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January 17, 2017

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)

NATIONAL GRID: CLIFTON PARK DEMAND REDUCTION REV DEMONSTRATION PROJECT-IMPLEMENTATION PLAN

Dear Secretary Burgess:

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid") hereby submits for filing the Clifton Park Demand Reduction REV Demonstration Project Implementation Plan 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.[1]

Please direct any questions regarding this filing to:

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[1] The Assessment Report was re-issued on December 28, 2016, removing references to a trademarked term and a trademarked acronym.

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.

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Demand Reduction REV Demonstration Project

in

Clifton Park, New York

Implementation Plan

Case 14-M-0101

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EXECUTIVE SUMMARY

On July 1, 2016 Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid" or the "Company") filed a proposal for the Demand Reduction REV Demonstration Project (the "Project")[1] 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"),[2] to reduce electric demand during peak times and inform the Reforming the Energy Vision ("REV") proceeding. The purpose of this implementation plan (the "Implementation Plan") is to describe National Grid's detailed execution plans for the Project.

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."[3]

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
- Community Choice Aggregation ("CCA") Support

[1] National Grid's July 1, 2016 submittal was an errata filing to replace the proposed Customer Convenience Demonstration Project for Clifton Park, contained within the Company's July 1, 2015 submittal of a suite of REV demonstration projects, with a renamed project entitled "Demand Reduction Demonstration Project" to reflect the substantial revisions in scope from the original July 1, 2015 filing.

[2] For the Clifton Park REV Demonstration Project, "DER" is defined as including energy efficiency, demand response, and renewable distributed generation offerings, consistent with the Commission's definition in Case 14 -M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision* ("REV Proceeding"), Order Instituting Proceeding (issued April 25, 2014), p. 25.

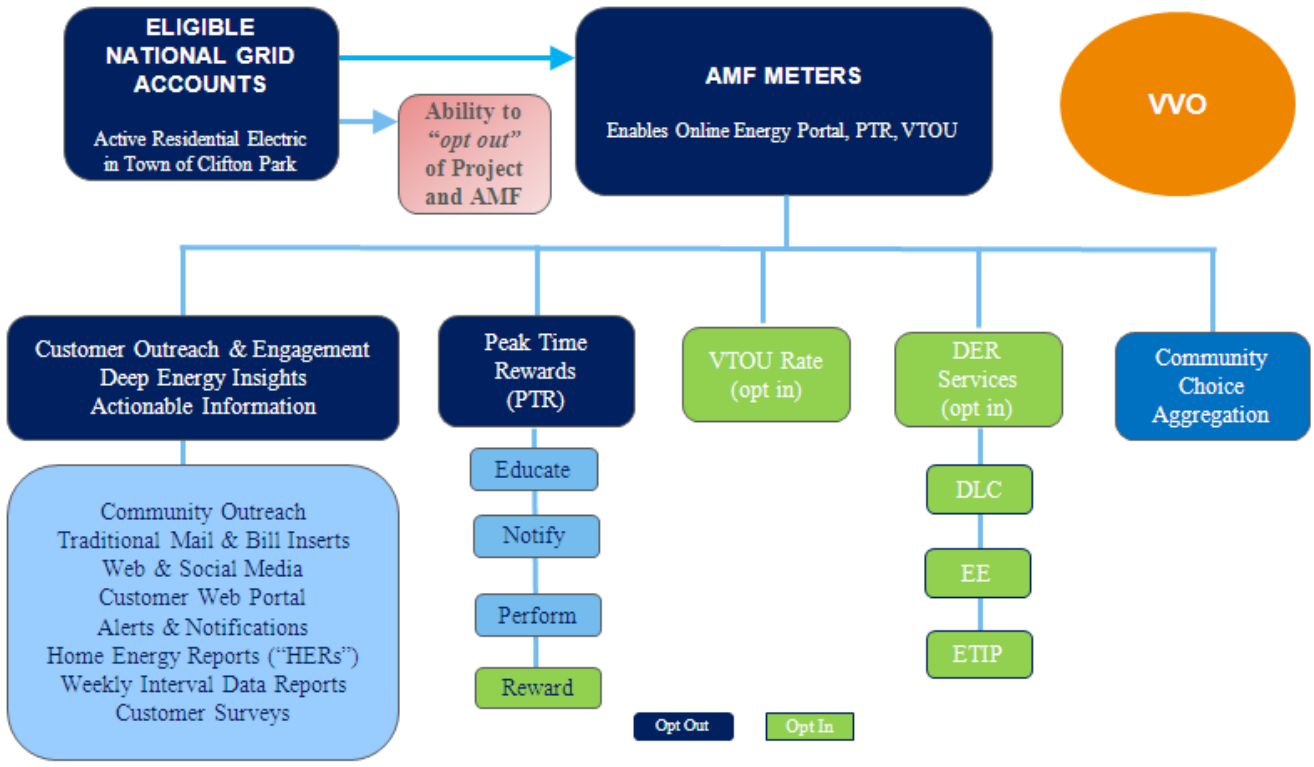
[3] REV Proceeding, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework ("Track Two Order") (issued May 19, 2016), p. 72.

PROJECT DESIGN

Project Components Details

A summary of the Project's key services and offerings are provided below in Figure 1 (Project Overview Diagram). With the exception of VVO, customers can opt-in or opt-out of each Project element. A description of each Project element follows.

Figure 1: Project Overview Diagram[4]



Infrastructure

National Grid will install infrastructure intended to provide benefits to the Company's Clifton Park customers and enable other key Project elements. These infrastructure enhancements include:

- AMF; and
- VVO.

[4] Note: A customer who opts out from the AMF meter installation will still have access to monthly consumption and other data on the web portal. Although PTR is an opt-out Project element, a customer will need to accept the terms and conditions on the vendor's website *(i.e.*, opt in) in order to earn points and rewards.

AMF

National Grid, working with its partners in the Project, will replace the existing electric meters installed at residential premises in Clifton Park with Commission-approved meters that have the capability of communicating, through cellular technology, near real-time electric interval data to these customers.[5]

Existing gas meters will also be upgraded to communicate gas usage through the electric meters. These enhanced metering capabilities are designed to:

- Provide customers with access to near real-time data about their electrical and gas usage;
- Provide greater knowledge of residential customers' load shapes;
- Enable timely messaging to customers about their energy consumption allowing for proactive energy consumption decisions;
- Allow valuation of electric demand response (*e.g.*, rewards to customers) based on projected and actual demand;
- Support the assessment and possible monetization of the impact PTR events may have on installed capacity ("ICAP") tags for electric mass-market customers, and
- Facilitate the offering of new services and functions.

AMF deployment in Clifton Park will replace existing National Grid meter reading and billing processes. AMF meters will be read and data transferred over the cellular network to National Grid for utility billing. Data will also be transferred to Project partners over secure networks in order to enable Project elements including the customer web portal. Interval data will also be used for Project deployment of PTR, billing of the VTOU rate, and to support authorized Project evaluation activities.

AMF deployment is anticipated to commence the end of the first quarter of 2017. Customer letters introducing the Project and the AMF installation process will be distributed at least one month meter installations begin. This allows for a period during which customers can opt out of the AMF metering technology as well as certain other aspects of the Project.

Customers choosing not to have AMF installed will be directed to a specialized team at the National Grid contact center. The contact center will direct Customer Meter Services ("CMS") to not install an AMF meter for those customers who choose to opt out. These customers will retain their existing automatic meter reading ("AMR") meter, or if they had previously elected the "AMR Opt-Out Option,"[6] retain a non-AMR meter. Additionally, during the Project term, customers will have the option to have their AMF meter removed and replaced with an AMR meter at no cost to the customer.

[5] Case 16-E-0023, *Petition of Itron Inc. for Approval of the OpenWay Centron 4G LTE Commercial Meter Line*, Order Approving Itron OpenWay Centron 4G LTE Commercial Meter (issued November 23, 2016). The meter vendor, Itron, is assessing whether future changes to the cellular communication network used for the AMF rollout (*e.g.*, "4G" to "5G") would require upgrades to meter hardware and/or software. For the three years of the Project, the vendor anticipates no changes to the cellular network requiring hardware or software upgrades. National Grid, in collaboration with the vendor, will continue to assess the impacts of cellular communications network changes when assessing scalability of the Project.

[6] *See* P.S.C. No. 220 Electricity, Niagara Mohawk Power Corporation d/b/a National Grid, Schedule for Electric Service ("National Grid Electricity Tariff"), Rule 25.6, *et seq*.

