Brooklyn Queens Demand Management Program

Implementation and Outreach Plan

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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, is designed to address a forecasted overload condition of the electric sub-transmission feeders serving the Brownsville No. 1 and 2 substations using a combination of traditional utility-side solutions and non-traditional customer-side and utility-side solutions.² The impacted area, the BQDM Area, comprises locations served by the Brownsville 1 and 2 sub-stations in Brooklyn and Queens and includes the three electrically independent networks of Ridgewood, Richmond Hill and Crown Heights.³

Beginning in 2013, increased customer electric demand growth in Brooklyn and Queens began to overload the capabilities of the sub-transmission feeders serving the Brownsville No. 1 and 2 substations. In its petition, the Company forecasted that, unless the anticipated load growth in these BQDM Area is alleviated, by 2018 the sub-transmission feeders serving the area will be overloaded by 69 megawatts ("MW") above the system's current capabilities for approximately 40 to 48 hours during the summer months.

The BQDM Program is designed to address the overload by reducing load 69 MW, with approximately 52 MW of the reduction to be achieved using a combination of non-traditional utility-side and customer-side solutions and 17 MW through traditional utility infrastructure

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 and effective 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, 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.

investment. The precise mix of customer- and utility-side non-traditional solutions as well as the quantity of load relief needs needed for reliability each year will depend upon the solutions available to the Company and the evolution of system needs respectively. The Company anticipates that a majority of the achieved reductions will result from the customer-side, typically deployed on customer property, and the remainder will result from the utility-side, i.e., solutions directly connected to the distribution network.

The Company has been successfully implementing the BQDM Program and projects that it will achieve, under budget, more demand reductions than originally assumed necessary to defer the traditional infrastructure targeted in the petition and Order. Based upon its success to date, most recent peak load forecasts, and traditional infrastructure improvements, the Company now has the opportunity 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. Consequently, the Company has submitted a request to the Commission to grant an extension of time to implement the BQDM Program so that the Company can obtain additional demand reductions without any additional funding.⁴

This Implementation Plan ("Plan") is an annual update to the plan originally filed in February 2015 and provides information on the components and timing of the BQDM Program, including an outline of the Program budget and strategy to meet the 52 MW goal. The Plan continues to function as a "living" document that the Company will update as needed. The Company has

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.

added more specifics to the Plan regarding buying strategies and expected funding allocations, reflecting additional evaluation of potential solutions since the filing of the initial plan. In addition the Company continues to file with the Commission quarterly reports on Program activities and expenditures. Current program actions and plan are discussed in greater detail below.

2. Implementation Plan Elements

The Plan describes the actions the Company has taken and will take to achieve the BQDM Program's goal of 52 MW load relief in the BQDM Area. Since much of the Plan is a continuation or 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 and non-traditional utilityside solutions. While certain elements of overlap exist with these two different components, implementation requires distinct approaches. The Company plans to achieve, at minimum, 41 MW of load reductions through customer-side solutions as part of the BQDM program. The Company has already achieved over 10 MW for summer 2016 and projects that it will achieve above 42 MW over the next two years. The Company plans to achieve 11 MW of load relief through non-traditional utility-side solutions over the next year.

Key objectives of the BQDM Program are identification, evaluation and deployment of a portfolio of customer-side and non-traditional utility-side solutions. The Company has

developed, and continues to modify, such a portfolio with revisions as solutions are acquired and reliability needs are evaluated. 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 has been approved while delivering innovative outcomes and potential learning opportunities.

3. Market Input

Past Actions

On July 15, 2014, Con Edison issued a Request for Information ("RFI") seeking information and proposals for customer-side and utility-side non-traditional solutions for the BQDM Program. The Company has used an RFI, as opposed to an RFP, to 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 approach is inherently less restrictive than a RFP approach. The RFI enables 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 Company received 89 responses to the RFI, consisting of proposals for energy efficiency, energy management/audit software, energy storage, customer engagement, demand response, and proposals incorporating multiple categories. The RFI respondents have proposed solutions to facilitate or address part or all of the BQDM Program needs.

