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Hon. Audrey Zibelman, Chair
New York State Public Service Commission
Empire State Plaza
Agency Building 3
Albany, NY 12223-1350

Transmitted electronically

Dear Chair Zibelman,

Thank you very much for meeting with us recently. We feel we had a great discussion about opportunities for energy storage in New York. As we noted, customer-side energy storage provides outstanding flexibility in meeting the needs of New York's electricity system. Penetration of this technology can be substantially enhanced, though, through some carefully crafted changes to rates that will allow storage providers to improve the business case for storage. We believe that the substantive case for storage already is being well-demonstrated through the project in New York City that we have been running with Glenwood Realty for the past two years.

At our recent meeting, you requested that we get back to you with a "punch list" of what is currently working and what can be improved. We have prepared the attached report to respond to your request.

We would be pleased to answer any questions you and/or your staff may have about our suggestions and look forward to continuing to work together to improve the efficiency of the electric system in New York.

Sincerely,

Doug Staker
Vice President of Global Sales

Distributed Energy Storage Market Development

Doug Staker
October 10, 2014

In New York City, the energy supply system is challenged in many ways. Regional generation supplied by Indian Point is at risk of shutting down, removing 1.4 Gigawatts (GW) of base load supply that supports a 13 GW regional system peak. Transmission and sub-transmission links are challenged to deliver supply during critical power days. As growth continues within the city, various distribution segments have or will become overloaded and require load reduction to remove stress during peak summer days. The load duration curve in New York City requires 1 GW of generation for 36 hours to support peak summer loads. Load management is key to resolving the imbalance between supply and demand in New York City. Demand Energy has been reducing commercial load for grid system benefit and providing energy and power savings for the building owners where storage has been installed behind the meter. The Indian Point Peak Load Reduction Incentive supports the opportunity to place more customer owned energy storage in the electrical system for reliable load relief. However, the ability to provide sufficiently attractive energy and power cost reductions for many commercial customers is challenged due to the non-coincidence of building load with system peak although the peak may, in fact, be coincident with localized network peaks within New York City.

What works now:

- For certain commercial rate structures (SC9-Rate I to Rate IV), moving a customer to a standby rate allows flexibility because demand is measured Monday through Friday from 8 am until 10 pm. There is a daily charge for the peak demand each weekday. If a critical power event is called and we have to devote our system to a set time period and forego our usual peak shaving of the building demand, we can switch our operational model and only incur a higher demand charge for one day.
- The DMP Incentive- The incentive for battery storage is $2100/kW for a system that is able to deliver 4 hours of load relief. A 100 kW/400 kWh system costs $500,000 installed. This equates to $5000/kW ($1250/kWh) so that the incentive covers 42% of the installed cost.
- Commercial customers prefer load reduction via a storage system rather than the manual reductions they have done historically to be compliant with Demand Response events.
- A distributed storage resource can be scheduled and controlled to achieve the goals of critical power events or adjusted to comply with a stress event in a localized network.

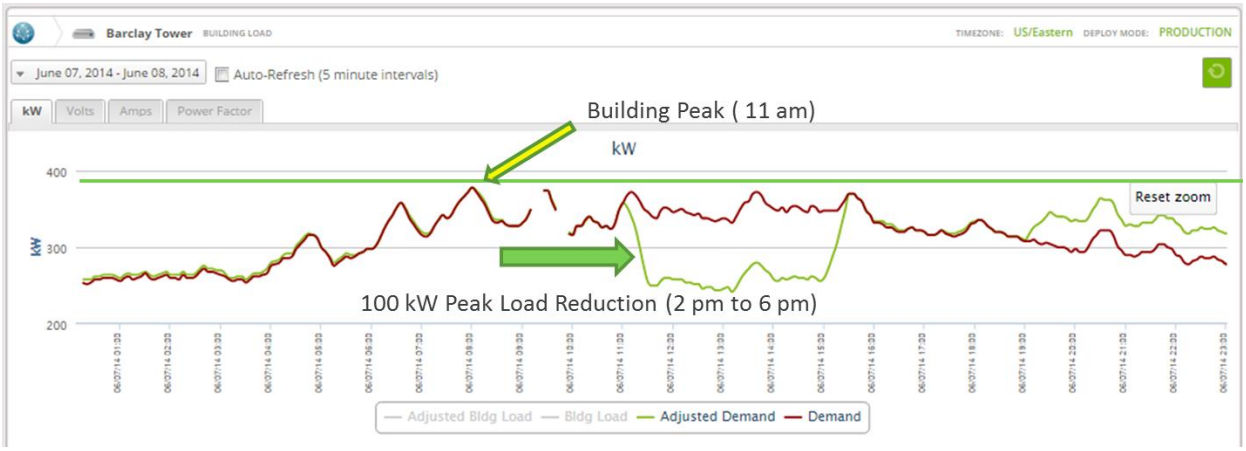
What are the obstacles:

- For some commercial utility customers, moving to the current standby rate is punitive. For a customer currently under SC9 Rate II, if a new storage system equates to 15% of the load (a good target for load reduction), the customer is required to move to Rate V which is punitive just in the rate change alone. We are trying to encourage people to install an emerging technology. If the act of installing moves them to a less favorable rate structure, the commitment is difficult.
- Unlike energy efficiency measures or installing solar PV, for which it is fairly easy to estimate the energy reduction (kWh), demand charge reduction is difficult to predict due to the variability of load throughout the operation. Many potential buildings do not have interval data available to model the impact a storage system may provide.
- A customer's peak demand charge can occur outside the targeted load reduction window. However, under the DMP incentive, load reductions are targeted to between 2 pm and 6 pm.
- We have been focused on the common space load within multifamily residential accounts. This often creates confusion since the common space load is classified under a commercial rate. The common space load has high variability since it includes most of the mechanical systems in a building (water pumps, elevators, air handling, chillers and air conditioners), which makes it ideal to target for load reduction via storage.
- In most large commercial buildings, the variable load is hidden by the magnitude of the steady-state office load, which is frequently aggregated under the master meter load. Storage is ideal for optimizing variable vs. steady-state load. In commercial buildings, the variable common space load may only take up 500 kW of a 2,500 kW total peak load.
- While demand charges do have some seasonal variability, they are not necessarily tied to the evolving dynamic market conditions and don't reflect the locational marginal cost in delivering power to certain segments of the network that have delivery challenges.
- The use of energy storage is early in market adoption. Initial system costs are high. We need to gain momentum to expand the education that energy storage can solve load issues for the network and provide customer acceptance with minimal interruptions.

Indian Point PLR Operational Challenge

The incentives under the Indian Point program provide financial support in offsetting the capital cost of an energy storage system. The goal of the incentive is to provide system/network relief during the summer peak load periods (2 pm to 6 pm). While the incentive helps make the business case for onsite storage more appealing, it does not provide the opportunity for the commercial customer to reduce its demand charges during the summer months when demand charges are the highest. Even under standby rates, the peak usage for a commercial operation could occur outside of the 2 pm – 6 pm operational window. Below is an example where the load is reduced as required by the PLR program but the building experiences a daily peak that occurs at 11 am and will be billed for that peak value. Even though the operation is participating in the PLR program they still incur a demand charge. This is an example where building peak and system/network peak may not be aligned and the participating load is still penalized for a peak in their load that occurs outside of the critical power period between 2 pm to 6 pm.

Example of Lack of Coincidence of Building Load and DMP Load Reduction



A New Thought in Tariff Design

Commercial accounts make up about 10% of a utility's customer base but create about 40 to 60% of the load. As we see it, we are trying to reduce a 1 GW peak problem with resources that can be scheduled and committed to load reduction during critical power events. However, we still need to make a compelling business case to clients. Demand Energy believes that we can solve the utility peak power problem from a system view by implementing rates that align the energy and power economics of a building's load profile with load reduction during the system/network peak.

Demand Energy has found the most end users of energy efficiency installations require a 2 year payback period for justifying the capital investment. This seems to be a market standard. Within the current Indian Point Incentive, we are able to get the payback for Glenwood Realty to happen in less than three years. Glenwood, though, is an exception in its commitment to energy efficiency; we are receiving feedback that a 2 year payback is essential for most other clients. We are working to develop a method to offer tax-equity financing to other types of customers, such as the coop market, since they don't ordinarily have the tax liability that can leverage depreciation but offer a potential for a large amount of load reduction. The entire NYPA/NYCHA market offers great peak load reduction potential, but their cost structure makes the business case challenging. We continue to explore these cases and other areas of interest in low-income housing.

New Rate Concepts

We have proven that energy storage can meet the requirement for daily demand reduction and, with flexibility of a standby rate, can switch operational modes and provide extended load reduction during critical power events. The challenge as we see it is how does the PSC/Con Edison provide an incentive for commercial accounts to deploy this technology to provide system load relief and simultaneously drive savings for the commercial user.

While we could get overly creative, walking before running is the best approach. We believe a new commercial rate that is voluntary and has the following features can provide sufficient incentive to jump-start installation of numerous energy storage systems in the immediate future.

Required features:

- Does not increase demand and energy rates compared to the rate that the account is currently on.
- Has retail delivery charges for both energy and demand that are based upon a locational marginal based hourly price similar to how NYISO prices wholesale day-ahead energy prices.
- Hourly pricing will encourage an "earn for performance" model that will align building load reduction with the need for system/network relief.
- The demand or capacity charge should be based on the weekday hours of 8 am through 10 pm, which is similar to standby or time of use pricing. This allows nights and weekend charging operations that are not penalized by demand charges.
- Requires the ability to measure and report on the performance of the system to deliver the load reduction needed.

- Allows for different modes of operation. If the system needs to deliver bulk load reduction for critical power events it can switch from a peak shaving operation without a penalty for the flexibility.
- Can allow Con Ed to manage the dispatch of the load reduction during critical power events. This level of commitment and control should be compensated by the rate structure and gives Con Ed the comfort that it needs to maintain grid stability but keeps the operation model within pre-agreed to operating boundaries to avoid storage system damage or excessive stress.