must act promptly to ensure that:

- Demand response is a durable, consistent, and persistent resource that can fulfill the loading order and avoid or defer new generation capacity and grid infrastructure;
- A resource's capability and availability is appropriately reflected in its capacity value ; and,
- Cost allocation does not discriminate by the type of provider, be it a utility or a third-party provider.

II. REPLY COMMENTS ON BIFURCATION

a. The loading order must guide the definition of demand response bifurcation

The Commission should ensure that its definition of demand response bifurcation into demand and supply-side resources is in the context, and meets the goals, of the loading order. Certain parties provide more arbitrary and less principled definitions for bifurcation. For instance, PG&E states that:

> Supply-side resources are those that are bid into the CAISO markets and dispatched through the CAISO markets as a generation-like product (e.g., Proxy Demand Resource, Reliability Demand Response Resource, Participating Load, etc.); and Demand-side resources (or load modifiers) are those that are not bid into the CAISO markets or dispatched through the CAISO markets as a generation-like product. The only difference between supply-side and demand-side DR should be how the product is utilized, rather than its level of reliability or whether the program is "customer-focused." (PG&E at pgs. 4-5)

It is unclear how this definition satisfies California's clean energy future by reducing greenhouse gas emissions through avoiding or deferring conventional fossil-fired generation and transmission and distribution infrastructure.

In contrast, the ISO framed its definition of bifurcation in the context of the loading order. The ISO emphasized that the over-arching purpose for authorizing ratepayer funding of demand response and energy efficiency programs is to fulfill the loading order which has, as its fundamental purpose, avoiding or deferring new conventional-generation resources and transmission and distribution infrastructure to meet future energy needs. In so doing, the loading order helps to reduce greenhouse gas emissions.

The Commission should adopt the ISO's definition for bifurcation, which is simple and straight-forward:

> To meet California's clean energy future, demand response must be configured either: 1) as a demand-side resource that demonstrably reduces the need for conventional resources by reshaping and reducing the amount of net load that must be served; or, 2) as a supply-side resource that acts as a suitable supply-side resource that can displace conventional generation and transmission assets to serve and balance load.

Under this definition, demand-side demand response is a load modifier and its load impacts remain "embedded" in the actual load that was consumed. Conversely, supply-side demand response load impacts are calculated and then added-back into the CEC's raw load forecast to "adjust" the load shape so that the forecast does not reflect supply-side demand response effects. This distinct treatment of load impacts for load forecasting purposes─ "embedded" versus "adjusted"─ is a vital component that must be incorporated into the Commission's interpretation of bifurcation.

b. Demand-side demand response must be durable, consistent, and persistent to fulfill the loading order and avoid capacity

A number of parties emphasized the need to keep demand response on the "demand-side" and not have to re-configure demand response to operate as a resource in the ISO market. The ISO reiterates that the purpose of demand-side demand response is to modify the load shape and reduce peak demand. If these load modifying actions are effective and durable, then new generation resources and grid infrastructure can be avoided or deferred in alignment with the loading order. However, since demand-side resources are largely operated outside the ISO's purview and are most often triggered by parameters and conditions set by the resource owner/operator, not the ISO, inefficiencies can occur.

To illustrate this point, consider SCE peak load data from 2012.[1] The three highest peaks in SCE's service territory in 2012 occurred on August 10, August 13, and August 14.[2] SCE's peak day would have been August 14 if there were no demand response actions taken; however, August 14 was actually the lowest peak demand day of the three highest peak days because of demand response. The table below shows the actual recorded demand and then what the load would have been without demand response.

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[1] The data for SCE was readily available and, therefore, used for this example; however, the ISO believes that this example likely applies more universally since demand-side demand response operators can only assume when and how effective demand-side resources will be at meeting system needs given that decision making is done outside of the optimized system and power flow solution.

