

April 30, 2018

VIA ELECTRONIC DELIVERY

Honorable Kathleen H. Burgess
Secretary
New York State Public Service Commission
Three Empire State Plaza, 19th Floor
Albany, New York 12223-1350

RE: Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV)

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID: CLIFTON PARK DEMAND REDUCTION REV DEMONSTRATION PROJECT-Q1 2018 REPORT

Dear Secretary Burgess:

Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid”) hereby submits for filing its quarterly update to the Clifton Park Demand Reduction REV Demonstration Project Implementation Plan covering the period of January 1, 2018 to March 31, 2018 (“Q1 2018 Report”) as required by the REV Demonstration Project Assessment Report (“Assessment Report”) filed by the New York State Department of Public Service Staff (“Staff”) with the Commission on December 1, 2016 in Case 14-M-0101.

Please direct any questions regarding this filing to:

Arunkumar Vedhathiri
Director, New Energy Solutions
National Grid
1125 Broadway
Albany, NY 12204
Tel.: 518-433-5013
Mobile: 518-423-5738
Email: arunkumar.vedhathiri@nationalgrid.com

Hon. Kathleen H. Burgess, Secretary
National Grid: Clifton Park Demand Reduction REV Demonstration Project
Q1 2018 Report
April 30, 2018
Page 2

National Grid looks forward to continuing to work collaboratively with Staff as it proceeds with the implementation of the Clifton Park Demand Reduction REV Demonstration Project.

Respectfully submitted,

/s/ Karla M. Corpus

Karla M. Corpus
Senior Counsel

Enc.

cc: Marco Padula, DPS Staff, w/enclosure (via electronic mail)
Christian Bonvin, DPS Staff, w/enclosure (via electronic mail)
Denise Gerbsch, DPS Staff, w/enclosure (via electronic mail)
Michael Summa, DPS Staff, w/enclosure (via electronic mail)
David Smith, BRIDGE Energy Group, w/enclosure (via electronic mail)
Melanie Littlejohn, w/enclosure (via electronic mail)
Cathy Hughto-Delzer, w/enclosure (via electronic mail)
Arunkumar Vedhathiri, w/enclosure (via electronic mail)
Carlos Nouel, w/enclosure (via electronic mail)
Janet Audunson, w/enclosure (via electronic mail)
Melissa Piper, w/enclosure (via electronic mail)
Kara Fedors, w/enclosure (via electronic mail)
Pamela I. Echenique, w/enclosure (via electronic mail)
Carol Teixeira, w/enclosure (via electronic mail)



**Demand Reduction
REV Demonstration Project
in
Clifton Park
Q1 2018 Report**

April 30, 2018

Table of Content

1.0	Executive Summary	1
2.0	Highlights Since Previous Quarter	4
2.1	Major Task Activities	4
2.1.1	Advanced Metering Functionality	4
2.1.1.1	Information Services (“IS”) Activities	5
2.1.1.2	Meter Installation Activities	5
2.1.2	Volt/VAR Optimization (“VVO”) Device Installations	5
2.1.3	Customer Outreach	6
2.1.4	Peak Time Rewards (“PTR”)	9
2.1.4.1	PTR Season 1 2017 Summary	10
2.1.4.2	2018 Two-Tiered Rewards Structure	12
2.1.4.3	Data Correlation Analysis – PTR Event Criteria	14
2.1.5	Advanced Data Analytics (“ADA”)	17
2.1.6	Time-of-Use (“TOU”) Price Signals	17
2.1.7	Distributed Energy Resource (“DER”) Opportunities	18
2.1.8	Community Choice Aggregation (“CCA”)	18
2.1.9	Project Management Group	19
2.2	Challenges, Changes, and Lessons Learned	19
3.0	Next Quarter Forecast	21
3.1	Check Points/Milestone Progress	21
3.1.1	Summary	21
3.1.2	Work Stream – 2 nd Quarter 2018	21
4.0	Work Plan and Budget Review	24
4.1	Updated Work Plan	24
4.2	Updated Budget	25
5.0	Progress Metrics	26

1.0 Executive Summary

On January 17, 2017 Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid” or the “Company”) filed an implementation plan for the Demand Reduction REV Demonstration Project in Clifton Park (the “Project”), which is designed to provide residential customers in the Town of Clifton Park (“Clifton Park” or the “Town”) with price signals, tools and information, enabled by infrastructure investments and distributed energy resources (“DER”), to reduce electric demand during peak times and inform the Reforming the Energy Vision (“REV”) Proceeding.¹

The Project aligns with the New York Public Service Commission’s (“Commission”) *Order Adopting a Ratemaking and Utility Revenue Model Policy Framework* (“REV Track Two Order”) wherein the Commission asserts “[o]ne of the most important objectives of REV is improving overall system efficiency including the efficiency of capital investment to create value for customers. Toward that objective, electric peak reduction is among the most immediate priorities for REV implementation.”² National Grid believes that it is possible to create more responsive relationships with customers by leveraging critical infrastructure, customer outreach and engagement, deep energy insights and actionable information, as well as price signals and DER products and services, which incentivize customers to reduce peak electric load and overall electric and gas energy use. Toward that end, the following elements are included in the Project:

- Infrastructure
 - Advanced Metering Functionality (“AMF”)
 - Volt/VAR Optimization (includes Conservation Voltage Reduction) (“VVO”)
- Customer Outreach & Engagement
- Deep Energy Insights & Actionable Information
- Price Signals
 - Peak Time Rewards (“PTR”)
 - Voluntary Time-of-Use (“VTOU”) Rate
- DER Services
- Utility supported Community Choice Aggregation (“CCA”)

The premises of customers participating in the Project are contained within the town limits of Clifton Park as shown below. The total number of impacted customers is approximately 14,400.

Key activities and milestones accomplished this quarter (Q1 2018) are summarized as follows:

¹ Case 14-M-0101, *Proceeding on Motion in Regard to Reforming the Energy Vision* (“REV Proceeding”), National Grid Demand Reduction REV Demonstration Project in Clifton Park Implementation Plan (filed January 17, 2017)(“Implementation Plan”).

² REV Proceeding, *Order Adopting a Ratemaking and Utility Revenue Model Policy Framework* (“REV Track Two Order”)(issued May 19, 2016), p. 72.

Key Item	Outcome
PTR Season 2 preparation	PTR season 2 will consist of a 2-tiered rewards approach; 100 points rewarded to applicable customers saving 0.1kWh – 1.0 kWh during an event, and 500 points to those saving > 1.0 kWh during an event. Model modifications are underway.
IS and ADA efforts	Advanced Data Analytics (“ADA”) and Information Services (“IS”) continued in support mode.
VVO efforts	Installed twenty-six (26) of thirty-one (31) Advanced Capacitors. Grooms Road substation upgrades fully commissioned.
Customer Outreach & Marketing	Conducted Community Outreach meetings in Clifton Park. Launched phone portion of annual survey. Updated Marketing Strategy Plan.
TOU Price Signal	Alternative to VTOU is under development.
DER	2018 DER opportunities to focus on promotion of Connected Solutions Demand Response (“DR”), New York Solar Market Place, and energy efficient pool pumps and timers.
Season 1 Performance Data Analysis	Reviewed feeder data to determine impact of event days, determine statistical methods to call events

Project Elements

A visual of the Project's key services and offerings are provided below. Except for VVO, customers can opt in or opt out of each Project element. A description of each Project element is included with the individual sections of this quarterly report.

