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)

COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

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On June 19, 2015, the Administrative Law Judge issued a Ruling Requesting Comments Regarding the Cost Effectiveness Protocols and the Valuation Working Group Report (Ruling). The Ruling requested that parties respond to specific questions related to the following topics:

- Whether and how to establish hard triggers for the dispatch of demand response programs not integrated into the wholesale market (non-event Load Modifying Resources);
- Whether and how to establish a nomination and penalty framework through which Utilities would avoid costs through reducing effected metrics; and
- Enhancements to the demand response cost-effectiveness protocols.

The CAISO's comments primarily address the first two topics and the related questions posed in the Ruling.

I. Introduction

The CAISO's load modifying demand response valuation proposal promotes a coherent and straightforward solution that avoids new conventional capacity by reducing demand forecasts and maintains reliability by ensuring that demand response is dispatched when the CAISO forecasts stressed system conditions.

California's loading order prioritizes procurement of preferred resources, including demand response, in meeting the state's future energy needs. The Commission funds demand response programs largely because such programs avoid long-term costs. The Commission authorizes funding for cost-effective load modifying demand response programs to maintain reliability and, importantly, to avoid the need to build new conventional gas-fired generation, transmission and distribution infrastructure.

Under the Commission's adopted bifurcation policy, Commission funded demand response will be defined as either a load modifying resource or a supply resource. This means cost-effective demand response programs can either avoid new conventional capacity (1) by reducing the need for generation capacity by reducing the amount of load that must be served (favorably reshape the load), or (2) by acting as a suitable supply resource in the CAISO market to serve and balance load. Regardless of the demand response type - load modifying or supply - all demand response must satisfy the loading order by demonstrably avoiding the need to build non-renewable and non-preferred resources while maintaining reliability. Thus, the Commission must evaluate any proposal, including the CAISO's "hard trigger" valuation proposal, based on the proposal's ability to cost-effectively fulfill the loading order and help the state achieve its long-term clean energy goals.

The Commission should avoid adopting a valuation proposal that spurs significant customer interest and growth in demand response, but does not avoid the need to build new conventional capacity. Such a program would not align with the state's clean energy and greenhouse gas goals. Instead, the Commission should adopt a valuation proposal that demonstrably avoids the need to build new conventional capacity, even if that proposal may cause a marginal decrease in customer interest and participation.

The CAISO believes that its load modifying demand response valuation proposal meets the objectives of maintaining reliability, offsetting the need for non-preferred resources, and helping the state meet its clean energy and greenhouse gas reduction goals. The CAISO proposal applies a simple, across the board approach to allow dispatchable load modifying resources to fulfill the loading order by avoiding investment and procurement in conventional capacity by directly and beneficially affecting the metrics that drive capacity needs. Specifically, the proposal accomplishes this by lowering the California Energy Commission's (CEC) load forecasts, which are the basis for setting resource adequacy and long-term capacity needs.

Additionally, the CAISO's valuation proposal adds transparency and minimizes resource planning and operator guesswork by requiring capacity quantities be pre-nominated and dispatched under pre-defined hard triggers. The CAISO has tied the hard triggers to periods of high load and maximum ramping needs. If these periods are not directly targeted and mitigated, capacity needs will increase. The CAISO's valuation proposal helps mitigate this risk and maintains reliability by ensuring that resources are dispatched at pre-nominated levels when the CAISO forecasts stressed system conditions. This creates certainty for CAISO operators in determining when and if load modifying resources will be dispatched in such circumstances.[1]

II. Responses to Questions

In the section below, the CAISO provides responses to specific questions posed in the ruling.

