National Grid
Advanced Metering Infrastructure (AMI)
Semi-Annual Metrics Report

May 31, 2024

Niagara Mohawk Power Corporation
d/b/a National Grid

nationalgrid

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1. Introduction

In accordance with the New York Public Service Commission's ("Commission") *Order Authorizing Implementation of Advanced Metering Infrastructure with Modifications* (November 20, 2020) (the "Order"), Niagara Mohawk Power Corporation d/b/a National Grid (the "Company" or "NMPC") submits its May 31, 2024 Advanced Metering Infrastructure (AMI) Semi-Annual Metrics Report.[1] The AMI metrics contained in this report are outlined in Exhibit AMIP-7R of the Order, specifically with respect to customer engagement, program operations, fiscal spend relative to the approved budget, and projected spend. Where metrics have not yet commenced, the Company has provided a brief qualitative update in the appropriate sections below.

2. AMI Program Progress

Over the past six months, the AMI roadmap has guided the program in delivering functionality and capabilities to enable electric meter installation to begin and ramp up to full-scale. In April of 2023, the program initiated an electric-only "soft launch" in advance of scaled deployment with six meters installed on April 24, 2023. Throughout 2023, the Company ramped up AMI meter deployment in Central Division. In 2024 deployment operations expanded into the Eastern Division. The Company continues to make progress toward its ability to significantly scale deployment. The ensuing bullets highlight actions taken in relation to deployment and implementation, engagement with stakeholders, plans for future implementation, and risks and mitigation.

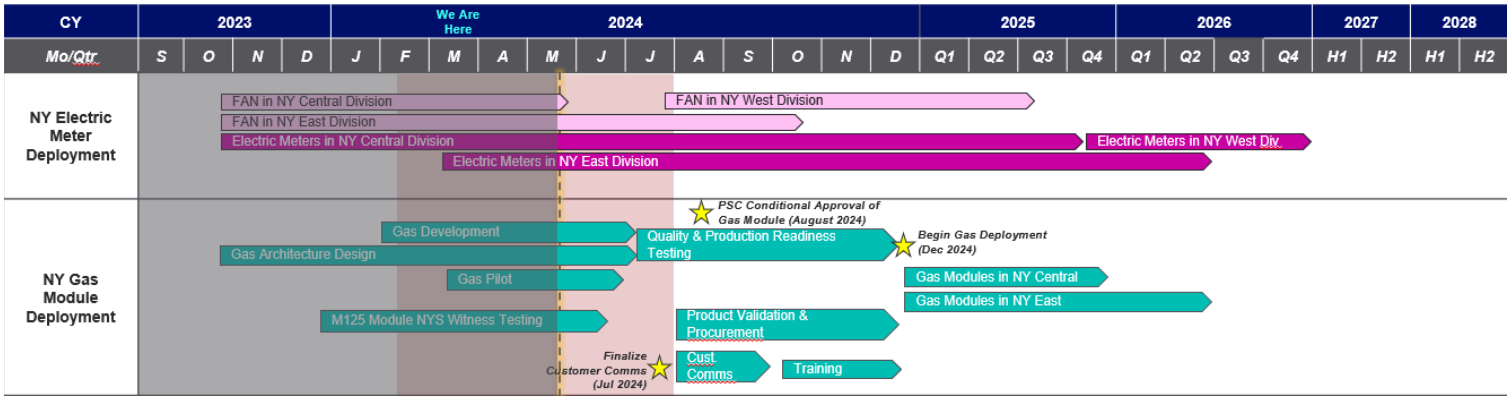

Figure 2.1: New York AMI Roadmap

- **Field Area Network ("FAN"):** The Company continues to follow its FAN deployment plan (subject to change), which began in the Central Division, moved into the Eastern Division, and will complete in the Western Division. The AMI Program anticipates FAN installation to be completed in 2025, whereas meter and module deployment will continue into 2027.

[1] Cases 17-E-0238 and 17-G-0239, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a National Grid for Electric and Gas Service ("Rate Case Proceeding"), *Order Authorizing Implementation of Advanced Metering Infrastructure with Modifications* (November 20, 2020) ("AMI Order").

