Brooklyn Queens Demand Management Program

Implementation and Outreach Plan

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Contents

1. Introduction

On December 12, 2014, the New York Public Service Commission ("Commission") issued its Order approving Consolidated Edison Company of New York, Inc.'s ("Con Edison" or the "Company") Brooklyn/Queens Demand Management ("BQDM") Program.[1] The BQDM Program, as described in the Company's petition seeking approval of the BQDM Program, was designed to address a forecasted overload condition of the electric sub-transmission feeders serving the Brownsville No. 1 and 2 substations with 17 MW of demand reduction from traditional utility-side solutions and 52 MW from non-traditional customer-side and utility-side solutions by the summer of 2018.[2] The impacted area, the BQDM Area, comprises locations served by the Brownsville 1 and 2 Area Substations in Brooklyn and Queens and includes the three electrically independent networks of Ridgewood, Richmond Hill and Crown Heights.[3]

Based upon the BQDM Program's success, reductions in peak load forecasts, and the traditional infrastructure improvements, the Company submitted a petition to defer additional traditional investments and deliver additional benefits to customers while furthering state policy objectives, through an extension of the BQDM program beyond 2018.[4] The Commission approved the

[1] Case 14-E-0302, *Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn Queens Demand Management Program*, Order Establishing Brooklyn/Queens Demand Management Program (issued December 12, 2014) ("BQDM Order").
[2] Case 14-E-0302, Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn Queens Demand Management Program (filed July 15, 2014).
[3] References to Brooklyn/Queens in this filing refer to north central and eastern Brooklyn neighborhoods, including parts of Greenpoint, East Williamsburg, Bushwick, Bedford-Stuyvesant, Crown Heights, East Flatbush, Brownsville, and East New York, and southwestern Queens neighborhoods, including parts of Richmond Hill, Howard Beach, Broad Channel, Ozone Park, South Ozone Park, Woodhaven and Kew Gardens.
[4] Case 14-E-0302, *Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn/Queens Demand Management Program*, Petition for Extension of Time to Implement Brooklyn Queens Demand Management Program (filed January 19, 2017).

Company's petition, approving the extension of the BQDM Program so the Company can obtain additional demand reductions beyond 2018, without any additional funding.[5]

The BQDM Extension Order allowed the Company to defer the need for the Glendale Project that was detailed in the Company's original BQDM proposal to achieve further deferral of the New Substation /Gowanus Expansion.

This Implementation Plan ("Plan") is an update to the plan last filed in January 2018 and provides information on the components and timing of the BQDM Program, as well as plans to achieve additional load reductions to further facilitate development of distributed energy resources ("DER"), engage customers by enabling them to better manage their energy use, and enable deferral of traditional infrastructure. This update outlines the BQDM Program budget and strategy to continue implementation beyond 2019. The Plan continues to function as a "living" document that the Company will update as needed. In addition, the Company will continue to file with the Commission quarterly reports on BQDM Program activities and expenditures until the conclusion of the BQDM program. Current program actions and future plans are discussed in greater detail below.

2. Implementation Plan Elements

The Plan describes the actions the Company has taken and will take to exceed the BQDM Program's goal in the BQDM Area, beyond 2018. Since much of the Plan is a continuation or

[5] Case 14-E-0302, Order Extending Brooklyn/Queens Demand Management Program ("Extension Order") (issued July 13, 2017), approved the Company's petition to extend the BQDM Program beyond 2018 and enable deferral of the Glendale Project, a traditional component of the overall BQDM Program.

expansion of actions already taken through the BQDM Program, the Plan describes those past actions to provide context and a foundation for the anticipated actions and timelines over the remainder of the BQDM Program.

The Plan includes two distinct components, customer-side solutions ("CSS") and non-traditional utility-side solutions ("USS"); however, this update to the implementation and outreach plan will focus on procuring additional load relief through CSS. While certain elements of overlap exist with these two different components, implementation requires distinct approaches. The Company plans to continue procurement of additional load reduction above and beyond the 41 MW initially planned for 2019 through 2021. The Company achieved customer side load reduction over 33.5 MW by summer 2018 and projects that it will achieve load reduction greater than the 41 MW cumulative level by 2021. The Company anticipates that the USS solutions implemented in 2017 and 2018 will continue to provide approximately 18 MW, more than the originally anticipated 11 MW in load relief.

Key objectives of the BQDM Program are identification, evaluation, and deployment of a portfolio of customer-side and non-traditional utility-side solutions to enable deferral of traditional infrastructure need. The Company has developed, and continues to modify, such a portfolio as solutions are acquired. This approach includes leveraging existing programs, implementing community-based customer engagement strategies, seeking broad market input for potential solutions, deploying new technology to analyze customer energy use and demand reduction potential, and developing a structured methodology to evaluate, compare, and purchase a diverse range of solutions. All actions are focused on the operational need to address the

system overload for which the BQDM Program was approved while also delivering innovative outcomes and potential learning opportunities.

This Implementation Plan identifies opportunities where there could be potential for load reductions beyond what has been contracted for by 2018. The Company has been evaluating existing projects in the BQDM Program and identifying opportunities for DER to provide additional load reductions such as through emerging storage technologies that can be a callable resource or provide constant load reduction, while maintaining the reliability of the system. Based on initial analyses and load relief needs, the Company anticipates that it can procure approximately 11 MWs of additional customer-side load reductions. Projects that can be implemented in a timely manner by the summers of 2019 through 2021 will be prioritized.

3. Market Input

Past Actions

On July 15, 2014, Con Edison issued a Request for Information ("RFI") seeking information and proposals for CSS and USS for the BQDM Program. The Company used an RFI, as opposed to a Request for Proposal ("RFP"), to initially solicit a broad set of solutions, with the goal of fostering greater levels of customer engagement and innovation, animating markets at the local level, and allowing participation of a diverse array of solution providers to address the BQDM Program objectives The RFI enabled respondents to provide a broad set of potential solutions for consideration and has enabled the Company to assess a wide range of existing and emerging technology capabilities, while providing insight and intelligence into prevailing prices and the state of the marketplace.

