

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 **Q. Please state your name, occupation, and business address?**

2 A. My name is Doug Staker. I am the Vice President of Sales and  
3 Business Development and the Co-founder of Demand Energy  
4 Networks, Inc. ("Demand Energy"), which is located at 24001 E.  
5 Mission Avenue, Liberty Lake, Washington. Demand Energy is an  
6 intelligent energy storage solutions provider.

7 **Q. On whose behalf are you appearing in this proceeding?**

8 A. I am appearing on behalf of the New York Energy Consumers Council,  
9 Inc. ("NYECC"). NYECC's members represent a broad spectrum of  
10 energy buyers, including hospitals, universities, financial institutions,  
11 residential and commercial property managers, public benefit  
12 corporations, energy service companies, and energy consultants.

13 **Q. Have you previously submitted testimony in a proceeding  
14 before the New York State Public Service Commission ("PSC" or  
15 the "Commission")?**

16 A. No, I have not previously submitted testimony before the Commission.  
17 However, on January 29, 2016, I was a participant on the REV Track 2  
18 Technology Panel held at the Commission's offices in Albany, New York  
19 on behalf of Demand Energy. I will participate on a similar panel on  
20 May 26, 2016 in regards to energy storages applicability under the  
21 Clean Energy Standard at the Commission's office in New York City.

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 Also, earlier this year, Demand Energy proposed a demonstration  
2 project to Con Edison for REV and responded to a RFI from Con Edison  
3 on its proposed demonstration project. NYECC supports Demand  
4 Energy's market based approach because it dovetails with further  
5 improving upon Standby Rates for customers on those rates and better  
6 valuing the system benefits provided by such customers as well as  
7 dovetailing with the Commission's vision in REV in favoring market  
8 based approaches for the transformation of the electric grid. Although  
9 Con Edison recently rejected Demand Energy's proposed  
10 demonstration project, NYECC believes that Demand Energy's  
11 approach, which is market based, is the direction that the Commission  
12 is moving towards in the REV proceeding and that the best aspects of  
13 a market based approach should continue to be explored in rate cases  
14 and in the REV and in any other REV proceeding the Commission may  
15 create for such a purpose.

16 **Q. Please describe your educational background and relevant**  
17 **work experience.**

18 A. I received a Bachelor of Science degree in Mechanical Engineering  
19 from the University of Idaho in Moscow, Idaho in 1982. I have worked  
20 in various capacities in the energy sector since 1989. For two decades  
21 I was employed by Itron, Inc. in various capacities culminating in my

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 last five years as Vice President/General Manager directing Itron's  
2 international business unit in which I led 125 employees across nine  
3 regional subsidiaries in Mexico, Brazil, the Netherlands, the United  
4 Kingdom, France, Qatar, Australia, Taiwan and Japan. When I left  
5 Itron in 2009, I co-founded Demand Energy as a startup business. A  
6 copy of my Curriculum Vitae accompanies this testimony as Exhibit  
7 \_\_\_\_ (DS-1).

8 **Q. What is the relationship between Demand Energy and the**  
9 **NYECC?**

10 A. Demand Energy is a member of the NYECC.

11 **Q. What is the purpose of your testimony on behalf of NYECC?**

12 A. The purpose of this testimony on behalf of NYECC is to propose further  
13 improvements to the Company's Standby Rates by having the  
14 Company improve upon its practices for Standby Rates as well as to  
15 propose a voluntary load reduction rate for Standby Rate customers,  
16 which is market based and results in higher system capacity and  
17 supports lower cost distribution consistent with the Commission's  
18 articulated goals in the REV proceeding in which the customer is no  
19 longer viewed statically and solely as a recipient of service but as a  
20 resource to the electric system as well.