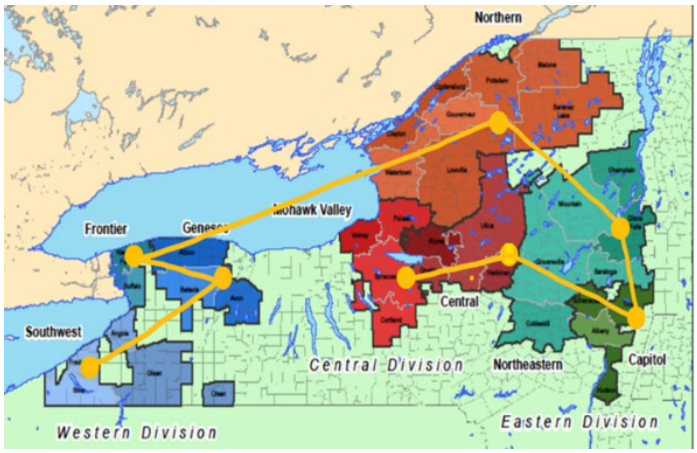

Figure 2.2: Network Deployment Sequence (beginning in Central NY)

- As of April 30, 2024, the Company has deployed over 3,199 FAN devices in the Central and Eastern Divisions. FAN deployment planning for the Western Division has started and deployment is anticipated to start June 2024.

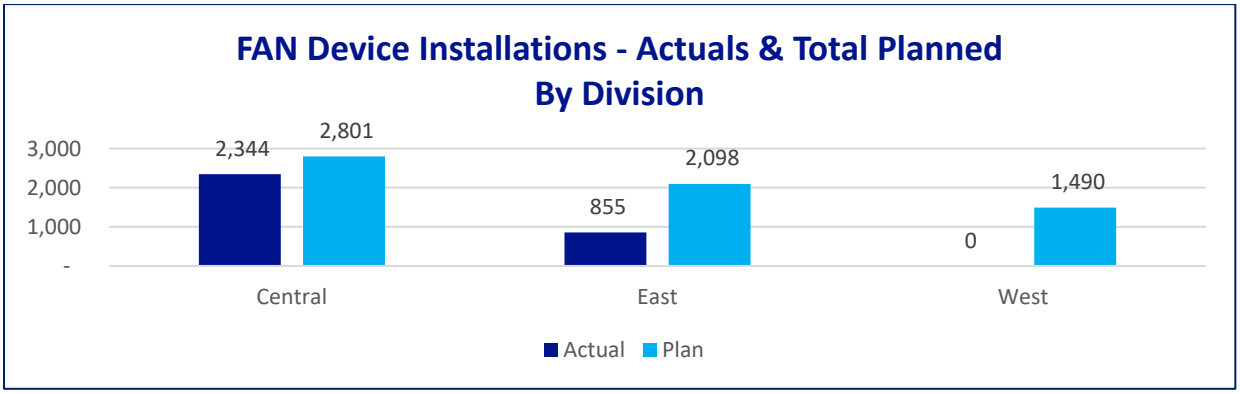

Figure 2.3: FAN Installations as of April 30, 2024

- **FAN Battery Backup Solution:** National Grid has been working with the Department of Public Service Staff ("DPS Staff" or "Staff") to implement a battery backup solution to approximately 20% of the grid routers that will be used to provide extended operation of the FAN infrastructure. This solution is expected to provide network backup for up to fifty-five percent of the Company's customer base. This involves a hybrid approach whereby the most densely populated areas will leverage pole mounted extended battery backup systems installed directly on distribution poles, while also augmenting the network coverage by using solar-powered mobile connected grid routers. The Company plans to install 300 units of the pole mounted extended battery backup system and 18 solar-powered mobile connected grid routers. The current target for initial deployment of the pole mounted solution is June 2024 and will begin first in the Western Division to synergize with the FAN deployment. The Company procured 5 additional solar-powered mobile connected grid routers with the plan of procuring an additional 12 units in the coming months to align with the meter deployment timeline.