Planned Actions

The RFI remains open, creating the opportunity to receive additional potential solutions on an on-going basis. This will allow for the submission of solutions which may arise with the advent of new technologies, and the entry of new market participants through the implementation of the BQDM Program. Further, these submissions will provide additional information for implementation of both the BQDM Program, including during a potentially expanded BQDM Program timeline if approved by the Commission, and for other needs that may arise within the Company's service territory.

4. Customer Analysis

Past Actions

The Company recognizes that detailed understanding of its customers' consumption patterns, potential for load management and, more broadly, the customer demographics within discrete segments, are critical for the successful implementation of both customer-side solutions and non-traditional utility 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, has been 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 contractor for the Company, the audits are evaluations of 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 utilizing interval meter data where it was available, and monthly data if not, in conjunction with publically available business, building and other data.

The virtual audit approach allows resources to be focused on higher potential properties by conducting strategic outreach and more detailed walkthroughs, while avoiding the need to conduct time-consuming physical surveys of all of the properties in targeted areas. The Company has made available the virtual audit reports on high potential buildings in the BQDM Area to customers or, in some cases New York Power Authority ("NYPA") for its customers, to engage and directly inform customers of beneficial energy efficiency and demand reduction opportunities. The Company mailed approximately 500 virtual audit reports to customers in order to engage them to adopt potentially highly beneficial energy measures. The Company followed up on responses through the existing energy efficiency programs. In addition, Company account representatives and business development representatives have been trained to assist customers in interpreting the results of the virtual audit reports and have reached out to customers directly.

As an early initial step of the virtual audit initiative the Company established a portal access point and provided training for NYPA staff to access audit reports for NYPA customers. The

Company, with the agreement of NYPA, also dispatched copies of the reports to key NYPA customers within the BQDM Area.

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 as well as energy efficiency measures.

The Company has also focused on publicly administered housing buildings. The Company identified over 46 MW of demand, from over 60 housing complexes that include over 29,000 apartments, in the BQDM Area. The Company has worked with the New York City Housing Authority ("NYCHA") and a contracted partner to identify opportunities in these facilities.

In addition to identifying the energy and demand savings opportunities, the Company continues working to identify additional funding opportunities, such as New York State Energy Research and Development Authority ("NYSERDA") incentives, which may be available but may not as yet have been fully leveraged. 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 continues to assess a portfolio of solutions derived both from responses to the Company's RFI and its investigation of other cost-effective opportunities in the BQDM Area.

The Company has developed an innovative, proprietary portfolio approach to evaluate and compare a mix of resources that can meet the 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 and 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. The availability of the resources has been discounted based on technical assessments by internal and outside experts to provide an objective evaluation of the reliability of the solutions.

While the initial focus of the development of the evaluation and solution comparison has been the responses to the RFI, the Company has now included in the review process the results of the existing energy efficiency programs targeting small business, multi-family, commercial and industrial, and residential customers, and other evolving customer projects. In particular, the Company has favorably viewed solutions where DER providers have been working collaboratively with willing customers and have the ability to execute on load relief projects under BQDM Program deadlines.

Further, the Company recognizes that the responses to the RFI are not the total spectrum of available solutions. The Company will continue to balance the need for specific point in time buying decisions with the need to facilitate the development of additional innovative solutions.

6. Buying Strategy

The Company's first direct solution buying actions were the Energy Efficiency Portfolio Standard ("EEPS") Small Business Direct Install ("SBDI") and Multi-family Energy Efficiency ("MFEE") adders. The Company exercised a strategy to acquire these solution outcomes by leveraging existing contracts which had been previously competitively bid and awarded. The Company has developed and deployed a number of different buying 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 nearly complete, which will be used to develop load shape data at the building, apartment, and equipment level. 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. While the initial scope of the study is complete, the scope was extended to include small business customers with an average peak demand between 110 and 300 kW. A visual dashboard has been created to aid in the development of savings profiles for energy efficiency and demand reduction measures in the BQDM Area while providing insights for projects undertaken in other networks in the future.