National Grid will track the number of targeted customers that choose to opt out of AMF during the initial opt-out period, as well as those choosing to have AMF meters removed during the Project term.

Existing AMR meters that will be replaced by AMF technology will be cataloged and reviewed for depreciation status. National Grid will work with New York State Department of Public Service Staff ("Staff") to ensure proper accounting for meters that are depreciated and retired.

The steps for AMF deployment:

First Article Meters[7] delivered to National Grid	January 6, 2017
User Acceptance Testing Complete	February 2017
Go Live Declared	March 2017
Field Deployment of Meters	Through May 31, 2017

VVO

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 the substations being upgraded. Working with the Project's VVO partner, National Grid will install devices on the 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.

VVO will include:

- Three Substation Transformer Load Tap Changers;
- Eleven Feeders, including:
    - 11 Line Voltage Monitors,
    - 39 Advanced Switching Capacitors, and
    - 8 Pole Top Regulators;
- Central controller and data concentrator installed at the National Grid Control Center in Liverpool, New York;
- Supervisory control through supervisory control and data acquisition ("SCADA") and Energy Management System ("EMS"), and
- Cellular connectivity between all field, substation devices, and the data concentrator.

[7] First article meters are initial production runs made to validate specifications and built before manufacturing the entire meter population.

The schedule for VVO deployment is as follows:

Elnora circuit devices installed	May 2017
Grooms Road circuit devices installed	September 2017
Elnora Substation make-ready work	May 2017
Grooms Road Substation make-ready work	June 2017
VVO system commissioning	November 2017
VVO fully deployed	December 2017

Customer Outreach and Engagement

National Grid will engage residents of the Clifton Park community to educate energy consumers about the Project and solicit input. The strategies to be used include:

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

Community Outreach

To effectively engage the Town, National Grid will work to engage community leaders through coordination with the Town leadership, small group meetings with targeted organizations, and open community-wide meetings.

Coordination with Town leadership

National Grid will work with the Town leadership, particularly the Government Re-Thinking Energy & Environment Now ("G.R.E.E.N") Committee, to refine many of the important Project details.

National Grid anticipates meeting with Town leadership on a monthly basis to provide key Project updates and receive Town feedback on Project progress. If meetings are not necessary or impractical in a given month, National Grid may provide written progress updates and solicit feedback where appropriate. The below Table 3 summarizes engagement with the Town to date.

Table 3: National Grid Town Engagement to Date

Meeting Date	**Agenda**
August 26, 2016	Met with Town leaders to discuss a CCA-like energy procurement model
September 12, 2016	Discussion of Project status and discussion of Town leaders' interest in CCA
October 14, 2016	Follow-up meeting on Project status and interest in CCA with those Town leaders that requested additional information

Small group meetings with targeted organizations

National Grid will reach out to key community organizations to understand their concerns and expectations for the Project. National Grid's goal is to create ongoing outreach and communication opportunities with groups from a wide range of social networks within the community. These groups can include faith-based communities, neighborhood associations, schools, sports and recreation groups, book clubs, civic organization, and employers. National Grid believes that engaging these groups throughout the Project will build a steady stream of participation.

Specifically, National Grid will engage these community organizations in the following manner:

- Identify and engage local contractors, retailers, and others in the business community that can market, sell, and install DER products and services;
- Reach Clifton Park customers to educate them about Project opportunities (*e.g.*, PTR, DER products and services, VTOU pricing, etc.), and
- Solicit feedback on key aspects of the Project.

Open community-wide meetings

National Grid will also engage Town leadership at meetings open to the entire community through a series of Town meetings. The goals of these meetings are to:

- Gauge community buy-in to the Project from engaged community members, collecting contact information for future engagement;
- Solicit ideas for additional energy services important to the community for inclusion in the Project, and
- Educate Town leaders on key aspects of the Project (*e.g.*, VTOU pricing) that they can promote through their personal networks.

Each outreach approach is intended to reinforce others to build awareness, interest, and participation in the Project. By providing multiple opportunities to interact, SC-1 customers will receive more information to make educated decisions about energy use while National Grid will remain apprised of additional community education opportunities.

Prospective Tactics	February				March				April				May				
	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
Tabling: Clifton Park Shopping Center	X				X				X				X				
Classroom Prep: Shenendehowa Central Schools (1 HS, 3 MS, 8 ES)			X				X				X				X		
Tabling: Clifton-Park Halfmoon Public Library		X				X				X				X			
Tabling: Clifton Park Town Justice (Clifton Commons)				X				X				X					X
Tabling: YMCA Clifton Park		X				X				X				X			
Cap Region Spring Home Show										X							
Science and Health Discovery Night (Shen H.S.)												X					
Van: Clifton Park Winterfest	X																
Van: Clifton Park Farmers Market (Date TBA: Summer 2017)																	
Van: Clifton Park Farm Fest (25th Annual) - (Date TBA: Fall 2017)																	

Mail and Bill Inserts

Prior to the installation of AMF, National Grid will deliver a set of communications to introduce Clifton Park customers to the new interval meter benefits and key Project elements available immediately and in the future. These communications will be sent in the form of reports delivered by direct mail, bill stuffers, and email (see attached Appendix B - Sample Smart Energy Introduction Letter to Customers, and Sample Bill Insert from National Grid affiliate's Worcester Smart Grid Pilot, for examples from other smart energy pilots). National Grid will send a welcome packet prior to the installation of AMF focused on education. Following the installation of AMF, customers will receive educational materials focused on the various Project elements. Table 4 below summarizes the outgoing communications to customers by type, volume, and date.

Table 4: High-Level Project Rollout Schedule

Project Element	Mail Volume	Mail Dates
Meter Letter	14,409	February 2017
Welcome Letter	13,689	Rolling basis
Points and Rewards Enrollment	11,609[8]	Rolling basis
VTOU Rates	14,409	March –April 2017
DER Opportunities	14,409	November 2017

In all communications to customers, National Grid will provide a dedicated phone number and trained team of representatives who will be prepared to answer questions on Project specifics.

Web and Social Media

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

- AMF details including technology specifics, rollout schedule, and opportunity to opt out;
- Information about PTR and the VTOU rate;
- Energy services information and sign-up options for DER products and services immediately available and services that will be available once AMF is installed (*e.g.*, PTR); National Grid will include bi-weekly or monthly geo-targeted content to the Clifton Park area in the Facebook and Twitter editorial calendars. Content will include Project updates and customer stories gathered in the field. National Grid will create the post(s), set-up targeting, monitor and reply to

[8] Assumes 20% of targeted Clifton Park customers are already participating in the existing National Grid electric and gas energy efficiency programs, the Electric Residential Engagement Program and the Gas Residential Engagement Program (formerly known as the Residential Building Practices and Demonstration Programs), and are already receiving HERs and enrolled in the associated Points and Rewards offerings. Analysis to confirm Point and Rewards enrollment of the Clifton Park population is in progress.

customer inquiries, and provide metrics. Web and social media avenues will include frequent content updates as outlined below. Ngrid.com/cliftonpark will be updated throughout the year to announce the rollout of new products and services and will include Project-specific information;

- Bill inserts will be incorporated four times per year as new Project elements are rolled out, and
- Social media updates will be on-going throughout the year.

See Appendix B, Sample National Grid Affiliate's Social Media Messages, for examples of National Grid Facebook posts.

Customer Research

National Grid will deploy customer surveys to support analysis and tracking of progress on hypothesis test questions and to support the Project deployment. Surveys will gather information on customer attitudes and experiences on various Project elements. The information gathered will identify outreach and engagement approaches that may need to be modified to further enhance customer participation.

An initial baseline survey of Clifton Park residents was deployed in October 2016. This research indicated that customer age ranges have different needs to support their energy decisions. Given these research findings, National Grid will segment the Clifton Park customer population by age as well as their current level of HERs participation (via the Company's existing Electric Residential Engagement Program and Gas Residential Engagement Program), to allow for tailored messaging to better support customer segments throughout the Project. The identified segments are:

- HERs[9] participants who currently log in and use the portal to view their monthly energy usage;
- HERs Participants who have never logged into the portal; Young (18-54);
- HERs Participants who have never logged into the portal: Older (55+);
- HERs Non-Participants; Young (18-54), and
- HERs Non-Participants; Older (55+) SC-1 eligible non-residential accounts (*e.g.*, religious-based organizations).[10]

Future Project surveys will be rolled out strategically with the deployment of different aspects of the Project. For example, a survey may be deployed after meter installations are complete and initial AMF education materials are distributed to provide feedback on customer experiences with meter exchanges and the effectiveness of AMF education.