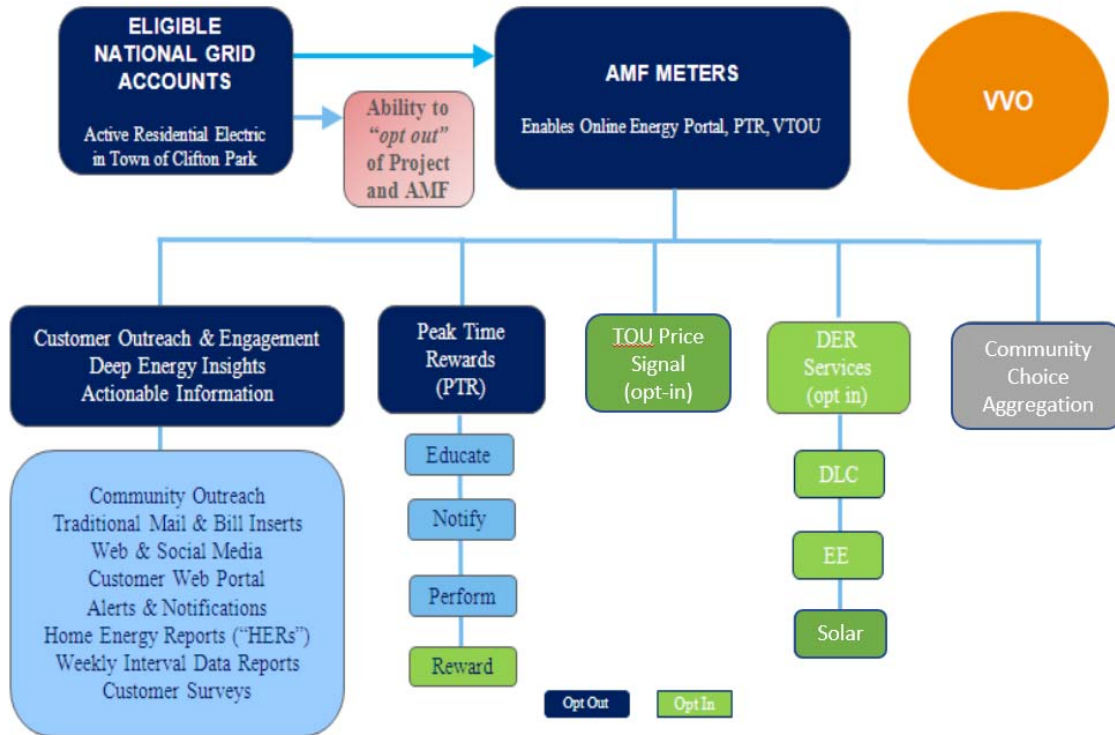


Figure 1: Project Elements

2.0 Highlights Since Previous Quarter

The following highlights key activities accomplished to date on the Project, as well as key activities planned for the next quarter.

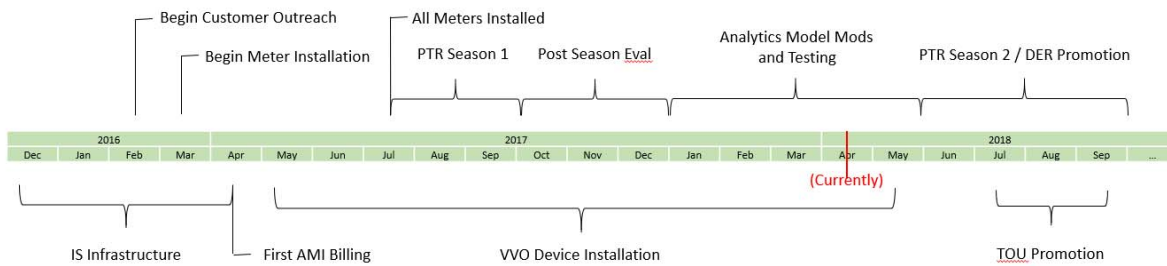


Figure 2: Work Plan Summary

2.1 Major Task Activities

2.1.1 Advanced Metering Functionality

AMF deployment in Clifton Park has replaced existing National Grid electric and gas meter reading and billing processes for customers that have not opted out of the Project. AMF meters are read and select portions of data are transferred over the cellular network to National Grid for utility billing. Portions of data are also transferred to the Project's partners over secure networks to enable various elements of the Project, including the customer web portal. Interval data is used for deployment of PTR, all customer billing, and to support authorized Project evaluation activities.

AMF deployment commenced at the end of the first quarter of 2017. Letters introducing Clifton Park customers to Smart Energy Solutions and postcards alerting customers of the AMF installation timeframe were distributed prior to installations. This allowed for a period during which customers could opt out of the AMF metering technology, as well as certain other aspects of the Project.

Customers choosing not to have AMF installed have been directed to a specialized team at the National Grid Contact Center, which in turn directs Customer Meter Services ("CMS") not to install an AMF technology for those customers. Those customers will instead retain their existing automatic meter reading ("AMR") meter, or if they had previously elected the "AMR Opt-Out Option", retain a non-AMR meter. Additionally, during the Project term, customers have the option to have their AMF meter removed and replaced with an AMR meter at no cost to the customer.

The AMF opt-out rate remains unchanged since the previous quarter at eight-point eight percent (8.8%), or 1,256 premises. AMF meter opt-outs include customers that: 1) called into the National Grid Customer Contact Center; 2) informed CMS field workers in-person that they did not want the

meter; or 3) where National Grid was unable to gain access to account premises after three (3) attempts at access were made without success.

National Grid will continue to monitor AMF opt-outs as the Project continues and new customers move into the Town of Clifton Park and others move out. The National Grid Customer Contact Center will continue to accept customer requests to install or remove the AMF technology and process orders.

2.1.1.1 Information Services (“IS”) Activities

Timeframe	Completed Milestones
1 st Quarter 2018	<ul style="list-style-type: none"> Continued Project support via National Grid’s IS Support team.

2.1.1.2 Meter Installation Activities

Timeframe	Completed Milestones
1 st Quarter 2018	<ul style="list-style-type: none"> Continued to support normal business practices related to move-in/out of customers.

2.1.2 Volt/VAR Optimization (“VVO”) Device Installations

National Grid will enhance the efficiency of the electric distribution system through the installation of software and devices that better regulate the voltage of the distribution system. These system enhancements will benefit all customers connected to those substations being upgraded. Working with the Project’s VVO partner, Utilidata, National Grid started installing devices on the electric distribution system that monitor voltage along with advanced controllers for voltage regulators and reactive capacitors.

National Grid will evaluate the extent to which optimized regulation of the voltage and power factor of the electric distribution system benefits customers, ultimately reflected by improved feeder power factor, flatter voltage profiles, reduced feeder losses, reduced peak demand, and reduced energy consumption by customers. National Grid’s targeted efficiency gain through the VVO portion of the Project is approximately three percent (3%).

VVO installation scope includes:

- Three (3) substation transformer load tap changers;
- Eleven (11) feeders, including:
 - Eleven (11) estimated, twelve (12) actual line voltage monitors;
 - Thirty-nine (39) estimated, thirty-one (31) actual advanced switching capacitors; and
 - Eight (8) estimated, six (6) actual pole top regulators

- A central controller and data concentrator installed at the National Grid Control Center in Liverpool, New York;
- Supervisory control via National Grid’s Supervisory Control and Data Acquisition (“SCADA”) and Energy Management System (“EMS”); and
- Cellular connectivity between all field, substation devices, and the data concentrator.

Timeframe	Completed Milestones
1 st Quarter 2018	• Installed twenty-six (26) of thirty-one (31) Advanced Capacitors.
	• Commissioned thirteen (13) of thirty-one (31) Advanced Capacitors.
	• Prepared all Advanced Capacitors for overhead line installation.
	• Prepared six (6) out of twelve (12) circuit monitoring devices for overhead line installation.
	• Grooms Road substation modifications fully commissioned.
	• Load tap changing control installed at Elnora substation.
	• Remote Utilidata server connection established and verified.