There are likely to be situations which justify a sole source type approach, most likely where a unique solution is available or a specific customer presents an opportunity, and there have been situations where the Company has deployed and will continue to deploy various competitive buying approaches. The competitive buying approaches include RFPs, and/or auctions. Just as

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the Company originally anticipated, the buying approach has not been a static, one-time buying event but rather a series of actions, on a strategic timing basis as deemed most appropriate for each solution. The Company continues to engage with 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. In order to meet the reliability need around the peak hours in the targeted area in subsequent years as well as any other deficiencies identified as the portfolio evolves, 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 of fixed windows, while avoiding any resulting snap back of load during other over-load hours.⁵

In addition to the buying actions the Company has already undertaken, the Company has executed further buying actions and will continue with strategic buying actions until such time as BQDM Program needs have been met.

The Company notes that there are potential execution and performance risks, including delays in the implementation of these solutions. Potential risks that the Company has identified include customer acquisition issues, permitting delays, and other project specific issues that could impact the timeliness or performance of these projects. The Company will employ strategies to mitigate

⁵ 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 recharging a battery.

these risks while also developing appropriate backstop solutions to ensure safe and reliable service.

7. Existing Programs

7.1 Small Business Direct Install Program

Past Actions

The Company developed the "SBDI Adder" initiative under the EEPS SBDI program, where commercial customers with a peak demand of 110 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 the BQDM Program, 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 with no costs to the customer.

The SBDI program was extended under the Energy Efficiency Transition Implementation Plan ("ETIP") through 2016. Under the ETIP structure, participation restrictions around the customer demand limit were extended from a maximum demand of 110 kW to 300 kW, which presented an opportunity for increased load relief in this key demographic.

The Company has continued with the adder program, resulting in a total of over 4000 customers that have contributed to a BQDM peak hour load relief of 13.2 MW by December 31, 2016.

Planned Actions

The Company is planning to continue with the adder program into 2017, which is expected to result in an additional BQDM peak hour load relief of approximately 2.5 MW, for a total of 15 MW, to be installed by June 2017.

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

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

Procurement of SBDI Solutions	August 2014- Ongoing
Market Potential Analysis	September 2015
SBDI Extension of Program Goals	November/December 2015
Initial Metering results	December 2015
Peak Reduction of 10 MW Completed	June 2016
Cumulative Peak Reduction of 13.2 MW	December 2016
Completed	
Cumulative Peak Reduction Goal of 15	June 2017
MW Completed	

7.2 Multifamily Energy Efficiency Program

Past Actions

The Company developed an adder initiative for the existing EEPS MFEE Program. The MFEE

Program provides a survey that identifies load-reduction measures and offers incentives for

multi-family dwellings of 5 or more units. This includes both measures installed within the

dwelling units and measures installed within the common areas. Under the BQDM Program, the Company covers the full costs for installation of measures applied to common areas in such buildings.

The MFEE Program was extended under ETIP through 2016, with the Company's continued implementation resulting in a total of over 1000 customers that have contributed to a BQDM peak hour load relief of 1.8 MW by December 31, 2016.

Planned Actions

The Company's M&V vendor is tasked with and continues to perform M&V services to authenticate savings of the 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 SBDI Program, additional M&V was conducted during the summer period to generate a dashboard that displays real-time program-verified and forecasted contributions to the BDQM program.

The Company plans to continue with the adder program into 2017 and expects to achieve a cumulative goal of 3.6 MW of peak load relief installed by December 31, 2017.

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

Procurement of MFEE Solutions	December 2014- Ongoing
Market Potential Analysis	September 2015-May 2015
MFEE Extension with Implementation	November/December 2015
Initial Metering results	December 2015
Peak Reduction of 1.5 MW Completed	June 2016
Cumulative Peak Reduction of 1.8 MW	December 2016
Completed	
Cumulative Peak Reduction Goal of 3.6	December 2017
MW Completed	

7.3 Commercial and Industrial Energy Efficiency Programs

Past Actions

In mid-2016, the Company developed an adder initiative to supplement the existing EEPS C&I Program for commercial and industrial facilities with over 300 kW monthly peak load. Through the BQDM Program, the Company is providing an incentive for demand reduction provided by a variety of measures such as lighting upgrades and refrigeration. As of December 2016, one customer has completed deployment, which resulted in a peak hour load relief of 25.6 kW.