Deep Energy Insights and Actionable Information

National Grid will work with the Company's engagement partner to increase customer engagement by providing interactive energy insights and actionable information. Customers will be presented with actionable energy information and will be provided with messaging about the benefits of energy

[9] *Id.*
[10] Non-residential SC-1 eligible accounts provide an opportunity for community-based engagement within this Project.

efficiency, demand reduction, and pricing programs that encourage shifting energy usage to lower price, off-peak times of the day.

Customers will be engaged in energy insights and actionable information via a variety of channels and strategies, including digital communications, traditional mail, a customer web portal, alerts and notifications, HERs, customer education reports, and weekly reports.

Customers who do not wish to receive specific communications can choose to opt out by notifying National Grid. Customers will be engaged via the channels outlined in the below Table 5 (Customer Communication Channels).

Table 5: Customer Communication Channels

Communication Channel	**Description**
Web Portal	National Grid web experience will be customized for Clifton Park customers and will present electricity and gas usage, and behavioral messaging. (Visit at ngrid.com/cliftonpark)
High Bill Alerts	High bill alerts delivered via email. Alerts will utilize AMF data to identify customers trending towards a high bill and inform them of a potential high bill.
Home Energy Reports ("HERs")	The existing HER channel will be leveraged to promote tailored energy-saving products and services.
Emailed Home Energy Reports ("eHERs")	The existing eHERs messaging channel will be leveraged to promote energy-saving products and services.
Weekly Interval Data Reports	Customers with AMF will be sent an opt-in weekly interval data report via an email giving them insights on how they are using energy on a weekly basis.

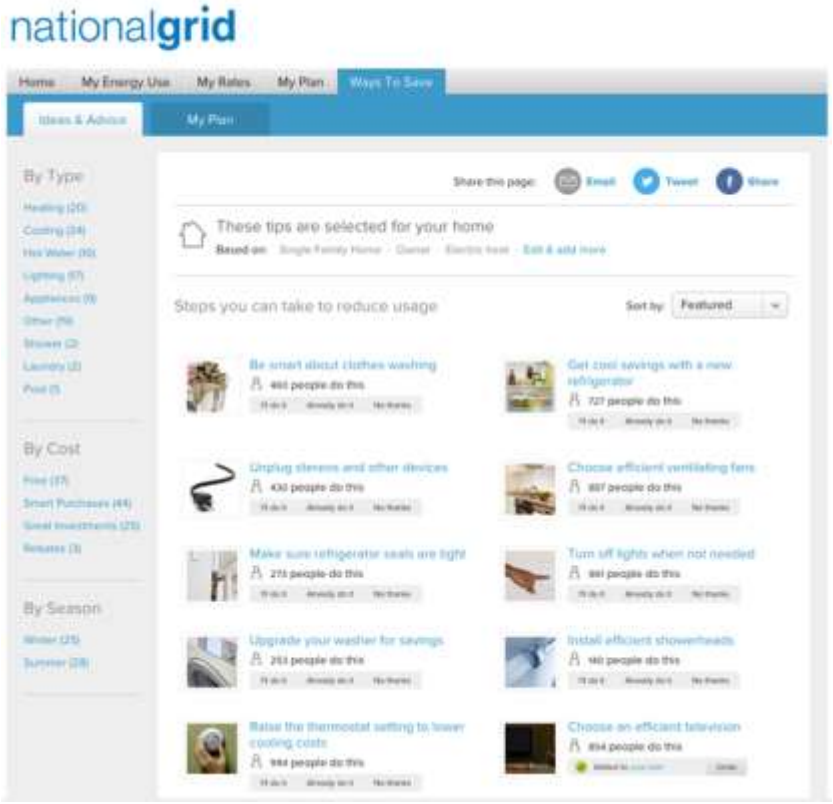
Web Portal

Customers will be engaged through the National Grid website, which will have customized data presentment specific to Clifton Park customers. Prior to AMF rollout, the digital experience will include monthly electric and gas usage information, and promotional messaging about National Grid energy-saving products and services. The digital experience will be significantly enhanced after AMF meters are installed. Specifically, customers will have access to the following features:

- Interval energy usage tracking (See Figure 4);
- Energy savings recommendations (See Figure 5), and
- Energy usage alerts (See Figure 6).

Figure 4: Energy Usage Tracking

Figure 5: Energy Savings Recommendations



High Bill Alerts

In addition to displaying alerts on the web portal, high bill alerts will be sent by email (see Figure 6 below) when customers are on track to exceed their typical energy usage each month. This usage threshold and notification date will be set by National Grid with input from the Company's engagement partner. These alerts will also include links ("calls to action") on how customers can save energy.

National Grid will aim for limited frequency of alert messages to any individual customer.

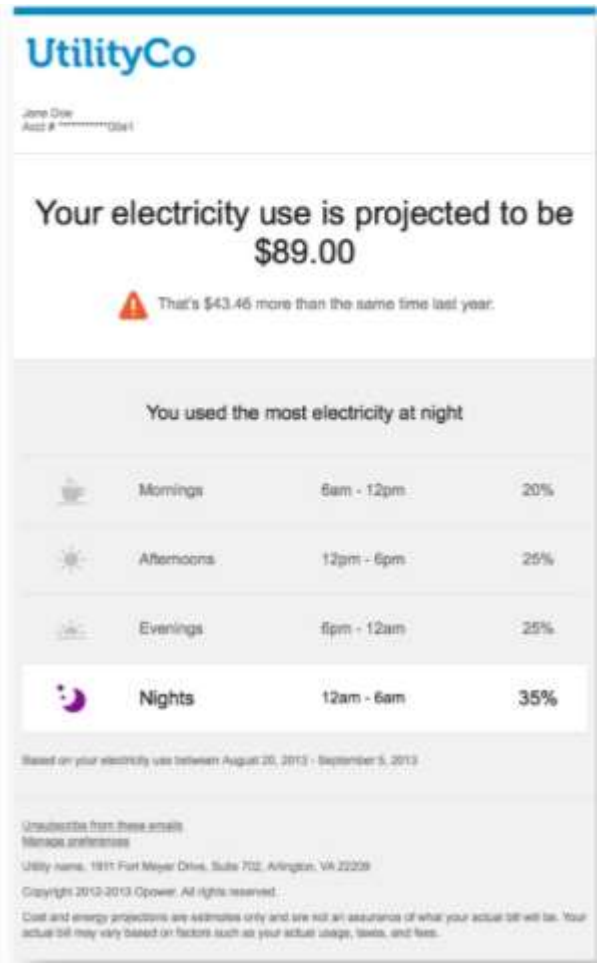
Home Energy Reports

National Grid currently delivers HERs to approximately 8,000 customers in Clifton Park through ongoing National Grid energy efficiency programs, the Electric Residential Engagement Program and the Gas Residential Engagement Program, as detailed in the Company's Energy Efficiency Transition Implementation Plans (ETIPs).

Weekly Interval Data Reports

National Grid will send weekly interval data report emails to customers that have AMF meters installed. These reports will give customers additional insights into the daily electricity usage and provide behavioral nudges and targeted tips to promote energy conservation.

Figure 6: Email Message Usage Alerts



Price Signals

National Grid's goal is to design electric energy price signals that achieve the greatest possible impact in the form of reduced peak energy usage in order to better align usage patterns with the realities of the electric grid, recognizing the location, time, and attributes of energy reductions.

Ultimately, reducing peak electric energy usage will benefit customers by lowering the amount of expensive peak energy procured, minimizing the cost to operate the electric grid, and decreasing the need for additional infrastructure investment.

To reach this goal, National Grid will balance the following factors:

- Peak reduction per customer;
- Number of customers participating, and
- Customer satisfaction.

The Project seeks to test if residents are presented with energy price signals whether they will act to reduce local and system peak loads. The Project is designed to offer two forms of price signals: PTR and the VTOU rate. PTR provides rewards for taking action at specific times, while the VTOU rate design provides pricing that encourages off-peak energy use.

PTR

Through a single marketing message, "Reduce Your Energy Usage and Earn a Gift Card Reward," National Grid will seek to incentivize Clifton Park customers to reduce electric use during specified peak times. Participating customers will be rewarded for curtailing electric load through behavioral actions such as turning off lights and adjusting their thermostats.