[2] Source is 2012 ISO load data for SCE, which largely comports with the Commission [CPUC] Staff Report- *Lesson's Learned from Summer 2012 Southern California Investor Owned Utilities'' Demand Response Programs May 1, 2013*.

2012 SCE Peak Day Impacts with and without Demand Response

Day	Actual Recorded Peak Demand (MW)	DR MW Load Impact (Ex-post MW)[3]	What Peak Demand would have been without DR Load Impact (MW)	Retail Programs Exercised
Aug10, 2012	22,305	192	22,497	Demand Bidding Save Power Day
Aug 13, 2012	22,450	59	22,509	Critical Peak Pricing Capacity Bidding Program (Day of)
Aug 14, 2012 (*would have been peak day but for DR*)	22,126	415	22,541	Demand Bidding Contracts Demand Bidding Program Ag Pumping Summer Discount Program (Res. and Comm.) Capacity Bidding Program

This data shows that not efficiently timing or calling demand response programs during peak day events can have real and costly impacts on planning and procurement practices.

As demonstrated in the table above, August 14 would have been the peak demand day for SCE; however, SCE was able to reduce from what would have been a 22,541 MW peak to what was a 22,126 MW peak by exercising over 400 MW of demand response. Unfortunately, the actual recorded annual peak occurred on August 13, a day earlier, when the peak demand reached 22,450 MW, yet only 59 MW of demand response was exercised. The August 13 peak was 324 MW above the 22,126 MW load level that SCE demonstrated it could manage to on August 14, which was technically the most severe day.

Assuming that the resource adequacy requirement the following year was based on SCE's peak demand, such resource adequacy requirement would be calculated

[3] Commission Staff Report- *Lesson's Learned from Summer 2012 Southern California Investor Owned Utilities'' Demand Response Programs May 1, 2013*, pgs. 12-15.

based on the actual peak of 22,450 MW (Aug 13), not on the demonstrated achievable 22,126 MW demand (Aug 14), the more severe day. This is a non-trivial 324 MW difference. At an estimated $40/kW-yr local resource adequacy capacity value, this 324 MW equates to nearly $13 million of unavoided resource adequacy capacity value.

As the balancing area authority, the ISO had to ensure that sufficient supply-side resources were available to serve 22,450 MW of load on August 13, 2012. Had demand response been more fully utilized on Aug 13, like it was on Aug 14, then the ISO may have had to only serve 22,126 MW of load in SCE's territory. If demand response megawatts are left on the table at peak times, as was the case in 2012, then other, likely non-preferred resources must step in to make up the difference and harm is done to the loading order as well as to the presumed cost-effectiveness of demand response.

The lesson learned from these actual events is that the maximum amount of available demand response must be exercised without reservation on those anticipated peak days to avoid unnecessarily ratcheting up the annual peak demand, as just illustrated. Should the Commission promote significant demand-side demand response, it must ensure that it is a durable and consistently and persistently managed resource that cost-effectively reduces peak demand year-after-year in fulfillment of the loading order.

c. Addressing issues regarding value impacts from bifurcation

Parties are concerned with the effects of bifurcation on value of demand response, particularly with supply-side demand response. The ISO responds to the following parties that raised this concern.

PG&E states:

> For example, if the Commission wants to create a flexible DR product to aid in renewables integration, it will need to assign a value in the cost-effectiveness protocols to the flexibility attribute to balance out the incremental cost of providing this capability. (PG&E at pg. 7)

The clear bifurcation of supply-side and demand-side demand response eliminates the need for the Commission to have to set an administrative value for flexible capacity from supply-side demand response. Under the ISO bifurcation construct, supply-side demand response would be able to provide flexibility, unlike demand-side demand response whose load impacts would be embedded in the underlying load. Under this paradigm, supply-side demand response would compete to offer flexible resource adequacy capacity like all other resources. Thus, the bi-lateral capacity market would determine this value, like it does for all other resources. Thus, there is no need for a regulatory proceeding to spend time vetting an administratively set demand response flexible capacity price/value.

