

**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)

**REPLY COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM
OPERATOR CORPORATION**

Roger E. Collanton
General Counsel
Anna A. McKenna
Assistant General Counsel
Jordan Pinjuv
Senior Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
T – (916) 351-4429
F – (916) 608-7222
jpinjuv@caiso.com

Attorneys for the California Independent
System Operator Corporation

February 10, 2017

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OPERATOR CORPORATION ON 2015 CALIFORNIA DEMAND RESPONSE
POTENTIAL STUDY DRAFT REPORT ON PHASE TWO RESULTS**

I. Introduction

Pursuant to the Administrative Law Judge’s December 15, 2016 and January 11, 2017 e-mail rulings, the California Independent System Operator Corporation (CAISO) files these reply comments on the 2015 Demand Response Potential Study Draft Report on Phase Two Results (Potential Study).¹ The CAISO’s reply comments primarily address arguments that oppose the Potential Study’s recommended shift from conventional load shedding demand response (DR) to more advanced DR that is designed to better integrate renewables.²

II. Discussion

A. The Commission should not redefine the scope and schedule of the DR proceeding.

The Joint DR Parties argue that the Potential Study fundamentally alters the demand response paradigm, and that this new direction “will impose market uncertainty and risk on DR resources.”³ Specifically, the Joint DR Parties express concern about the Potential Study’s emphasis on the need for and increasing value of “Shift” services

¹ Final Report on Phase 2 Results, 2015 California Demand Response Potential Study, Charting California’s Demand Response Future, Lawrence Berkeley National Laboratory: Peter Alstone, Jennifer Potter, Mary Ann Piette, Peter Schwartz, Michael A. Berger, Laurel N. Dunn, Sarah J. Smith, Michael D. Sohn, Arian Aghajanzadeh, Sofia Stensson, Julia Szinai, Travis Walter E3: Lucy McKenzie, Luke Lavin, Brendan Schneiderman, Ana Mileva, Eric Cutter, Arne Olson Nexant: Josh Bode, Adriana Ciccone, Ankit Jain, November 14, 2016.

² The CAISO responds to opening comments filed by the California Large Energy Consumers Association (CLECA), Comverge, Inc., CPower, EnerNoc, Inc., and EnergyHub (Joint DR Parties), and Pacific Gas & Electric Company (PG&E).

³ Joint DR Parties Comments, p. 3.

compared to traditional peak demand reduction (“Shed”) services. The Joint DR Parties state that “existing demand response resources could be significantly negatively impacted because either the value for those [traditional DR] resources will be reduced or because there is so much uncertainty as to the economic value for and customer interest in providing ‘Shift’ services.”⁴ The Joint DR Parties are concerned that the Potential Study findings will cause the Commission to pursue new DR programs that serve new purposes separate and distinct from those of traditional DR programs. The Joint DR Parties explain that “to change course now to follow the new course proposed by the Draft Report would be wholly disruptive to DR and undermine the extensive investment of time and resources expended to implement the DRAM [Demand Response Auction Mechanism] to date.”⁵ The Joint DR Parties specifically request

that the Commission redefine the scope and schedule of this proceeding (or institute a new rulemaking) that will allow for further collaboration on new models for DR so that they are achievable, create market certainty, and benefit customers. A cautious approach is reasonable because as the Draft Report suggests, additional analysis and review is needed to fully support its findings and resolve barriers.⁶

The CAISO submits that redefining the scope of this proceeding, or instituting a new proceeding, is unnecessary and would inevitably and inappropriately delay current efforts to redesign and repurpose DR into a more flexible and valuable resource that can effectively be used to integrate renewable resources and help California achieve its clean energy goals.

The CAISO disagrees with the Joint DR Parties’ argument that the Potential Study findings will have a deleterious effect on DR’s current direction. The Joint DR Parties overreact to the Potential Study’s findings regarding the need for “Shift” services while overlooking valid and well-supported findings that “Shimmy,” “Shed,” and “Shape” services will also be needed to help California transform its grid. The era of traditional DR offering only system load shedding services is yielding to a new era in which DR can and should provide more refined and flexible services to the benefit of the electric system. Repurposing DR to provide Shimmy, Shape, and Shift services, as the

⁴ *Id.*, p.3-4.

⁵ *Id.*, p. 5.