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 notifications;
- Rewards earned by those enrolled in "Points and Rewards"; and
- Rewards awarded based on participation in up to 20 PTR events per year.

Event performance analytics

All electric customers that receive an AMF meter will be targeted for PTR. This will provide insight on community-level load curtailment. Event analytics will be performed comparing modeled expected consumption to actual consumption based on AMF interval data during the event period. Determinations will be made whether Project participants curtailed electric load or not.

Customers that choose to opt out of PTR will not receive PTR notifications. Customers can opt out of PTR even if they have an AMF meter.

No penalties

PTR is a rewards program based on positive motivation. There are no penalties for failure to curtail load during events.

Pre-event and post-event notifications

Pre-event notifications will inform customers of the time frame and date of event with recommendations on how to reduce usage during the event.

Post-event notifications will inform customers if their data reflected they curtailed load during the event, and whether they earned points that can be redeemed for rewards.

"Points and Rewards" enrollment

In order for individual customers to earn rewards they must enroll in "Points and Rewards" and accept the vendor's terms and conditions.

Awarding and distributing rewards

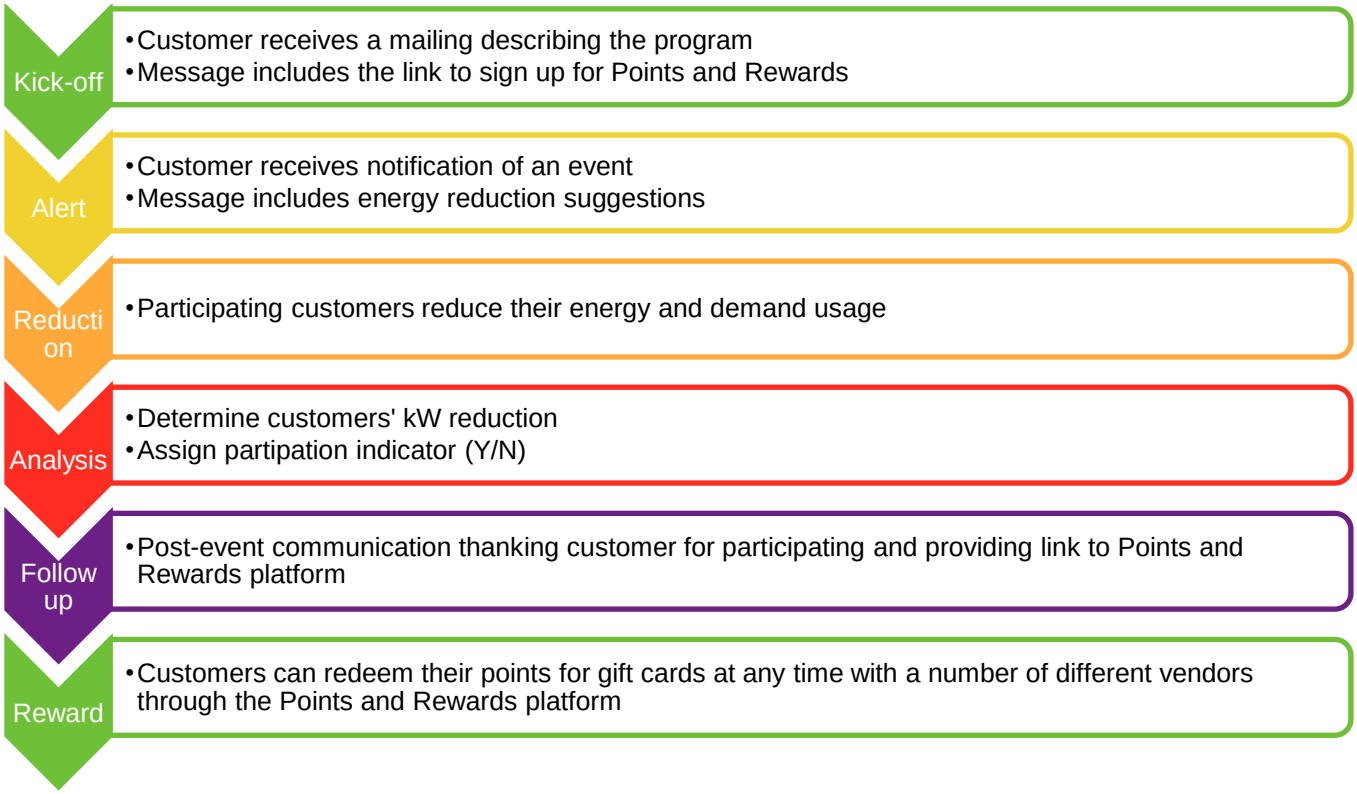
There may be up to 20 PTR events per year during the summer electric capability periods of June through September. Rewards will be awarded based on whether or not individual customer data reflects electric load curtailment during specified events compared to modeled expected load. Customers are able to earn points for each event and can redeem points for rewards at any time

PTR events will be called by National Grid, and may be triggered by a number of indicators that will be further defined. Some examples of peak event triggers include:

- High Day Ahead Locational Marginal Price ("LMP");
- High temperature;
- High humidity; and
- Various electric transmission restrictions that may arise (*e.g.*, feeder specific).

.
Figure 7 below provides an overview of the PTR program.

Figure 7: PTR Customer Experience



Key PTR schedule items:[11]

PTR education communications	2nd Qtr. 2017
Launch event period	3rd Qtr. 2017 (and annually through September 2019)
Evaluation of PTR performance	4th Qtr. 2017

VTOU Rate

The VTOU rate[12] will be tested in Clifton Park on an opt-in basis. The VTOU rate, which became effective December 1, 2016, includes three rate periods: on-peak, off-peak and super-peak. Delivery rates differ for on-peak and off-peak usage, and commodity rates vary based on customers' on-peak, off-peak and super-peak usage. The specific time-of-use periods are as follows:

[11] Time periods shown are predicated on having the engagement vendor under contract by the end of the 1st Qtr. 2017. If that is not achievable, dates shown will likely slip. Any schedule changes will be reflected in Project Quarterly Reports.
[12] *See* National Grid Electricity Tariff, Service Classification 1, Special Provision L, "Residential Optional Time of Use Delivery and Commodity Rate."

	Delivery Rate Period	Commodity Rate Period
On-Peak	7am-11pm	7am-11pm*
Off-Peak	11pm-7am	11pm-7am
Super-Peak		2pm-6pm (June-August)**

*Excluding Super-Peak period **Excluding weekends and holidays

Customers who elect the VTOU rate are placed on the rate for an initial one-year term, which continues month to month thereafter until canceled by the customer upon written notice to the Company. The VTOU rate is designed for the delivery and commodity portions of the customer bill, however, participating electric customers may choose to take supply from a retail access supplier in lieu of the VTOU commodity portion.

VTOU customers that receive supply service from a retail access supplier will receive the VTOU distribution delivery rate for their On-Peak and Off-Peak usage in the VTOU Delivery Rate Periods but their electric supply and corresponding supply charges will be provided by their retail access supplier. The electric supply provided by the retail access supplier will be provided in accordance with the Company's standard tariff retail access program and will not use the Commodity Rate Periods specified for the VTOU rate.

Additionally, if the customer received supply service from the Company during their initial one-year term on the VTOU rate, and provided a copy of their New York State Department of Motor Vehicles registration for a plug-in electric vehicle ("EV") at their Premise at the time they enrolled in the VTOU rate, they will be eligible for a one-time bill protection guarantee. The Company will perform a one-time comparison of 12 months of the customer's charges under the VTOU rate to what the customer would have paid under the standard tariff. If this comparison indicates the customer would have paid less on the standard tariff rate, the Company will credit the customer the difference in their next retail bill.

While the VTOU rate is available across the Company's service territory, its inclusion in the Project allows National Grid to test how enabling technology, such as AMF and associated energy insights and actionable information, influences the adoption of time-of-use rates.

National Grid will file a petition with the Commission to modify the VTOU rate for Project participants. Under the existing tariff provision, VTOU customers are required to pay an incremental customer charge of $3.36 per month (for metering required for the VTOU rate). The petition will request a modification to the VTOU customer charge to eliminate the incremental customer charge to reflect the use of AMF technologies funded through the Project and that no additional metering costs will be passed on to Project participants that adopt the VTOU rate.