Planned Actions

The Company is planning to continue with the adder program, which is expected to result in a

total peak hour load relief of 250 kW by December 2017.

Con Edison's third-party vendor is 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. A high-level timeline of the C&I Program is as follows:

Procurement of C&I Solutions	June 2016 - Ongoing
Implementation and verification of peak load reduction	Ongoing-2018
Peak Reduction Goal of 250 kW Completed	June 2016- December 2017
Cumulative Peak Reduction Goal of 500 kW Completed	December 2017 -
	September 2018

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 total peak load.⁶ Because the BQDM peak occurs

⁶ The total peak load identified is the aggregate of all customer specific peak loads, not coincident to the network peak time

in the 9-10pm hour, the late peaking residential customer segment represents an important component. This customer segment also brings unique challenges and requires considerable effort in achieving significant load relief as it requires engaging a large number of customers who individually use a small amount of energy.

Several RFI respondents included a component in their proposals that targets residential customers. Thorough analysis was performed to determine the peak demand reduction opportunities that could be offered with the proposed measures.

A Request for Clarification ("RFC") was sent out on December 23, 2015 to RFI respondents whose original response included a component related to residential lighting. The Company requested information on the respondents' ability to deliver a Direct Install Lighting Program, utilizing LED technology, to maximize load reduction opportunities at 1-4 family properties in the BQDM area. Five responses were submitted by the deadline of January 2016. Initial evaluation was completed in February 2016 and three finalists were identified. A Request for Quote ("RFQ") was released on March 30, 2016, responses were received early second quarter, and the company finalized the vendor selection process by the end of the second quarter of 2016. During the third quarter, the contract with the implementation contractor was negotiated and finalized for the Residential Direct Install Lighting 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 the targeted customers. The direct installers remove incandescent bulbs and replace them with LEDs. All direct-installers have a Con Edison

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Contractor ID as well as Con Edison jackets. The Company expects to install nearly 250,000 LED lightbulbs in over 20,000 residential properties through the program by the end of 2017.

Through December 31st, 2016, over 2200 customers participated in our Residential Direct Install Lighting Program resulting in a 250 kW reduction. We expect these numbers to grow as the contractor hires additional staff.

The Company has finalized M&V protocols, which are to 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 will be 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 mechanism to spur participation in these programs within the BQDM networks by providing an additional benefit for customers who have the ability to control central AC in their homes using thermostats. An incentive mechanism was established during the second quarter providing an adder-incentive to the BYOT and ETIP residential programs. These adders were announced with an e-blast (mass electronic mail marketing), and were available to qualifying residential customers beginning in June 2016. By the end of the fourth quarter, over 30 kW peak load relief was procured through the adder programs based on the Company's

current best estimates for the 9 to 10 pm period. Verification of the measure savings is currently underway and results are expected to be finalized mid- 2017.

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 target customers in the targeted area with the goal of achieving 2 MW load reduction by August 2016. M&V of reductions are currently underway and are expected to be finalized in early 2017

The anticipated timeline is provided below:

Proposed measures evaluated for demand reduction potential	September – December 2015
RFC issued	December 23, 2015
RFC responses due for Residential Lighting Direct Install	January 29, 2016
Program Design for DLC Adder (thermostats)	January 2016-May 2018
Implementation for DLC Adder (thermostats)	February 2016 – May 2018
Analysis and Evaluation of Residential Lighting Direct Install	February – April 2016
Vendor Selection Process Complete	March – June 2016
Vendor Contract Negotiation	July- August 2016
12 Month Implementation of Residential Lighting	August 2016-August 2017

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. 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 we continue to pursue engagement with customers.

Planned Actions

By providing additional incentives, potentially matching the NYSERDA incentive levels, the Company expects to increase adoption of modular, off-the-shelf CHP systems that are quickly deployable and that reduce baseload electric demand during summer around the BQDM peak hour.