The RFI, though now closed, created the opportunity to receive additional potential solutions, which allowed for the submission of new technologies and the entry of new market participants through the implementation of the BQDM Program.

In support of the BQDM extension, the Company released the 2019 BQDM Program Extension Auction Requirements on December 22, 2017. The Program Extension Auction was designed to engage customers and third-party vendors to utilize innovative advanced technologies that provide peak demand reductions in the BQDM Area in order to defer additional traditional investments and deliver additional customer benefits. The program is described in detail in Section 7.6 Emerging Technologies.

Planned Actions

The RFI submissions as well as the initial experience gained from implementing the BQDM Program have provided information for solution implementation for both the BQDM Program, the extended BQDM Program plan, and for other needs that may arise within the Company's service territory.

The Company's current CSS portfolio consists of a combination of energy efficiency, demand response, and distributed generation technologies. The Company believes there is an opportunity to continue engagements with third parties and customers to procure additional load reductions through solutions such as energy storage, fuel cells, and combined heat and power installations. The Company will be seeking cost-effective solutions that provide benefits to customers and the

system. Key items of importance while analyzing these solutions will include costs, maturity, safety, useful life, and feasibility of implementing the solution in the BQDM Area.

4. Customer Analysis

The Company recognizes that detailed understanding of its customers' consumption patterns, potential for load management and, more broadly, customer demographics within discrete segments, are critical for the successful implementation of CSS approaches. A deep understanding and segmentation of customers allows for more effective targeting of solution deployment.

The virtual building audit project, commenced in December 2013, was an important initial step in gaining greater insight into customer load management potential. Virtual building audits are used to prioritize and engage high potential commercial, institutional, and multi-family buildings with demand of 100 kW and above. Provided by a Company contractor, the audits evaluate buildings' energy profiles and their potential for energy savings using a combination of publicly available data and building specific consumption data provided by Con Edison. The audits were generated using interval meter data where available, and monthly data if not, in conjunction with publicly available business, building, and other data. The Company followed up on the audit results through its existing energy efficiency programs.

In addition, Company account and business development representatives have been trained to assist customers in interpreting the results of the virtual audit reports and have also directly reached out to customers to encourage innovative technology projects.

Additionally, the Company has identified the largest consumers of electricity in the BQDM Area and has been working with them collaboratively to address their energy needs through innovative solutions such as fuel cells and energy efficiency measures. The Company will continue to engage with its customers and third parties to address needs through innovative solutions.

In addition to identifying energy and demand savings opportunities, the Company continues working to coordinate and identify additional funding opportunities with New York State Energy Research and Development Authority ("NYSERDA") initiatives and incentives.

The Company has also analyzed the load shapes associated with customer categories that do not have interval meter data and/or monthly peak demand readings so it is better able to target specific customer segments with appropriate solutions as well as track load shapes of energy efficiency solutions that have been implemented.

5. Solution Evaluation and Comparison

The Company has developed an innovative, proprietary portfolio approach to evaluate and compare a mix of resources that can meet the BQDM reliability need over the targeted overload period on a design peak day. Specifically, the Company has sought to fill the reliability need by utilizing a mix of resources while accounting for the duration of their availability, their risk, their maturity, their flexibility, and their ability to meet specific needs in the BQDM Area. The methodology utilizes multiple criteria to evaluate a resource's ability to contribute when overloading is expected. Resource availability has been discounted based on technical

assessments by internal and outside experts to provide an objective evaluation of the reliability of the solutions.

The Company recognized that the responses to the RFI were not the total spectrum of available solutions, and has procured additional solutions through subsequent RFPs and Requests for Clarification ("RFC"), creating additional solutions in the portfolio. The Company will continue to balance the need for procurement decisions with the need to facilitate the development of additional innovative solutions.

While the initial solution evaluation tool was based on RFI responses, the Company's review process included the results of the existing energy efficiency programs targeting small business, multi-family, commercial and industrial, and residential customers, and other evolving customer projects. These results will help inform similar projects in the future.

The Company will continue to favorably view and prioritize new innovative solutions and DER providers working collaboratively with customers who are able to execute on load relieving projects beyond 2018.

6. Procurement Strategy

The Company's first direct solution acquisition actions were the Energy Efficiency Portfolio Standard ("EEPS") Commercial Direct Install ("CDI") and Multi-family Energy Efficiency ("MFEE") adders. The Company exercised a strategy to acquire these solutions by leveraging existing contracts which had been previously competitively bid and awarded. The Company has developed and deployed a number of different procurement approaches as the BQDM Program

has evolved. For resources being acquired, the Company has included performance standards based on measurement and verification ("M&V") protocols developed by the Company and in consultation with outside experts, where appropriate.

An enhanced metering study of the small business and multi-family customer segments is complete, which has been used to develop load shape data at the building, apartment, and equipment level. The study was extended to include small business customers with an average peak demand between 110 and 300 kW. The metering is accompanied by identification of end uses of all metered electric equipment (HVAC, lighting, refrigeration, etc.) to characterize the prevalence of various types of end use throughout the BQDM Area.

There are likely to be situations which justify a sole-source acquisition approach, most likely where a unique solution is available or a specific customer presents an opportunity. However, the Company will continue to deploy various competitive procurement approaches. The competitive procurement approaches include RFPs, and/or auctions. Just as the Company originally anticipated, procurement approaches have not been static, one-time buying events, but rather a series of actions on a strategic timing basis as deemed most appropriate for each solution. The Company continues to engage with Department of Public Service Staff as the BQDM Order requires.

