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April 30, 2019

**VIA ELECTRONIC DELIVERY**

Honorable Kathleen H. Burgess  
Secretary  
New York State Public Service Commission  
Three Empire State Plaza, 19<sup>th</sup> 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 2019 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, 2019 to March 31, 2019 (“Q1 2019 Report”) as required by the REV Demonstration Project Assessment Report filed by the New York State Department of Public Service Staff with the Commission on December 1, 2016 in Case 14-M-0101.

Please direct any questions regarding this filing to:

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Hon. Kathleen H. Burgess, Secretary  
National Grid: Clifton Park Demand Reduction REV Demonstration Project  
Q1 2019 Report  
April 30, 2019  
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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*

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Senior Counsel

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**Demand Reduction  
REV Demonstration Project  
in  
Clifton Park  
Q1 2019 Report**

April 30, 2019

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# 1.0 Executive Summary

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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.<sup>1</sup>

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.”<sup>2</sup> 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. The total number of impacted customers is approximately 14,400.

Key activities and milestones accomplished this quarter (Q1 2019) are summarized as follows:

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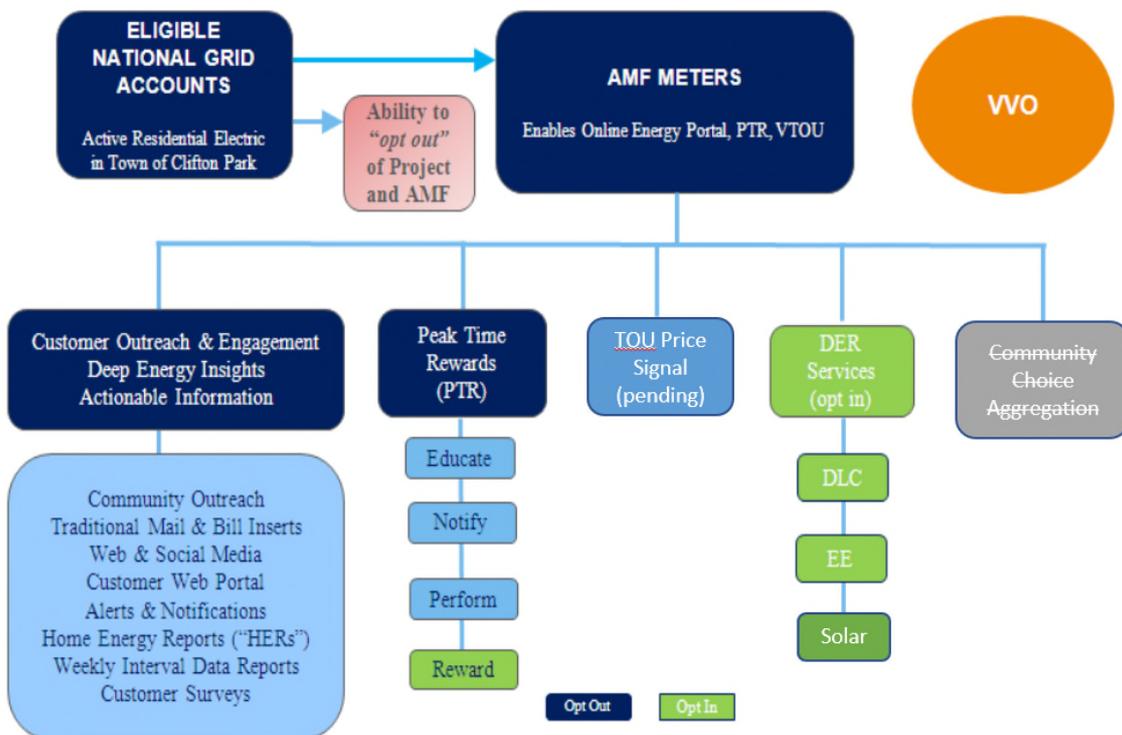
<sup>1</sup> Case 14-M-0101, *Proceeding on Motion in Regard to Reforming the Energy Vision* (“REV Proceeding”), National Grid Demand Reduction REV Demonstration Project in Clifton Park Implementation Plan (filed January 17, 2017)(“Implementation Plan”).