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, we are requesting 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 up to \$1,800 per peak hour kW of load relief, but the total incentives from NYSERDA and Con Edison the project can receive are capped at 100% 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.

BQDM CHP Incentive	Up to \$1,800/kW
	Incentives, inclusive of NYSERDA incentives, limited to 100%
	of cost
Demand Reduction	May 1st to September 30th
Measurement	Monday to Friday
	12 AM to 12 PM
Enrollment due date	February 29th, 2016

The table below provides the milestones for projects to receive incentive payments. The

Company will adjust the performance incentive based on actual performance during the summer

period.

	NYSERDA	Con Edison
NYSERDA Application completed	33%	33%
and all permits approved		
System fully installed by pre-	33%	
established deadline		
System fully commissioned and	33%	33%
operational by pre-established		
deadline		
Performance during summer night		33%

As part of NYSERDA program, every project is required to continuously monitor and report its performance for at least three years. Performance information of projects selected under this additional incentive program will be made available to Con Edison through NYSERDA's tracking system. Separately, Con Edison will quantify demand reduction throughout the summer

in order to maximize availability and to determine the performance incentive as determined by

the measurement and verification plan developed for distributed generation.

Con Edison received commitments by the end of February 2016. CHP systems are anticipated to be operational before the summer 2017 period. The Company anticipates it will achieve up to 4 MW of load reduction by 2018.

The anticipated timeline for BQDM CHP projects is as follows:

Applications Due Date	March 31, 2016
NYSERDA Application Approvals	May 2016- Ongoing
CHP Systems Installed and commissioned	May 2017 - May 2018
CHP performance capability period	Summer 2017 and Summer 2018

7.6 Energy Storage

Past Actions

Con Edison issued an RFC intended for Respondents who are working with willing customers and have identified a specific "hurdle rate" (\$/kW) needed to make their projects viable and move them forward expeditiously. The intent of this initiative is to advance contracts for "shovel ready" battery storage projects to maximize customer-side load reduction opportunities for commercial properties in the BQDM Area.

Any battery projects within BQDM will need to prioritize and fulfill specific needs for the summer of 2017 and 2018. Con Edison received proposals from four respondents. After detailed review and evaluation of the proposals, the Company communicated a \$/kW that will be offered with specified milestones and a requirement to submit a more comprehensive package by May 8,

2016 and a final requirements package by August 1, 2016. The approved projects are required to be operational by May 2017.

From this offer, one respondent submitted a 500 kW project. An incentive has been committed to one customer project to provide load reduction by summer 2017. The vendor on the project is working to overcome engineering and regulatory challenges and has updated the potential peak load reduction to 100 kW. The vendor continues to work diligently to move this project forward.

Planned Actions

The Company continues to remain engaged with the respondent. M&V will be required prior to final payment. Con Edison will quantify demand reduction throughout the summer in order to maximize availability and to determine the performance incentive as determined by the measurement and verification plan developed for energy storage.

The anticipated timeline for the battery project is as follows:

Request for Clarification Issued	January 2016
RFC Responses Due with Customer	March 2016
Commitment	
Batteries installed and operational	May 2017
Batteries performance capability period	Summer 2017 and 2018

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. After analysis, Con Edison and NYCHA agreed on a targeted effort that is anticipated to achieve a peak demand reduction of 2.4 MW through energy efficiency projects by 2018. The project was broken down in two phases. A1.5 MW peak load reduction is expected by June 1st, 2017. An additional 0.9 MW peak load reduction is expected by June 1st, 2018.

NYCHA has combined this scope of work within a larger Energy Performance Contract ("EPC") initiative, which includes a formal RFP process to select a contractor and secure funding. Implementation of Phase 1 is anticipated to commence in January 2017 and be completed in mid-2017.

M&V for the lighting portion of the project will be completed via a "Tag & Bag" approach as described in the Residential section above. The window air conditioner portion of the project will collect data on the existing and replacement air conditioners to verify load savings.