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 **Q. Why do the Company's Standby Rates need to be further**  
2 **improved?**

3 A. Further improvements to these rates are needed in order to secure  
4 sufficient customer investment in distributed generation through  
5 improvements upon the economics of such projects so as to forward  
6 the REV agenda and realize the REV policy objectives of the  
7 Commission and the anticipated benefits to customers fostered by  
8 these policy objectives. Significantly, the Commission stated in its  
9 Order Adopting Terms of Joint Proposal to Extend Electric Rate Plan,  
10 Issued and Effective June 19, 2015 regarding the Joint Proposals  
11 recommendation that the Commission allow the Company to provide  
12 Standby customers of Con Edison and NYPA the opportunity to earn  
13 performance-based credits against their contract demand charges  
14 based on the performance of their generating facilities, that "[p]arties  
15 recognize that this is not a comprehensive solution for properly valuing  
16 contributions by Distributed Energy Resource (DER) providers, but  
17 rather an interim measure designed to capture data and allow for a  
18 more robust design process in future proceedings before the  
19 Commission. This credit program will allow generators to show they  
20 can perform reliably as distribution level system assets and help  
21 significantly advance the policies outlined in the REV proceeding."

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 **Q. Has the Commission said anything more recently regarding the**  
2 **need to further improve Standby Rates?**

3 A. Yes, it has. In its recent Order Adopting a Ratemaking and Utility  
4 Revenue Model Policy Framework, Issued May 19, 2016, the  
5 Commission stated that “[t]he impact of standby rates depends  
6 heavily on the percentage allocation matrix that is used to allocate the  
7 costs of the local facilities and the shared facilities to the contract  
8 demand and daily as-used demand charges, respectively.” Accordingly,  
9 the Commission stated that the cost allocation methodology for  
10 Standby Rates needs to be refined because current Standby tariffs  
11 developed more than ten years ago and which are based upon  
12 negotiated agreements may no longer represent either the state of the  
13 system or the public interest. The Commission also stated that the  
14 development of the current rates did not contemplate the high levels  
15 of DER penetration and integration that are anticipated in REV. The  
16 Commission is requiring utilities, including Con Edison, to file within 60  
17 days of the Order, recent studies supporting its cost allocation  
18 methodology and update values. Con Edison has been directed in the  
19 Order to include discussion of the following in its filing: “a rate that  
20 rewards customers that engage actively with the utility to provide  
21 system value; a reduction in the percentage of costs allocated to the

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 contract demand with a corresponding increase in the allocation of  
2 costs to the daily as-used demand charges; a potential distinction  
3 between new load and existing load, with a phase out period for new  
4 load status; and a method which first identifies the marginal cost-of-  
5 service and then applies an adder for non-capital related cost  
6 recovery.”

7 **Q. What are the best practices for the further improvement of**  
8 **Standby Rates being advocated by NYECC?**

9 A. NYECC is requesting the following further improvements of the  
10 Company’s Standby Rates based on some of the best practices in the  
11 industry. First, Standby Rates can be improved further by having them  
12 weighted more toward As-used demand charges rather than the  
13 contract demand. Second, Standby Rates can be further improved by  
14 having demand charges better reflect the lower actual probability than  
15 is currently reflected in rates that an emergency outage will occur  
16 during a period of grid peak demand. Finally, Standby Rates can be  
17 improved upon by either eliminating demand ratchets, or by limiting  
18 their use to a reasonable short term period such as thirty days.

19 **Q. Has the Commission indicated any support for any of these**  
20 **proposed further improvements of Standby Rates?**

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 A. Yes. In its recent May 19, 2016 Order in REV, mentioned previously,  
2 the Commission stated that “distributed generation that is integrated  
3 into system planning and operations will provide system benefits for all  
4 customers, and will result in fewer fixed or long term marginal utility  
5 costs and more short term operating expenses. Standby tariffs should  
6 allow for the potential of a customer actively engaged with the utility  
7 and contributing value to the distribution system. Further, greater  
8 levels of DER mean that the risk that all standby demand will occur  
9 simultaneously and produce an unplanned coincident peak is lower, so  
10 a probabilistic analysis of the likelihood that the DER resources will fail  
11 at peak should be considered when allocating costs to standby rate  
12 customers.”