2.1.3 Customer Outreach

National Grid has engaged residents of the Clifton Park community to learn about the Project and solicit input. The strategies include:

- Community outreach;
- Mail and bill inserts; and
- Web and social media.

Community Outreach

The National Grid marketing team performed studies of Clifton Park residential customers to assess areas of concern and to present recommendations. The studies were conducted by Market Probe moderators, a third-party market research group, via:

- Outreach sessions with Clifton Park residents in January 2018
- Phone survey as part of overall annual survey;
- Initiated online survey; and
- New Marketing Plan developed to include future outreach activities with Clifton Park Residents.

Mail and Bill Inserts

Prior to the installation of AMF, National Grid delivered a set of communications via standard mailings to introduce Clifton Park customers to Smart Energy Solutions and notify them of the imminent arrival of the AMF meter technology. Customers were asked to contact National Grid if they did not want to receive a new AMF meter. Each letter spoke to the key benefits of the Project and touched upon key Project elements available immediately and in the future.

These communications were sent in the form of direct mail and bill inserts.

Thereafter, National Grid also sent out a series of meter installation notifications letting customers know when their new meters would be installed. Included in these communications was an invitation to attend one of the Company's customer outreach and education meetings to learn more about the Project, ask questions, and interact with the National Grid team.

Following the installation of an AMF meter, customers received educational materials focused on the various Project elements, such as enrolling in PTR. Bill inserts will continue to be incorporated four (4) times per year as new Project elements are rolled out, and media updates will be on-going throughout the year. Additionally, video tutorials have been created and were made available on the National Grid website.

Web and Social Media

National Grid continues to expand the existing Clifton Park micro-site, a component of the Company's current <http://www.nationalgrid.com> website, to include information on the Project for all Clifton Park residents.

The Project website includes the following information:

- Frequently Asked Questions Video overview of the Project:
 - <https://vimeo.com/209611691/bd2127692f>;
- Frequently Asked Questions pdf:
 - https://www.nationalgridus.com/media/pdfs/resi-ways-to-save/cp_faqs.pdf;
- Information about PTR and the VTOU rate as the Project elements are rolled out;
- DER product and service options available (e.g., PTR); and
- <http://www.ngrid.com/cliftonpark> will be updated throughout the year to announce the rollout of new products and services.

National Grid also proactively monitors open social media sites to join any conversations regarding the Project and to help answer questions about it.

The Project tracks customer interaction with the Opower web portal. Emails, bill inserts, direct mailings, and social media contributed to raising awareness of the information available to customers, as evidenced by increasing levels of interaction throughout the PTR season. Customer outreach activities continue outside of the PTR season to encourage ongoing customer engagement.

Areas of the portal experiencing common customer interaction include:

- My Energy Use;
- Ways to Save;
- Compare My Bills;
- Dashboard; and
- Home Energy Audit.

The following key performance indicators (“KPIs”) have been created to track and measure success of Customer Outreach:

- Customer Acceptance of AMF Technology;
- Awareness;
- Customer Control of Energy Usage;
- Customer Satisfaction with National Grid; and
- Portal Engagement, such as:
 - Login Creation;
 - Enrollment in Points and Rewards; and
 - Profile Completion.

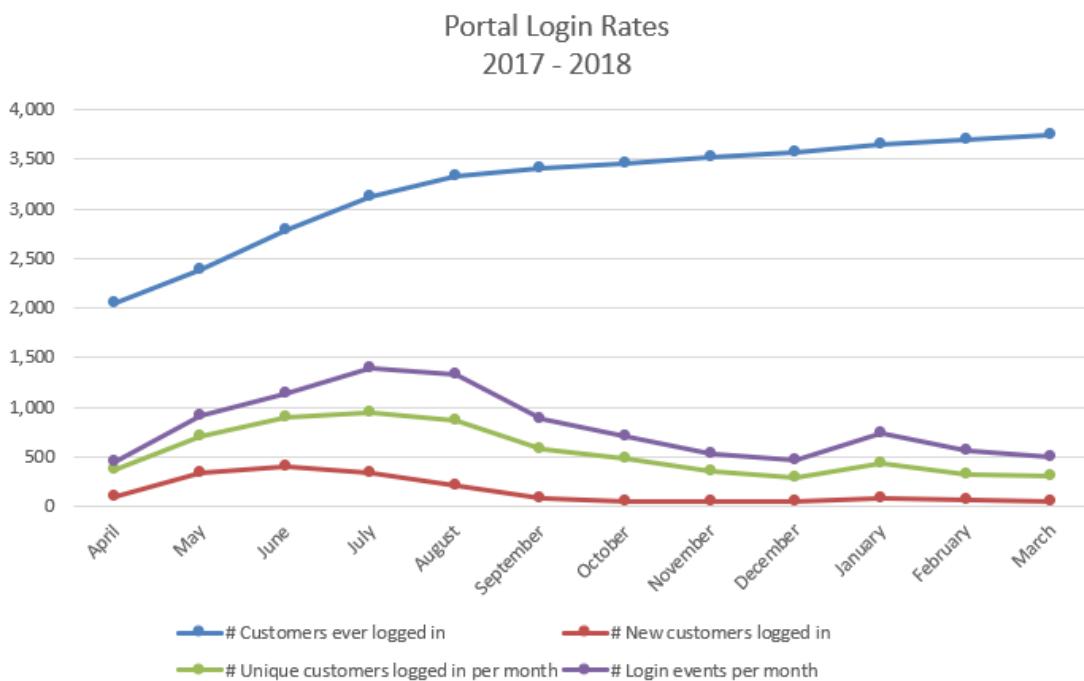


Figure 3: Portal Activity

Timeframe	Completed Milestones
1st Quarter 2018	<ul style="list-style-type: none"> • Developed May-September marketing plan with segment-based engagement and awareness.
	<ul style="list-style-type: none"> • Phone surveys were completed.
	<ul style="list-style-type: none"> • Continued marketing campaign (<i>e.g.</i>, online banners, google search, social media, email, telemarketing) and invited residents to Town Hall meeting (January).
	<ul style="list-style-type: none"> • Created internal KPI goals.
	<ul style="list-style-type: none"> • Updated Opower communications to customers based on past season and forthcoming events.

2.1.4 Peak Time Rewards (“PTR”)

National Grid seeks to incentivize Clifton Park customers to reduce electric use during specified peak times. Participating customers are rewarded for curtailing electric load through behavioral actions such as turning off lights and adjusting their thermostats or utilizing customer-controlled technology.

Key elements of PTR include:

- Event performance analytics performed on all customers with AMF;
- No penalties for failure to reduce load during PTR events;
- Pre-event and post-event email notifications;
- Rewards earned by those enrolled in “Points and Rewards”; and
- Rewards awarded based on participation in up to twenty (20) PTR events per year.

National Grid reviews load forecasts for the New York Independent System Operator (“NYISO”) system and Zone F (which includes Clifton Park), as well as local Clifton Park weather forecasts, to determine whether to call a PTR (a/k/a “Conservation Day”) event.

PTR events are entered into two (2) systems; one triggers customer event notifications to Clifton Park customers and the other sets in motion the energy use predictive model, which will compare predicted values to actual AMF metered usage, to determine curtailment participation. Over 8,000 pre-event emails notifying that a conservation event is scheduled are sent out to Clifton Park customers for each event.

Upon determination of whether each account has curtailed, each customer electric service account is assigned a value of ‘true’ or ‘false’ for each event, based on its curtailment determination. Those accounts enrolled in the Points-and-Rewards program which are assigned a value of ‘true’, are then awarded points.

