

**Brooklyn Queens Demand Management Program**

**Implementation and Outreach Plan**

**January 29, 2016**

Gregory Elcock

Consolidated Edison Company of New York, Inc.

4 Irving Place

New York, NY 10003

(212) 460-3167

# Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan

## Contents

1. Introduction.....	3
2. Implementation Plan Elements .....	4
3. Market Input.....	6
4. Customer Analysis .....	7
5. Solution Evaluation and Comparison .....	9
6. Buying Strategy .....	10
7. Existing Programs.....	13
7.1 Small Business Direct Install Program .....	13
7.2 Multifamily Energy Efficiency Program .....	15
7.3 Residential Energy Efficiency Programs .....	17
7.4 Combined Heat and Power (“CHP”) .....	19
7.5 Energy Storage.....	22
7.6 New York City Housing Authority.....	23
7.7 Opportunities with City Agencies.....	24
7.8 Innovative Distributed Generation.....	25
7.9 Demand Response Auction.....	27
7.10 Commercial Refrigeration .....	28
8. Community Engagement .....	29
9. Measurement and Verification.....	33
10. Utility- Side Solutions.....	34
10.1 DESS.....	35
10.2 CVO .....	35
10.3 Fuel Cells .....	36
10.4 Photo-Voltaic (“PV”).....	36
11. Budget.....	37

## **1. Introduction**

On December 12, 2014, the Commission issued its Order approving Consolidated Edison Company of New York, Inc.'s ("Con Edison" or the "Company") Brooklyn/Queens Demand Management ("BQDM") Program.<sup>1</sup> 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.<sup>2</sup> 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.<sup>3</sup>

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 areas 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.

---

<sup>1</sup> 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").

<sup>2</sup> Case 14-E-0302, *Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn Queens Demand Management Program*, July 15, 2014.

<sup>3</sup> 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.

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

The BQDM Program is designed to address the overload by reducing load 69 MW by summer 2018, 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 investment. The precise mix of customer- and utility-side non-traditional solutions will depend upon the solutions available to the Company, with approximately three-quarters of the achieved reductions anticipated to come from the customer-side, typically deployed on customer property and behind the customer's meter, and the remainder from the utility-side, directly connected to the distribution network.

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, but at least annually. The Company has 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 will take to achieve the BQDM Program's goal of a 52 MW reduction 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

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 utility-side solutions. While certain elements of overlap exist with these two different components, implementation requires distinct approaches. The Company plans to achieve 41 MW of load reductions through customer-side solutions, with 9 MW by summer 2016, an additional 23 MW by summer 2017 and a further 9 MW by summer 2018. The Company plans to achieve 11 MW of load reductions through non-traditional utility-side solutions, with 3 MW by summer 2016 and a further 8 MW by summer 2017.

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 86 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. Respondents were also invited to provide comments in regard to the needs of the Company’s Demand Management Program (“DMP”). While approximately a third of the respondents commented on DMP in general terms, only one respondent provided a specific DMP proposal.

The Company has regularly communicated with the respondents in regard to RFI review progress.

### **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 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.

An important initial step in gaining greater insight into customer load management potential was to employ virtual building audits to prioritize and engage high potential commercial, institutional, and multi-family buildings with demand of 100 kW and above. Virtual building audits, provided by a contractor for the Company, 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.

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 commenced the virtual building audit project in December 2013. The Company has made available the virtual audit reports on high potential buildings in the BQDM target 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. To date, the Company has received a 4.4 percent response rate. Responses were followed up 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, in agreement with NYPA, also dispatched copies of the reports to key NYPA customers within the BQDM Program target 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 has identified over 46 MW of demand, from over 60 housing complexes that include over 29,000 apartments, in the BQDM Program target 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 shape 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

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 and multi-family 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 those of the 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

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

deployed a number of different buying approaches as the BQDM Program has evolved.<sup>4</sup> For resources being acquired, the Company has included performance standards based on 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 underway to develop load shape data at the building, apartment, and equipment level. This will aid in the development of savings profiles for energy efficiency and demand reduction measures in the BQDM territory while providing insights for projects undertaken in other networks in the future. 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 area.