⁶ *Id.*, p. 7-8.

Potential Study recommends, is necessary to ensure DR remains relevant and becomes a market integrated, flexible resource that can meet the challenges of a transforming grid.

The Potential Study's finding that Shift services are needed and potentially have significant value does not mean the current DR proceeding, which is focused on integrating supply side DR resources, is now irrelevant. To the contrary, current DR market integration and repurposing efforts to create more flexible DR resources in alignment with the Potential Study's findings continue to be relevant and have only just begun. These efforts are part of a longer-term solution to make demand more responsive to the changing needs of the electric grid.

Like Shimmy and Shape services, Shift services are part of the longer-term solution to get the most value from DR resources. Unlike supply side DR, Shift services are more squarely within the confines of retail rate design and a "prices-to-devices" paradigm. In other words, Shift services are best suited as load modification strategies, not wholesale supply-side resources.

At its core, the CAISO is a balancing area authority, and one of its primary jobs is to balance supply and demand on a second to second basis. Shift services are not directly in the realm of balancing services. The CAISO balances supply against demand in response to real-time developments. If Shift services effectively create a flatter load shape, the CAISO's supply and demand balancing task will be simpler, which can result in reduced costs by lowering peak demand, reduce over-generation, and minimize steep and fast ramps. The Potential Study specifically acknowledges that "Shift-type resources be handled in the retail market, through pricing programs and automated DR controls."⁷ The Potential Study emphasizes that "[u]nlike with Shed, where the value of a resource derives strongly from its reliability and usefulness in real-time dispatch, the value of Shift resources come from multi-hour changes and accumulate through the years."⁸ In other words, Shift services are ultimately tied to long-term behavioral and technological changes, including the deployment of cost-effective energy management and storage technologies, techniques, incentives, and price signals designed to incentivize consumers to alter their energy use patterns in ways that better support a cleaner, greener grid.

⁷ Potential Study, p. 6-2.

⁸ *Id.*, p. 10-6.

For these reasons, the Joint DR Parties' call to fundamentally alter the existing DR proceeding or open a new DR proceeding to address shift resources is unnecessary because Shift DR programs are more appropriately addressed in individual utility rate cases and rate design proceedings. In this proceeding, the Commission should remain focused on accelerating the design and deployment of flexible supply-side demand response resources.

The CAISO agrees with the Potential Study that “[a]lthough California has extensive experience with certain forms of DR, new and different DR resources will be required for the grid’s evolving needs – ones that are more flexible and able to respond faster than their historical counterparts.”⁹ Modifying the load shape via energy Shift strategies is an essential part of the long-term solution to integrate more renewable resources, but enabling Shift services is more appropriately considered in utility general rate case and other rate reform proceedings, particularly in the context of considering dynamic retail rates more directly tied to wholesale prices, as noted in the Potential Study.¹⁰ For these reasons, the Commission should not delay and should continue pursuing its goals and objectives for supply side demand response in this proceeding.

B. Repurposing DR to Help Integrate Renewable Resources Does Not Controvert the Loading Order.

The Joint DR Parties state

[t]he Draft Report also turns the Loading Order on its head. The value that the Draft Report ascribes to DR is to reduce curtailment of renewable resources. DR was not originally placed at the top of the Loading Order for this purpose. By changing the role of DR in the manner, the Draft Report is actually putting renewable resources at the top of the Loading Order and DR is subservient to the renewable resources.¹¹

⁹ *Id.*, P. 2-2.

¹⁰ As the Potential Study explains: “Market prices are an indicator for what Shift patterns are most valuable—increasing demand when there is a surplus in renewable power (at zero marginal cost) and reducing loads in the early morning and evening when prices are high, and it would be appropriate to also explore how Shift-type resources can be handled directly in the retail market through pricing programs paired with automatically responsive DR controls. The retail price framework for organizing shift could accomplish the same fundamental dynamics as wholesale market integration but with much more transparent and simple ‘dispatch’—simply connecting consumption of electricity by particular loads to the forecasted locational marginal price.”

¹¹ Joint DR Parties Comments, p. 1-7.

