



# Memorandum

**To:** ISO Board of Governors

**From:** Keith Casey, Vice President, Market & Infrastructure Development

**Date:** October 26, 2010

**Re:** **Decision on the Reliability Demand Response Product**

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

The California Public Utilities Commission allows all forms of retail demand response programs to satisfy resource adequacy capacity requirements. Management has had long-standing concerns regarding the large megawatt quantity and restricted availability of retail emergency-triggered demand response programs that qualify as resource adequacy resources. We believe that resource adequacy resources should be available to prevent an emergency, rather than only being available to resolve an emergency that is already underway. In addition, the megawatt quantity of these conditional-use programs that count toward satisfying a load-serving entity's resource adequacy requirement should be capped. As part of its demand response proceeding (R.07-01-041), the CPUC approved a multi-party settlement agreement that resolved these concerns in a reasonable and mutually acceptable way and spawned the development of the reliability demand response product.

The California Independent System Operator Corporation is seeking the Board of Governors' approval of the proposed reliability demand response product. This new product will enable retail emergency-triggered demand response programs, e.g., interruptible, air-conditioning and agricultural pumping load programs, to integrate into ISO markets and operations. The product is scheduled to be implemented by spring 2012.

Management recommends implementation of the reliability demand response product to:

- Integrate retail emergency demand response programs into the ISO market;
- Reflect the value of these emergency resources in the ISO market;
- Gain access to these resources earlier in the ISO's emergency operating procedures;

- Limit the amount of emergency demand response resources that count towards satisfying the resource adequacy requirement of CPUC jurisdictional entities;
- Fulfill the ISO's obligations under the CPUC approved settlement agreement; and
- Add additional demand response capability to the ISO market by spring 2012.

In 2009, retail emergency-triggered demand response programs accounted for nearly 4% (approximately 2,150 MW) of the total resource adequacy capacity obligation of CPUC jurisdictional entities. This significant amount of resource adequacy capacity is not integrated into ISO markets and systems but is made available to the ISO operator only during an emergency through a manual process. A manual process does not provide the ISO operator clear visibility to the location and quantity of these emergency resources and does not allow the value of these resources to be reflected in the locational marginal price. The proposed reliability demand response product resolves these concerns by providing a wholesale market mechanism to integrate retail emergency demand response into the ISO market.

In addition to instigating the development of the reliability demand response product, the settlement limits the megawatt quantity of retail emergency demand response that can count toward satisfying the CPUC resource adequacy requirement to two-percent of the ISO all-time system peak (or 1,005 MW), which is based on an ISO operational evaluation of historic use, need to avoid firm load shedding, and other ISO and RTO practices. The settlement requires the investor-owned utilities to transition their CPUC approved retail emergency-triggered demand response programs into the ISO reliability demand response product, and makes these resources available for dispatch earlier under ISO emergency operating procedures. The settlement also requires that the utilities make efforts to promote and transition customers from emergency-triggered demand response programs into price-responsive demand response programs that align with the ISO market. With the implementation of the reliability demand response product, the ISO will be able to dispatch these emergency-triggered programs when and where they are needed and, appropriately, reflect their value in the ISO market.

***Moved, that the ISO Board of Governors approves the proposed reliability demand response product, as detailed in the memorandum dated October 26, 2010; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.***

## **BACKGROUND**

The settlement addressed Management concerns regarding the quantity, use, and resource adequacy treatment of retail emergency-triggered demand response programs. Development of the reliability demand response product was a key element and outcome of the settlement. The settlement was supported by a broad cross-section of market participants, including the

three California investor-owned utilities, two ratepayer interest groups, a large consumer representative and a demand response provider.

The settlement agreement outlined broad principles for the reliability demand response product, which was designed to:

- Be compatible with investor-owned utility emergency demand response programs;
- Meet minimum operating and technical requirements, including recognition of maximum resource availability limits;
- Be dispatched economically once the resource is made available for dispatch as specified in ISO emergency operating procedures;
- Recognize that the underlying customers have “high strike” prices;
- Have multi-reliability uses, including ISO system emergencies and utility local transmission and distribution system emergencies;
- Be available to all demand response providers, subject to applicable rules of the local regulatory authority;
- Be settled through the ISO market; and
- Be dispatchable by location and megawatt quantity.

The reliability demand response product proposed by the ISO and shaped by stakeholder input embodies these principles and fulfills an important ISO principle that the value of these emergency-triggered demand resources be reflected in the ISO market.

## **PROPOSAL**

The reliability demand response product design ensures compatibility with, and the integration of, existing retail emergency-triggered demand response programs, such as interruptible load programs, direct-load control programs like air-conditioning cycling, and agriculture pumping programs. The reliability demand response product design will allow reliability demand response resources to offer energy economically in the day-ahead market, and any remaining uncommitted capacity thereafter to be bid as energy in the real-time through the ISO hour-ahead scheduling process.

The reliability demand response product will integrate large single or aggregated-demand response resources that may be configured to offer energy economically in the day-ahead market and, as a minimum requirement, can respond to a reliability event for the delivery of energy in real-time. Such dispatches are expected infrequently and with limited notice under an ISO issued warning notice as specified in ISO emergency operating procedures.