<sup>2</sup> 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	<ul style="list-style-type: none"> <li>Advanced Data Analytics (“ADA”) analyzed PTR season 2 performance.</li> <li>Began preparation for PTR season 3.</li> </ul>
IS and ADA efforts	<ul style="list-style-type: none"> <li>ADA and Information Services (“IS”) continued in support mode.</li> <li>ADA conducted analysis of AMI data to identify likely Electric Vehicle (“EV”) owners.</li> </ul>
VVO efforts	<ul style="list-style-type: none"> <li>All field devices commissioned.</li> <li>VVO team addressed device installation issues.</li> </ul>
Customer Outreach & Marketing	<ul style="list-style-type: none"> <li>Reviewed customer survey readout.</li> <li>Reviewed PTR customer communication content.</li> <li>Mapped PTR season 3 customer communications.</li> </ul>
TOU Price Signal	<ul style="list-style-type: none"> <li>Continued innovative pricing demonstration design.</li> </ul>
DER	<ul style="list-style-type: none"> <li>2019 DER promotions dependent on innovative pricing demonstration.</li> </ul>

**Project Elements**

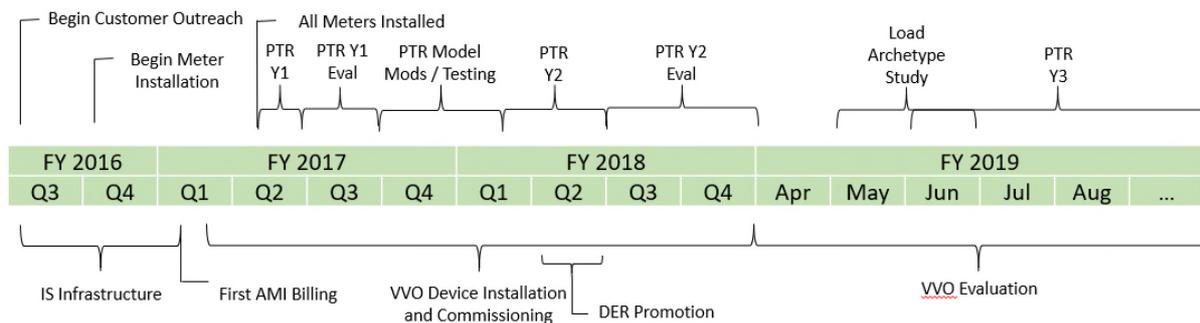
A visual of the Project’s key services and offerings are provided below. Except for VVO, customers can opt in or opt out of each Project element. A description of each Project element is included with the individual sections of this quarterly report.



**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.

A customer with concerns about meter readings requested National Grid remove their AMI meters. National Grid is analyzing the AMI data of the relevant accounts and is testing those meters. The Company intends to develop a communications action plan to address similar issues that may arise in the future.

### 2.1.1.1 Information Services (“IS”) Activities

Timeframe	Completed Milestones
1 <sup>st</sup> Quarter 2019	<ul style="list-style-type: none"> <li>Continued Project support via National Grid’s IS Support team.</li> </ul>

### 2.1.1.2 Meter Installation Activities

Timeframe	Completed Milestones
1 <sup>st</sup> Quarter 2019	<ul style="list-style-type: none"> <li>Continued to support normal business practices related to move-in/out of customers.</li> </ul>

## 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:
  - Twelve (12) line voltage monitors;
  - Thirty-one (31) advanced switching capacitors; and
  - Five (5) 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
<b>1<sup>st</sup> Quarter 2019</b>	<ul style="list-style-type: none"> <li>• Commissioned all field devices.</li> <li>• Commissioned Utilidata Server and conducted training for Energy Management System Control Center.</li> <li>• Addressed issues with field device installations.</li> </ul>

### 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 June 2018;
- Phone and online annual surveys completed; and
- Testimonial campaign with radio and billboard outreach prepared to launch.

#### **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](https://www.nationalgridus.com/media/pdfs/resi-ways-to-save/cp_faqs.pdf);
- Information about PTR;
- DER product and service options available (e.g., New York Solar Marketplace); 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.