Key VTOU Schedule items:

VTOU rate effective date	December 1, 2016
Petition modifying VTOU for participants	To be filed by February 2017
Billing system modified for VTOU AMF billing	To be completed by March 2017
VTOU marketing	April-September 2017

DER Services

In addition to reducing peak load through energy insights, actionable information and price signals, National Grid seeks to animate the market by working with third-party DER providers and/or facilitating DER providers' services 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.

DER providers will gain value by leveraging National Grid's communications channels to those customers opting in to receive such communications, and in turn, DER providers will contribute toward Project revenues in the form of referral incentive fees.

Direct Load Control ("DLC")

The National Grid Connected Solutions DLC program was launched across the National Grid service territory in 2016. The DLC program works with qualified smart appliances, including thermostats and water heaters, and aims to automatically reduce peak electric usage.

Customers that enroll in the DLC program will receive $30 in the first year and an additional $20 at the end of each following year as long as they participate in at least 80% of called events. Participants who opt in to the program will be notified when demand response events are scheduled to reduce overall demand during peak, critical hours of the electric summer capability period.

Participating customers will give National Grid the right to control their electric load during peak times (*e.g.*, automatically changing thermostat settings by 2 degrees during an event). Participating customers will receive electronic event notifications as well as emails. Customers will be able to opt out of any specific event.

National Grid will track enrollment rates resulting from Project-specific promotions of the DLC program within Clifton Park and report results annually.

Insulation and Air Sealing

DER providers will offer home energy assessments and energy efficiency retrofit services in Clifton Park to customers that have expressly opted in to receive such marketing.

Additional DER Products and Services

Based on Town and Project participants' feedback, National Grid will provide additional DER product and service opportunities to residents in Clifton Park that have expressly opted in to receive marketing materials such as an EV adoption campaign, and other distributed generation opportunities such as solar photovoltaic ("PV") technology.

CCA Support

National Grid has engaged with Clifton Park officials and community members on the potential for CCA. As directed in Staff's Assessment Report of the Project, community-level supply procurement activities would follow the framework outlined in the Commission's CCA proceeding.[13] Should the Town decide to move forward with CCA, National Grid will support the Town's efforts to identify opportunities where the Project and CCA could bring value to the Clifton Park community.

Potential areas of synergies between the Project and CCA may include:

- Opportunities to use the Project engagement and outreach platform to help inform Clifton Park customers of the Town's CCA actions and how CCA would interact with different Project elements;
- Opportunities for a selected energy supplier to partner in PTR though funding of rewards and ability to call PTR events based on day-ahead market prices, and/or
- Providing a platform to promote the selected retail supply provider's DER opportunities.

Project Opt-In / Opt-Out Summary

Table 6: Project Component Overview

	OPT IN	OPT OUT
Infrastructure		
AMF		X
VVO	*Distribution System Level*	
Communications		
Customer Outreach and Engagement		X
Deep Energy Insights and Actionable Information		X
Price Signals		
PTR		X*
VTOU	X	
DER Products and Services		
Energy Efficiency	X	
DLC	X	
Other DER (*e.g.*, EV, solar PV)	X	
CCA		
CCA Coordinated by Town		X**

* All customers with AMF will be included in PTR notifications on an opt-out basis. To receive PTR rewards, customers will need to enroll (opt in) and accept the PTR reward provider's terms and conditions.
** CCA opt out will be implemented in accordance with the Commission's requirements for a municipally-sponsored CCA.

[13] Case 14-M-0224 – *Proceeding on Motion of the Commission to Enable Community Choice Aggregation Programs*. Order Authorizing Framework for Community Choice Aggregation Opt-Out Program (issued April 21, 2016).

TEST STATEMENTS

National Grid and its partners will test the validity of the hypotheses shown in Table 7, Test Statements, below. The results of hypothesis testing will be tracked and documented and then used to inform and modify subsequent offerings to Clifton Park residential customers.

Table 7: Test Statements

Test Statement…	**If…**	**Then…**
1. Infrastructure: Infrastructure investments will bring benefits to customers.	A. National Grid builds out the required infrastructure and offers AMF to Clifton Park residents...	Clifton Park residents will accept the technology and receive deep energy insights.
	B. VVO is installed in Clifton Park…	All Clifton Park customers will see a reduction in electric consumption as a result of distribution system efficiencies.
2. Customer Engagement: Timely, customized communications and information will enable Clifton Park residents to make electric and gas energy choices that align with REV principles.	A. National Grid and its partners deliver customized and actionable information to Clifton Park residents using channels preferred by customers...	Clifton Park residents will make informed and engaged energy choices resulting in greater satisfaction with their electric and gas energy providers.
3. Price Signals: Price signals can result in Clifton Park residents acting to reduce local and system peak electric loads.	A. Clifton Park residents have the opportunity to participate in a PTR program …	Clifton Park residents will be willing to reduce their electric energy usage resulting in points and rewards.
	B. Clifton Park residents targeted for increased electric rate education …	Clifton Park residents will be more likely to adopt the electric VTOU rate.

4. DER Services (Business Models and Revenue Streams): Informing customers about DER products and services will increase the adoption of DER and create new revenue streams for National Grid.	A. National Grid provides Clifton Park residents with information about specific value-added DER products and services from select partners...	Clifton Park customers will be more likely to adopt such DER products and services.
	B. If National Grid provides opportunities for select DER providers to educate Clifton Park residents who opt in to receive such products and services marketing …	These partners will share a portion of their incremental revenue with National Grid.
5. Community Supply Procurement: Utilities can add value to the CCA process.	A. Clifton Park pursues CCA… …	National Grid will use Project-specific outreach and education channels to support the Clifton Park CCA.

TEST POPULATION

The Town of Clifton Park represents a growing suburban region with increasing energy usage and is well positioned to adopt advanced energy options that will benefit residents. The Project will target the approximately 14,400 National Grid residential electric customers in the Town of Clifton Park. Approximately 86% of these accounts are also National Grid residential natural gas customers.

According to the 2010 US Census, the Clifton Park community has a population of 36,705 and is upper-to-middle class (median income: $80,908).[14]

[14] http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

TEST SCENARIOS

See Table 8, Test Scenarios, below, for all Project test scenarios and metrics.

Table 8: Test Scenarios

Scenario	Description
Infrastructure	
AMF:	Approximately 14,400 residential electric accounts in the Town of Clifton Park will be targeted for AMF installation on an opt-out basis. National Grid will test the deployment of AMF meters on an opt-out basis. Customers that do not opt out of AMF installation will have access to interval data on the customer portal and to deep energy insights.
VVO:	VVO will be deployed at two substations for the electric distribution system that combined serve about 90% of Clifton Park accounts. VVO is expected to be fully operational by December 2017. VVO performance will be verified through the VVO measurement and verification ("M&V") report. M&V activities include measuring system performance by turning the system on and off, and measuring voltages and loads.
Customer Outreach and Engagement / Deep Energy Insights and Actionable Information	
Energy Information and Engagement	National Grid will test customer engagement in response to energy information by examining customer awareness, interest, comfort, knowledge, and satisfaction with Project offerings through customer surveys. National Grid will seek to understand the role specific engagement campaign events have on VTOU and DER adoption rates. National Grid will use a variety of communications channels to educate customers about the Project and its offerings. National Grid will implement customer surveys approximately every six months to determine customer levels of awareness and understanding of Project offerings.

	The Customer Energy Portal is designed to leverage AMF data capabilities combined with energy education to enable customers to better understand and better manage their energy use. National Grid will determine overall differences in pre- and post-energy consumption of Project participants, and attempt to attribute savings across Project elements (*e.g.*, outreach, insights, PTR participation, VTOU adoption, DER adoption, etc.). Electricity and gas savings will be analyzed separately.
Price Signals	
Peak Load Reduction Test:	National Grid will test PTR event participation rates defined by the delta between expected and actual electric load as measured by AMF data. National Grid will track the number of customers participating in PTR events and their average load reduction, along with aggregate community load reduction during events. National Grid will track enrollment in Points and Rewards and reward earnings rates. All Clifton Park residential customers who do not opt out of AMF installation will be targeted for participation in PTR. Customers with AMF that enroll in Points and Rewards will be eligible to earn rewards for curtailing electric load at specified times. National Grid will also identify when PTR events overlap with DLC program events and examine the impact DLC program participation may have on overall curtailment of customers that participate in both programs.
VTOU Rate:	National Grid will compare the VTOU adoption rate in Clifton Park with that in the rest of the Company's service territory to test the impact of enabling technology and targeted communications on rate adoption. If TOU analysis tools are deployed, National Grid will examine their influence on adoption of VTOU.
DER	
Customer adoption of DER products and services	National Grid will test the impact of targeted communications and education on the adoption rate of DER products and services (*e.g.*, home assessments, insulation and air sealing, DLC, energy efficiency, etc.). Currently identified DER services include:

	• Insulation and air sealing, and home energy assessments • DLC, and • National Grid ETIP Portfolio. Future DER opportunities may include EVs, solar PV, and other offerings. National Grid will also monitor enrollment in the DLC program within Clifton Park and compare that to the existing benchmark of 7%.[15]
Development of new revenue streams for National Grid	National Grid will test the ability of the Company to earn revenues from generation of leads to DER providers.
CCA	
Town adoption of CCA	Should the Town decide to pursue CCA, National Grid will use demonstration-specific communication channels to help educate and inform customers about CCA and Town-specific CCA activities. These communications channels include the demonstration website, banner ads in the customer portal, HERs, and demonstration related mailings.

