

IESO Engagement

From: Peter Inman
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To: IESO Engagement
Subject: Demand Response Working Group Feedback

The following comments are submitted for consideration by the Demand Response Working Group as part of the Market Renewal Initiative.

In the current market design, Demand Response (DR) is activated when high market clearing pricing occurs due to a shortage of available generation on peak summer or winter days, and this has not happened in the recent past. Price spikes may also occur due to shortages of Operating Reserve or System Emergency conditions, but Traditional DR is not currently designed to respond to these scenarios.

More responsive DR has greater value than the current Demand Response scenario of day-ahead notification and day-of activation four hours in advance. Responsive DR has higher value because it can be activated on very short notice when system conditions need it.

Demand Response (DR) should be considered a resource that can be utilized on a daily basis to manage system operation and peaks on any day of the year, rather than just peak summer or winter periods.

Furthermore, DR that could be activated on short notice could provide System Flexibility that is currently not recognized. For example, it could avoid start up costs for conventional generation, provide 30 minute and 10 minute Operating Reserve to meet system requirements, and avoid price spikes that might otherwise occur.

It is recommended that two types of Demand Response be created: Enhanced Demand Response, and Smart Demand Response.

Enhanced DR could be activated with 1-3 hours notice and could include the use of on-site generation to reduce demand during specified periods. Likely participants include ICI participants and others that have on-site generation resources for load shaving and on-site reliability (back up power) purposes.

Smart DR could be activated on a moment's notice using Smart Technologies such as Nest, EcoBee and other software platforms available through LDC's and DR aggregators. The "smart" component of these systems is the use of internet-based remote control technologies to coordinate loads for Demand Response yet maintain key parameters (ie - temperature, pressure, level, battery storage charge, etc.) within control ranges specified by the end user. Examples include the use of smart thermostats in residential facilities, smart Electric Vehicle Chargers, and smart Building Automation Systems (BAS) in Office Buildings that can provide temporary temperature setbacks or coordination strategies that reduce facility load for short durations. Municipal Water Treatment plants could provide DR through curtailing the filling of water storage reservoirs when called upon. Other examples include commercial refrigeration and grocery stores where freezers can be pre-cooled and available for demand response load reductions for periods within the range of acceptable temperature limits: - in effect using the freezer as an energy storage device. Aggregating these applications across a broad platform would enable these resources to be used as Demand Responsive loads to optimize operation of the system.

The cost, availability and duration of each DR type will depend on the facility and the degree of automation currently in place. Some facilities may require an initial expenditure to put the technology in place, and once in place be indifferent to the use of Demand Response as long as it retains key parameters within the range specified.

In the current scenario, DR participants are paid a fixed fee for being available for DR, and not paid for the activations. Depending on the circumstances, the activations could range from quite costly to imperceptible. For participants that must curtail manufacturing production, or operate on-site generators to provide the Demand Response the utilization payments could be quite high, while for the "Smart" technologies mentioned, the utilization costs could be quite low, or zero. It is recommended that participants be paid a fixed (monthly) fee and a utilization fee for each time that demand response is activated. The fee structure should be tailored to each participant such that the utilization payment reflects the costs to the participant when Demand Response is taken.

These comments are submitted to advance the discussion and development of Market Renewal mechanisms that will reduce costs and improve operation of the electricity Grid of the 21st Century. Please contact me should you require further information or clarification.

Respectfully Submitted

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