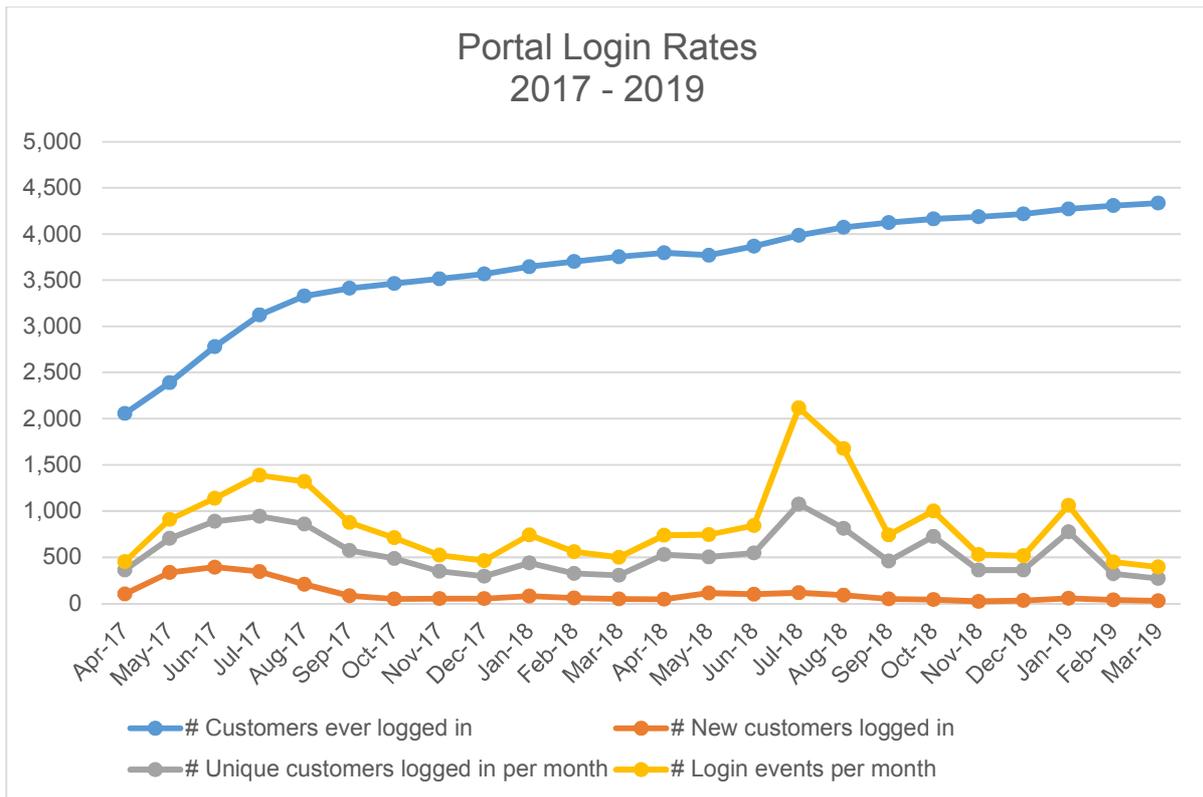


Figure 3: Portal Activity

Timeframe	Completed Milestones
1 <sup>st</sup> Quarter 2019	<ul style="list-style-type: none"> <li>Continued outreach on energy saving tips, checking usage and general portal engagement.</li> </ul>
	<ul style="list-style-type: none"> <li>Rolled out new marketing materials featuring “voice of the customer” and customer testimonials; completed mid-February 2019.</li> </ul>
	<ul style="list-style-type: none"> <li>Developed communications schedule for PTR season 3 with customer engagement partner (Opower).</li> </ul>
	<ul style="list-style-type: none"> <li>Conducted internal survey read-out.</li> </ul>

### 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.



**Figure 4: Points & Rewards**

Timeframe	Completed Milestones
<b>1<sup>st</sup> Quarter 2019</b>	<ul style="list-style-type: none"> <li>• Conducted analysis of PTR Season 2 results which consisted of thirteen (13) events called 6/18, 7/2, 7/3, 7/13, 7/16, 7/20, 8/6, 8/7, 8/15, 8/16, 8/27, 8/28, and 8/29/2018. Results of the analysis are included in Appendix A.</li> <li>• Prepared for end-to-end system testing prior to start of PTR season 3.</li> </ul>

Analysis of PTR season 2 data illustrated that customers enrolled in Points and Rewards program achieved higher energy savings as shown in Appendix A.