PG&E states:

> As mentioned above, DR has the potential to meet a wide range of needs for the grid and for customers. These needs and their associated value must be clearly understood and identified to allow DR providers to develop the products and programs to meet them. Any new needs (e.g., those driven by the need for renewables integration) should be based on evidentiary support. (PG&E at pg. 7)

The ISO agrees with PG&E that both supply-side and demand-side demand response can meet a range needs for the grid, both directly and indirectly. The ISO disagrees, however, that value must first be determined before the competitive market is “allowed” to develop products or programs.

The ISO envisions that third-party providers will be empowered to develop supply-side resources through the competitive market, earning capacity payments. The value proposition will appropriately be determined by the market, not through administrative and evidentiary processes.

CLECA states:

> The reason for our concern with bifurcation is that it can devalue both supply- and demand-side DR; supply-side, if the standard against which the CAISO judges supply-side DR is "flexible" fossil generation, and demand-side if it is not given appropriate value in achieving supply-demand balance and resource adequacy. (CLECA at pg. 4)

Contrary to CLECA's statement, the ISO has not conveyed that flexibility is the standard by which all capacity will be valued. Flexibility is an important attribute that is growing as the balancing area integrates greater numbers of intermittent resources both on the supply-side and demand-side. Saying this, flexibility is not the only attribute the system requires to serve and balance load. The ISO expects that the market will "value" different capacity attributes appropriately, including flexible capacity. The system requires different cost-effective resource capabilities, including the need for local and system capacity, as well as for flexible capacity. As California's bi-lateral capacity market has already demonstrated, it will continue to determine capacity values, be it for flexible, local, or system capacity.

d. Capacity value should reflect a resource's underlying capability and availability

The physics of the grid and adhering to mandatory reliability standards are constants. The tension is that satisfying the loading order means future energy needs will be met by preferred resources that must directly or indirectly satisfy both the power flow needs of the grid and all applicable reliability criteria. The Joint Parties express frustration with this general principle, and contrary to what is stated in the OIR, feel that demand response should not be held to the same requirements as generation resources. Specifically, the Joint Parties' state:

> The Joint DR Parties take issue with the OIR's assertion that DR resources should be held to the same requirements as generation resources for system reliability and economic efficiency. Several markets throughout the U.S. have recognized the need to develop an efficient market around a diverse set of resources with varying characteristics. This recognition has allowed for the development of different characteristics for different resources while retaining a necessary level of comparability among resources as a best practice with regards to market development. (Joint Parties at pgs. 7-8)
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> ...
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> By requiring DR to meet the same standards that were designed to meet the needs of existing generation, the Commission and the CAISO effectively restrict access to the market to only those resources that can act like a generator. Such an approach is likely to derail participation of DR resources in California's wholesale market. (Joint Parties pgs. 8-9)

The issue of how use-limited demand response can effectively replace the capacity of generators is not unique to California. This issue has been hotly debated in other national electricity markets, and remains an unresolved issue. PJM has taken some initial steps to address its concern about over-reliance on limited demand response. In a FERC filing to limit the amount of "limited demand response" that can clear its capacity market, PJM conveyed that:

> Accordingly, PJM's analyses indicate that the PJM Region has entered a phase of demand response development in which these legacy limitations on the response of demand resources threaten to become a legitimate reliability concern.
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> ...
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> The reliability concerns with these limitations can be expressed in several ways, but all turn on the fact that as more megawatts of resources that are only available during narrowly defined peak periods are committed, then fewer megawatts of more broadly available resources are committed. Commitment of fewer resources that are more broadly available increases the risk that when PJM calls on capacity resources, it may have to call on a resource at a time, or in a manner, that the resource is not required to respond because of the explicit tariff limits on its expected performance.[4]

[4] *PJM Interconnection, L.L.C.*, Docket No. ER11-2288-000, filed December 2, 2010, Transmittal Letter at 3.