Figure 2.4: Pole Mounted extended battery backup solution and mobile connecting grid router

- **AMI Meter Deployment:** In April of 2023, the program initiated an electric-only "soft launch" in advance of scaled deployment by installing six meters to volunteer customers that are also National Grid employees. As of April 30, 2024, the company has deployed over 130,879 electric meters in the Central and Eastern Divisions. The Company continues to deploy a customer-first approach, which is evident through several recent successes. With meter connectivity currently at 99%, the prioritization to identify, troubleshoot and resolve network and meter health issues was successful. Meter and Network device firmware patches were designed and released to increase and maintain a positive meter connectivity rate, preserving the existing functionalities associated with customer safety.
- The Company faced deployment challenges associated with hiring and maintaining sufficient meter installation resources. Over the past quarter, the Company has partnered with the installation contractor, Utility Partners of America (UPA), to hire, train and retain resources. The installation contractor now has over 120 installation technicians across the Central and East regions, with a defined hiring plan to track and monitor hiring resources against plan to maintain overall installation schedules.
- As the Company deployed in a defined area, consistent themes are developing requiring detailed planning and coordination to successfully install an AMI meter. Return-to-utility (RTU) is a substantial portion of the follow-up work, requiring Company technicians to install the electric meter. These instances include work required to repair service, repair meter channel, inactive accounts, customer access or obstructions preventing installation. Additionally, as the mesh network is deployed, there are pockets of poor network connectivity requiring the use of passive electric meter antennas.
- Passive antennas are remote antennas that increase meter frequency energy and will be used in situations where there is a need to improve meter connectivity and reception to network from difficult to reach meter locations (elevator rooms, second basement, meter rooms, etc.). National Grid has taken a customer-focused, transparent approach and plans to perform direct outreach to customers for this installation where the devices are needed.
- The Company continues to monitor installation safety, performance, customer interaction, customer engagement, and opt-out intents throughout the deployment process. The Company is monitoring safety compliance through field visits and assessments and comparing to the self-

audit performed by the installation contractor. The Company monitors overall technician efficiency, total quantity of technicians actively installing meters daily, RTU's and meter installations against plan on a weekly basis. Additionally, the Company is collecting and monitoring customer interaction and engagement feedback to provide full context of the installation contractors performance.

- In parallel with the above-described deployment activities, National Grid and L+G continue to work with DPS Staff to obtain regulatory approval for the additional electric meter forms and gas modules needed to accommodate the upstate NY deployment plan.
- **Electric AMI Meters:**
    - The Company had received Commission approval of the E360 electric meter form being deployed.
    - The Company has submitted a Letter of Intent (1/2/2024) to utilize a new 1.2 WiSUN version of the E360. The current plan is to begin internal testing of the E360 1.2 WiSUN meter in July 2024 and submit a petition to begin witness testing later this summer.
    - In addition, the Company expects to deploy the cellular variant of the E360 1.2 WiSUN; petition and witness testing is expected early 2025.
    - The Company is currently seeking Commission approval of an E660 with Ferrite electric meter. E660 with Ferrite witness testing was successfully completed in March 2024, and Landis+Gyr is currently addressing related follow-up questions from DPS Staff. If similarity approval is obtained, the Company intends to begin deployment of the E660 meter in late 2024.
    - The Company also expects to deploy the cellular variant of the E660 with Ferrite and the petition and witness testing is expected in the Fall of 2024.
- **Gas AMI Modules:**
    - The witness testing of the M125A and M125D gas modules, which would accommodate approximately 93% of gas customers, is progressing well with expected completion in June 2024. The Company has filed a letter with the Commission seeking conditional approval to deploy these modules. The Company also intends to submit a second petition for the Rev B of these modules in the coming months.
    - The Company is working with DPS Staff to complete design reviews of a M125B module to be used with rotary meter applications (~1.5% of gas customers), and a M225 module to be used for commercial and industrial applications (~1.5% of gas customers). Upon completion of these design reviews and independent third-party testing, the Company plans to submit separate petitions to initiate witness testing.
    - The Company intends to deploy gas modules beginning in December 2024 of the M125A and M125B modules, focusing on areas with strong network health. The Company will also look for opportunities to synergize gas module installations with dual fuel customers that have not had an electric meter installed.
    - Finally, the Company is exploring the use of smart gas meters to accommodate a portion of their meter population (~4% of gas customers). These plans and schedules will be fully vetted with Staff before submitting a subsequent petition.