13 **Q. Why are you proposing a voluntary load reduction rate for**  
14 **Standby Rate customers?**

15 A. A variable Standby Rate for delivery charges would be the first  
16 example of how marginal costing based on location and time of use  
17 can function as a price incentive on the distribution level. It has been  
18 successfully implemented in the supply market and I believe it will  
19 prove beneficial under a DSPP environment. Energy storage as a grid  
20 resource has proven that it can deliver benefits in improving grid  
21 operations. For example, Con Edison recently decided to deploy 11 MW

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 in BQDM. A challenge that was posed by Governor Cuomo's Office in  
2 the summer of 2012 is how to build market based pricing structures to  
3 support the earning mechanisms for cost recovery for installation of  
4 storage systems. Experience with day ahead hourly pricing for energy  
5 supply has fostered an understanding of the benefits of locational  
6 based marginal pricing. Congestion based pricing allows leveraging  
7 the power of digital technology to drive savings for customers and  
8 enables reacting quickly and intelligently to the elements that drive the  
9 basis of price variability. Developing hourly based pricing for delivery  
10 charges would be foundational in helping the market adapt and  
11 understand variable pricing with both a locational element and a time  
12 based element that represents the true costs for the delivery of energy  
13 and power.

14 **Q. Are the proposed best practices and the proposed voluntary**  
15 **load reduction rate for Standby Rate customers mutually**  
16 **exclusive or are they additive?**

17 A. NYECC believes that the continued progression in Standby Rates  
18 through the specified best practices as well as movement toward a  
19 voluntary load reduction rate will continue the substantive progress  
20 sought for these rates by the Commission.



**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 **Q. Should the Standby Rate reliability credit take into account only**  
2 **the DG unit?**

3 A. No. The Commission in the previously referenced REV Order stated  
4 that this argument ignores a central tenet of REV, which is that a  
5 variety of DER resources and customer activities should be  
6 encouraged, to produce desired outcomes” and that “a customer with  
7 a distributed generator that is combined with storage, demand  
8 reducing technology, or any other means of responsive demand  
9 reduction, produces reliability as well as a 100% reliable generation  
10 unit.”

11 **Q. Has the Commission said anything else in its recent REV order**  
12 **regarding the Standby Rate reliability credit?**

13 A. Yes, the Commission said that for Con Edison, revisions related to the  
14 reliability credit shall be incorporated into its current rate filing and  
15 made effective January 1, 2017.

16 **Q. Should demand levels be normalized for weather?**

17 A. At this stage of development of improving the Standby Rates I would  
18 say no -- that doing so is premature in the absence of an improved  
19 upon, and functional, set of Standby Rates.

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 **Q. What are some of the current impediments to fostering end**  
2 **user savings that hourly based pricing for delivery charges**  
3 **would address?**

4 A. As we look to develop market based pricing for encouraging the  
5 deployment of behind the meter Distributed Energy Resources we are  
6 basing our concepts on our 8 years of market experience. The Con  
7 Edison/NYSERDA Demand Management Program (DMP) incentive for  
8 energy storage was very beneficial in aiding the capital cost of  
9 deploying energy storage. Even though the \$2100/kW incentive  
10 covered half of the installed cost, a business case that will drive  
11 savings for the end user is still challenging during this early phase of  
12 the storage industry. Requiring Full Power bulk discharge, which  
13 requires the storage system to operate at full operating power from 2  
14 pm to 6 pm supports System grid relief but it does not allow the  
15 customer that elected to participate to drive any savings from demand  
16 charge reduction during the summer when rates are the highest.