### 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 <sup>st</sup> Quarter 2019	• Continued to support normal business operations.
	• Conducted preliminary analysis of AMI data to identify likely Electric Vehicle (“EV”) owners within Clifton Park.
	• Conducted PTR season 2 analysis.

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

National Grid is seeking regulatory alignment between Clifton Park, AMI Business Case<sup>3</sup>, Beneficial Electrification, and SHR.

Timeframe	Completed Milestones
1 <sup>st</sup> Quarter 2019	• Initiated strategic alignment of Clifton Park, Beneficial Electrification, AMI Business Case, and SHR.

### 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. As such, NY Solar Marketplace has been established to help customers evaluate solar energy options and is being promoted in Clifton Park.

Timeframe	Completed Milestones
1 <sup>st</sup> Quarter 2019	• 2019 DER promotions dependent on innovative pricing demonstration.

<sup>3</sup> Case 17-E-0238, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a for Electric Service*, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans, (issued March 15, 2018), Attachment 1, Joint Proposal, Section 15.4.

## 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 New York PSC Reporting;
- Issues Tracking;
- Lessons Learned Recording and Review;
- Change Log Processes; and
- Financial Reporting activities.

Timeframe	Completed Milestones
<b>1<sup>st</sup> Quarter 2019</b>	<ul style="list-style-type: none"> <li>• Conducted weekly status reviews with core team leads, monitoring progress, providing corrective measure(s), and escalating issues, as needed.</li> </ul>
	<ul style="list-style-type: none"> <li>• Provided weekly updates to National Grid’s Finance Department and Performance Excellence Team regarding the Project for management review.</li> </ul>
	<ul style="list-style-type: none"> <li>• Engaged in PTR season 2 data evaluation.</li> </ul>
	<ul style="list-style-type: none"> <li>• Began PTR season 3 preparation.</li> </ul>

## 2.2 Challenges, Changes, and Lessons Learned

Qtr	Issue or Change	Resulting Change to Project Scope/Timeline?	Strategies to Resolve	Lessons Learned
Q1.19	Transition to innovative pricing demo impacted by approval status of other regulatory filings.	Multiple filings continue to compete with strategy finalization, plan development, and approval timelines.	Continue to engage in open communications with all parties involved in the proposal development and approval process.	Add time contingencies to proposed schedule(s) to facilitate unforeseen decision and/or approval lags.
Q1.19	Recalibrated budget with a reduction of \$4.251M.	Released resources originally planned for CCA.	None.	Planning was performed appropriately, however, adjustments lagged. Review overall budget on a regular basis.

## 3.0 Next Quarter Forecast

During the 2<sup>nd</sup> Quarter of 2019, 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; REV Operations and Evaluation	6/19/17 – 9/30/19	6/19/17 – 9/30/19	
<b>Key</b>			
 On-Track			
 Delayed start, at risk of on-time completion, or over-budget			
 Terminated/abandoned checkpoint			

#### 3.1.2 Work Stream – 2<sup>nd</sup> Quarter 2019

Work Stream	Future Milestones	Status
<b>Information Systems (“IS”)</b>	<ul style="list-style-type: none"> <li>Support Project via National Grid’s IS Support team.</li> </ul>	
<b>AMI</b>	<ul style="list-style-type: none"> <li>Support normal business practices related to move-in/out of customers.</li> <li>Load archetype study to be initiated to enable more granular profiling of residential energy usage.</li> </ul>	
<b>VVO</b>	<ul style="list-style-type: none"> <li>Begin study to evaluate overall system performance, leveraging AMI data for additional efficiencies.</li> </ul>	