The reliability demand response product has multiple uses, including:

- Mitigating imminent or threatened operating reserve deficiencies;
- Addressing transmission emergencies on the ISO-controlled grid; and
- Resolving local transmission and distribution system emergencies.

To qualify as a reliability demand response product resource, the resource must be capable of delivering reliability energy in real-time, reaching its full curtailment in no longer than 40 minutes, and be dispatched by the ISO's automated dispatching system within a geographic location and for a specified megawatt quantity. The megawatt quantity that is available from a reliability demand response product resource during any particular hour is submitted to the ISO by the scheduling coordinator for the demand response provider in the hour-ahead scheduling process with a bid between the ISO bid cap and 95% of the ISO bid cap. Use of a bid range will enable a scheduling coordinator to use bid costs as a means to prioritize the dispatch of reliability demand response resources.

A reliability demand response product resource will participate in the ISO market as a supply resource, relying on the functionality and infrastructure the ISO recently implemented for its proxy demand resource product. The product also will include an option that allows reliability demand response product resources to receive a discrete dispatch. This feature will allow a resource to be dispatched to pre-specified megawatt levels, by hour, regardless of the resource's electricity consumption at the time of deployment. This will enable the integration of existing retail emergency-triggered demand response programs, such as the interruptible load programs, that require a discrete dispatch. Like other resources, reliability demand response product resources will be eligible to set the locational marginal price when they are the marginal resource.

## **POSITIONS OF THE PARTIES**

### ***Stakeholder process***

The foundation of demand response resources is built on load adjustments made by retail electricity customers, and it is essential that the ISO closely coordinate its development of wholesale demand response products with the input of stakeholders that have retail interests and concerns. ISO staff engaged its stakeholders in a working group process in addition to its traditional stakeholder process to develop the details of the reliability demand response product. Between June and September 2010, ISO staff conducted three working group sessions, a stakeholder meeting, a stakeholder conference call, and provided four opportunities to provide formal, written comments on Management's proposal.

Stakeholders generally support the reliability demand response product proposal. Below is a discussion of the key issues that staff addressed and the design modifications that were made based on stakeholder feedback.

### **Day-ahead participation capability**

Stakeholders strongly support this element of the proposal, which provides the ability for a reliability demand response product resource to participate economically in the day-ahead market, like a proxy demand resource, and as an emergency resource in real-time under the terms of this new product. Enabling reliability demand response product resources to participate in the day-ahead market allows the ISO and the demand response provider to capture additional value from resources that have the ability to respond economically in the day-ahead timeframe yet can curtail additional load in the real-time when required under a system or local emergency.

### **Performance incentive**

Management originally proposed a performance incentive which was met with strong stakeholder opposition. In response, we removed this feature and will develop availability standards for these types of demand response resources under phase three of its standard capacity product initiative. Stakeholders support this approach.

### **Dispatching reliability demand response resources for local transmission and distribution system needs**

The settlement agreement preserves the right for the investor-owned utilities to dispatch their emergency demand response resources to respond to local transmission and distribution system emergencies. These local emergency dispatches will occur outside of the ISO market and will not set the locational marginal price. Certain market participants felt that reliability demand response product resources should have the opportunity to set the locational marginal price in all instances. This cannot be accomplished. The dispatch of a reliability demand response product resource to address a utility's local emergency would have to be done through exceptional dispatch. Exceptional dispatch simply adds cost to the system, in the form of uplift charges, and does not have the desired effect of setting the locational marginal price. For this reason, the ISO finds that any benefits derived from the ISO dispatching a utility's use of its demand response programs to address a local system constraint are outweighed by the cost, complexity, and coordination of doing so.

### **Exceptional dispatch**

Certain stakeholders felt that reliability demand response resources should not be subject to exceptional dispatches. Management will maintain the exceptional dispatch of reliability demand response product resources since the ISO cannot forego its ability to dispatch resources under its exceptional dispatch authority and allow a situation to worsen if system conditions are dire and a market application fails or does not commit a required resource that can resolve a pressing reliability concern. Thus, the ISO will preserve its exceptional dispatch authority of reliability demand response product resources with the expectation that this capability will be used judiciously and infrequently.

**Prohibition against the reliability demand response product providing ancillary service and/or residual unit commitment capacity**

Certain stakeholders felt that reliability demand response resources should be able to participate in the residual unit commitment and ancillary services market. However, Management determined that it is not feasible for reliability demand response product resources to offer these capacity services. This is due to the complexity associated with co-mingling the real-time energy bid associated with awarded residual unit commitment and/or ancillary service capacity and the energy associated with reliability demand response product resources, given the different dispatch parameters between the reliability demand response product and these capacity services. Demand response resources are eligible to provide these capacity services, along with day-ahead and real-time energy, through the proxy demand resource product.

**MANAGEMENT RECOMMENDATION**

Management requests Board approval of the reliability demand response product as detailed in this memorandum. The benefits of implementing the reliability demand response product is the integration of retail emergency-triggered demand response programs into the ISO market, enabling the value of these resources to be reflected in the ISO market and enhancing the reliable operation of the ISO controlled grid. Additionally, approval of the reliability demand response product fulfills the terms of the CPUC approved settlement agreement on the quantity, use, and resource adequacy treatment of retail emergency-triggered demand response programs.