1. The Commission may use the criteria listed (a-e) below to evaluate the CAISO hard trigger proposal. Are these criteria comprehensive? What should be the relative weight assigned to each criteria;

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[1] The CAISO's valuation proposal is as analogous to the existing aggregator managed portfolio (AMP) program framework. The elements of the CAISO's valuation proposal give the CAISO operator a similar confidence the investor-owned utilities (IOUs) have when the IOUs instruct their AMP providers to deliver a quantity of demand response under the AMP program, else penalties apply.

a) The effectiveness of the proposal in implementing adopted Commission objectives for demand response, especially in completing bifurcation by 2018;

The CAISO's valuation proposal is fully aligned with the Commission's bifurcation policy and should be implemented on a transitional basis in 2016 and 2017. This proposal could be phased in initially without application of penalties for failing to meet performance. Allowing such a phased in approach would allow the demand response provider to prepare for the full bifurcation to be implemented in 2018. If implemented as proposed, the CAISO's valuation proposal load modifying resources will receive the same or similar value as supply resources for providing short-term, long-term and flexible system capacity.

b) The practicality of implementation of the proposal, including the recommended hard triggers, adaptation of load forecasting practices of the California Energy Commission, and adoption of a nomination and penalty framework to effectuate the proposal;

The framework for the CAISO valuation proposal already exists because it largely models the current Aggregator Managed Portfolio (AMP) program. The CAISO proposal applies a similar AMP-style framework to Investor Owned Utility (IOU) funded load modifying demand response programs. Just as a demand response service provider contracts with an IOU to deliver a guaranteed quantity of demand response, the CAISO proposal would require the IOU to commit to the Commission and ratepayers to deliver a guaranteed quantity of demand response through its pre-nomination elections.

An additional benefit of implementing the CAISO's valuation proposal is that the IOUs' capacity nominations give the CAISO and CEC greater confidence in the intentional downward adjustments to the CEC's load forecasts for demand response. In other words, there is confidence knowing that the pre-nominated load will be "offline" and not expected to be served when stressed system conditions are forecast, which is essential information for those who plan and operate the system.

c) The potential impact of hard triggers on participation in and value of existing demand response programs;

The CAISO valuation proposal will have a positive impact and will add-value to the existing suite of demand response programs because it will ensure:

- The programs are triggered when the CAISO is forecasting stressed system conditions;
- The IOUs are delivering ratepayer value by pre-nominating demand response amounts that can be delivered when triggered;
- Ratepayer investment risks are mitigated through application of penalties for resource under-performance and non-compliance;
- The IOUs can continue to trigger their programs for other purposes, such as local distribution emergencies or to avoid high energy costs.

The CAISO does not believe that its valuation proposal will have a negative impact on demand response participation. As demonstrated in Table 1 produced below, the number of hours a program would have been triggered under the proposed hard trigger is reasonable, if not low, and well within historic use and program limits, especially if the issue of multiple consecutive hours and multiple consecutive days is addressed as the CAISO has suggested. Demand response is triggered in only a limited number of hours under the CAISO-proposed hard trigger because peak demand in any hour of a year is rarely over the projected 1-in-2 year weather peak demand forecast. In fact, 1-in-2 year weather is a well-accepted planning assumption that expresses reasonable (not too lenient, not too severe) stressed system conditions. It is also the weather-year condition the Commission uses for setting system resource adequacy needs. For load modifying demand response to avoid resource adequacy capacity, it must attempt to reduce the 1-in-2 year weather peak demand forecasts. Again, based on the historic data and Commission resource adequacy criteria, participation rates should be unaffected by the CAISO's proposed hard trigger because of the limited hours of dispatch per season and or year.[2]

d) The risk of unintended consequences; and

The CAISO, CEC, and other working group members scrutinized the CAISO's proposed hard triggers to understand their impact on event-based load modifying demand response programs. Initial concerns about "over-use" of the event-based load modifying programs were unfounded. The number of hours the programs would be triggered across a season or year under the CAISO's proposed hard triggers and the Commission resource adequacy program criteria were insignificant, especially relative to available program hours and program use historically. However, what became apparent in the data is that an event-based load modifying resource may be required for more than four-hours on a particular day or for more than three-consecutive days, which is the Commission defined resource adequacy "availability" requirement for a supply demand response resource. As a potential solution, the CAISO suggested in the valuation proposal that load modifying resources may be subject to the same use limitations as supply demand response resources, *i.e.*, the resources would be assessed a penalty for failure to perform after the load modifying resource has run four hours on a particular day, or for more than three consecutive days. The potential unintended consequence of this solution is that on these high load and or multi-day heat storm events, other capacity must be available to compensate for a lack of load modifying demand response. If the system requires "backup" capacity under sustained high load conditions, then load modifying demand response may not actually offset the