Work Stream	Future Milestones	Status
<b>Customer Outreach</b>	<ul style="list-style-type: none"> <li>• Implement PTR season 3 communications launch and education engagement.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Engage portal conservation days with actionable information.</li> </ul>	
<b>PTR</b>	<ul style="list-style-type: none"> <li>• Perform end-to-end system testing with partners (Itron, Opower, Wipro, ADA) in preparation for season 3.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Perform customer account verification &amp; sync w/Opower.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Kick-off PTR season 3.</li> </ul>	
<b>ADA</b>	<ul style="list-style-type: none"> <li>• Provide PTR season 3 support to Project team.</li> </ul>	
<b>TOU Price Signal</b>	<ul style="list-style-type: none"> <li>• Not pursued under initial Project, however, Project team anticipates transition to innovative pricing.</li> </ul>	
<b>DER</b>	<ul style="list-style-type: none"> <li>• Not pursuing due to anticipated transition to innovative pricing.</li> </ul>	
<b>Project Management Group</b>	<ul style="list-style-type: none"> <li>• Conduct weekly and monthly Project update meetings.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Monitor and report Project success Key Performance Initiatives.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Continue tracking, monitoring and controlling the Project schedule, tracking on a weekly basis.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Continue tracking, monitoring and controlling the Project financials, tracking on month-by-month basis.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Continue to identify, monitor and manage risks and issues as they arise.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Work with AMI team on future rate structure strategies.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Strategize on integration of SHR in Clifton Park.</li> </ul>	
<b>Project Evaluation</b>	<ul style="list-style-type: none"> <li>• Develop Project evaluation plan and evaluate potential contractors.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Evaluate additional AMI data analytics to capitalize on availability of meter data.</li> </ul>	

# 4.0 Work Plan and Budget Review

## 4.1 Updated Work Plan

ID	Task Name	Start	Finish	2017												2018												2019											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	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 May 2017 to May 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	1/31/2019	[Gantt bar from Mar 2017 to Jan 2019]																																			
10	Field Devices	10/13/2017	1/31/2019	[Gantt bar from Nov 2017 to Jan 2019]																																			
11	Substations	2/24/2017	6/15/2018	[Gantt bar from Mar 2017 to May 2018]																																			
12	Elhora Substation	12/1/2017	6/15/2018	[Gantt bar from Dec 2017 to May 2018]																																			
13	Grooms Substation	2/24/2017	2/2/2018	[Gantt bar from Mar 2017 to Feb 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 Mar 2018 to Mar 2018]																																			
16	Utilidata Server	8/18/2017	1/31/2019	[Gantt bar from Sep 2017 to Jan 2019]																																			
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 May 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	10/2/2017	[Gantt bar from Mar 2017 to Oct 2017]																																			
22	Direct Mailings Traditional Mail and Inserts	2/2/2017	2/13/2017	[Gantt bar from Mar 2017 to Mar 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 Jul 2017 to Jul 2017]																																			
25	Bill Inserts	7/6/2017	7/6/2017	[Gantt bar from Aug 2017 to Aug 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 Feb 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 process<sup>4</sup>.

Project Task	1 <sup>st</sup> Quarter 2019 Actual Spend	Project Total Spend to Date	Project Budget <sup>5</sup>	Revised Budget*	Remaining Balance
	<b>CapEx</b>				
	\$ 489,423	\$ 8,746,313	\$ 12,516,057	\$ 8,766,057	\$ 19,744
	<b>OpEx</b>				
	\$ 655,775	\$ 9,690,170	\$ 14,437,176	\$ 13,936,353	\$ 4,246,183
<b>Total</b>	<b>\$ 1,145,198</b>	<b>\$ 18,436,483</b>	<b>\$ 26,953,233</b>	<b>\$ 22,702,410</b>	<b>\$ 4,265,927</b>

A difference between the Implementation Plan budget (\$26,819,336)<sup>6</sup> 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.

\*Note: An adjustment was made in Q1 2019 to reduce the total Project budget by \$4,250,823 for use towards other REV demonstration projects.

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

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

<sup>6</sup> Case 14-M-0101, *supra* note 1, p. 33.