Planned Actions

Con Edison is also engaged with NYCHA on a smaller initiative to support its Weatherization Assistance Program ("WAP"), which targets smaller buildings and includes energy efficiency opportunities funded by New York State. Con Edison has agreed to incentivize lighting measures to enable NYCHA to implement more efficient lighting units than would otherwise have been possible. This project is projected to impact 220 units across eight buildings in two developments. Implementation is anticipated to commence in January 2017 and be operational before the summer of 2017.

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Given the smaller scope of work, M&V will be completed using pre- and post- inspection, rather

than the "Tag & Bag" approach.

The timeline of the NYCHA effort is as follows:

Contract Initialized for Scoping Report	October 2014
Scoping Report Completion	April 2015
Con Edison & NYCHA Agree on Statement of Work	October 2015
("SOW")	
NYCHA Releases EPC RFP	January 2016
Contractors Selected for the EPC	Q3 2016
BQDM Program Agreements Signed and Executed	November 2016, December 2016
Implementation Period for 1.5MW Peak Reduction	January 2017 - May 2017
Implementation Period for 0.9MW Peak Reduction	Late 2017-Early 2018

7.8 Opportunities with City Agencies

Past Actions

The 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 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. The Round 4 solicitation focused on BQDM facilities and results were released in June 2015. Through the Round 4 solicitation DEM has selected projects that were deemed technically feasible and that are expected to provide approximately 372 kW of load relief.

Planned Actions

DEM launched the Expenses for Conservation and Efficiency Leadership ("ExCEL") program in 2013 to provide City agencies with an opportunity to apply for expense funding to further energy efficiency projects in City agencies. Through the competitive ExCEL program, DEM has been able to allocate funds for critical resources while prioritizing investments that focus on innovation and have the largest anticipated energy, emissions and cost savings benefits. Con Edison is currently discussing the potential of selecting projects for additional load reduction under this program as well as projects from Rounds 5 and 6 of the ACE project solicitation.

The timeline is as follows:

Initial Discussions and RFI Response	cussions 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	
Construction for 0.123 MW Peak Load Relief	Q3 2016-Q1 2017	

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 efficient fuel cells are able to provide long periods of load relief efficiently and reliably, 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 that would 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 are being conducted at these sites on a continuous basis and bills were analyzed to determine if this option was feasible for the customer. One customer has accepted an incentive and an agreement has been executed to provide load reduction by summer 2017. The fuel cell vendor is currently in discussions and negotiations with other customers to sign on to fuel cell projects.

Planned Actions

M&V will be conducted by monitoring the fuel cell to ensure that it is performing at its required capacity during the summers of 2017 and 2018. Con Edison will verify project completion and require assurance of performance before an incentive is disbursed.

The timeline for the fuel cell projects are as follows:

Engage customers for fuel cell potential	October 2015 - January 2015
analysis	
Perform Site Visits	November 2015 - January 2015
Customer bill and site analyzed for fuel cell	November 2015 - February 2015
feasibility	
Savings and Benefits Presented to	January 2016 - February 2016
Customer	
Customer Decision to implement a fuel cell	February 2016 - Q1 2017
by Summer 2017	
Fuel Cell Operational at Customer Sites	May June 2017- September 2018

7.10 Demand Response Auction

Past Actions

The Company has studied 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 and hosted a descending clock auction to procure resources for the summer of 2017 and 2018.

The company sought resources that are dynamic, i.e., callable, and are expected to be dispatched for up to 4 hours at a time during the BQDM Area peak period. The Company has obtained such dynamic resources through a competitive market acquisition process, a descending clock auction, which has attracted demand response ("DR") type solutions to meet the Company's program objectives. Throughout 2016, the Company designed the attributes of the auction including qualification criteria, event performance requirements, incentive structure, financial arrangements for underperformance penalties, program agreement, and successfully hosted the descending clock auction in the third quarter of 2016.

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 pre-existing Commercial System Relief Program ("CSRP") in the BQDM Target Area.⁷

⁷ 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).