Interestingly, PJM's approach to introduce new, less use-limited demand response into its capacity market did not satisfy PJM's own market monitor. PJM's market monitor does not support any participation of limited demand response in PJM's capacity market. The market monitoring unit (MMU) stated in its 2011 annual report:

> The MMU recommends elimination of the Limited and Extended Summer Demand Response products from the capacity market. All products competing in the capacity market should be required to be available to perform when called for every hour of the year.[5]

Under its December 2, 2010 FERC filing, PJM struck a compromise and restricted the amount of use-limited demand response that could clear its capacity market. In so doing, PJM essentially created a bifurcated market where use-limited demand response clears less capacity at a lower price than non-use limited resources.

California could adopt similar capacity procurement policies that appropriately reflect the capacity value of a resource's underlying capability and availability. Resources, like use-limited demand response, that cannot or do not want to meet certain minimum availability requirements can participate as a capacity resource, but its participation level and the value of its capacity will be lower than unrestricted resources as a result. The PJM approach may be a way to preserve a level-playing field for a "diverse set of resources with varying characteristics while retaining a necessary level of comparability," which is what the Joint Parties desire.

III. REPLY COMMENTS ON COST ALLOCATION

a. Competitive neutrality must be a first and guiding principle

The ISO is interested in cost allocation policies because these policies can have profound effects on competitive markets. For instance, if a competitive market for

[5] *2011 State of the Market Report* for PJM, Section 5, Demand Response, at 120.

demand response is to take root in California, then the existing cost-allocation policies must change so as not to discriminate by the type of provider, be that provider a utility or third-party. For this reason, the ISO strongly supports the Commission's competitive neutrality principle as a "first principle" and offers this rebuttal to those parties who suggest that cost causation be a first principle. Cost causation is an essential principle, but only in the context of competitive neutrality.

For example, in response to the foundational issue of cost allocation, PG&E and ORA state:

> PG&E: Recovery of the DR revenue requirement follows cost causation principles and ensures costs are recovered via distribution rates from all customers who either participate in or benefit from these programs. If DR program costs are collected as generation costs (as they are for AMP incentives), all costs would be allocated to bundled customers alone, even though all customers realized grid reliability benefits from DR load reductions. (PG&E at pg. 14)
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> ORA: The cost recovery should follow whether a given DR program benefits only the utility's bundled customers or helps maintain the reliable operation of the grid as a whole, thereby benefitting all customers on the grid, including Direct Access (DA) and Community Choice Aggregator (CCA) customers. (ORA at pg. 5)

The ISO submits that demand response by any provider, be it utility, third-party or a publicly owned utility, benefits all ratepayers. As discussed above, demand response is largely designed to reshape load and reduce peak demand, which means fewer and less costly resources are required to meet peak demand, translating into lower wholesale electricity costs and potentially lower transmission and distribution costs to the benefit of all ratepayers. Unless an equitable mechanism is established that allows third-party providers to recover a share of their costs from all benefiting customers, then the simplest method to uphold both the competitive neutrality and cost causation principles is to establish a policy of “pay to participate.”[6] In other words, demand response participants would be allocated their share of a demand response program’s cost, along with the other program participants. For example, program costs could be reflected in a slightly lower capacity payment the participants receive. Regardless of how an entity allocates costs to its program participants, the participants are the primary beneficiaries of the program, even though tertiary benefits accrue to non-participants when demand response is exercised effectively. Making each demand response provider responsible for their own programs and costs preserves the competitive neutrality as a first principle, which is the primary principle the Commission should seek to uphold.

Respectfully submitted,

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[6] An important caveat under this cost allocation design is a utility’s resource adequacy capacity value would no longer be shared by all CPUC jurisdictional load-serving entities. Each demand response provider, be it a utility or third-party provider, would determine how to manage their resource adequacy capacity value.