The Company has employed different buying strategies based on the type of need and outcome desired in order to facilitate the participation of a diverse set of resources in the BQDM Program. For example, to help meet the BQDM peak reliability need, the Company designed and

conducted a descending clock auction to procure demand response ("DR") resources with specific performance attributes. The auction allowed the Company to procure DR resources during fixed windows, while avoiding any resulting snap back of load during other over-load hours.[6]

In addition to the procurement actions the Company has already undertaken, the Company will continue with strategic acquisition actions until the BQDM Program ends.

The Company notes that there are potential execution, performance, and delay risks in solution implementation. Potential risks include customer acquisition issues, permitting delays, and other project specific issues that could impact the timeliness or performance of projects. The Company will employ strategies to mitigate these risks while also developing appropriate backstop solutions to continue to provide safe and reliable service.

7. Existing Programs

As previously noted, the Company will continue utilizing its existing energy efficiency and related programs in the BQDM Program portfolio as well as engage with customers and third parties for additional innovative load relieving opportunities. The discussion below highlights the past, planned, and additional actions that may be taken in some of the existing programs in the BQDM Program portfolio to provide additional load reductions.

[6] The Company is being careful to avoid any relief during one period of the full targeted load period resulting in a negative impact on another specific period within the full targeted load period. For example, if a customer were to use load curtailment for reduction during the hours of 4:00 to 8:00 pm, the customer would not be allowed to increase consumption from 12:00 (noon) to 4:00 pm to pre-cool or to increase load from 8:00 pm to 12:00 am by re-charging a battery.

7.1 Commercial Direct Install Program

Past Actions

The Company developed the "CDI Adder" initiative to increase penetration of the Company's CDI program in the BQDM areas. Commercial customers with a peak demand of 300 kW or less receive a free walk-through survey followed by an identification of cost-effective electric efficiency measures, and are eligible to receive up to 70 percent of costs needed to install the identified measures. Under this CDI Adder, the Company is providing an additional incentive of approximately 30 percent of the project cost to such customers within the BQDM region to enable the installation of recommended measures at no cost to the participating customer.

The Company use of the adder program resulted in a total of over 6,900 customers contributing to the BQDM peak hour load relief of over 11.9 MW as of December 31, 2018.

The Company's M&V vendor is tasked with performing services to authenticate the savings of the CDI program. Such services include verification of baseline and installed fixtures through metering at selected locations within the territory. M&V data will provide additional information to the enhanced metering dashboard which displays real-time program-verified and forecasted contributions to the BDQM program.

Planned Actions

The Company is continuing the adder program in 2019, with a goal to achieve a cumulative peak load reduction of more than 12.2 MW by May 31, 2019. The Company will conduct additional analysis to evaluate the potential to achieve additional load reductions in the CDI sector after 2019 and beyond.

A high level timeline of the CDI Program is as follows:

Task/Accomplishment	Expected or Completed Date
Market Potential Analysis	September 2015
CDI Extension of Program Goals	November/December 2015
Initial Metering results	December 2015
Peak Reduction of 6.6 MW Completed	June 2016
Cumulative Peak Reduction of 7.9 MW Completed	December 2016
Cumulative Peak Reduction Goal of 8.3 MW Completed	June 2017
Cumulative Peak Reduction Goal of 11.2 MW Completed	June 2018
Cumulative Peak Reduction Goal of 11.9 MW Completed	December 2018
Cumulative Peak Reduction Goal of 12.2 MW	May 2019
Seek Additional Implementation Opportunities	June 2019 - June 2020

7.2 Multifamily Energy Efficiency Program

Past Actions

The Company also developed an adder initiative for the Multifamily Energy Efficiency (MFEE) Program ("MFFE Adder"). The MFEE Program provides customers a free survey that identifies load-reduction measures and offers incentives for multi-family dwellings of five or more units. This includes both measures installed within the dwelling units and measures installed within the common areas. Under the MFEE Adder program, the Company covers the full costs for installation of measures applied to common areas in such buildings, while the ETIP program covers funding for in-unit measures.

The MFEE Program was extended under ETIP in 2016, with the Company's continued implementation resulting in a total of over 1,800 buildings that have contributed to a BQDM peak hour load relief of 4.7 MW as of December 31, 2018.

The Company's M&V vendor is tasked with and continues to perform M&V services to authenticate savings of the MFEE Adder program by metering the in-unit and common-area lighting measures, as well as keeping track of end-use inventories. As was done for the CDI Adder program, additional M&V was conducted during the summer period to generate real-time program-verified and forecasted contributions to the BDQM program.

Planned Actions

The Company is continuing the MFEE Adder program with a cumulative goal to achieve 4.9 MW of peak load relief by May 31, 2019. The Company will conduct additional analysis to evaluate the potential to achieve additional load reductions in the multi-family sector and to quantify and determine the costs and MWs that will be allocated to this program beyond May 2019.

A high-level timeline of the MFEE Program is a follows:

Task/Accomplishment	Expected or Completed Date
Market Potential Analysis	September 2015-May 2015
MFEE Extension with Implementation	November/December 2015
Initial Metering results	December 2015
Peak Reduction of 1.7 MW Completed	June 2016
Cumulative Peak Reduction of 2 MW Completed	December 2016
Cumulative Peak Reduction Goal of 3.6 MW Completed	June 2017
Cumulative Peak Reduction Goal of 4 MW Completed	June 2018
Cumulative Peak Reduction Goal of 4.7	December 2018

MW Completed	
Cumulative Peak Reduction Goal of 4.9 MW	June 2019
Seek Additional Implementation Opportunities	June 2019-2020

7.3 Commercial and Industrial Energy Efficiency Programs

Past Actions

In mid-2016, the Company developed an adder initiative to supplement the existing ETIP Commercial and Industrial ("C&I") Program for these facilities with over 300 kW monthly peak load ("C&I Adder"). Through the BQDM Program, the Company is providing an additional incentive for demand reduction provided by a variety of measures such as lighting upgrades and refrigeration. To date, the program resulted in an estimated total peak hour load relief of 540 kW.