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 will deploy various competitive buying approaches. The competitive buying approaches include RFPs, and/or auctions. Just as 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, and with the third-party oversight contractor, as the BQDM Order requires.

---

<sup>4</sup> The BQDM Program will increase the need for complex buying approaches. It is expected that buying strategies and procedures beyond those currently utilized by the Company will need to be developed. While the Company will work to mitigate any delay that may result from developing such strategies and procedures, it will be important to design and implement a disciplined management process with appropriate controls.

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 has almost finished designing and anticipates conducting a descending clock auction to procure resources with specific performance attributes. The auction will allow the Company to procure resources of fixed or floating windows, while avoiding any resulting snap back of load during other over-load hours.<sup>5</sup> Subsequent bid events would be timed and structured to meet evolving needs and forecasts during the BQDM Program period.

The Company may also engage in leasing arrangements, partnerships or other creative business arrangements which support the BQDM Program objectives.

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.

---

<sup>5</sup> It is important that any relief during one period of the full targeted load period does not result 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 due to pre-cooling or to increase load from 8:00 pm to 12:00 am by re-charging a battery.

## **7. Existing Programs**

To produce early results, the Company reviewed the extent to which existing energy efficiency programs include measures that could produce load reduction within the targeted networks. This review included existing Energy Efficiency Portfolio Standard (“EEPS”) Programs offered by both the Company and NYSERDA. The Company’s SBDI Program and the MFEE Program, both programs which involve direct installation approaches, were identified as the best opportunities for delivering early results. In parallel the Company has developed other programs that would contribute toward making sure the BQDM Program needs have been met.

### **7.1 Small Business Direct Install Program**

#### **Past Actions**

The Company developed the “SBDI Adder” initiative under the SBDI program, where commercial customers with a peak demand of 110 kW or less receive a walk-through survey followed by an identification of cost-effective electric efficiency measures. Customers are eligible to receive up to 70 percent of costs needed to install the identified measures through the SBDI program. Under the BQDM Program, the Company is providing additional incentives of up to 30 percent of the cost to such customers to enable the installation of recommended measures with no costs to the customer.

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

### **Planned Actions**

As of the end of December 2015, more than 3,800 customers have accepted work scopes for installation of measures which the Company expects to result in a peak hour load reduction<sup>6</sup> of 5.4 MW. The Company continues to move these projects toward implementation and anticipates approximately 5.8 MW of peak hour load relief will be installed by June 1, 2016.

The SBDI program has been extended under the new Energy Efficiency Transition Implementation Plan (“ETIP”) through 2016. The Company is planning to continue with the adder program, which is expected to result in an additional BQDM peak hour load relief of approximately 2.2 MW, for a total of 8 MW, installed by December 2016. Under the ETIP structure, small businesses with a maximum demand of 300 kW can participate in the SBDI program instead of the previous limitation of 110 kW, thus presenting an opportunity for increased load relief in this critical demographic.

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. They have also expanded their scope to conduct additional M&V during the summer period to generate a dashboard that displays real-time program-verified and forecasted contributions to the BDQM program.

---

<sup>7</sup> The total peak load identified is the aggregate of all customer specific peak loads, not coincident to the network peak time

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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
Initial Peak Hour Goal of 5.8 MW Peak Load Relief Completed	June 2016
Total Peak Hour Goal of 8 MW Completed	December 2016

### **7.2 Multifamily Energy Efficiency Program**

#### **Past Actions**

The Company developed an adder initiative for the existing MFEE Program that offers multi-family dwellings of 5-75 units and conducts a survey identifying load-reduction measures. This includes both measures installed within the dwelling units and measures installed within the common areas. Under the BQDM program, the Company is covering the full costs for installation of measures applied to common areas in such buildings.