National Grid tracks customer enrollments in PTR as a measure of customer engagement. Enrollment in Point-and-Rewards has increased each month as the Project has progressed. PTR enrollment enables customers participating in PTR events/Conservation Days to earn rewards. A summary of PTR enrollment in 2017 is set below.

Customers enrolled in Points & Rewards
2017 - 2018

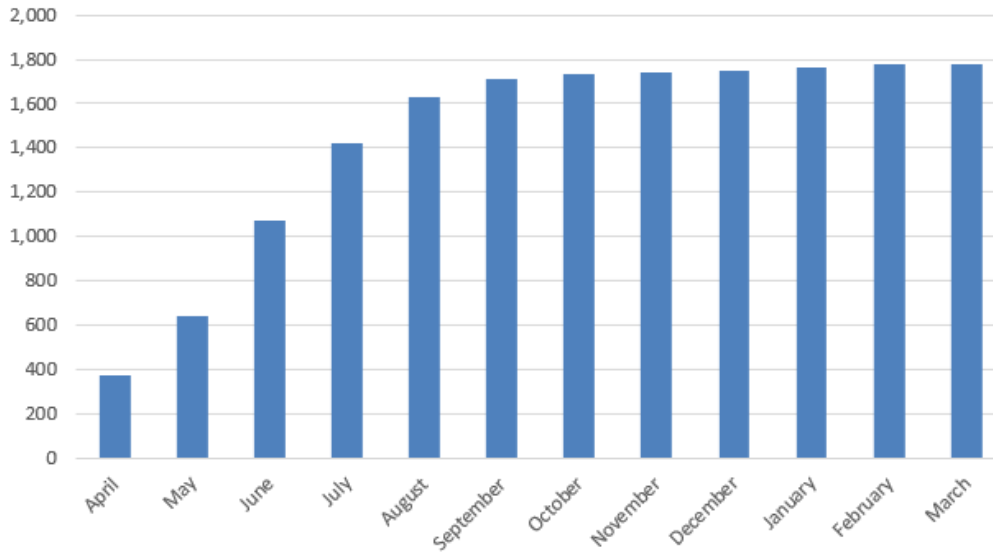


Figure 4: Points & Rewards

Timeframe	Completed Milestones
1 st Quarter 2018	<ul style="list-style-type: none"> Evaluated PTR Season 1 results and performed correlation studies of event data compared to feeder-level historical load results, weather conditions, and NYISO actual loads.
	<ul style="list-style-type: none"> Monitored web portal login activities by customers, which indicated up to twenty-six point five percent (26.5%) of customers accessed the system during the PTR season, but showing decrease following PTR season.
	<ul style="list-style-type: none"> Began predictive model modifications to facilitate 2-tiered points rewards structure for testing and deployment prior to PTR season 2.

2.1.4.1 PTR Season 1 2017 Summary

During PTR Season 1, seven Conservation Days were called. In addition, the Project team ran three (3) “non-events” which ran the predictive model with no customer notifications, to gain additional insights into the model and to establish baseline comparison criteria. The table below summarizes the events, including the value of the factors used in calling an event (*i.e.*, forecasted maximum loads expressed in MW, maximum temperature in degrees Fahrenheit).

Date	Time	Hours	NYISO	Zone F	Temp	Note
JUL 20	1PM-5PM	4	28,487	1,968	85	
AUG 2	2PM-6PM	4	26,934	1,988	86	
AUG 15	2PM-6PM	4	24,647	1,814	83	
AUG 16	2PM-6PM	4	25,323	1,777	82	
AUG 22	2PM-6PM	4	28,108	2,101	87	
AUG 23	2PM-6PM	4	24,363	1,772	77	Non-Event (post-emails)
AUG 31	2PM-6PM	4	20,911	1,459	73	Non-Event
SEP 14	1PM-5PM	4	19,921	1,072	78	Non-Event
SEP 18	1PM-5PM	4	22,462	1,772	80	Same day call (Monday)
SEP 26	1PM-5PM	4	23,574	1,907	87	

Figure 5: Event Summary

The predictive model determined curtailment of 13,167 meters (on average) for each event. The gross data model determined that forty-eight to sixty-eight percent (48% - 68%) of meters used less energy than predicted during the defined events. Rewards for curtailment were awarded to accounts enrolled in the PTR program. The chart below represents that number of accounts awarded PTR curtailment points per event. No points were awarded for the non-events; however, the chart indicates the number of accounts that would have received points had they been actual events.

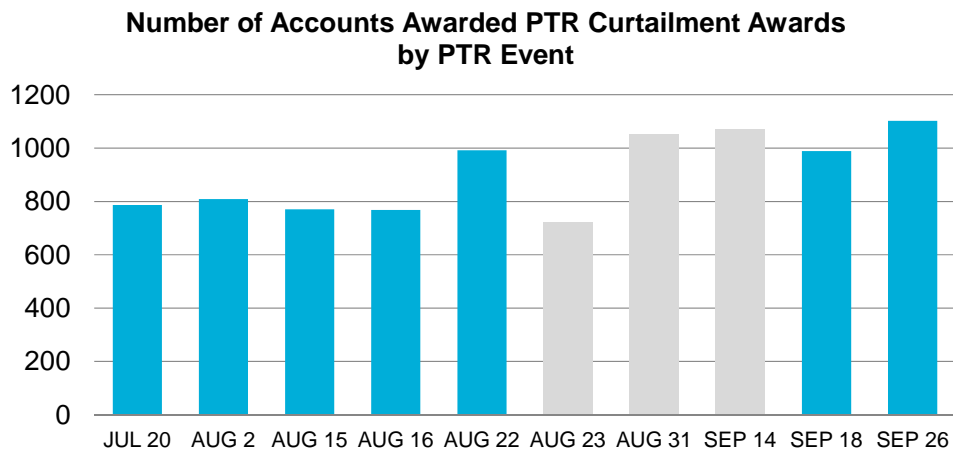


Figure 6: PTR Award Accounts

2.1.4.2 2018 Two-Tiered Rewards Structure

Upon evaluating the participation rates of customers during the event periods, it was determined the 100-point reward structure for eligible customers may be an insufficient motivator. On average 33.6% of customers curtailed 1.0 kWh or more. Accordingly, efforts are underway to implement a 2-tiered rewards structure for participating customers:

- 100 points rewarded for customers saving 0.1 – 1.0 kWh (denoted by a TRUELOW indicator); and
- 500 points rewarded for customers saving > 1.0 kWh (denoted by a TRUEHIGH indicator).

As with the current system (that used during PTR Season 1), customers with less than the minimum 0.1 kWh savings will not receive points and will be denoted by a FALSE indicator.

The new structure requires modifications to the ADA predictive model and to the Opower rewards system. Such changes are currently being implemented and will be tested and ready for deployment prior to the beginning of PTR Season 2 (June 4, 2018). Accompanying these changes will be modifications to the email notifications sent to customers relating to PTR events as illustrated below.

