

STATE OF NEW YORK PUBLIC SERVICE COMMISSION

CASE 14-E-0423

**Proceeding on the Motion of the Commission to
Develop Dynamic Load Management Programs**

Comments of SolarCity Corporation
January 30, 2015

SolarCity is a national leader in renewable energy services, and serves thousands of communities in 15 states, including Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Maryland, Massachusetts, Nevada, New Jersey, New York, Oregon, Pennsylvania, Texas, Washington, and Washington D.C. Our customers include homeowners, businesses, government, non-profit, and others. We have four offices and over 450 employees across New York State, with plans to open two additional centers in New York.

As a provider of distributed energy services, including the financing and installation of both solar energy systems and energy storage devices to meet or manage customer's onsite energy needs, SolarCity has a direct interest in refinements to the demand response (DR) and dynamic load management (DLM) programs that will be contemplated and ultimately adopted through this proceeding.

SolarCity applauds the Commission's effort to consider refinements to the demand response program. In these comments, SolarCity offers two broad recommendations for the Commission's consideration in thinking about demand response programs, and several specific recommendations for demand response tariff design.

Recommendations

1. Demand response tariffs should be designed with the expectation of future innovation and changes in New York's grid needs

SolarCity believes that the PSC should see this proceeding as an opportunity to reconsider the role of demand response in the helping to meet New York's energy needs now and in the future. The DR tariffs should be designed with the expectation that the portfolio of technologies that can provide DR will develop and expand, and that the energy needs of New York in the future may not be the same as those today. In particular, SolarCity recommends that:

- A. The utilities developing demand response tariffs should strongly consider a larger variety of demand response products, rather than a simple four hour demand response product for peak shaving.*

Currently, the Con Ed tariffs for peak shaving require four hours of demand response, although the call windows for demand response product differs by location. SolarCity understands that simpler tariff design allow for easier administration; however, a larger number of products with more granular definitions would allow for more robust participation in demand response programs, and, ultimately, more value for New York's grid.

For example, it may be the case that some substations require only three hours of load reduction, not four, in order to meet the local system peaks in the summer. In this case, it makes more economic sense for the utility to contract only for three hours of demand response delivery, which is a product that more DR providers are able to deliver, driving the price of the DR solution down. Likewise, there may be value to the grid in DR products of one or two hours, DR products that deliver during the

winter months, and DR products that are configured to allow for the offset of local distribution capacity investments by reducing load demand during times of local system peaks.

SolarCity understands that more granular products will increase the complexity of the demand response system that the utilities administer, and that all of these products may not be feasible at this time. SolarCity therefore recommends that the utilities should plan for more automation in signaling and controls in the future that would make more granular dynamic load management products feasible.

- B. Utilities should focus on designing the “brains” of communication system, rather than rolling out specific communication systems for specific DR provider types or product types.*

The key enabler for integrating a variety of demand response products, providers, and technology types is integrated management and operational systems, such as utility control and management systems that automatically signal and monitor all demand response types on a utility’s system, rather than individual systems for each provider type or product type. Utilities should focus on investments in demand response that focus on integration across technologies and use cases. This will reduce utility administrative costs and increase the ability of the market to develop new DR solutions that can communicate seamlessly with the utility’s centralized DR system.

- C. DR communication systems should be designed as “open access” systems, with the expectation of two-way communication between the utilities and a large network of DR providers.*

As mentioned above, utilities should be investing in the “brains” of the DR system,

not the communication networks and end devices which can be provided by the market and evolve at a rapid pace. Rather than specifying device types and building communication networks for demand response programs, the utilities should specify communication requirements when developing their demand response tariffs, and then allow the DR market to innovate to find the optimal solution to those requirements. This concept of an open architecture, where the conventional vertically integrated utility control infrastructure is replaced with a more robust and open system, is articulated in Lawrence Berkeley National Laboratory's "Open Architecture" framework¹.

2. Demand response tariffs should be designed around performance standards, not specific customer segments or specific technology types

SolarCity understands that PSC Staff is currently interested in three types of demand response: peak shaving, local distribution reliability, and directly load controlling. Instead of thinking in these sorts of "buckets" of demand response, SolarCity recommends that demand response be conceptualized as specific performance standards meant to meet a particular need of the New York grid. The utilities should invest in clearly articulating these needs and the resulting performance requirements for their demand response programs. Any entity that meets the performance standards proposed for a particular demand response product, such as three hours of peak shaving load during the summer months, should be able to provide the demand response services regardless of the technology used or the customer type providing the service. The

¹ *HECO Demand Response Roadmap Project*, Lawrence Berkeley National Laboratory, Demand Response Open Architecture, pp. 41-42 (January 2013).