#### **Planned Actions**

As of December 2015 more than 726 customers, consisting of approximately 5,000 individual apartment units, have accepted work scopes, which are anticipated to result in a peak hour load relief of 2.9 MW. The Company continues to move forward with implementing these projects and anticipates that 3.6 MW of peak hour load relief will be achieved by December 2016.

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

The MFEE program has also been extended under ETIP through 2016. The Company is planning to continue with the adder program, which is expected to result in a total peak hour load relief of 5.4 MW by December 2016.

Con Edison's third-party vendor is tasked with performing 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. Additionally, Quality Assurance/Quality Control ("QA/QC") has been conducted at over 2,500 multifamily units for the program to date.

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

Procurement of MFEE Solutions	December 2014- Ongoing
Market Potential Analysis	September 2015-May 2015
MFEE Extension with Implementation	November/December 2015
Contractor 3.6 MW Peak Reduction Goal Accomplished	June 2016
Initial Metering results	December 2015
Total 5.4 MW Peak Reduction Goal Accomplished	December 2016



## **7.3 Residential Energy Efficiency Programs**

### **Past Actions**

There are approximately 175,000 1-4 family residential properties in the BQDM Area, representing approximately 30% of the total peak load.<sup>7</sup> Especially considering that the BQDM peak occurs 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.

### **Planned Actions**

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 their 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. Responses are due by the end of January 2016. Responses received will be evaluated with an expectation to move to the contracting and implementation stages and to begin efforts to implement this program.

The Company will finalize M&V protocols, which are likely to include a “Tag & Bag” approach to confirm the lighting retrofits. The “Tag-and-Bag” approach consists of retaining the removed

---

<sup>7</sup> The total peak load identified is the aggregate of all customer specific peak loads, not coincident to the network peak time

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 will be stored at a central warehouse for review by an independent third party conducting QA/QC on the bags and calculating savings calculations. Items will be stored for at least 30 days to be inspected by the M&V team.

Aside from the Direct Install Lighting Program, the Company is working to design an adder program to the existing Residential Direct Load Control (“DLC”) program, which provides incentives to residential customers to install smart, controllable thermostats and participate in providing load relief during peak hours to support reliability needs. The intent is to further incentivize both the Bring Your Own Thermostat (“BYOT”) self-install program as well as the DLC program, making the BYOT program free for BQDM customers and adding an additional incentive on the DLC program to further drive participation. This will provide an additional residential offering within the BQDM program.

During January 2016, marketing and outreach plans to communicate the DLC adder are being developed, with a goal of having this program live in February 2016. Implementation will run in line with the DLC program timelines. 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.

## Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan

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
Implementation for DLC Adder (thermostats)	February 2016 – May 2018
Analysis and Evaluation of Residential Lighting Direct Install	February – April 2016
Anticipated Go / No Go Decision on Residential Lighting	April 2016
12 Month Implementation of Residential Lighting	May 2016 – May 2017

### 7.4 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 in the size range 50 kW – 1.3 MW. NYSERDA, National Grid and the Company have developed a joint marketing approach in the BQDM Program area and we continue to pursue engagement with the customers.

#### Planned Actions

By providing additional incentives, potentially up to 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. The Company anticipated that it can achieve up to 5 MW of peak load relief by summer 2018.

While the primary application process will be administered through NYSERDA’s existing procedures, the Company will review applications received under the additional incentive

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 would be able to 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 will be 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 Measurement	May – Sep @ 9 PM -10 PM
Enrollment due date	February 29th, 2016

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

The table below provides the milestones for projects to receive incentive payments. Note that the Company will adjust the performance incentive based on actual performance during the summer period.

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

The M&V methodology is currently being developed. 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 is developing a methodology to quantify demand reduction throughout the summer in order to maximize availability and to determine the performance incentive.

Con Edison expects to have customer 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 5 MW of load reduction by 2018.

## Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan

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 2018

### 7.5 Energy Storage

#### Planned Actions

Con Edison submitted a 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 target zone.