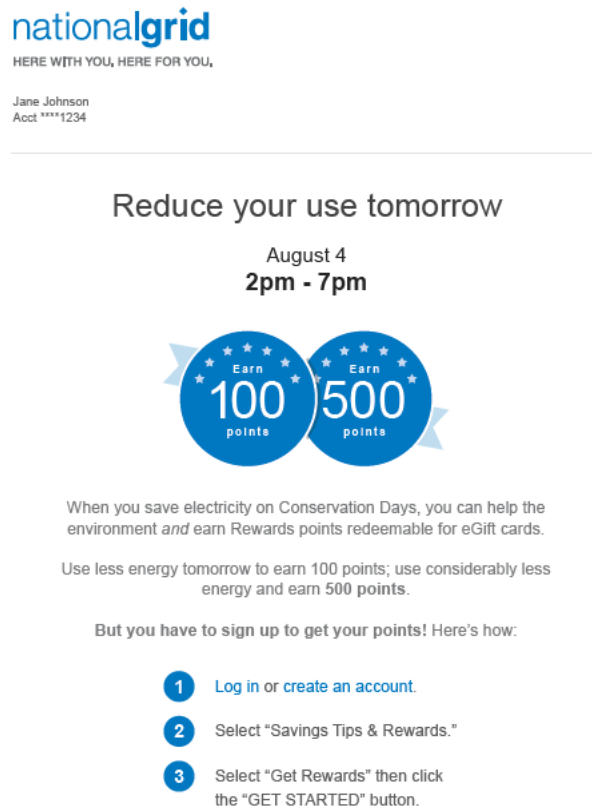


Figure 7: Draft PTR Pre-Event Email

nationalgrid

HERE WITH YOU. HERE FOR YOU.

Jane Johnson
Acct ****1234

✔ Great work!

You used less energy on the last Conservation Day, from 2pm to 7pm on August 4, and now have 100 more points in your National Grid Rewards account.



Be on the lookout in your inbox for the next Conservation Day event, so you can keep earning points and helping the environment.

Want to keep saving energy in the meantime?

[SEE MORE WAYS TO SAVE](#)

Figure 8: Draft PTR Post-Event Email

nationalgrid

HERE WITH YOU. HERE FOR YOU.

Jane Johnson
Acct ****1234

✔ Great work!

You used considerably less energy on the last Conservation Day, from 2pm to 7pm on August 4, and now have 500 more points in your National Grid Rewards account.



Be on the lookout in your inbox for the next Conservation Day event, so you can keep earning points and helping the environment.

Want to keep saving energy in the meantime?

[SEE MORE WAYS TO SAVE](#)

Figure 9: Draft PTR Post-Event Email

2.1.4.3 Data Correlation Analysis – PTR Event Criteria

For 2018, additional factors have been considered for event threshold; feeder-level historical data for Elnora and Grooms Road substations, and correlation of such to historical weather conditions, NYISO and Capital Zone loads. The objective is to clearly quantify the weather conditions and load forecast thresholds required to consider PTR event eligibility for a given day.

1) Research Performed

The hourly baseline feeder-level energy consumption for substations Elnora and Grooms Road of Clifton Park for 2015, 2016, and 2017 ranged between 20 MW and 40 MW. For a targeted analysis and applicable insights towards PTR events, hourly load of 40 MW and above for the months of June, July, August, and September was considered. During these months, peaks ranged between 50 MW and 63 MW between 02:00 PM and 07:00 PM with most peaks occurring around 06:00 PM.

a. Daily & Hourly Temperatures

Correlation analysis of feeder level load data with hourly temperature, hourly humidity, average temperature, average humidity, and peak daily temperature was performed for the years 2015, 2016, and 2017. Using summer of 2017 as a representative season, a twenty to fifty percent (20-50%) correlation is observed between feeder level load and hourly temperature. In comparison, peak daily temperature consistently correlates with peak feeder level load at 80% or higher. Hourly humidity presented a negative correlation ranging between ten to thirty-five percent (10%-35%). While this could be considered as a factor towards calling a Conservation Day, hourly humidity also correlates negatively with hourly temperature at ninety-percent (90%) and higher. Previous findings indicate load consistently increases as temperature increases. Thus, forecasted peak temperature for the day has been considered as a prime criterion in calling a Conservation Day.

b. Historical Feeder-level Data

An assessment of the historical feeder level load with the load during Clifton Park Conservation Days for the 2017 PTR season revealed that Clifton Park contributes to less than fifty percent (~50%) of the feeder level load. Hence, analysis of historical feeder-level data, and application of the insights from the analysis towards calling a PTR event, has been deemed an appropriate methodology.

2) High Temperature Day Analysis

Based on historical peak temperature data, the top twenty (20) peak temperature days (Mon. Fri.) in Clifton Park and its corresponding feeder level load, Zone F (Capital Zone) load, and NYISO system load has been identified. These days fall into a temperature range of 84°F and 93°F.

Based on these findings, 84°F and above can be considered as a cut-off temperature for calling curtailment events.

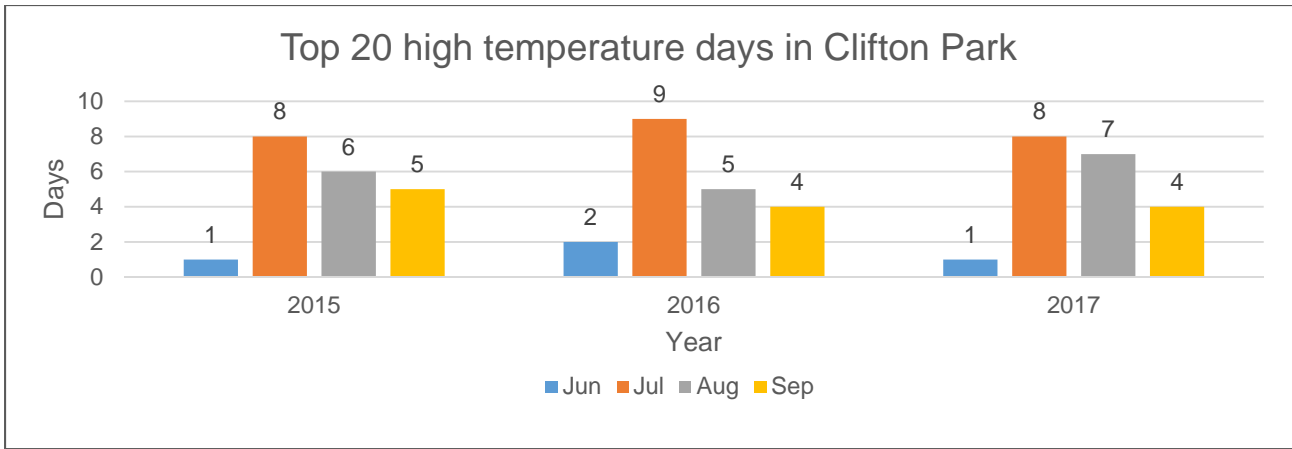


Figure 10: Peak Temperature Days in Clifton Park suitable for PTR events

Based on the Confidence Interval Analysis conducted, 99% of the time, at a temperature of 84°F and above, the peak hourly feeder level data, Zone F Load and NYISO System Load ranges as follows:

Peak Feeder Level Load	Peak Zone F Load	Peak NYISO System Load
Greater than 47.71 MW	Greater than 2226.26 MW	Greater than 26945.63 MW

On temperature forecasts of 84°F and above, peak load of 48 MW and above can be observed. Temperatures as high as 90°F facilitate feeder-level peaks to occur at 58 MW and above. On an eligible day, it is expected a PTR event will be called when temperature is forecasted to be 84°F and above, and when the Zone F and the NYISO System load forecasts range as in the table.