Con Edison's third-party vendor was tasked with performing M&V services to authenticate savings of the program by metering HVAC, compressor, lighting, and other measures, as well as keeping track of end-use inventories.

Planned Actions

The Company has achieved its goals under the C&I Adder program and believes there are opportunities to acquire additional load reductions by enhancing market awareness and developing targeted outreach strategies.

A high-level timeline of the C&I Program is as follows:

Implementation and verification of peak load reduction	Complete

Cumulative Peak Reduction Goal of 500 kW Completed	December 2017-September 2018
Achieve additional load reductions	January 2019 – May 2020
Enhance marketing strategies to promote customer awareness	March 2019 – May 2020

7.4 Residential Energy Efficiency Programs

Past Actions

There are approximately 175,000 1-4 family residential properties in the BQDM Area, representing approximately 30 percent of the area's total peak load.[7] Because the BQDM peak occurs in the evening hours, the late-peaking residential customer segment represents an important component of the program.

The Residential Lighting Program launched on August 31, 2016 with a 2 MW peak load reduction goal over a 12-month implementation timeframe. The program is designed as a "neighborhood sweep," with the Company's contractors going door-to-door throughout the BQDM Area to offer direct install services to customers in the targeted area. The direct installers remove less efficient bulbs and replace them with more efficient LEDs. All direct-installers have a Con Edison Contractor ID as well as Con Edison jackets. The Company installed approximately 525,000 LED lightbulbs in over 27,570 residential properties, achieving peak load relief of 3.9 MW as of year-end 2018.

[7] The total peak load identified is the aggregate of all customer specific peak loads, not coincident to the network peak time

The Company's M&V protocols include a "Tag & Bag" approach to confirm the lighting retrofits. The "Tag-and-Bag" approach consists of retaining the removed lighting equipment, packaging from the newly installed efficient equipment, and written documentation of removed and installed equipment in a clearly labeled bag that identifies the facility (building and apartment) and location (kitchen, bedroom, etc.). The bags are stored at a central warehouse for review by an independent third-party conducting QA/QC on the bags and calculating savings. Items are stored for at least 30 days to be inspected by the M&V team.

As a separate initiative, the BQDM Program worked with the Company's Residential Direct Load Control ("DLC") and Bring Your Own Thermostat ("BYOT") programs to develop an additional incentive to spur participation in these programs within the BQDM networks by providing an additional benefit for customers who have the ability to control central air conditioning in their homes using Wi-Fi-enabled thermostats. By the end of the fourth quarter of 2018, over 192 kW peak load relief was procured through the DLC and BYOT adder programs based on the Company's current best estimates for the 9 PM to 10 PM period.

M&V will be conducted via the same process that the DLC program currently uses to track performance, which is through a portal that monitors the enrollments and performance of the enrolled customers.

Planned Actions

The Residential Lighting program will continue to engage customers in the targeted areas to achieve additional load relief by December 31, 2019. The Company believe there is still potential in the BQDM Area and has extended contracts with the existing implementation contractor.

Because practical solutions at a single residential customer location only provide a small amount of load relief, a large number of customers need to be engaged to obtain meaningful load relief. The Company's efforts to reach this population, in addition to providing critical load relief to the Company, are positively impacting customer satisfaction for a significant customer segment in the BQDM Target Area.

A high level timeline of the Residential Program is provided below:

RFC responses due for Residential Lighting Direct Install	January 29, 2016
Peak load reduction of 1.74 MW completed	August 2017
Peak Load Reduction of 2.74 MW completed	May 2018
Peak Load Reduction of 3.9 MW completed	December 2018
Cumulative peak load reduction of 4.5 MW expected	December 2019

7.5 Combined Heat and Power ("CHP")

Past Actions

Con Edison has focused on leveraging the NYSERDA Combined Heat and Power ("CHP") Acceleration program by providing an additional incentive to qualified CHP projects in the BQDM Area. The NYSERDA CHP Acceleration Program provides incentives for the installation of pre-qualified and conditionally qualified CHP systems by approved CHP system vendors. NYSERDA, National Grid, and the Company have developed a joint marketing approach in the BQDM Area and the Company continues to pursue engagement with customers.

While the primary application process is being administered through NYSERDA's existing procedures, the Company is reviewing applications received under the additional incentive

program jointly with NYSERDA. Further, the Company has requested that all applications include specific information relevant to the evaluation of the proposed project for BQDM needs.

In order to simplify the application process, the Company requested the information identified in the table below be submitted through NYSERDA:

Preliminary Interconnection Letter	Submitted to Con Edison
Gas load letter	Submitted to National Grid
Hourly electric load relief analysis (8760 hours per year)	Required by Con Edison
Customer Letter of Intent ("LOI")/ Site Control	Signed by Customer
Project Schedule	Required by Con Edison

Eligible projects may receive an incentive of up to $1,800 per peak hour kW of load relief, but the total incentives from NYSERDA and Con Edison for a project are capped at 100 percent of the project cost. Additionally, Con Edison will provide a match up to the base incentive provided by NYSERDA, but will not match any bonus incentives that NYSERDA provides. As a result of the BQDM program extension, the Company announced the continuation of the CHP matching incentive program through May 2020 and continues to coordinate with NYSERDA and National Grid.

By providing additional incentives, potentially matching the NYSERDA incentive levels, the Company has installed 1.6 MW of contracted load relief as of the end 2018. A total of approximately 2.8 MW is expected in-service by summer 2019.

Planned Actions

The Company plans to conduct additional outreach with NYSERDA to promote the extension of the CHP matching incentive program and acquire further load reductions through the summer of 2020.