The Company established a detailed timeline balancing expediency and the time bidders would need to prepare for the auction process. This schedule was publicized through outreach presentations with potential bidders. The Company gave a detailed presentation of the auction rules during a forum event at the Company's 4 Irving Place facility in New York City and broadcasted online through a webinar on June 6, 2016. The Company hosted a follow-up informational webinar on June 22, 2016, incorporating program modifications per the feedback received from the previous event. In addition, the Company and its consultants held multiple follow-up clarification meetings as well as one-on-one training sessions to educate DR service-providers about the fundamentals of the auction mechanism, the logistics of the auction platform as well as the technical requirements for participating in BQDM DR events. The Company also developed a DR auction website⁸ used to house all pertinent information and updates

Eligible Demand Response Products consist of a set of contracted hours, also known as call windows, during the summer capability period when resources would provide load relief. There are 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.

⁸ https://conedbqdmauction.com/

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 execution risks remain.

This 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 energy storage as their primary means of attaining DR, which in the past 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 non-wire alternatives for reliability.

The Company has finalized the design for the M&V methodology by aligning the descending clock auction and rules with the existing DR program(s) to account for the potential overlap of resources and to allow participants to participate in the Company's programs, thus minimizing the possibility of contradictory rules.

Planned Actions

The Company continues to engage the auction winners to enable them to enroll customers for their awarded demand reductions in time for the capability periods. Auction winners who will be declaring a Deficiency Quantity⁹ for 2017 are required to do so by February 15, 2017. If deficiencies exceed 100 kW in the 2017 products, the Company will offer to reallocate the deficient demand reduction initially to non-deficient BQDM award winners, then to aggregators

⁹ "Deficient Quantity" means the portion of the awarded load relief quantity, measured in kW, for which a DR Provider requests for a capability period that it be relieved of its commitment and for which an early exit fee shall be paid.

in good standing that participated in Con Edison's reservation option Commercial System Relief

Program ("CSRP") or reservation option Distribution Load Relief Program ("DLRP") in 2016.

The table below is 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 th &28 th 2016	
Executed Program Agreements and Initial Security for	July – August 2016	
Awarded KW		
2017 Enrollment Deadline	April 3, 2017 for 2017 Capability	
	Period	
2017 DR Capability Period	May – September 2017	
2018 DR Capability period	May - September 2018	

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 by summer 2018.

Planned Actions

The Company is supporting the refrigeration thermal storage vendor to engage with viable facilities in the BQDM territory.

Commercial Refrigeration Thermal timeline is as follows:

Review Implementation Plan/Negotiate	January 2016
Finalize Contract (Con Edison & Vendor)	October 2016
Receive Letters of Intent ("LOIs") from customers	October 2016 – December 2017
Execute contracts with customers for the entire BQDM-funded refrigeration program.	October 2016 – September 2016
Install/Achieve 1.5 MW	October 2016 – May 2018

8. Community Engagement

The Company has and will continue to prioritize community engagement as an important aspect of BQDM Program deployment. The BQDM Area is undergoing revitalization and is home to a number of low and fixed income communities. It is important for the Company to be proactive in understanding the sensitivities in the community as it pursues successful deployment of the BQDM Program.

The Company initiated and will continue to be in 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. Additionally, following our initial outreach, the Company intends to continue to coordinate and meet with many of the community and business-based organizations who have experience working with local communities on environmental and energy issues.

The Company has placed information about the BQDM and energy efficiency programs in the newsletters or email communications of some of the local elected officials with links to the Company's Energy Efficiency portion of the Con Edison website, Facebook, and Twitter account. The Company intends to continue to engage with local elected officials through inperson 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 associations, and government entities such as NYCHA and local community boards. Outreach to stakeholders will address an array of issues such as energy savings, economic incentives and workforce development.

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. As new initiatives are developed, the Company will continue to conduct outreach to communities and customers within the areas of the initiatives in question.

Throughout the outreach, the Company will address both the customer-side solutions and the non-traditional utility-side solutions. Stakeholders may perceive diminished service after seeing

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the proposed unique approach to this problem. 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 example, the East Brooklyn BID helped introduce the program to Consolidated Bus Transit, which is now being used as a case study for future engagement activities. The Company will continue to reach out to SBDI customers in the target area through multiple channels including outreach to local business associations, direct mail, street sweeps¹⁰ and digital advertising. For the LED direct install program, the Company is sending postcards to residential customers informing them of the free LED opportunity, implementing targeted social ad campaigns, and sending emails to target customers.