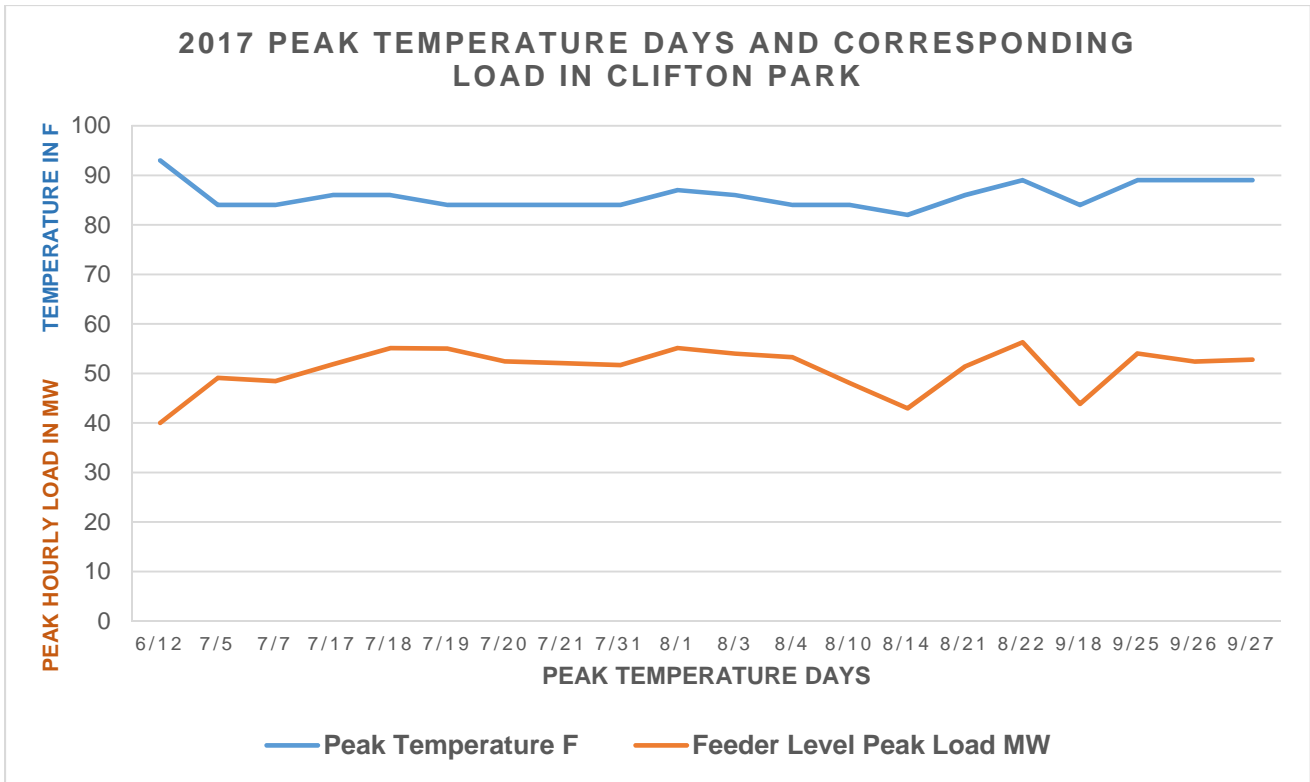


Figure 11: 2017 Peak Temperature Days and corresponding load in Clifton Park

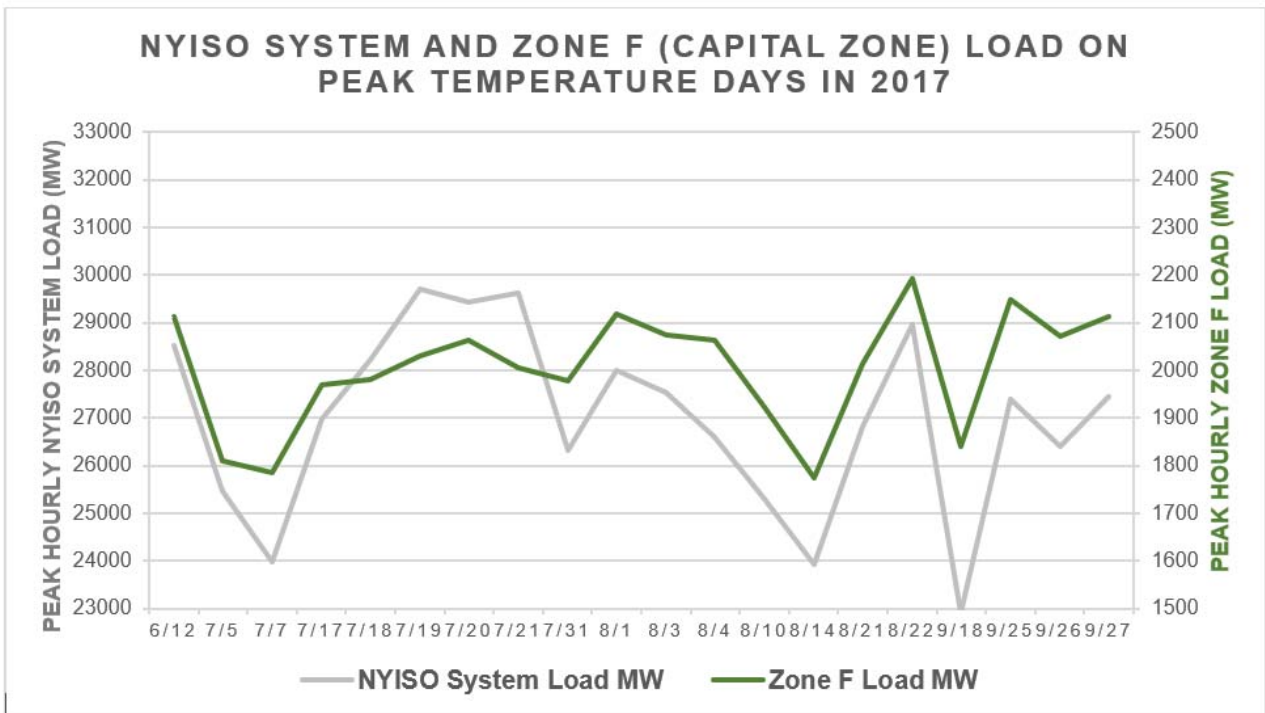


Figure 12: NYISO System and Zone F (Capital Zone) load on peak temperature days in 2017

2.1.5 Advanced Data Analytics (“ADA”)

National Grid’s Advanced Data Analytics Project team developed the residential energy use predictive model to determine the expected energy use during a PTR event. The predictive model uses prior customer level energy consumption data and event weather conditions to predict customers’ energy consumption during events. The predicted values are compared to the actual AMF data to determine whether curtailment has occurred and to ascertain which customers are to be awarded points. The results of these analyses will be used to determine if the aggregated community load meets certain threshold requirements for bidding into the NYISO wholesale electricity market.

Timeframe	Completed Milestones
1 st Quarter 2018	• Provided post-PTR go-live support.

2.1.6 Time-of-Use (“TOU”) Price Signals

The Voluntary Time of Use (“VTOU”) rate was intended to be tested in Clifton Park on an opt-in basis. The VTOU rate, which became effective December 1, 2016,³ includes three (3) rate periods for supply; on-peak, off-peak and super-peak, as well as an on-peak and off-peak period for delivery.

National Grid recognizes the VTOU rate will not be advantageous for all customers. It is primarily intended for high energy consumption residential households with plug-in electric vehicles (“PEVs”). VTOU particularly caters to PEVs, as it includes a make-whole provision for PEV owners in the first twelve (12) months of adoption, thereby reducing the risk of opting into VTOU.

To broaden the appeal of a TOU price signal, options are being investigated that would allow customers to perform an online rate analysis specific to their historic AMF energy consumption levels to determine if a TOU rate would be a good fit for them. To this end, the Project team is seeking alternative TOU price signal designs to replace mass market promotion of the VTOU rate. Discussions have been initiated with internal and external partners.

³ See National Grid’s Electricity Tariff, PSC No. 220, Service Classification No. 1, Special Provision L, “Residential Time of Use Delivery and Commodity Rate.”