The timeline below outlines planned BQDM CHP-related activities:

NYSERDA application approvals	Ongoing
BQDM application approvals	July 2018 – Ongoing
Con Edison, National Grid and NYSERDA outreach event to present CHP incentive programs	February 2019
Continued marketing & targeted customer outreach	Ongoing
CHP system(s) installed and commissioned	May 2019 – September 2020

7.6 Emerging Technologies

Past Actions

Con Edison issued an RFC in 2016 to advance contracts for "shovel ready" battery storage projects to maximize customer-side load reduction opportunities for commercial properties in the BQDM Area for the summer of 2017 and 2018 meant to identify a specific "hurdle rate" ($/kW) needed to make their projects viable and move them forward expeditiously.

One respondent submitted and received approval for a Company incentive for a 500 kW project and was expected to provide the load reduction by summer 2017. This respondent was later allowed to lower the commitment to 100 kW of load reduction, but the project was ultimately not completed as there were implementation, engineering, and regulatory challenges that were not overcome.

Separately, a battery storage project was incentivized by the Company and included as part of a multi-technology installation contributing a 300 kW load reduction at a customer's location in the BQDM Area.

The Company also released technical requirements for its 2019 BQDM Extension Auction ("XA") on December 22, 2017. The XA was an auction designed to engage customers and third-party vendors to utilize innovative advanced technologies that provide peak demand reductions in the BQDM Area in order to defer additional traditional investments and deliver additional benefits to customers.

Planned Actions

Technical Requirements Issued	December 2017
Project must be operational (Certificate of Completion deadline)	May 1, 2019
Achieve Additional Peak Load Relief via Advanced Technologies	Beginning Summer 2019 – Summer 2020

7.7 New York City Housing Authority

Past Actions

NYCHA has a significant footprint in the BQDM area, making it an important stakeholder in the BQDM Program. NYCHA properties in the BQDM area include 63 developments, which contain 569 buildings and over 31,300 individual residences. Overall, this building stock represents approximately 50 MW of summer peak demand. Con Edison has worked with a contracted partner to conduct a scoping project that helped identify potential energy efficiency projects for the properties. In phase 1 of the project, a 1.6 MW peak load reduction was

completed by summer 2017 and M&V verification of reductions for the lighting portion of the project, which consists of metering and a "Tag & Bag" approach as described in the Residential section above, were completed in the third quarter of 2017. In phase 2 of the project, an additional 0.8 MW peak load reduction was expected by end of 2018 to achieve 2.4 MW of contracted peak load reduction in phase 1 and phase 2 combined. The M&V verification of phase 2 peak load reduction has not been finalized.

The Company has also engaged with NYCHA on a smaller initiative to support the New York State Weatherization Assistance Program ("WAP") by providing an additional incentive for lighting upgrades. Through the WAP initiative in 2017, the Company has incentivized energy upgrades in five low-rise buildings with a total of 150 apartments.

M&V will be completed using pre- and post- inspection for common-area locations and the "Tag & Bag" approach for in-unit locations.

The Company's collaboration with NYCHA has led to an estimated 51 local hires from Green City Force[8] program that engages young adults from low-income communities in national service related to the environment. These local hires support field operations for the NYCHA projects.

Planned Actions

Beyond the final measurement and verification of the peak load reduction, there are no additional actions planned for the project. The timeline of the NYCHA effort is as follows:

Contract Initialized for Scoping Report	October 2014
Scoping Report Completion	April 2015

[8] https://www.greencityforce.org/

Con Edison & NYCHA Agree on Statement of Work ("SOW")	October 2015
NYCHA Releases Energy Performance Contract ("EPC") RFP	January 2016
Contractors Selected for the EPC	Q3 2016
BQDM Program Agreements Signed and Executed	November 2016, December 2016
Implementation Period for 1.6MW Peak Reduction	January 2017 – May 2017
Implementation Period for 0.9MW Peak Reduction	February 2018 – December 2018
Measurement and Verification of Peak Load Reduction	December 2018 – January 2019

7.8 Opportunities with New York City Agencies

Past Actions

The New York City ("City") Department of Citywide Administrative Services ("DCAS") manages the utility accounts for over 4,000 public buildings around the City, and through DCAS Energy Management ("DEM") it implements energy conservation programs throughout City facilities. Con Edison has discussed and entered into an agreement for potential BQDM projects with DCAS.

DEM utilizes an Accelerated Conservation and Efficiency ("ACE") program to fast track and streamline funding for advanced energy projects within City agency facilities. DEM conducts multiple rounds of project solicitations per year to identify projects through the ACE program.

DEM launched the Expenses for Conservation and Efficiency Leadership ("ExCEL") program in 2013 to provide City agencies with an opportunity to apply for funding to further energy efficiency projects in City agencies. Through the competitive ExCEL program, DEM has been able to allocate funds for critical needs while prioritizing investments that focus on innovation and have the largest anticipated energy, emissions and cost savings benefits.

The first lighting upgrade project led by DCAS began during the third quarter of 2016. Implementation continued into early 2017, as the Company increased the scope of work to include in-unit window air conditioner swaps at select DCAS, Fire Department of New York and New York Police Department locations.

Planned Actions

The Company intends to evaluate additional project solicitations that may qualify under the BQDM Program and will engage in discussions with DCAS about new potential projects. The timeline is as follows:

Initial Discussions and RFI Response	August – September 2014
RFI Analysis	January – April 2015
Meetings with DCAS to Establish Mechanism to proceed	May 2015
DCAS ACE Round 4 Solicitation	June – August 2015
Project Evaluations	September – November 2015
BQDM Incentive Amount Determined	December 2015
ACE Round 5 Project Solicitation	Q1 2016
ACE Round 6 Project Solicitation	Q3 2016
ExCEL FY 16 Project Solicitation	Q3 2016
ACE Round 7 Project Solicitation	Q3 2017
ExCEL FY 17 Project Solicitation	Q3 2017
Construction for Peak Load Relief	Q3 2016-Q4 2019
Discussions for Additional Peak Reductions	August 2017 – May 2020