## 5.0 Progress Metrics

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<b>Checkpoint<sup>7</sup></b>	<b>Progress / Target Completion</b>
<b>Infrastructure</b>	
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	Established infrastructure required to enact VVO and monitor progress. Equipment installation and commissioning completed. Initiated VVO evaluation period.
<b>Customer Outreach and Engagement / Deep Energy Insights and Actionable Information</b>	
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.
<b>Price Signals</b>	
PTR	Began PTR in July 2017; continue evaluation through life of the Project regarding participation rates and curtailed load.
TOU Price Signal	Strategic transition to innovative pricing demonstration.
<b>DER</b>	
DER Opportunities	Promotion of Connected Solutions DR and related technologies, National Grid's New York Solar marketplace, and energy efficient pool pumps and pool pump timers.

<sup>7</sup> See Implementation Plan, pp. 24-26, for specific metrics.

# 6.0 Appendix A – PTR Season 2 Analysis

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## Objective:

The ADA team performed an analysis of the PTR events conducted during season 2. This analysis aims to reveal the difference in peak time electric consumption savings between distinct customer categories, by applying statistical analyses to investigate customer categories and their corresponding peak event savings.

## Methods:

- (1) Based on the customer categorization information, the analyses is focused on three (3) pairs of customer groups. Specifically:
  - Enrolled vs. Non-Enrolled;
  - Email vs. Non-Email; and
  - Enrolled and Email vs. Non-Enrolled and Non-Email (an extreme comparison).
- (2) For each pair of customer groups, student t-test ( $p < 0.05$ ) is applied to test the difference between the two groups based on the following four (4) types of savings tiers:
  - Overall Savings (including True Savings and False Savings);
  - Overall True Savings (including True Low and True High Savings);
  - True Low Savings; and
  - True High Savings.
- (3) The above two (2) steps are applied to the electric consumption savings of each of the sixteen (16) PTR events.

## Results:

There were sixteen (16) PTR events between June 16, 2018 and September 6, 2018. Except for the last three (3) events, all the enrolled customers were informed of the PTR events via their provided emails.

As an example, the comparison of the Overall True Savings between “Enrolled” and “Non-Enrolled” is shown in Table 1, which illustrates t the “Enrolled” customer group achieved significantly greater electric consumption savings than the “Non-Enrolled” customer group in eleven (11) out of thirteen (13) email informed events. Additionally, this enrollment-related savings pattern only occurred in one (1) out of three (3) non-email informed events. This demonstrated both the motivation of PTR enrolled customers and the effect of the PTR event calls.

The savings tier comparisons for each of the three (3) pairs of customer groups are summarized in Table 2. The following can be inferred:

- (1) On average, “Enrolled” customers achieved significantly greater electric consumption savings than “Non-Enrolled” customers in almost all the thirteen (13) email informed events, in terms of either Overall Savings or True Savings.

- (2) There is not a significant difference between “Enrolled” and “Non-Enrolled” in the True-Low tier, but “Enrolled” still frequently (in eight (8) out of thirteen (13) email informed events) achieved greater electric consumption savings than the “Non-Enrolled” group in the True-High tier.
- (3) For the three (3) non-email informed events, the “Enrolled” group does show a significant difference from “Non-Enrolled” in terms of electric consumption savings.
- (4) The above three (3) points were also observed in the comparison between the “Enrolled & Email” group and the “Non-Enrolled & Non-Email” group.

EventDate	Er_T_num	Er_T_mean	Er_T_std	NEr_T_num	NEr_T_mean	NEr_T_std	Pval	Er > NEr
6/18/2018	1104	2.886	2.502	6244	2.682	2.373	0.029	1
7/2/2018	1039	3.315	3.070	5666	2.915	2.745	0.000	1
7/3/2018	916	2.516	2.273	4782	2.105	2.051	0.000	1
7/13/2018	917	1.861	1.818	4104	1.647	1.655	0.001	1
7/16/2018	603	2.032	1.940	2619	1.604	1.711	0.000	1
7/20/2018	1055	1.835	1.515	4599	1.726	1.557	0.080	0
8/6/2018	662	2.148	2.042	2727	1.649	1.742	0.000	1
8/7/2018	1090	2.217	1.972	5488	2.210	2.074	0.924	0
8/15/2018	790	1.980	1.853	3100	1.578	1.629	0.000	1
8/16/2018	808	1.806	1.689	3229	1.589	1.557	0.002	1
8/27/2018	969	1.898	1.783	3992	1.644	1.640	0.000	1
8/28/2018	715	2.373	2.318	2704	1.696	1.884	0.000	1
8/29/2018	686	2.230	2.166	2649	1.619	1.606	0.000	1
9/3/2018	628	1.881	1.751	3113	1.768	1.779	0.164	0
9/4/2018	675	1.501	1.410	3202	1.507	1.526	0.922	0
9/5/2018	626	1.759	1.744	2753	1.519	1.597	0.002	1