17 **Q. What first step are you proposing towards moving to market**  
18 **based demand pricing?**

19 A. I am proposing a path that builds off the structure of Con Edison's  
20 existing Standby rates. The current Standby rate can be very  
21 advantageous for this purpose because it moves from a monthly 24/7

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 demand charge to a rate design that has a daily charge, which allows  
2 operational savings every weekday. It also allows operational  
3 flexibility, in that operations can be switched to a bulk discharge to be  
4 compliant with a Demand Response event with only a penalty of losing  
5 one day of As-used demand charges. The next logical step is to build  
6 a new rate that supports energy storage operations by pricing the  
7 benefits derived from load reduction to reflect their locational based  
8 and time dependent value. It is now reasonable to take the daily-as-  
9 used demand charge and divide the amount across the 14-hour target  
10 operating day (8 am to 10 PM). As we dissect this rate across 14  
11 hourly time segments, we suggest that there are 4 hours that should  
12 be priced the highest in order to incent load reduction when it has the  
13 greatest value to Con Edison's system. Con Edison's networks have  
14 different peak time periods throughout the operating day. See (Exhibit  
15 \_\_ DS-2), regarding Con Edison networks and their different peak time  
16 periods for the event call windows of the Company's Demand  
17 Response Commercial System Relief Program (CSRP). The locational  
18 element of our proposed rate design would allow higher hourly prices  
19 that correspond with network peak where the service is located.

20 **Q. Explain the basics of the proposed rate structure?**

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 A. The basics of the proposed rate structure are set forth in Exhibit \_\_\_  
2 DS-3. A sample hypothetical rate is provided in the exhibit  
3 demonstrating the premise of the proposed rate reflecting a lower  
4 contract demand delivery charge and a higher As-used demand charge  
5 that is applicable during peak hours of the Con Edison network that  
6 service is connected to. Network to network, prices will vary,  
7 reflecting the locational peak periods of participants in each particular  
8 network. This market-based rate encourages load reduction by pricing  
9 delivery charges the highest during the 4 hours of the local network  
10 peak. In exchange for the savings derived by customers moving to this  
11 new rate design, Con Edison would be allowed to set the schedule of  
12 the storage system to be compliant with the needs of load reduction  
13 under both the Distribution Load Relief Program (DLRP) and  
14 Commercial System Relief Program (CSRP). This is similar to other  
15 critical peak power pricing that is operated in other markets. In order  
16 to quell any commercial account concerns about this control option,  
17 Con Edison should be limited to exercising this control to no more than  
18 20 days a year. If more days are needed for grid stress relief,  
19 additional compensation could be developed. Much like the results of  
20 the NYISO's energy supply market, eventually demand could be

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 managed by increasing the hourly delivery pricing during the needed  
2 hours of load relief.

3 **Q. Why do you think the Commission would be receptive to your**  
4 **market based approach for a new Standby Rate?**

5 A. The market based approach proposed is consistent with the  
6 Commission's Order adopting Regulatory Policy Framework and  
7 Implementation Plan, issued on February 26, 2015, the Commission  
8 stated as follows: *"If, for example, the 100 hours of greatest peak*  
9 *demand were flattened, long term avoided capacity and energy*  
10 *savings would range between \$1.2 billion and \$1.7 billion per year.*  
11 *Avoided line losses achieved by distributed generation can further*  
12 *improve system efficiency. Total line losses cost approximately \$200-*  
13 *400 million per year. Beyond these examples of direct cost reductions,*  
14 *markets established under REV will enable a range of options that will*  
15 *reward customers for participating in system optimization, and assist*  
16 *in control of customer bills."*

17 **Q. What are the benefits and services that can be derived in**  
18 **utilizing storage in the proposed market based approach?**

19 A. The delivery of electricity is the perfect just-in-time inventory system.  
20 By bringing in the element of storage, we move to a managed  
21 inventory system that allows optimization of the various components

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 of the energy supply chain in meeting the needs of the digital power  
2 grid. The following benefits and services are contemplated:

- 3 • **Asset Deferment:** Battery Energy storage has proven that it can  
4 provide the load relief needed to reduce peak loading on the grid. It  
5 can also allow idle generation to operate during off-peak hours,  
6 transmit energy through the T&D system when line losses are lowest  
7 and cached at the edge of the grid to released during the peak hours  
8 of the day. Moving energy through the transmission and distribution  
9 system off-peak has the potential of deferring the need to expand T&D  
10 capacity in order to accommodate peak power requirments.
- 11 • **Improved Capacity Factor:** Storage reduces peak loads during peak  
12 periods and increases loads during underutilized times, thereby  
13 leveling the overall load profile and improving the capacity factor.
- 14 • **Resiliency and Critical Load Support:** Storage integrated properly  
15 allows for resiliency and continuity of service of a set of critical loads  
16 during a power outage.
- 17 • **Line Loss Reduction:** Storage can reduce Peak loads which will  
18 reduce the energy lost from the transmission and distribution of  
19 energy.
- 20 • **DR Response:** Under this Standby Load Reduction Rate, Con Edison  
21 would be able to set the load reduction schedule on Critical Power

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 days. There will be a 20 event limit and if additional days are  
2 necessary additional incentives would be provided.

- 3 • **GHG Reduction-Peaker to Base Generation-** Implementing load  
4 reduction during peak periods and storing the energy off-peak when  
5 the most efficient generators are being used reduces Green House Gas  
6 (GHG) emissions. Using a market based metric for the value of carbon  
7 reduction would allow for a Market Based Earnings metric for  
8 customers.
- 9 • **Sustainable Capacity:** Storage provides the benefit of being able to  
10 time shift solar energy consumption to a time period when it has  
11 higher economic value in providing both Capacity and Energy.
- 12 • **Customer Acquisition Cost:** Con Edison has an extensive customer  
13 outreach network. By reducing the customer acquisition cost of third  
14 parties like Demand Energy, a fee could be paid in cases where Con  
15 Edison provides contacts that result in deciding to install energy  
16 storage.
- 17 • **Financing Fees:** Con Ed could provide on bill financing which could  
18 derive interest payments and tax equity benefits depending upon the  
19 finance structure.
- 20 • **Master Metered Shared Savings Lease Option:** Master metered  
21 accounts have difficulty in deploying capital for energy efficiency

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 projects due to their tenants' lease structures. Many tenants have  
2 language to share in any energy cost savings. This makes for long  
3 payback period to cost justify these projects. Demand Energy has  
4 proposed both a new operational model and ownership model that  
5 support a shared savings model across Con Edison, 3<sup>rd</sup> Party financing,  
6 and the building owner.

- 7 • **Electronic Bill Presentment and Payment:** In its proposed  
8 demonstration project, Demand Energy has offered to provide bill  
9 presentment information and to develop an electronic payment option  
10 reducing Con Edison's cost and improved cash flow.

11 **Q. Are there other long term benefits that customers and Con**  
12 **Edison can expect from utilizing storage in the proposed**  
13 **market based approach?**

14 A. Yes. The most important benefit that will be derived from this  
15 approach is the customer confidence in storage that storage provides  
16 the load management needed to provide electricity savings; can be  
17 installed in buildings, quickly and safely; runs behind the scenes  
18 making the operation transparent. With hourly pricing available for  
19 both supply and delivery, the storage system can optimize customer  
20 savings while delivering load relief to the distribution grid during the  
21 peak hours of operation); provides a source of safe critical power; can



**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 be controlled by the utility without any interruption and can become  
2 part of the utility's energy ecosystem. In addition, this rate design will  
3 enable Con Edison to step towards the transactional energy market  
4 place envisioned in REV and its role as the Distribution Service  
5 Platform Provider ("DSPP") promoting a market for integration of  
6 distributed energy resources that can be managed via a price signal to  
7 result in the desired grid loading that is required to keep a highly  
8 distributed intermittent renewable energy system in a stable, cost  
9 optimized environment. This market based approach to rate making  
10 will demonstrate that load is reactive to price and can be controlled by  
11 intelligent energy storage systems; that market pricing can incent  
12 where load relief is needed and storage can be strategically deployed  
13 in selected regions to reduce or eliminate the need for further  
14 expensive grid upgrades improving system capacity factors; that  
15 Performance Based Rate making can be developed and utilities  
16 rewarded for *de facto* optimization of the grid managed as the DSPP;  
17 that load management provides system and cost benefits for all  
18 customers; and will help reduce the expense of building operations to  
19 meet the peak in all three components of generation, transmission,  
20 and distribution.