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[2] This data is included in the July 30, 2015 Motion Of Pacific Gas And Electric Company (U39E), The California Independent System Operator, The California Large Energy Consumers Association, San Diego Gas And Electric Company (U902E), The Clean Coalition, EnerNoc, Inc., The Environmental Defense Fund, And Southern California Edison Company (U338E) To Admit Data And Information Developed By The Load Modifying Resource Valuation Working Group Into The Record (Motion). In particular, see data file HISTORICDATA.XLSX, tab 5, racase2.

need for conventional capacity. In this event, there is a risk that the demand response may avoid high energy costs, but fail to avoid the need for new generation capacity. The challenge is that demand response can satisfy a peak capacity need, but it has limited energy. If the system requires both a high capacity reduction and high energy delivery across multiple days or hours (*e.g.*, during a multi-day heat storm), then pure demand response may not actually displace the need for conventional resources that can deliver energy over a long duration.

Table 1 below provides an analysis of how often load modifying demand resources would have been triggered under the CAISO hard trigger proposal based on historical data from 2010-2014.[3] As can be seen from the data, the CAISO hard triggers would dispatch load modifying demand response on a limited number of days per year. However, events can occur on consecutive days and across consecutive hours.

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[3] This table is included in the Motion. In particular, see data file LMRDR_HTWEBINAR_052215.PPTX.

TABLE 1

Historic Analysis Findings – CAISO Hard Trigger Proposal

Trigger Date	13	14	15	16	17	18	19	20	21	Daily Total Hours	Consecutive Days	Trigger Hours/Year
					Hour Ending							
7/16/2010				1	1					2		
9/27/2010				1	1	1				3	2	
9/28/2010					1					1		
10/1/2010		1	1	1	1	1		1		6		
11/3/2010			1	1	1	1	1	1		6		
11/4/2010		1	1	1	1	1	1	1		7		25 hours
9/14/2012					1					1		
10/1/2012	1	1	1	1	1	1	1	1	1	9	3	
10/2/2012	1	1	1	1	1	1	1	1	1	9		
10/3/2012				1	1					2		
11/5/2012			1	1	1	1	1	1		6	2	
11/6/2012						1	1			2		29 hours
1/14/2013						1	1	1	1	4	3	
1/15/2013							1	1		2		
1/16/2013							1	1		2		
6/28/2013					1					1		
6/30/2013					1	1				2		
7/1/2013					1					1		12 hours
4/30/2014			1	1	1	1			1	5		
5/13/2014					1	1				2	4	
5/14/2014				1	1	1				3		
5/15/2014		1	1	1	1	1	1	1	1	8		
5/16/2014		1	1	1	1	1	1		1	7		
9/16/2014					1					1		26 hours
Total Hours	2	6	9	13	20	15	11	10	6	92		

Note: No programs would have been triggered in 2011 to avoid short-term capacity.

e) The potential for unforeseen benefits.

The rigor the CAISO's valuation proposal brings to the funding, development, and operation of future load modifying demand response programs will bring the unforeseen benefits. The CAISO has designed the valuation proposal framework, which includes pre-nominated megawatt quantities, hard triggers, and penalties, to instill a "contract-like" rigor into the demand response program process. In this construct, event-based load modifying demand response programs will be required to deliver pre-determined benefits to its investors, the ratepayers, or else be subject to sanctions and/or financial penalties.

2. ***Under CAISO's hard trigger proposal, how many events and hours would each existing demand response program be triggered if CAISO's proposed hard triggers had been in effect between January 1, 2012 and the present? When would those events have occurred;***

The CAISO has no initial comments on this question.

3. ***In order to consider the sensitivity of CAISO's day-ahead forecast in prompting dispatch pursuant to CAISO's proposed hard triggers, please execute the same analysis used to answer question 2 at the following thresholds: 90 percent, 95 percent, 105 percent and 110 percent of CAISO Day Ahead Forecast;***

The CAISO has no initial comments on this question.

