

Price Responsive Loads

Overview

In order to develop price responsive customer behavior by next summer, New York State needs to Load Serving Entities (LSEs) to aggressively pursue customers who can reduce loads during periods of tight supply and/or high wholesale prices. These are typically customers that either have or can readily install equipment and/or processes that provide the ability to reduce electric usage upon request. While there may be some facilities capable of implementing aggressive operating strategies or curtailing operations, the majority of the near term price responsive behavior is likely to come from customers capable of transferring select electric loads to on-site generators.

Current ISO Settlement Allows for Price Responsive Load

The current 2 settlement NYISO energy market allows for LSEs with interval metered customers who have price responsive capability to participate in either the Day Ahead Market (DAM) or Real Time Market (RT).

- **Response to Day Ahead Market prices** – If an LSE can identify in advance both the price point (strike price) at which a customer is willing to reduce electricity usage and the amount of reduction available, the LSE can submit a Price Capped Load Bid at the customer's strike price. This enables the LSE to automatically reduce its DAM purchase whenever it was cost effective for the customer to change behavior. After the DAM prices are posted, the LSE will know whether the Price Capped Load Bid was effective and be able to notify the end use customer which hours of the following day they should change behavior. This day-ahead notification is very attractive to customers as they can hold over staff and / or reprogram their building management systems to effect the price responsive behavior. Note that if the customer is unable to change behavior, the LSE will be responsible for purchasing the additional power in the RT market.
- **Response to Real Time Market prices** – Theoretically, a customer with hourly metering can also react to prices in Real Time because the utility will use that customer's actual hourly usage when reporting each LSE's Real Time obligation to the ISO. If an hourly-metered customer changed its real time usage, its LSE would effectively be reducing its RT purchases or selling the excess energy back into the RT market. However, the RT prices are determined and posted every SCD interval (typically every 5-6 minutes) and few customers have the operational flexibility to change behavior in such a short time frame.

Obstacles to Customer Participation

Although there are several barriers to implementing price responsive behavior, individual customers will have different approaches based on their business practices and equipment configuration. Typically the obstacles fall into three main areas:

- **Capital Costs** – Very few customers have existing infrastructure that allows them to respond to electric price signals and the cost to modify existing equipment and/or install new equipment is significant. Even those customers with existing backup generators can face high up-front costs because the existing equipment was designed to back up critical facilities in the event of a utility or bulk power system failure. To implement a price responsive strategy, customers typically need to reconfigure existing electrical feeds and install new transfer switches so that they can supply specific electrical equipment from their on-site generators without disrupting their normal business practices. In some instances, additional interval metering may also be required to integrate with the ISO's energy settlement process.
- **Operating Costs** – In addition to capital costs, customers will also incur incremental costs including operating labor, variable O&M, fuel and in instances where the price responsive strategy disrupts their normal operation, lost opportunity costs. Although operating costs can be a barrier for all customers, it is especially problematic for those that are insulated from the actual market value of electricity because their tariff rate and/or electric contract is based on fixed or averaged energy prices.
- **Regulatory Issues** – Existing utility tariffs and equipment permits may deter some customers from altering their usage in response to price signals. Although these issues are outside the scope of the ISO's jurisdiction, they should be identified as potential obstacles for resolution by the appropriate entities.

Recommended Measures

- **Implement a Day Ahead Energy Compensation Program.** This is effectively the Day Ahead Market (DAM) version of the existing PJM-like proposal. The highlights of the proposal are:
 1. The ISO activates eligible customers by notifying the “LSE” on a day-ahead basis of an anticipated curtailment event. This curtailment event could either coincide with the ISO’s activation of Special Case Resources (SCRs) or be based on some other objective criteria such as low reserves or high loads.
 2. After the curtailment, the LSE would have to submit documentation that their customer(s) complied with the curtailment (e.g. by submitting interval metering or operator logs) in order to be eligible for energy payments.
 3. Energy payments based on the greater of the DAM LBMP and \$500/MWH would be paid by the ISO to the LSE based on the amount of demonstrated curtailment.

The day-ahead nature of the proposed program is essential for customer participation because most customers require advance notification in order to ensure the appropriate personnel are available to implement the price responsive behavior.

The proposed program is important as it provides a compensation mechanism based on actual hourly prices - currently customers that are on a fixed price or receiving an average monthly pass through are buffered from the correct price signal. It also enables customers to contract with LSEs that are not their direct energy supplier.

- **Fund Equipment Upgrades that Enable Customers to Qualify as Special Case Resources (SCRs) and/or Implement Price Responsive Behavior** – The PSC and/or NYSERDA should establish a program that helps offset the high capital costs associated with retrofitting existing equipment or installing new equipment that provides customers with the ability to qualify as a SCR. Eligible projects should include but not be limited to metering upgrades, installation of automatic transfer switches and rerouting of internal wiring to enable customers to isolate specific loads that can either be shed entirely or transferred to on-site generators.

Although there may be some Special Case Resources that do not wish to operate in a price responsive manner and conversely some price responsive customers that do not want to qualify as Special Case Resources, the expectation is that there will be a great deal of overlap between the two. Furthermore, both are important to the ISO - one provides installed capacity for reliability purposes and the other helps reduce energy price volatility - and worth promoting.

Because of the long lead-time to implement infrastructure changes in customer facilities, the program needs to be in place by the beginning of the year.

- **PSC Tariff Reform** – Although the use of customer-owned generation may provide the most promise for implementing price responsive behavior in the near term, existing utility backup / standby tariff provisions discourage such operation. The PSC should consider tariff modifications that enable customers to respond to wholesale price signals without impacting the utility’s delivery service revenues. One approach is to have the LSE inform the utility when the customer operated their generator. With this information, the utility could determine if the customer would have experienced a higher demand charge in the billing period had they not operated their generator. If so, the utility could adjust the delivery service demand charge so that the customer paid the same for the utility’s delivery service as if they had not operated their generators. Such a tariff change would enable the customer to reduce its energy costs (based on reducing usage during high priced hours in the wholesale market) without impacting delivery service payments to the utility.