Any battery projects within BQDM will need to prioritize and fulfill specific needs for the summer of 2017 and 2018. Con Edison expects responses that are submitted to demonstrate a plan for implementing the battery storage, following the proper protocols, such as permitting and interconnection requirements, along with obtaining a customer’s firm commitment. Con Edison will provide upfront incentives for these projects, however, if chosen, the projects cannot participate in the demand response auction that will be discussed in further detail below.

M&V will be required prior to final payment. Con Edison will verify project completion and require access to the monitoring portal to view and confirm battery performance.

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

The anticipated timeline for the battery project is as follows:

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

### **7.6 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 2.4 MW through energy efficiency projects.

#### **Planned Actions**

NYCHA will combine this scope of work within a larger Energy Performance Contract (“EPC”) initiative, which will include a formal RFP process to select a contractor and secure funding. Implementation is anticipated to commence in 2016 and be completed in early 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.

## Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan

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 (“SOW”)	October 2015
NYCHA Releases EPC RFP	January 2016
Construction Period	October 2016 - May 2017

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. Given the smaller scope of work, M&V will be completed using pre- and post-inspection, rather than “Tag & Bag.” Projects are expected to be completed by May 2017.

### 7.7 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.



## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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**

The next round of ACE project solicitation is expected to be conducted in early 2016 and Con Edison continues to work with DCAS to identify additional opportunities for load relief.

M&V will be conducted through Con Edison's M&V contractor, using M&V guidelines established between Con Edison and DCAS.

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
Anticipated Construction Period for Selected Projects	Through Q1 2017
Ace Round 5 Project Solicitation	Q1 2016

## **7.8 Innovative Distributed Generation**

### **Past Actions**

The Company has investigated innovative solutions that could provide reliable load relief during the entire period of more than 12 hours of potential overload. In particular, the Company studied the viability of efficient fuel cells that generate electricity through non-combustion chemical mechanisms and determined they are able to provide long periods of load relief efficiently and reliably, with minimal operational overhead. It is also important that these resources are able to

## Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan

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.

### Planned Actions

The Company anticipates 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 and bills will be analyzed to determine if this option is indeed feasible for the customer. The Company will provide all available information to the customer so the customer can make the final decision. Con Edison intends to provide an incentive that will serve to increase the savings potential by reducing the rate for the customer. M&V will be conducted by monitoring the fuel cell to ensure that it is performing at its required capacity. Con Edison will verify project completion and require assurance of performance before an incentive is disbursed.

The anticipated timeline for the fuel cell projects are 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 - March 2016
Fuel Cell Operational at Customer Sites	June 2017

## **7.9 Demand Response Auction**

### **Planned 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 evolves. The Company is planning to conduct a descending clock auction to procure resources with specific performance attributes in early 2016.

The resources being sought 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 anticipates obtaining the resources through a descending clock auction, which would attract a cost-effective mix of demand response (“DR”) type solutions to meet the Company’s performance objectives. The Company has nearly finalized the attributes of the auction, including qualification criteria, performance requirements, financial arrangements, and payment and incentive structures.

The Company is also in the process of finalizing 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.

The table below is the Company’s anticipated timeline for the descending clock auction:

Award Contract to Auction House	February 2016
Complete Auction Design and Auction Training	March 2016
Conduct Auction and Post Auction Analysis	April 2016
Potential DR Test	May 2016
DR Capability period	Summer 2017 and Summer 2018

## **7.10 Commercial Refrigeration**

### **Past Actions**

The Company identified inefficient 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. Upon evaluation of responses, we determined that the only proposed refrigeration measure that provided demand reduction during the overload hours was the case lighting upgrade, which is anticipated to be achieved as a measure in the SBDI program.

### **Planned Actions**

In an attempt to explore other core refrigeration alternatives, the Company plans to engage with a new technology vendor in order to evaluate its solution for inclusion as a BQDM solution. The intent is to review for feasibility and potential learning opportunities, and proceed with the contracting process for up to 1.5 MW of load reduction in early 2016.