MILESTONES AND CHECKPOINTS

As the Implementation Plan is an evolving, working document, refinements to scope of work for Project partners and internal National Grid teams are expected as the Project progresses. Modifications will be captured in quarterly reports and meetings with Staff.

Milestones:

There are several points in the Project that will serve as critical milestones including:

- *First Article Meters Delivered to National Grid* *January 2017*
- *Verizon Connectivity to Support First Article Testing* *January 2017*
- *Meter First Article Approved* *January 2017*
- *Phase 1 User Acceptance Testing Complete* *February 2017*
- *CCA Decision by Town* *1st quarter 2017*

[15] Adoption rate is based on comparable adoption rate for National Grid DLC "Cool Kenmore" program.

- *Phase 1 Go-live Declared* *March 2017*
- *Completion of AMF Installation Expected* *May 2017*

Check Points:

Check Point	Description
Infrastructure	
AMF Opt Out:	National Grid will monitor ongoing customer opt-out rates of AMF meters. Measure: Customer opt-out rate of AMF meters. How and When: Meter opt-out rate will be assessed upon initial 30 day opt-out period, and during Project deployment. Resources: National Grid billing system and call center statistic tracking. Expected Target: Opt-out rate not to exceed 10%. Solution / Strategies in case of results below expectation: If the opt-out rate is greater than 10%, National Grid will obtain customer feedback through surveys to determine why and update the marketing strategy accordingly.
VVO System Benefits:	Measure: System level electric energy and demand reduction. How and When: VVO M&V will be conducted at the end of the Project and will include intermittent field testing and a VVO M&V report. Resources: Utilidata, National Grid Advanced Engineering Team Expected Target: • Save over 5.99 million kWh annually • Reduce demand by over 1.98 MW • Avoid over 4,216 metric tons of carbon dioxide emissions[16] Solution / Strategies in case of results below expectation: If the M&V Report shows significantly different results than anticipated, National Grid will engage the VVO partner for further examination of performance assumptions against results.
Customer Outreach and Engagement / Deep Energy Insights and Actionable Information	
Customer Outreach and Engagement and Deep Energy Insights and Actionable Information	Measure: Customer satisfaction with Project and Project-specific components such as outreach and education, customer portal and deep energy insights, electric savings (kWh, KW) and gas (dth) savings. How and When: Annual customer surveys will gather quantitative and qualitative insight to customers' experience with the Project. A baseline survey was performed in October 2016. A pre-/post-billing analysis will be performed after the Project is completed and there is sufficient consumption data available to do so.

[16] Figure calculated using EPA generic conversion: 7.03×10^{-4} (eGRID, U.S. annual non-baseload CO^2 output emission rate, year 2012 data).

	Resources: National Grid Customer Insights Team Expected Target: • Expected increase in customer satisfaction of 2%, with stretch of 5%. • 5% reduction in electricity and gas usage. Solution / Strategies in case of results below expectation: Revisit engagement approaches based on survey results and customer inputs. If survey results demonstrate lack of awareness or understanding of Project offerings, outreach and engagement tools will be revisited to re-focus communications efforts.
Customer Energy Portal Engagement	Measure: Determine customer portal engagement levels. How and When: Tracked monthly throughout Project. Resources: Engagement vendor Expected Target: • Number of customer portal users • Login rates (total by month) • Web logins (all transactions by customers) • Top 5 visited site selections (by calendar month) • Customer enrollment in Points and Rewards campaign • Cumulative customer Points and Rewards events • Points and Rewards redemption. Solution / Strategies in case of results below expectation: National Grid and its partner will analyze portal metrics on a regular basis to identify if outreach efforts need to be redirected to increase online engagement.
Price Signals	
Peak Time Rewards:	Measure: Measure customer participation and load reduction across PTR events. How and When: After each event and end of capability period. Resources: National Grid Advanced Data Analytics and Meter Data Services Expected Target: • 40-50% participation rate per event • 0.50 kW average electric reduction per customer per event Solution / Strategies in case of results below expectation: If PTR participation rates are lower than expected, the communication strategies and reward structure will be revisited.
VTOU Rate:	Measure: Customer rate adoption and load shift. How and When: Throughout Project. Resources: National Grid Advanced Data Analytics Team and /or evaluation contractor Expected Target: • Benchmark of 6-38% adoption, with target of 24% adoption for VTOU rates. • A proxy for expected load shift is under development. Solution / Strategies in case of results below expectation: If VTOU adoption rates are lower than anticipated, communications strategies will be revisited.

DER	
DER Opportunities:	Measure: Customer adoption of DER products and services introduced through Project. How and When: Over project life. Resources: DER providers, National Grid Procurement Team Expected Target: Adoption rate specific to each DER provider. Expected DER adoption rates will be developed for individual DER offerings as they are included in the Project. Solution / Strategies in case of results below expectation: Revisit DER engagement strategy.
DER Related Revenue Streams	Measure: How many DER providers willing to share DER revenues. How and When: Over Project life. Resources: DER product and service providers, National Grid Procurement Expected Target: Potential revenues from DER providers will be determined based on individual DER offerings and providers, and National Grid's ability to provide leads within customer data sharing regulations. Solution / Strategies in case of results below expectation: Recruit additional DER providers based on customer interest solicited through customer surveys. Revisit revenue stream structure.
CCA	
CCA Test	Measure: If the Town pursues CCA, National Grid will use Project-specific outreach and education channels to support customer engagement in CCA. These channels include Project-specific web, customer portal banner space, HERs, and Project-specific mailings. How and When: At CCA initiation and during CCA opt-out period, using Project channels. Resources: Town leadership and National Grid. Expected Target: Three of four Project outreach channels. Solution / Strategies in case of results below expectation: If the Town CCA opt-out rate is higher than the Town expects, National Grid will work with the Town to supplement their outreach efforts.

Conditions and Barriers

Consumer Protections

Residential customers participating in the Project will continue to be protected under the Home Energy Fair Practices Act ("HEFPA") which includes provisions addressing termination of service for non-payment, offers of deferred payment agreements to customers in arrears, and a host of other consumer protections.

Staff's Assessment report addressed the sharing of customer data with third parties. National Grid will limit sharing of customer data in accordance with Company policy[17] and the proposed "Aggregated Data Privacy Policy Statement of National Grid" filed with the Commission on November 1, 2016 in accordance with the Track Two Order.[18] Based on Staff's direction, National Grid will not be required to seek a waiver for sharing confidential customer data with Project partners working on behalf of the Company to provide analytics associated with the Project.

Channel or Market Challenges

This Project is designed to bring a multitude of options and solutions to residents of Clifton Park to reduce participants' demand. National Grid is moving forward in a purposeful manner so as to not overwhelm customers with information and communications. Monitoring the tone and frequency of communications, while also making them relevant and actionable, should help to minimize the number of customers choosing to opt out. National Grid intends to monitor the opt-out rate closely to ensure that key information such as usage alerts, price signals, and opportunities to earn rewards continue to be accessible to the majority of participants.

PROJECT STRUCTURE AND GOVERNANCE

Project Team

Executive Sponsorship

National Grid has assigned an executive sponsor for each of its REV Demonstration Projects, recognizing that active sponsorship is a critical success factor for successful project management. Executive sponsor responsibilities include:

- Accountability for the ultimate success of the project;
- Vision and leadership throughout the project;
- Time commitment and active engagement throughout the project, and
- Addresses conflicts and ensures senior stakeholders are engaged and supportive.