Timeframe	Completed Milestones
1 st Quarter 2018	<ul style="list-style-type: none"> • A decision was made that the VTOU rate should not be mass marketed to Clifton Park population, as it is designed specifically for PEV owners.
	<ul style="list-style-type: none"> • Conceptualized alternative rate design for price signal.
	<ul style="list-style-type: none"> • Began evaluation of 3rd parties for rate analysis capabilities with AMI data to explore an alternative rate design.
	<ul style="list-style-type: none"> • Smart Home Rate - Documented smart technology capabilities.

2.1.7 Distributed Energy Resource (“DER”) Opportunities

National Grid seeks to animate the market by facilitating DER provider opportunities as part of the Project. DER products and services will be opt-in offerings to customers, publicized via the customer engagement channels outlined above, as well as community outreach. DER services may include energy efficiency, demand response, or renewable distributed generation opportunities.

National Grid is continuing to consider additional DER opportunities spanning renewable energy, energy efficiency, and PEVs. Such opportunities include the development of a solar marketplace to help customers evaluate solar energy options, as well as a website that promotes the purchase of energy efficient appliances utilizing rebates.

Timeframe	Completed Milestones
1 st Quarter 2018	<ul style="list-style-type: none"> • For 2018, the decision was made to focus on the promotion of Connected Solutions DR and related technologies, National Grid’s New York solar market, and energy efficient pool pumps and pool pump timers, and to integrate those services into the Clifton Park marketing plan.
	<ul style="list-style-type: none"> • Initiated discussions on how to integrate NYSERDA’s AMI data Pay-for-Performance project. Discussions addressed attribution of savings given overlap of REV Demo design and NYSERDA project.
	<ul style="list-style-type: none"> • Identified need to monitor DR event interactions between PTR and Connected Solutions events.

2.1.8 Community Choice Aggregation (“CCA”)

National Grid engaged with Clifton Park officials and community members on the potential for adoption of a utility-supported CCA in early 2017. After the filing of the Project’s Implementation Plan, the Town decided to not pursue a CCA.

2.1.9 Project Management Group

The National Grid Project Management Group is a construct of individuals who strive to keep the Project on track regarding scope, schedule and budget, while lending visibility into processes, accomplishments, and financial tracking. This group regularly engages in, and promotes, the following:

- Weekly Core Team Status Reporting;
- Monthly General Staff Meetings;
- Quarterly NY PSC Reporting;
- Issues Tracking;
- Lessons Learned Recording and Review;
- Change Log Processes; and
- Financial Reporting activities.
-

Timeframe	Completed Milestones
1 st Quarter 2018	• Conducted weekly status reviews with core team leads, monitoring progress, providing corrective measure(s), and escalating issues, as needed.
	• Provided weekly updates to National Grid's Finance Department and Performance Excellence Team regarding the Project for management review.
	• Continued evaluation of PTR Season 1 results and engaged revisions to points and rewards structure.
	• Evaluated PTR event weather and feeder data analysis to develop event call criteria for 2018 season.

2.2 Challenges, Changes, and Lessons Learned

Qtr	Issue or Change	Resulting Change to Project Scope/Timeline?	Strategies to Resolve	Lessons Learned
Q1.18	The Q4 2017 Annual Customer Survey will not be conducted until Q2 2018.	The delay may push back future annual surveys.	Document and regularly communicate strategy and timeline to Project team.	Need to evaluate drivers behind timing of survey (e.g., customer focus groups) and plan accordingly, to maintain Project schedule and objectives. Changes in corporate level policies may impact deployment.





Q1.18	Point rewards structure could realize benefits by increasing eligible points rewarded during PTR events.	Modifications are being made to accommodate a more sophisticated 2-tiered rewards structure. This requires additional effort by internal and external parties.	Implement new rewards structure prior to beginning of PTR Season 2.	PTR Season 1 rewards of 100 points per event to eligible customers did not seem to provide adequate motivation for desired level of participation.
Q1.18	Portal engagement by customers during the heating season remained relatively steady but saw no increase.	Additional outreach and marketing effort may be required during the heating season.	Engage customers throughout the entire year regarding ways to save energy.	Maintain elevated level of customer engagement.
Q1.18	Project externalities impacted the Project schedule.	VVO device installation was delayed; internal and external meetings were delayed by weather.	Incorporate contingency plans into the Project schedule.	Contingency plans should be developed and incorporated into the Project schedule ahead of time.

3.0 Next Quarter Forecast




During the 2nd Quarter of 2018, the Project team will continue Phase 2 of the Project.




3.1 Check Points/Milestone Progress





3.1.1 Summary

Checkpoint/Milestone	Anticipated Start-End Date	Revised Start-End Date	Status
1 Phase I: Network Configuration and Meter Deployment; PTR Operations	1/2/17 – 6/16/17	1/2/17 - 7/17/17	Complete
2 Phase 2: VVO; VTOU; REV Operations and Evaluation	6/19/17 – 9/30/19	6/19/17 – 9/30/19	
Key			
 On-Track			
 Delayed start, at risk of on-time completion, or over-budget			
 Terminated/abandoned checkpoint			

3.1.2 Work Stream – 2nd Quarter 2018

Work Stream	Future Milestones	Status
Information Systems (“IS”)	<ul style="list-style-type: none"> Support Project via National Grid’s IS Support team. 	
Meter Installation	<ul style="list-style-type: none"> Support normal business practices related to move-in/out of customers. 	
VVO	<ul style="list-style-type: none"> Install one-hundred percent (100%) of VVO field equipment; thirty-one (31) capacitors and six (6) three-phase regulators. 	

Work Stream	Future Milestones	Status
	<ul style="list-style-type: none"> • Commission one-hundred percent (100%) of VVO field equipment. • Install one-hundred percent (100%) of circuit monitoring devices. • Commission one-hundred percent (100%) of circuit monitoring devices. • Commission Elnora Substation transformer controller. • Commission overall VVO system. • Begin study to evaluate overall system performance, leveraging AMI data for additional efficiencies. 	
Customer Outreach	<ul style="list-style-type: none"> • Develop communications strategy for rollout of TOU and other DER promotions based on newly developed product roadmap. • Roll-out marketing for new PTR points structure, DER, and TOU. • Complete annual baseline research survey. • Conduct community outreach meeting in Clifton Park. • Develop first customer case study. • Roll out new marketing materials featuring voice of the customer and customer testimonials. • Conduct monthly dashboard meetings to keep team on track to reach goals. 	
PTR	<ul style="list-style-type: none"> • Implement and test 2-tiered rewards structure. • Begin PTR Season 2 June 4th, 2018. • Incorporate feeder-level analysis results for PTR event call criteria (<i>e.g.</i>, temperature and load thresholds). • Conduct end-to-end testing of system prior to PTR Season 2. • Sync customer data between internal and external systems. 	
ADA	<ul style="list-style-type: none"> • Provide pre-PTR Season 2 support to Project team. • Provide predictive model modifications to support 2-tiered rewards structure prior to commencement of PTR Season 2. 	