Contrary to the Joint DR Parties' assertion, the CAISO agrees with the Potential Study that "one of the most important value sources for resources like DR [is] to alter the load profile to reduce curtailment of renewables."¹² The Potential Study's finding that there is limited value in providing traditional Shed services and higher value for services that help integrate greater numbers of renewable resources, does not contradict the loading order because it identifies new opportunities for DR to provide grid services that will lower the need for all other types of capacity and energy resources. DR is a preferred resource that can help to integrate a greater amount of clean energy producing preferred resources.

The Potential Study asked the appropriate question, specifically "[w]hat cost-competitive DR service types will meet California's future grid needs as it moves towards clean energy & advanced infrastructure?"¹³ The Potential Study found that DR is a resource type that, when configured properly, can provide Shift, Shape, and Shimmy load modification services to help California achieve its clean energy goals. However, DR cannot produce clean energy to support future energy serving needs. Rather, DR is a type of load modifying resource that assists in shaping and managing load to support the needs of the grid, which allows DR to help defer the need for traditional load-serving resources. When capacity is added to serve load under that state's renewable portfolio standard or incremental capacity is needed to serve future energy needs, DR cannot meet such needs, and the state must invest in energy producing resources in alignment with the loading order. Contrary to this misconception that the Potential Study turns the loading order on its head, DR is serving its appropriate function within the context of the loading order as a clean energy resource "enabler" and as a load modifying resource that can help defer the need for traditional generation and transmission investments.

C. Shed DR Cannot Claim it has Unique "Insurance" Value.

As the CAISO anticipated, the Potential Study demonstrates and reinforces that there is declining value and need for system Shed services. The Potential Study states that "the value of Shed-type resources is virtually zero because there are no constraints on capacity type resources over the next 15 years." PG&E and CLECA dispute this claim,

¹² Potential Study, p. 3-4

¹³ Potential Study, p. 1-1.

arguing there is “added value” for Shed DR during “black swan” events. In other words, PG&E and CLECA argue that Shed DR provides extra “insurance value” against low probability, high impact events. PG&E states it

is concerned by the lack of stress testing to understand the value associated with extreme events, particularly for Shed DR during contingencies. The Commission should not overlook the importance of properly valuing DR resources that protect system reliability during infrequent but realistic “black swan” events that can threaten the electric system as a whole. This results in undervaluing Shed DR in particular, which has provided value to the grid for over 50 years, and PG&E expects that it will continue to do so.¹⁴

Similarly, CLECA argues that:

unanticipated emergency events will continue to occur and we do not know when or how they will arise. It would be unreasonable and a grave mistake to rely on this model, with its limitations, to conclude that California’s existing emergency DR, with decades of proven performance history, is no longer needed or is of less value.¹⁵

Black swan events are rare occasions in which the system experiences extreme stress and the potential for loss of load. The Commission considers the probability and cost of such when it establishes planning standards and resource procurement needs. For example, the Commission sets its system resource adequacy procurement target at a planning reserve margin of 15% and bases local capacity needs on a requirement to reliably serve load in a 1-in-10 year weather event and under a series of contingencies. It does not require an additional capacity set aside on top of the planning reserve margin as a hedge against black swan events. Instead, the Commission considers the probability of such an event and establishes planning and procurement needs after carefully balancing reliability needs versus costs. The Commission’s short-term and long-term procurement rules do not allow particular resource types to receive incremental insurance value beyond system, local, or flexible capacity value. In this context, the current emergency DR programs referred to by CLECA are considered resources that contribute to meeting the 15% planning reserve margin, which reflects the level of reliability and cost the Commission is willing to back. The Commission directs its load-serving entities to

¹⁴ PG&E Comments, p. 2.

¹⁵ CLECA Comments, p. 3.

procure resources to satisfy short-term and long-term reliability needs identified by the CAISO in accordance with applicable planning standards and vetted by stakeholders; thus, the Commission need not modify its existing procurement strategy and rules to assign incremental value or procure additional capacity as insurance against black swan events.

III. Conclusion

The Potential Study accurately identifies the services that future DR programs are best positioned to provide. The Commission has already begun the transition to these services and should not slow the process at this time.

Respectfully submitted,

By: /s/ Jordan Pinjuv

Roger E. Collanton

General Counsel

Anna A. McKenna

Assistant General Counsel

Jordan Pinjuv

Senior Counsel

California Independent System

Operator Corporation

250 Outcropping Way

Folsom, CA 95630

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