The M&V plan for the case lighting upgrades within the BQDM Area will follow similar procedures and protocols as set forth for the existing SBDI program as described in the section on SBDI. The M&V plan for the new technology will be developed after the feasibility and demand reduction potential of the new technology have been determined.

## Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan

Commercial Refrigeration timeline is as follows:

### Case Lighting:

500 kW of Case Lighting (implementation phase)	January – December 2016
--	-------------------------

### New Refrigeration Technology Timeline:

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

## 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 and community organizations within the target area regarding the BQDM Program. Existing relationships with

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 Green Team website, Facebook link, and Twitter account. The Company intends to continue to engage with local elected officials.

The Company will maintain relationships and engage community stakeholders. Examples of such 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 environmental justice.

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. It is expected that participation in events and meetings will be conducted on an ongoing basis for the duration of the BQDM Program. As new initiatives are

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 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 sweeps<sup>8</sup> 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

---

<sup>8</sup> Street sweeps involve surveyors visiting local establishments door-to-door to conduct a free survey.

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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.<sup>9</sup>

The Company may also continue to employ advanced communication strategies such as “geo-fencing,” 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 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 market engagement and sales process that is required for a broader programmatic solution such

---

<sup>9</sup> 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.



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 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.

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

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 goal is expected to consist of the

Distributed Energy Storage System (“DESS”), Conservation Voltage Optimization (“CVO”),<sup>10</sup> a fuel cell and solar panels. The Company is actively investigating these solution options and has already started implementation of the DESS and voltage optimization solutions.

## **10.1 DESS**

The DESS 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 studies and surveys have been completed. Design drawings were received and are under review and modification. Battery modules are being manufactured. Applications, permitting and other documentation are in the submittal process with the various New York City agencies. Site construction is expected to commence in the second quarter with a target completion date in late 2016/early 2017

## **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. A CVO pilot at 4% optimization was completed for one week in December and the data analysis showed a load reduction as a result of CVO. However, the Company is conducting additional analysis to verify load reductions, along with previous tests which were conducted in the third quarter. The

---

<sup>10</sup> Voltage optimization is the systematic controlled management of the voltages received by an energy consumer.

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

Brooklyn/Queens (“B/Q”) regional engineering team has begun its efforts on overhead phase balancing. These initial phase balancing efforts will guide the B/Q engineers on determining which network sections are cost effective to phase balance compared to other options under consideration. Collaboration with System Operations group at the Control Center has commenced for CVO at Brownsville 1 and 2 area substations and preliminary scoping has been completed in preparation for the continued expansion of CVO initiative. In the first quarter of 2016, Con Edison expects to begin collaboration with the M&V vendor to develop strategy for the spring pilot and summer implementation.

### **10.3 Fuel Cells**

Similar to storage solutions, the Company believes there are many benefits to using fuel cell technology on the Company’s system. During June 2015 the Company issued a 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 been reviewing the submitted proposals to understand the pricing proposals and determine the most cost-effective option. The project has an anticipated in-service date of June 2017.

### **10.4 Photo-Voltaic (“PV”)**

The PV project RFP was closed on September 14, 2015. Bid submissions were reviewed for completeness and technical presentations were scheduled for October. Based on feedback from

## **Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

vendors, the RFP language was clarified and re-released with a close date of December 1, 2015.

The bids are currently being reviewed. 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 set an in-service target of June, 2017.

Con Edison is investigating additional projects that fall under the non-traditional utility-side solutions category.

### **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

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. The Company recognizes that other factors such as customer engagement, community involvement and resource diversity may impact program budget decisions. As the buying strategy evolves, 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

**Case 14-E-0302 - Brooklyn Queens Demand Management Program, Implementation and Outreach Plan**

including project costs, project in-service dates, MAC recoveries, incremental costs incurred, operational savings, and other benefits.