Core Project Team

- Philip Austen, Director Solutions Delivery - Executive Sponsor
  (Tel.: 516-545-4753/ Email: pausten@nationalgrid.com)
- Melissa Piper, Solutions Delivery - Project Manager
  (Tel.: 315-428-5002/ Email: Melissa.Piper@nationalgrid.com)
- Ara Tadevossian, Information Solutions – Project Manager
- (Tel.: 315-428-6695/ Email: Ara.Tadevossian@nationalgrid.com)

[17] National Grid Group Information Security Management, Data Privacy Policy, Global Information Security Policy, Issue 2.4.
[18] REV Proceeding, *supra* note 3, p. 157.

- John Spring, Partnerships and Joint Ventures
- (Tel.: 781-907-3694/ Email: John.Spring@nationalgrid.com)
- Paul Wassink, Customer Solutions
- (Tel.: 781-907-2681/ Email: Paul.Wassink@nationalgrid.com)
- Kara Fedors, Solutions Delivery
- (Tel.: 781-907-2244/ Email: Kara.Fedors@nationalgrid.com)

Internal Stakeholders

There are various departments within National Grid that are critical to the delivery of this Project. They include:

- Bill Project Management and Services
- Communications and Marketing
- Community and Customer Management
- I/S Relationship Network Strategy
- Legal and Regulatory
- Load Research and Analysis
- Meter Data Services
- Electric Pricing
- Strategic Communications
- Advanced Data and Analytics

Roles and Responsibilities

See Table 11, Roles and Responsibilities, below, for key Project responsibilities. Note that the roles and responsibilities in this document focus on the Project, and do not fully detail related activities.

Table 11: Roles and Responsibilities

National Grid Role / Responsibility	**Description**
Support conceptual design and lead detailed program implementation	Provide necessary data, and expertise for the Project design work
Engage community stakeholders	Gather qualitative data and interview stakeholders regarding expectations for various parts of the Project
Deploy advanced infrastructure	Work with stakeholders to obtain necessary approvals and implement infrastructure deployment
Manage and coordinate vendors and partners	Manage and coordinate third parties implementing various aspects of the Project
Deploy VTOU rate	Provide customers with educational information surrounding the VTOU rate
Secure waiver from VTOU tariff by filing a petition for Commission approval	Prepare and file petition for tariff waiver
Town of Clifton Park Role / Responsibility	**Description**
Feedback on Project plan	Evaluate National Grid Project plan
Represent residential community at-large	Represent residential constituency and serve as customer advocate for various Project components
Evaluate feasibility of pursuing a CCA	Decide if a CCA model is beneficial to the Town

Department of Public Service Staff, Public Service Commission Role / Responsibility	Description
Provide feedback on quarterly reports for Project	Review progress against Project objectives and recommend any corrective actions
Approve National Grid infrastructure proposals	Review infrastructure proposals and provide necessary approvals following appropriate review and oversight
Provide feedback to National Grid on rate plans	Review and provide recommendations on alternative rate plans that are aligned with PSC goals and provide customer value
Act on National Grid's petition for VTOU tariff waiver	Approve tariff waiver

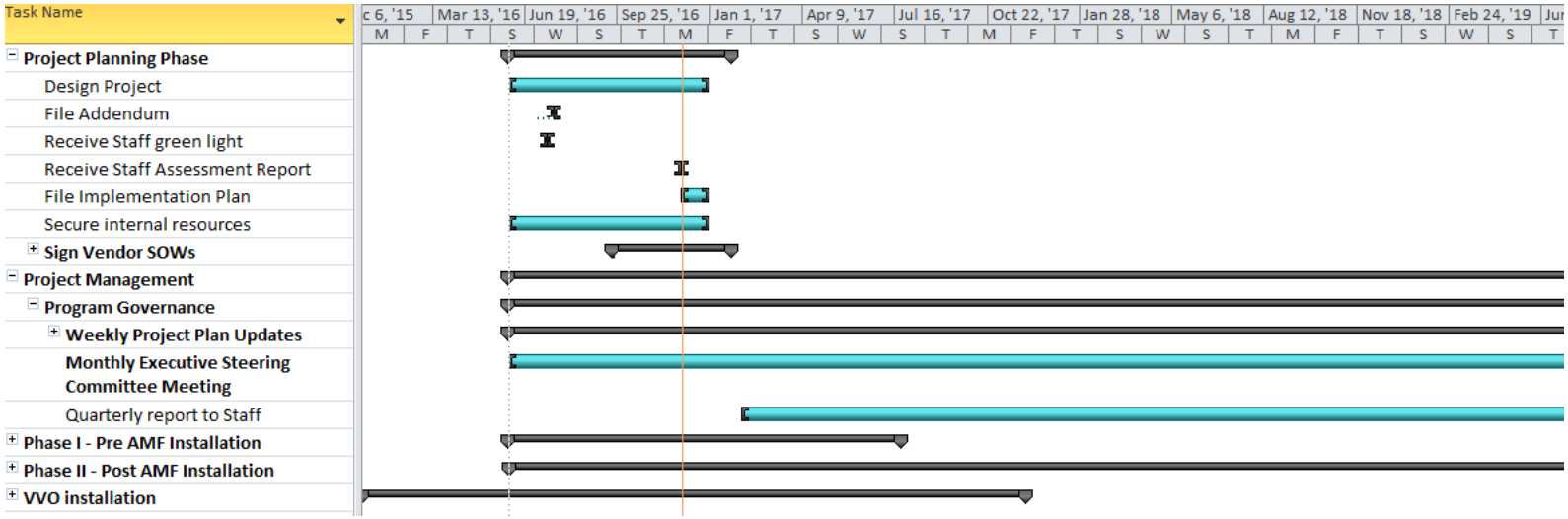
Governance

Project governance will include the Core Project Team (as set forth above) and will consist of monthly conference calls and in-person meetings at milestone points to report on Project schedule, identified risks, Project status, and the projected costs and benefits of services under development.

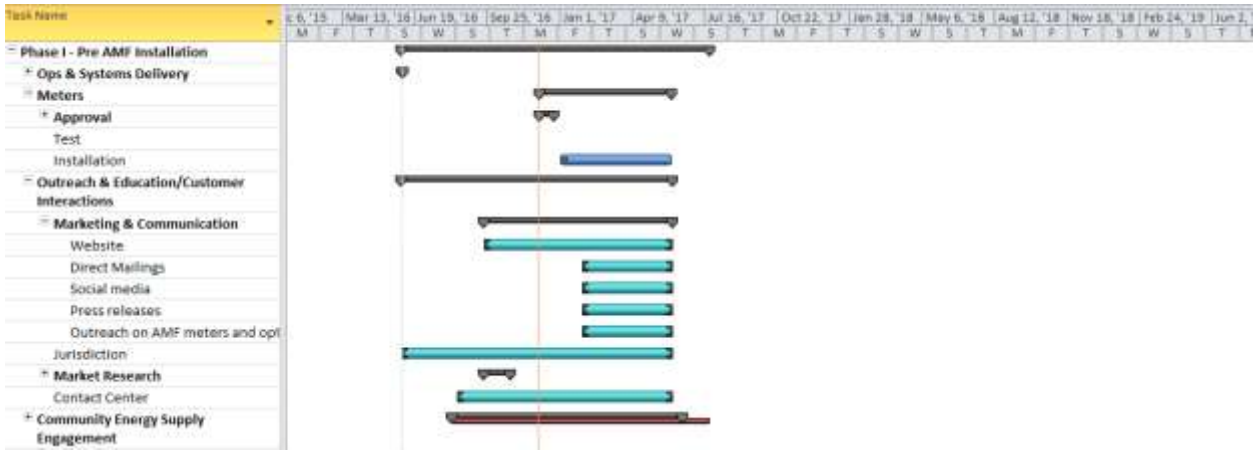
WORK PLAN

See Figure 16, Project Timeline and Milestones, below, for an overview of the Project work plan.