4. ***The deviation from CAISO Day Ahead forecast required to reach 10 percent, 20 percent, 50 percent, and 100 percent of the programs available hours. For example, if the hard trigger was X percent and Y percent of CAISO Day Ahead Forecast, AC Cycling would be dispatched 90 hours and 180 hours, respectively;***

The CAISO has no initial comments on this question.

5. ***The CAISO's proposal appears to result in a high amount of calls in April/May and September/October. How can the proposal be revised to provide more hard triggers during the heart of the summer demand response season (June-August);***

The CAISO does not agree that its valuation proposal results in a high number of calls in any month. As discussed and illustrated in response to question 1.d and Table 1, the CAISO's valuation proposal triggers demand response on average only 23 hours/year based on data from 2010 through 2014. The CAISO does agree that in some cases demand response may be triggered for a high number of hours on a particular day. Based upon the application of the CAISO's hard triggers to 2010-2014 historical data, resources would have been dispatched up to 9 hours per day in May and 8 hours a day in October. The CAISO addressed this challenge in its response to 1.d.

The CAISO would propose no changes to the underlying avoided cost principles in its valuation proposal. Whatever proposals the Commission evaluates must first and foremost avoid capacity to fulfill the loading order and achieve state clean energy goals. The only accommodation the Commission should consider is to limit penalties assessed to load modifying demand response once they have fulfilled the same resource adequacy availability limits of supply demand response resources. However, the Commission should note the potential unintended consequences of this accommodation as the CAISO discussed in response to question 1, part d.

6. ***How can demand response providers test the hard triggers proposed by the CAISO;***

The CAISO has no initial comments on this question.

7. ***The concept of "new entry value" is raised in the non- compliance column of the CAISO's hard trigger proposal on p. 97 of the Valuation Working Group's report (Appendix 5.1). Define "new entry value" and its components;***

See the CAISO's response to question 8.

8. ***Provide a more explicit penalty structure for instances of a demand response provider not complying with hard trigger calls for a) Short-Term Avoided System Generation Capacity, b) Long-Term Avoided System Generation Capacity, and c) Avoided Flexible Capacity. Quantify historical examples of the proposed penalties. Provide a comparison to existing penalties for non-performance in CAISO markets;***

The CAISO has built the valuation proposal on three key components:

1. Capacity nomination (commitment to deliver a set capacity amount);
2. Hard trigger (clear and transparent dispatch conditions); and
3. Sanctions/Penalties (set rules and enforcement for non-compliance).

In its valuation proposal, the CAISO suggested possible non-compliance penalties subject to further consideration and vetting by the Commission.[4] As a path forward, Commission should evaluate and apply penalties similar to those applicable to similarly purposed resources. For example, load modifying demand response whose purpose is to avoid resource adequacy capacity should be held to similar penalties as other non-complying resource adequacy resources. Similarly, load modifying resources procured to avoid building new capacity under a long-term power purchase agreement should be held to similar penalties as found in these contracts if it fails to deliver the agreed-to capacity or fails to satisfy performance and availability guarantees. The Commission need not create new penalties specific to load modifying demand response resources, but rather should apply penalty structures that already exist for resources that serve a similar purpose.

9. What, if any, orders are needed by the Commission to implement the nomination process envisioned in CAISO's proposal;

The CAISO has no initial comments on this question.

10. What specific action would be required of the California Energy Commission to implement the nomination process envisioned in CAISO's proposal; and

The CEC would not be involved in the load modifying demand response nomination process. Once determined, the nominated values would be given to the CEC to incorporate into

[4] CAISO's Load Modifying Demand Response Valuation Proposal, p. 5.

its forecast. The CAISO believes the Demand Response Measurement and Evaluation Committee (DRMEC) could assist the IOUs in determining nomination values. Those values would be approved by the Commission and then conveyed to the CEC for incorporation into demand forecasts and into the CAISO's annual flexible capacity study.

11. What, if any, orders should the Commission make to implement the penalty framework envisioned in CAISO's proposal?

The CAISO has no initial comments on this question.

Respectfully submitted,

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