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 **Q. How much energy storage capacity do you envision going**  
2 **forward based upon the market based approach proposed?**

3 A. The delivery of the top 10% to 20% of the peak load is marginally  
4 more expensive for the entire energy delivery system. Building  
5 capacity to support peak loading drives a low utilization factor for all  
6 capital deployed to meet the peak. Based upon the PSC's comment  
7 regarding the flattening of the 100 hours of greatest peak demand and  
8 long term avoided capacity and energy savings would range between  
9 \$1.2 billion and \$1.7 billion per year, the top 100 hours of loading in  
10 the CECONY territory equals 1.8 GW (13.2-11.4 GW) of load or about  
11 13% of peak. While storage could cover all of this peak load reduction,  
12 a more practical goal of 1 GW of storage (or solar and other  
13 DG+storage) seems reasonable. The NY-BEST 2016 roadmap outlines  
14 the goal of 2 GW of storage capacity on the grid by 2025 and 4 GW on  
15 the grid by 2030. Since Zone J is the largest load zone in New York, it  
16 seems plausible that the goal in NYC equal half of these targets for the  
17 same time frame. Con Ed has referenced a goal of 300 MW over 5  
18 years for DMP II and the Con Ed DR programs achieved 137 MW for  
19 the CSR program and 232 MW for the DLRP program. New York has  
20 638 MW of solar PV deployed with a goal of 3 GW by 2022. If Zone J  
21 represents 30% of the total load in NY State, it is one of the most

**Doug Staker - New York Energy Consumers Council, Inc.**  
**Case 16-E-0060**

1 expensive zones to deliver energy, a goal of 1 GW of distributed solar  
2 in Zone J is attainable. Incentives and encouragement of solar,  
3 distributed generation and storage solutions that deliver firm capacity  
4 and the ability to time shift resources to when it adds the most value  
5 for the Company's local networks makes good sense. This is especially  
6 true in the more residential networks (located in Staten Island,  
7 Brooklyn, Queens, and Westchester) where the system peak occurs  
8 between 7 pm and 11 pm.

9 **Q. Are energy storage costs expected to decrease over time?**

10 A. With the cost of storage systems projected to follow similar cost  
11 reductions as solar, multiple analysts see a 50% reduction in costs  
12 with improved performance over the next 10 years. With these price  
13 points and the growing challenges of peak loading, the fundamental  
14 economics will improve dramatically, driving new revenue streams for  
15 Con Edison and a dramatic shift to demand side management that will  
16 allow distributed resources to become a central part of overall grid  
17 management. Given the density of the population, age of the  
18 infrastructure, and current congestion in the greater NYC area, this  
19 provides tremendous confidence in growth and likely one of the most  
20 compelling markets worldwide. Con Edison taking a leadership role in

**Doug Staker - New York Energy Consumers Council, Inc.  
Case 16-E-0060**

1 this emerging market - provides a compelling opportunity to be a core  
2 enabler and beneficiary of this transformation.

3 In the electric utility world, there have been many examples of  
4 technology improving with performance and reducing in cost as the  
5 market adapts technology. The market for smart metering  
6 demonstrated this over the past 10 years and it is too common in the  
7 storage world to reference the parallels of storage with distributed  
8 solar in regards to solutions that have achieve cost reduction with  
9 volume deployments

10 **Q. Does this conclude your testimony?**

11 A. Yes.

12

13