Work Stream	Future Milestones	Status
TOU Price Signal	<ul style="list-style-type: none"> • Perform rate analysis to determine appropriate rate structure and eligible participants. 	
	<ul style="list-style-type: none"> • Design and scope alternate points and rewards structure for external TOU price signal that rewards customers for reduced demand. 	
	<ul style="list-style-type: none"> • Select a partner for AMI rate analysis. 	
	<ul style="list-style-type: none"> • Obtain Commission Staff feedback on proposed TOU rate. 	
	<ul style="list-style-type: none"> • Incorporate finalized rate into Smart Home rate proposal. 	
DER	<ul style="list-style-type: none"> • Promote Connected Solutions DR and related technologies. 	
	<ul style="list-style-type: none"> • Promote forthcoming National Grid New York Solar marketplace. 	
	<ul style="list-style-type: none"> • Design promotion materials for energy efficient pool pumps and pool pump timers, including education, partnerships, and points-for purchase. 	
	<ul style="list-style-type: none"> • Leverage AMI data for target marketing. 	
Project Management Group	<ul style="list-style-type: none"> • Conduct weekly and monthly Project update meetings. 	
	<ul style="list-style-type: none"> • Monitor and report Project success Key Performance Initiatives. 	
	<ul style="list-style-type: none"> • Continue tracking, monitoring and controlling the Project schedule, tracking on a weekly basis. 	
	<ul style="list-style-type: none"> • Continue tracking, monitoring and controlling the Project financials, tracking on month-by-month basis. 	
	<ul style="list-style-type: none"> • Continue to identify, monitor and manage risks and issues as they arise. 	
	<ul style="list-style-type: none"> • Continue weekly status reporting. 	
Project Evaluation	<ul style="list-style-type: none"> • Develop Project evaluation plan and evaluate potential contractors. 	
	<ul style="list-style-type: none"> • Evaluate additional AMI data analytics to capitalize on availability of meter data. 	

4.0 Work Plan and Budget Review

4.1 Updated Work Plan

ID	Task Name	Start	Finish	2017												2018											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun						
1	Clifton Park Integrated Program	1/2/2017	9/30/2019	[Gantt bar from Jan 2017 to Sep 2019]																							
2	IS	3/31/2017	8/4/2017	[Gantt bar from Apr 2017 to Aug 2017]																							
3	ADA	4/17/2017	6/30/2017	[Gantt bar from May 2017 to Jun 2017]																							
4	Design	5/8/2017	5/31/2017	[Gantt bar from Jun 2017 to Jun 2017]																							
5	Initial Testing	5/31/2017	6/15/2017	[Gantt bar from Jun 2017 to Jun 2017]																							
6	Development	5/30/2017	5/31/2017	[Gantt bar from Jun 2017 to Jun 2017]																							
7	Testing	4/17/2017	6/15/2017	[Gantt bar from May 2017 to Jun 2017]																							
8	Meters	3/17/2017	7/28/2017	[Gantt bar from Apr 2017 to Jul 2017]																							
9	VVO	2/24/2017	5/11/2018	[Gantt bar from Mar 2017 to May 2018]																							
10	Field Devices	10/13/2017	5/4/2018	[Gantt bar from Nov 2017 to May 2018]																							
11	Substations	2/24/2017	5/11/2018	[Gantt bar from Mar 2017 to May 2018]																							
12	Elnora Substation	12/1/2017	5/11/2018	[Gantt bar from Dec 2017 to May 2018]																							
13	Grooms Substation	2/24/2017	2/2/2018	[Gantt bar from Mar 2017 to Mar 2018]																							
14	Xformer 1	4/28/2017	6/30/2017	[Gantt bar from May 2017 to Jun 2017]																							
15	Xformer 2	2/2/2018	2/2/2018	[Gantt bar from Feb 2018 to Feb 2018]																							
16	Utilidata Server	8/18/2017	5/11/2018	[Gantt bar from Sep 2017 to May 2018]																							
17	PTR	4/28/2017	9/30/2019	[Gantt bar from May 2017 to Sep 2019]																							
18	Phase 1	4/28/2017	5/29/2017	[Gantt bar from May 2017 to Jun 2017]																							
19	Phase 2	7/17/2017	9/30/2019	[Gantt bar from Aug 2017 to Sep 2019]																							
20	Outreach (O&E)	1/2/2017	9/30/2019	[Gantt bar from Jan 2017 to Sep 2019]																							
21	Phase 1 Marketing Communications	2/13/2017	10/20/2017	[Gantt bar from Mar 2017 to Oct 2017]																							
22	Direct Mailings Traditional Mail and Inserts	2/2/2017	2/13/2017	[Gantt bar from Feb 2017 to Feb 2017]																							
23	Points and Rewards Enrollment	5/16/2017	6/6/2017	[Gantt bar from Jun 2017 to Jun 2017]																							
24	Conservation Day letter	6/19/2017	6/19/2017	[Gantt bar from Jun 2017 to Jun 2017]																							
25	Bill Inserts	7/6/2017	7/6/2017	[Gantt bar from Jul 2017 to Jul 2017]																							
26	Pricing	5/25/2018	5/25/2018	[Gantt bar from Jun 2018 to Jun 2018]																							
27	Meter Installation Notifications	3/3/2017	6/2/2017	[Gantt bar from Apr 2017 to May 2017]																							
28	Community Outreach meeting	4/27/2017	1/8/2018	[Gantt bar from May 2017 to Jan 2018]																							
29	Contact Center Training	5/10/2017	5/10/2017	[Gantt bar from Jun 2017 to Jun 2017]																							
30	Opt-out Monitoring	6/30/2017	9/29/2017	[Gantt bar from Jul 2017 to Sep 2017]																							
31	AMO	6/5/2017	9/30/2019	[Gantt bar from Jul 2017 to Sep 2019]																							
32	Project Management Operations	2/20/2017	9/30/2019	[Gantt bar from Mar 2017 to Sep 2019]																							
33	Procurement	1/2/2017	8/21/2017	[Gantt bar from Jan 2017 to Aug 2017]																							

4.2 Updated Budget

The overall Project budget remains unchanged from that reported in previous quarterly reports. However, \$13,063,123 has been shifted from fiscal year 1 (2017) to fiscal year 2 (2018), given additional time needed to set up the network and configure meters prior to commencement of the installation process⁴.

Project Task	1 st Quarter Actual Spend	Project Total Spend to Date	Project Budget ⁵	Remaining Balance
CapEx				
	\$ 163,845	\$ 8,020,034	\$ 12,516,057	\$ 4,496,023
OpEx				
	\$ 380,229	\$ 7,314,759	\$ 14,437,176	\$ 7,122,417
Total	\$ 544,074	\$ 15,334,793	\$ 26,953,233	\$ 11,618,440

A difference between the Implementation Plan budget (\$26,819,336)⁶ and the current revised budget (\$26,953,233) exists due to an increase in actual meter costs and associated fees. The overall difference is \$133,897.

⁴ Fiscal year 1 consists of April 1, 2016 through March 31, 2017; fiscal year 2 consists of April 1, 2017 through March 31, 2018.

⁵ The Company updated the Project budget to reflect incremental costs, and to illustrate costs that are capital or operating expenses.

⁶ Case 14-M-0101, *supra* note 1, p. 33.

5.0 Progress Metrics

Checkpoint ⁷	Progress / Target Completion
Infrastructure	
AMF Acceptance vs. Opt Out	Continuing to monitor opt-out rates as Project progresses, and through the life of the Project. Current opt-out rate is eight and eight tenths percent (8.8%).
VVO System Benefits	Establishing infrastructure required to enact VVO and monitor progress. Completion of equipment installation targeted for 2018 Q2.
Customer Outreach and Engagement / Deep Energy Insights and Actionable Information	
Customer Outreach and Engagement	Continuing engagement through life of the Project. Annual surveys tracked against initial baseline survey.
Customer Energy Portal Engagement	Continue customer engagement metrics related to portal use, PTR participation, etc.
Price Signals	
PTR	Began PTR in July 2017; continue evaluation through life of the Project regarding participation rates and curtailed load.
TOU Price Signal	National Grid is seeking external delivery of TOU price signal.
DER	
DER Opportunities	National Grid continues to consider additional DER opportunities for Clifton Park customers and will continue to investigate appropriateness of prospective providers during Q2 2018. Such opportunities will include promotion of Connected Solutions DR and related technologies, National Grid's New York Solar marketplace, and energy efficient pool pumps and pool pump timers. These will be integrated into the Clifton Park marketing plan.

⁷ See Implementation Plan, pp. 24-26, for specific metrics.