7.9 Innovative Distributed Generation

Past Actions

The Company has investigated innovative solutions that could provide reliable load relief during the entire 12 hours of potential overload, including the viability of efficient fuel cells that generate electricity through non-combustion chemical mechanisms. The Company determined that some fuel cells can efficiently and reliably provide long periods of load relief with minimal

operational overhead. An important advantage of efficient fuel cells is that they can be built with minimal lead times while using a relatively small footprint in the land-constrained targeted area. The Company has investigated and developed business arrangements to incent adoption of such technologies such that third-party capital can be leveraged in a manner that is beneficial to the customer while also being cost effective to the Company. The Company has continued engagement with customers and fuel cell vendors to evaluate the potential for using a fuel cell to offset baseload consumption such that it is also economic for the customer. Site visits were conducted at these sites and bills were analyzed to determine if this option was feasible for the customer. The Company entered into an agreement with a fuel cell vendor to provide peak load reduction through fuel cell projects at customer locations. To date, five fuel cell projects were installed in the targeted area resulting in 6,100 kW of peak load relief.

The M&V was conducted for the fuel cell projects, confirming the performance at its required capacity during the summers of 2017 and 2018. Con Edison verified project completion and performance before the incentive was disbursed.

Planned Actions

The Company plans to conduct additional outreach with NYSERDA to promote the implementation of fuel cells by matching incentive program and acquire further load reductions through May 2020.

The timeline for the fuel cell projects is as follows:

Engage customers for fuel cell potential analysis	October 2015 - January 2015
Perform Site Visits	November 2015 - January 2015
Customer bill and site analyzed for fuel cell feasibility	November 2015 - February 2015
Savings and Benefits Presented to Customer	January 2016 - February 2016
Customer Decision to implement a fuel cell	February 2016 – Q3 2017

by Summer 2017	
Peak Load Reduction of 0.80 MW completed	Summer 2017
Peak Load Reduction of 5.30 MW completed	Summer 2018
Continued marketing & targeted customer outreach	Ongoing
Fuel cell system(s) installed and commissioned	May 2019 – September 2020

7.10 Demand Response Auction

Past Actions

The Company tested the feasibility of conducting auctions to solicit resources that can respond in a dynamic fashion in order to meet the reliability need around the peak hour (9-10 pm) in the targeted area in 2017 and 2018, as well as any other deficiencies identified as the portfolio of available demand reduction solutions evolves.

The Company developed a competitive market acquisition process, a descending clock auction, to procure dynamic resources, i.e., callable, expected to be dispatched for up to four hours at a time during the BQDM Area peak period for the summers of 2017 and 2018. Throughout 2016, the Company designed the attributes of the auction including qualification criteria, event performance requirements, incentive structure, financial arrangements for underperformance penalties, and program agreements.

To avoid market confusion, the Company obtained Commission approval to offer peak-shaving demand response products through the BQDM DR auction in lieu of the existing Commercial System Relief Program ("CSRP") in the BQDM Target Area.[9]

. There were four Demand Response Products in the BQDM DR offering:

- 8PM — 12AM for the 2017 capability period;
- 4PM — 8PM for the 2017 capability period;
- 8PM — 12AM for the 2018 capability period; and
- 4PM — 8PM for the 2018 capability period.

An auction was conducted by the Company on July 27-28, 2016 for each of these four Demand Response Products. The results of the auction provided sufficient capacity to meet the Company's needs, however, as discussed below, execution risks persist, and some winning bidders were unable to provide the load reduction contracted for 2017. Additional information on the efficacy of the BQDM DR Program and Auction Mechanism can be found in the report filed in December 2018.[10]

The auction exceeded expectations on supplier diversity, new entrants, and technological diversity of solutions. Six of the ten awarded bidders had never before participated in a Con Edison DR program. More than half of the awardees proposed new technologies such as battery

[9] Case 16-E-0236, *Tariff Filing by Consolidated Edison Company of New York, Inc. to Make Revisions to Rider T - Commercial Demand Response Programs*, Order Approving Tariff Amendment (issued July 14, 2016).
[10] http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b7D6A5F8B-8E28-4DD5-8C2B-F63F47149DEE%7d

energy storage as their primary means of attaining DR, which has traditionally been provided through curtailment or onsite generation technologies in the Company's service territory. The auction produced a total of 782 bids and demonstrated both a competitive pricing outcome and a proof of concept of a forward market for targeted reliability programs.

The BQDM DR Auction procured a total of 22.69 MW of load reduction for 2018 between the two products offered. Of that, 19.08 MW was declared deficient from six of the ten awarded bidders, with the majority for the 8PM – 12AM product. More than half of the awardees proposed technologies such as battery energy storage as their primary means of providing DR; however, with the lack of clarity in the battery permitting process and lengthy time involved, these awardees were not able to have their battery energy storage solution installed for the 2018 capability period. Others also declared partial deficiency due to difficulty with customer acquisition.

For the 2018 BQDM DR capability period, 2.63 MW of load reductions were enrolled for the 4 PM to 8 PM call window and 2.52 MW were enrolled for the 8 PM to 12 AM window. The voluntary DR program for the BQDM territory also received 2.09 MW of pledged load reductions. Although, more than 2 MW were enrolled in each product, on average less than 2 MW performed during events.

The table below was the Company's timeline for the descending clock auction:

The table below was the Company's timeline for the descending clock auction: Award Contract to Auction House	February 2016
Complete Auction Design and Auction Training	March-July2016

Conduct Auction and Post Auction Analysis	July 27 &28 2016
Executed Program Agreements and Initial Security for Awarded KW	July – August 2016
2017 Enrollment Deadline	April 3, 2017 for 2017 Capability Period
2017 DR Capability Period – No Events	May – September 2017
2018 DR Capability period – 10 DR Events	May - September 2018

Resources that were utilized for the BQDM DR program will have the option of participating in the Company's existing DR programs for subsequent years.