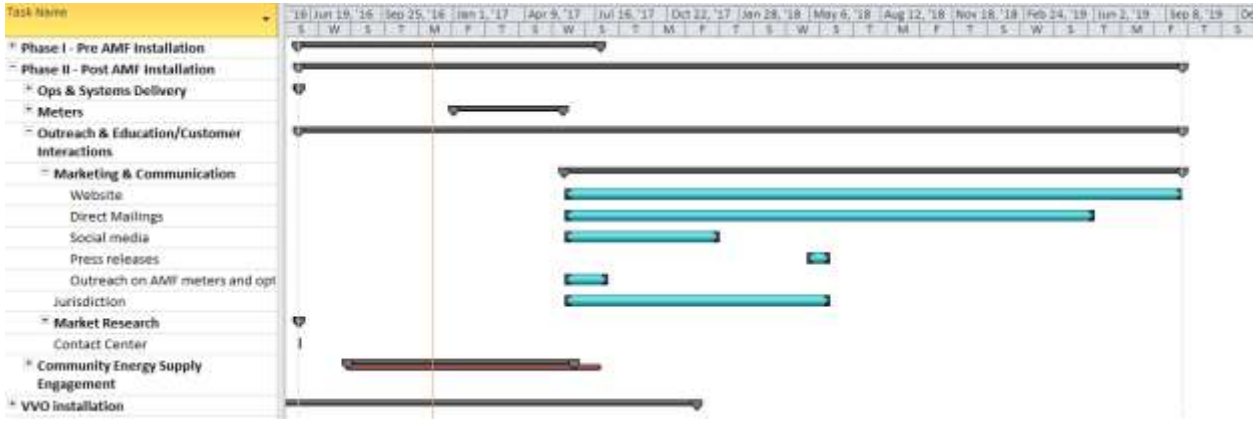
Figure 16: High Level Project Plan



Phase I: Pre-AMF Installations



Phase II: Post-AMF Installations



PROJECT BUDGET

Summarized below in Table 13 is the Preliminary Budget with estimated costs for the first three years of the Project.

Table 13: Three-Year Preliminary Budget

Expense Type	**Year 1**	**Year 2**	**Year 3**
Capital	$9,059,785	$1,393,391	$0
O&M	$7,515,597	$4,628,086	$4,222,477
Total	$16,575,382	$6,021,477	$4,222,477

National Grid has held discussions to determine levels of interest in a revenue-sharing model for lead generation for DER services. National Grid will continue to work with Staff to determine the potential for a revenue-sharing model for DER services adopted by residents, recognizing that express consent from customers is necessary in order to market potential leads to DER service providers.

National Grid will only share data with partners or vendors if the act of sharing the data complies with Company policy and New York State rules and regulations governing the sharing of confidential personal information, unless the customer provides express consent to share such information.

REPORTING STRUCTURE

Quarterly progress reports will be provided to Staff. These reports will include an overview of project progress against timeline/plan and results as they become available. The quarterly report template is provided below in Figure 17, Quarterly Report Template, and will continue to be refined as the Project progresses.

Figure 17: Quarterly Report Template

QUARTERLY REPORTING TEMPLATE

Milestones

Last Project Milestone:
Next Project Milestone:

Tasks/Timeline

Completed Project Tasks Since Last Report:
Changes or Impacts to Schedule since Last Report:
Lessons Learned:
Work Stream Coordination:

Risks

Identified Risks:
Risk Mitigation Plan:

Finance

Total Incremental Spend to Date:
Target Incremental Spend:
Actual Incremental Spend:
Incremental Spend Variance:
Non-Incremental Spend:
In-kind and grant support (specifically for REV Demo):

Additional Notes:

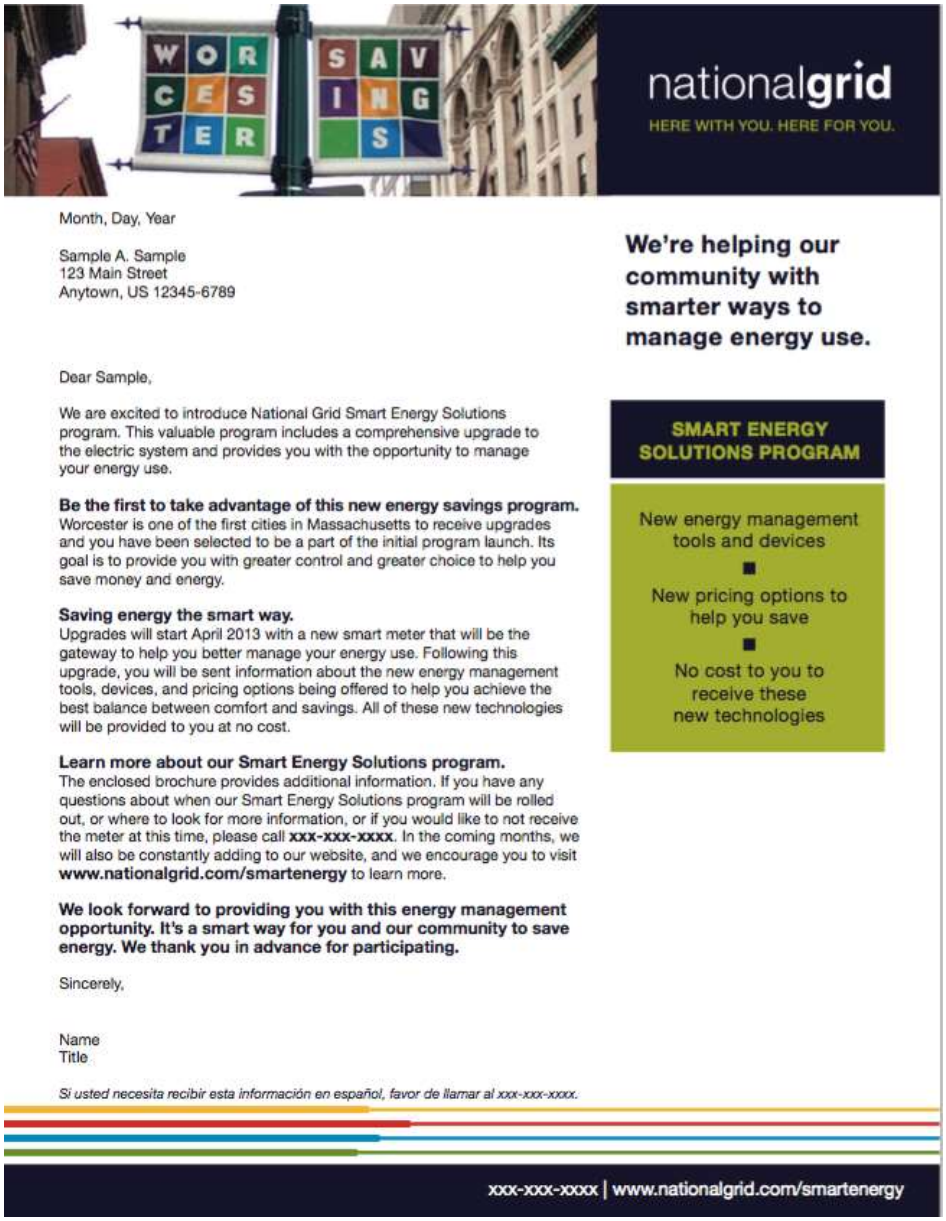
Appendix A – REV Alignment

REV Objective	Demonstration Alignment
Enhance customer knowledge and tools that will support effective management of the total energy bill	The Project leverages the capabilities of interval metering technologies on cellular networks to generate near real-time information on customers' electric and gas usage.
	This information will be shared via an interactive, customer-friendly portal as well as direct communications and alerts that educate and engage customers with actionable information that they can use to reduce their electric and gas energy use.
Market animation; leverage customer contributions	The Project animates the market by leveraging partnerships with DER providers in efforts to achieve wider deployment of DER.
	Additional energy industry-related services are animated by the Project, including technology and platform developers and providers delivering actionable information.
System wide efficiency	Through Peak Time Rewards, the Project tests the potential for mass-market participation in electric distribution system management opportunities.
	Participants in the Project will receive AMF meters and all customers in Clifton Park will benefit from VVO installation to further improve overall electric system efficiency.

System reliability and resiliency	The Project provides opportunities to manage the electric distribution system with aggregated mass-market demand-response and VVO.
Reduction of carbon emissions	The Project supports Clean Energy Standard goals of carbon emission reductions through reduced energy consumption.
Partnerships with third-party service providers	The Project has multiple, market-animating partnerships with DER, technology, and platform providers. It is designed to promote DER adoption.

Appendix B – Outreach and Engagement

Sample Smart Energy Introduction Letter to Customers



Sample Bill Insert from National Grid's Worcester Smart Grid Pilot

Sample National Grid Social Media Messages