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

¹⁰ Street sweeps involve surveyors visiting local establishments door-to-door to conduct a free survey.

representative and the representative's cell phone number so the customer knows who will be following up.¹¹

The Company may also continue to employ advanced communication strategies such as "geofencing," a targeted digital advertising technique that displays a banner advertisement on a mobile device in the designated targeted area only. If a customer is out of the "geo-fenced" area the banner advertisement is not displayed.

Supporting the MFEE Program, the Company will continue to reach out to residential multifamily 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 market engagement and sales process that is required for a broader programmatic solution such as the SBDI or MFEE approach. Any solution the Company selects which targets a broad market sector, as opposed to an individual customer agreement, will be required to include a

¹¹ 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.

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 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 is designing 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 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 SBDI and MFEE programs uses on-site inspection and metering, in addition to data collected during previous impact evaluations conducted for the SBDI 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 will be developed for each technology and be tailored to the specific solution implementation plan. For non-traditional utility side solutions, a holistic customized M&V strategy will be designed for each project. A combination of desk reviews, verifications, ex-ante and ex-post metering, billing analyses, and sampling may be 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.

10. Utility- Side Solutions

The focus of the non-traditional utility-side solutions is to leverage innovative technologies and strategies. While the Company expects that some of the design and implementation activities to implement these non-traditional utility-side solutions will be developed within the Company, the Company will also solicit services from external vendors on an as needed basis. Deployment of the non-traditional utility-side solutions to meet the 11 MW non-traditional utility-side goal is expected to focus on a Distributed Energy Storage System ("DESS") and Conservation Voltage

Optimization ("CVO").¹² The Company is actively implementing these solution options and has already started implementation of the DESS Battery and voltage optimization solutions. The Company is evaluating other technologies in case they are needed.

10.1 DESS

The DESS (Battery) will provide Con Edison with 12 MWh of stored energy and can be configured to deliver this power at 1 MW for 12 hours or 2 MW for 6 hours. Con Edison signed the contract with the vendor on August 18, 2015. Site feasibility studies and surveys have been completed for the Queens's location. Design and construction drawings were received and approved. All battery modules and interconnection switchgear have been delivered and ready for installation. Applications, permitting, and other documentation are still in the submittal process with the various New York City agencies. Site construction is expected to commence in the first quarter of 2017 with an in-service target of June, 2017, dependent on permitting approvals.

10.2 CVO

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. The Company estimates that approximately 7 MW of demand reduction can be achieved by June, 2017. M&V is complete and the final M&V report will be available in Q1 of 2017. System analysis for low voltage complaints showed no links to CVO. Additional Load Flow studies have been performed to identify areas of relative low voltage compared to surrounding areas.

¹² Voltage optimization is the systematic controlled management of the voltages received by an energy consumer.

Substation work has been completed and distribution system work continues for previously identified low voltage areas for which there was not sufficient time for solution installation prior to summer 2016. The target date for completion is in June 2017.

10.3 Fuel Cells

During June 2015, the Company issued an 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.

10.4 Photo-Voltaic

The photo-voltaic ("PV") project RFP was closed on September 14, 2015. Bid submissions were reviewed for completeness and technical presentations were scheduled for October. 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. Similarly to the Fuel Cell program, 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.

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	Total
	Solutions	
\$150,000,000.00	\$50,000,000.00	\$200,000,000.00

The Company intends to utilize the authorized amount of \$200,000,000 to produce the maximum load relief while meeting the other BQDM Program objectives, assuming the Commission grants its request for an extension of time to implement the BQDM Program. The Company recognizes that other factors such as customer engagement, community involvement and resource diversity may impact program budget decisions. As the buying strategy continues to evolve, as discussed above, it will shape specific budgetary outlays. The Company considers the funding to the program elements, customer-side solutions and non-traditional utility-side solutions, to be fungible.

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