performance standards should be developed with the full range of possible demand response benefits in mind. If there is value in having demand response provide a particular service, even a “non-traditional” DR service, as discussed above, transparent performance standards should be set to ensure open opportunity in providing these benefits. In particular, SolarCity recommends that:

A. Demand response tariffs should not be designed for specific customer segments

Currently, Con Ed has different tariffs, with differing performance standards and incentives, for various customer classes. SolarCity believes that if a set of commercial customers, a set of residential customers, or an industrial customer can provide the same direct response product, then all three groups should receive the same tariff payments. It may make sense to market these tariffs to different customer types in different manners, but the underlying tariff structure should be the same regardless of who provides the service. The utility should also be agnostic regarding who provides the service, with no distinction between the various demand response aggregators and customers interfacing with the utility directly. Clear performance standards, and an open architecture communication system, as discussed above, will open up the possibility of a level playing field for all DR providers.

B. Demand response tariffs should not be designed for specific technology types.

Utilities should not be investing in specific technology types, such as a particular air conditioning (A/C) control system or a particular thermostat, nor should they require customers to do so in order to participate in a demand response program. SolarCity understands that Con Ed has piloted direct load control for demand through a specific window A/C control unit, and that this pilot helped to prove the usefulness of this

technology type in New York. However, SolarCity believes that demand response programs in New York must move away from specifying particular technology types in order to scale up the contribution that DR can provide.

In line with the discussion above of designing with innovation in mind, it is likely that the demand response offerings in the future will incorporate a number of technologies behind the meter, and the utilities should plan for these integrated BTM portfolios. For example, a single residential DR provider may provide a combined portfolio of HVAC, electric water heater, pool pump, and load shedding in response to a DR event. Restricting demand response programs to specific technology types will stifle innovation within the market, and reduce the potential of DR in New York.

3. Specific demand response tariff design recommendations

SolarCity recommends the following specific approaches be taken in developing new demand response programs in New York:

- A. DR tariff design should allow for discrete measurement potential of assets behind the meter, as opposed to only net load.*

Demand response programs are beginning to incorporate a variety of technology types behind the meter to provide a net load reduction as part of a DR portfolio, and it is likely that this trend will continue as the technologies around demand response advance. It is possible that communicating, observing, and measuring discrete technologies behind a particular meter, rather than the net load of the meter, will become valuable in the future as demand response products and services are refined. SolarCity recommends that the DR

tariff design incorporate flexibility to allow for this discrete measurement of various assets.

- B. Demand response tariff design should be neutral regarding whether demand response is a reduction in on-site load or an increase in net exported power.*

Demand response portfolios will increasingly incorporate storage or other on-site generation options to service demand response calls. In order to avoid stifling such innovation, SolarCity recommends that all DR tariffs be explicitly neutral regarding whether the demand response is a 1 kW reduction in on-site load or a 1 kW increase in net exported power.

- C. Demand response tariff design should be, at the very least, neutral regarding who controls the systems providing the demand response, and should encourage the development of price-responsive demand response over direct load control.*

In line with the comments above regarding performance standards, SolarCity believes that the key feature of a demand response program is that the customers reliability provide the agreed-upon load reduction when the utility calls for the demand response. Whether a utility directly controls demand response or a third-party controls demand response based on utility signal should not be a factor in tariff design or tariff payments, as long as utility has equal visibility into the load change and the expected performance occurs.

Moreover, SolarCity recommends that PSC Staff consider reducing or eliminating demand response programs that incorporate direct load control in favor of enhancing programs that promote price-responsive demand response. Price response programs expand the potential customer base and load available to meet changing load shaping

objectives as the grid's needs change, provide improved customer choice, and provide both the utility and customers with flexibility to adapt to changing conditions.^{2,3}

Additionally, direct load control is simply less effective at delivering DR capacity, as Con Ed has noted in the low-uptake of its own DLC program.

D. The avoided cost analysis that each utility does regarding its demand response programs should be done transparently and be open to public comment.

SolarCity understands that the avoided cost analysis that will be developed for the DR programs will inform the PSC on a post-NEM “successor tariff” to be developed as part of REV. Given the impact these analyses may have on the energy markets in New York, SolarCity recommends that the analysis be transparent to the public and open to comment.

² *Public Comments of the Alliance for Solar Choice on the “Integrated Demand Response Portfolio Planned” Filed by the HECO Companies on July 28, 2014*; The Alliance for Solar Choice, pp. 13-14 (September 2014)

³ *HECO Demand Response Roadmap Project*, Lawrence Berkeley National Laboratory, Demand Response Open Architecture, pp. 41-42 (January 2013).

Conclusion

SolarCity appreciates the opportunity to submit these comments and the PSC Staff's consideration of the recommendations discussed above. We look forward to continuing to work with the PSC and other stakeholders on these issues.

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Respectfully submitted,

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