7.11 Commercial Refrigeration

Past Actions

The Company identified commercial refrigeration as a viable segment for obtaining load relief based on both the current inefficiencies in such equipment in the BQDM Area as well as the potential load relief that can be achieved throughout the entire forecasted overload period.

The Company developed and released an RFP in July 2015 with the aim of contracting for 1.5 MW of refrigeration load relief within the BQDM territory. The Company engaged with a new technology vendor for a refrigeration thermal storage battery. This new technology vendor has contracted for the full 1.5 MW of load reduction to be provided by summer 2018. After working with Con Edison personnel and conducting thorough targeted research, the implementation of thermal storage technology was unsuccessful.

Planned Actions

The Company has no plans to acquire load reductions from commercial refrigeration within the BQDM territory at this time.

8. Community Engagement

The Company has and will continue to prioritize community engagement as an important aspect of BQDM Program deployment. In the initial phase of the BQDM Neighborhood program, the Company reached out through community contacts to inform local stakeholders and residential and business customers about the initiative and opportunities to participate in the program. By working closely with local communities, the Company has been able to encourage small businesses, multi-family units, and 1-4 family homes to participate in the program. The Company will continue proactive outreach and build upon its relationships and partnerships. The BQDM Area is home to a number of low and fixed income communities and the Company will continue to be proactive in working with these communities as it pursues successful deployment of the BQDM Program.

The outreach efforts will continue to include contact with elected officials, community and business organizations, and local precincts within the target area regarding the BQDM Program. Existing relationships with many of the elected officials, community groups and business organizations in the affected areas enable the Company to maintain relations with these important stakeholders. The Company intends to continue to build upon the work it has done to-date with many of the community and business-based organizations that have experience working with local communities on environmental and energy issues and seeks opportunities to identify new interested parties. The Company will inform these stakeholders about the updated

schedules and potential opportunities available under the implementation plan. In addition, the Company will consider opportunities for community-based groups to engage in the array of programs above. The Company is particularly interested in projects that can benefit the low- and moderate-income communities.

Working with local officials, the Company has placed information about the BQDM and broader energy efficiency programs in their newsletters or email communications, with links to the energy efficiency portions of the Con Edison website, Facebook, and Twitter accounts. The Company will continue to engage with local elected officials through in-person events and structured outreach in individual areas of BQDM.

Examples of specific community stakeholders are local chambers of commerce, business improvement districts ("BID"), local development corporations, community housing associations, tenant and merchant associations, and government entities, such as NYCHA and local community boards. Outreach to stakeholders will address an array of issues such as energy savings, and economic incentives. The Company will continue to engage in seeking workforce development opportunities in collaboration with local community organizations. The Company will look to work with organizations that have the training and skills development capacity to align with the Company's and its contractor's workforce needs.

The Company has been proactive in its engagement with stakeholders and continues to actively pursue such engagement. The Company continues to pursue opportunities to attend stakeholders' meetings and will also hold its own specific events to which stakeholders and local

communities will be invited. The Company expects that participation in events and meetings will be conducted on an ongoing basis for the duration of the BQDM Program. With new initiatives being developed, the Company will continue to conduct outreach to communities and customers within the areas where those initiatives will occur.

Throughout the outreach, the Company will address both CSS and USS.The goal of this continued outreach will be to help educate and assure stakeholders that levels of service will be maintained. While the deployment of typical energy efficiency programs may have more general customer benefits, the BQDM Program will be more customized and local, requiring greater customer engagement and proactive communication to address concerns and promote participation.

In addition to direct community engagement, the Company has developed and deployed a focused and innovative marketing campaign. For the residential segment, the Company will continue to focus a significant amount of effort towards promoting the LED direct install effort. This year there will be more of a focus on giving customers power over their participation by advertising to them their ability to schedule an appointment and earn a chance to win a sweepstakes by referring friends and family to the program. The key marketing channels that will be used to communicate these messages include email, direct mail, canvassing, telemarketing and social advertising. The company is also planning to promote increased incentives on smart thermostats to residents in the BQDM Area.

For the CDI eligible customers, the Company will continue to reach out to CDI customers in the target area through multiple channels including outreach to local business associations, direct mail, street sweeps[11] and digital advertising. The Company will continue to utilize mass mailings for small business customers as appropriate, including multi-language brochures (English, Spanish, Chinese, and Korean). Another tactic which has already proved successful in the BQDM Area and will be repeated as needed is the "Win Back" direct mail campaign targeted toward customers who are approached for participation, but initially choose not to participate. This initiative is highly personalized to include the estimated benefit to the customer, along with a picture of the BQDM Program representative and the representative's cell phone number so the customer knows who will be following up.[12]

Supporting the MFEE Program, the Company will continue to reach out to residential multi-family building owners and tenants of eligible buildings using co-branded marketing material, produced for contractors authorized to work in the BQDM Area. This outreach is coordinated with direct mail campaigns informing tenants and building managers of free energy efficiency devices that may be installed in their apartment dwellings. Direct communication and events have been particularly successful in reaching tenants and homeowners.

The nature of the solutions selected will necessarily inform the strategy for educating and engaging customers, so to some extent development of the strategy must await selection of the solutions. Specific solutions deployed with specific customers will not require the broader

[11] Street sweeps involve surveyors visiting local establishments door-to-door to conduct a free survey.
[12] Past "Win Back" campaigns resulted in a response rate of three percent, which represents a 50 percent increase over the result widely experienced in direct marketing campaigns across a spectrum of product segments, where the average response rate is normally in the one to two percent range.

market engagement and sales process that is required for a broader programmatic solution such as the CDI or MFEE approach. Any solution the Company selects which targets a broad market sector, as opposed to an individual customer agreement, may be required to include a detailed sales and marketing plan, which will be scrutinized and approved as part of any contract award process. During this selection process the Company will also consider alignment in the messaging across these multiple solution providers to mitigate confusion potentially caused within the impacted community as the result of multiple actors participating in the market.