Table 1. Comparison of True Saving between Enrolled (“Er”) and Non-Enrolled (“NEr”)

Customer Pair	Savings Tiers	No. of Significant Saving Events Out of 13 Email Informed Events	No. of Significant Saving Events out of 3 Non-Email Informed Events
Enrolled vs. Non-Enrolled	Overall	13	1
	TRUE	11	1
	True-Low	0	0
	True-High	8	0
Email vs. Non-Email	Overall	12	0
	TRUE	12	3
	True-Low	0	0
	True-High	3	0
Enrolled & Email vs. Non-Enrolled & Non-Email	Overall	12	1
	TRUE	12	2
	True-Low	1	0
	True-High	7	0

Table 2. Comparison of PTR Saving Across Different Customer Categories at Different Saving Tiers

**Conclusions:**

This analysis demonstrated that PTR enrolled customers were motivated to curtail their energy consumption, particularly after receipt of an email notification.

## 7.0 Appendix B – One Page Summary

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**Project Start Date:** 01/17/2017

**Project End Date:** 09/30/2019

**Budget:** \$22,702,410

**Current Quarter Spend:** \$1,145,198

**Cumulative Spend:** \$18,436,483



**Project Summary:** Address REV principles to reduce peak demand, increase DER adoption and give customers greater insight into their energy usage so they can make more informed energy decisions. Primary deliverables include: installation of approx. 13,300 AMI electric meters and 11,500 gas ERTs, energy management education and engagement; implementation of a Peak Time Rewards (PTR) program; improve system wide efficiency. Partners include Itron, Opower/Oracle, Utilidata; vendors include Wipro, Verizon, Navigant. An adjustment was made in Q12019 to reduce total Project budget by \$4,250,823 for use towards other REV demonstration projects.

Cumulative Lessons Learned		
The Customer	Market Partner	Utility Operations
<ul style="list-style-type: none"> <li>Customer participation has been moderate despite specific marketing campaigns and customer outreach meetings (meter acceptance rate &gt; 90%; portal usage is at 24%, points-and-rewards enrollment at ~16%).</li> </ul>	<ul style="list-style-type: none"> <li>DER promotion dependent on available information to disseminate (e.g. NY Solar Marketplace launch). Price signals are dependent on rate designs that can be mass marketed to a single community.</li> </ul>	<ul style="list-style-type: none"> <li>Meter deployment and VVO construction were challenged by temporary workforce contract extensions, and adverse weather conditions requiring storm duty resource allocation.</li> </ul>

**Application of lessons learned:** A major National Grid regulatory initiative is full-scale AMI deployment. After internal discussions and conversations with regulators, it has been determined that a rewards structure (e.g. PTR) would not be pursued full-scale. Therefore, the Company is aligning its AMI opportunities in Clifton Park with the broader AMI agenda by transitioning Clifton Park into an innovating pricing REV demonstration. This will include engaging individual customers and certain customer groups (e.g. net meter accounts, property managers) on how they can benefit using AMI data and the customer portal to better manage their energy usage and succeed on innovative pricing designs.

**Issues Identified:** Rewards-type structure is not sustainable and does not align with other regulatory initiatives.

**Solutions Identified:** The Company is moving away from rewards-type structure and transitioning to innovative pricing demonstration.

**Recent Milestones/Targets Met:** All VVO devices have been installed, commissioned, and are ready for testing. PTR seasons 1 and 2 have been completed; season 2 incorporated analytics upgrade and two-tiered rewards structure. Preparing for PTR season 3.

**Upcoming Milestones/Targets:** Perform load archetype study for customer segmentation, launch PTR season 3, and develop transition plan to innovative pricing demonstration.