9. Measurement and Verification

In order to have confidence in the solutions secured under the BQDM Program, it is essential that the Company verify the load relief provided by the various solutions. As such, the Company continues to design a comprehensive M&V approach that will work concurrently with the implementation of each solution to verify the load relief for each installed project on an ongoing basis. The M&V approach will also validate that load relief for a specific period within the full targeted load period does not result in a detrimental impact on other specific periods within the full targeted load period.

The Company will continue to use specific procedures so that all projects have some form of M&V oversight, either via desk-review and/or onsite verification, prior to measure installation. Additionally, onsite ex-ante and ex-post in situ metering and analysis may be utilized depending on measure complexity. The M&V process is designed to result in a verified savings estimate with 90/10 confidence and precision for each hour within the targeted BQDM Program peak demand period.

The M&V approach for the CDI and MFEE programs uses on-site inspection and metering, in addition to data collected during previous impact evaluations conducted for the CDI and MFEE programs, to reduce the overall sample size and metering requirements. For the projects selected via the RFI initiative and other pathways, customized M&V plans have been developed for each technology and tailored to the specific solution implementation plan. For non-traditional utility side solutions, a holistic customized M&V strategy is designed for each project. A combination of desk reviews, verifications, ex-ante and ex-post metering, billing analyses, and sampling is used.

The goal of the M&V approach is to ascertain on an ongoing basis the viability and load relief contributions of each solution and to accurately aggregate total load relief from the BQDM Program resources. M&V will be ongoing and concurrent until BQDM Program completion. Also, the M&V process will be used to support the buying strategy by providing additional confidence in the ability of the solution to achieve stated load relief.

The Company is implementing rigorous QA/QC measures, including development of a detailed QA/QC plan and engagement of a QA/QC third-party vendor. These measures provide additional levels of review and greater confidence in the load relief provided by the various solutions acquired under the BQDM Program.

10. Utility-Side Solutions

The focus of USS has been to leverage innovative technologies and strategies. Some of the design and implementation activities to implement these non-traditional USS have been developed within the Company; in addition, the Company has solicited services from external vendors on an as needed basis. Deployment of USS to meet the 11 MW non-traditional utility-side goal has focused on a Distributed Energy Storage System ("DESS"), a battery, and Conservation Voltage Optimization ("CVO").[13] The Company has implemented the CVO and USS DESS which results in approximately 18.5 MWs of peak load reduction, surpassing the original 11 MW goal. The Company has evaluated other technologies in case they are needed.

10.1 DESS

The DESS will provide Con Edison with 12 MWh of stored energy and can be configured to deliver this power between 1 MW for 12 hours to 2 MW for 6 hours. Con Edison signed a contract with the vendor on August 18, 2015. Permitting applications for the selected construction site have been approved. Construction began in January 2018 and its substantial completion is expected in early January 2019 and final completion is expected the first quarter of 2019.

10.2 Voltage Optimization

The purpose of the CVO project is to optimize the voltage on the 27kV primary system, including the 4kV overhead system, by implementing enhanced, efficient voltage control. Based on M&V calculations, CVO reduced peak load by a total of 7.9 MW during 2016. Additional load flow studies have been performed to identify areas of relative low voltage compared to surrounding areas. For 2017, voltage reduction was increased from 1.5 percent to the 2.5/3.0

[13] Voltage optimization is the systematic controlled management of the voltages received by an energy consumer.

percent range. A functionality test was successfully performed in early May 2017 to verify that all settings and procedures are established and working. Initial load reduction based on the test was 16.5 MW, surpassing the utility-side solution goal of an 11 MW load reduction. The CVO project is expected to continue provided load reduction in the current and future years.

10.3 Fuel Cells

During June 2015, the Company issued a Fuel Cell RFP soliciting solutions of up to 1 MW at a Company owned location within the BQDM Area. The Fuel Cell RFP solicitation closed on July 17, 2015. Technical presentations were completed on September 9, 2015. The Company has reviewed the submitted proposals to understand the pricing proposals and determine the most cost-effective option. Pending additional load relief needs, the Fuel Cell project has been put on hold and no longer being considered. Pending any changes, there will be no further updates on this project in BQDM Program quarterly updates.

10.4 Photovoltaic

The solar photovoltaic ("PV") project RFP was closed on September 14, 2015. Bid submissions were reviewed for completeness and technical presentations were scheduled for October 2015. The project attempts to investigate the utility-side possibility of generating an aggregate of 1 MW by means of PV systems installed on the grounds of 10 unit substations and other buildings located in the BQDM Area, Brownsville No.1 and Brownsville No.2 substations, as well as at the Cleveland Street work out location. The Company has reviewed the submitted proposals to understand the pricing proposals and determine the most cost-effective option. Pending additional load relief needs, the Solar PV project has been put on hold and no longer being

considered. Pending any changes, there will be no further updates on this project in BQDM Program quarterly updates.

11. Budget

The operating budget for the BQDM Program as approved in the BQDM Order is as follows;

Customer Side Solutions	Non-Traditional Utility Side Solutions	Total
$150,000,000.00	$50,000,000.00	$200,000,000.00

With approval granted to extend the BQDM Program, the Company intended to utilize available remaining funds to achieve additional load relief from CSS, while meeting the other BQDM Program objectives. The Company has continued to achieve demand reductions while remaining under budget and intends to decrease the recovery initially planned for the program, but will retain sufficient funds needed to plan for and implement load reductions through 2021. The Company recognizes that other factors such as customer engagement, community involvement, and resource diversity may impact program budget decisions.

As required by the BQDM Order, the Company is providing and will continue to provide the Commission with quarterly reports of BQDM Program activities and expenditures. These reports include details such as project costs, project in-service dates, MAC recoveries, incremental costs incurred, operational savings, and other benefits.