- **Digital Process Design:** The Digital Process Design effort continues to make progress with 'fast follow' functionalities that will add value for customers above AMI meter core functionality. AMI Technology and Software continues to progress in the following ways:

- The billing systems are proving to be highly accurate and efficient.
- Data is beginning to increase engagement with customers and improve satisfaction, a trend that the Company expects to continue in line with deployment.
- Specifically for engagement, the Company has begun testing the Sense app with select customers, giving them real-time energy insights at no cost. Customer feedback will be captured and integrated into the Customer Engagement Plan going forward.
- Open integrations enable flexibility across AMI, "futureproofing" the system to handle new systems, apps, APIs, dataflow, and more.
- Over the air (OTA) updates are enabling the Company to add features on a regular basis to endpoints without needing to physically update them.
- Agile build methods have allowed the Company to pivot multiple times, including data storage to optimize pricing and APIs with the App Center integration.

- **Customer Engagement:** Customers continue to be a primary focus for the Company as it deploys more smart meters. Communications to customers aim to follow a comprehensive campaign for smart meter awareness. The Company is keeping its customers engaged, beginning with awareness (90 days prior to meter installation), empowerment (60 days prior to meter installation), and enablement, which brings meter installation messaging and smart meter education to customers (30 days prior to meter installation). The Company launched its mass media marketing campaign, targeting customers in regions of active smart meter deployment.

- **Market Intelligence:** As National Grid rolls out smart meters in its UNY territory, the Company's Market Intelligence team is monitoring customer awareness and experience with smart meters at three touchpoints along the customer's journey (pre-installation; 1-2 months post-installation; and 6 months+ post-installation). To date, the Company has conducted four waves of the Pre-Deployment Baseline Survey targeting customers by zip code in Central, Capital, Mohawk Valley, and Northern regions, as well as a handful of customers in overlapping zip codes within the Northeastern Region. In total, 1,928 customers have completed the Pre-Deployment Baseline Survey. Additionally, as of December 2023, the Company has been fielding the Post-Installation Survey to customers 1-2 months after receipt of their smart meter. Results to date include feedback from 696 customers who received a meter between September 2023 and February 2024. A Long-Term Tracking Survey is planned to begin this summer and will continue to monitor changes in smart meter awareness, satisfaction and attitudes of customers who have had their smart meter for at least 6 months. Additionally, the survey will capture additional insights to address topics of relevance at a given time, such as new product/service offerings or communications.

- **Change Management:** The Company is also working with employees to ensure that they have the information and resources necessary to confidently adapt to the new ways of working with AMI. To drive a comprehensive employee experience, the AMI Change Management Team is delivering targeted internal stakeholder engagements and deploying meaningful internal communications. The AMI Training Team is currently developing and delivering a variety of

trainings to stakeholders highly impacted by AMI, including the following groups: Contact Center, Customer Metering Services (CMS), Overhead Line, AMI Operations Center (AOC), Account Maintenance Operations (AMO), and more.

- **AMI Roadmap:** In the next six months, the AMI program roadmap projects the release of capabilities and functionality to enable gas deployment, as well as add automation and resilience to the electric and gas deployment efforts. Reaching these milestones will enable the NY AMI program to maximize its deployment rates and optimize customers' experience.

3. Customer Engagement Metrics

3.1. Awareness

Customer Engagement

The Company continued implementing its customer engagement plan for 60 and 30-day communication initiatives ahead of meter installation. During the reporting period, the Company also launched its 90-day communication, which included mass media communications such as radio advertisements, social media posts, online banner ads, billboards, bus wraps, Spotify ads, and newspaper ads. The billboards were rolled out in the Cortland area in October and will continue to roll out to new regions/communities based on the deployment schedule.

Figure 3.1.1: Sample of mass media communications

The Company has sent over 650,000 pieces of communication (60 and 30-day communication initiatives) to customers from program inception through April 30, 2024. Figure 3.1.2 below shows the number of 60/30 Day communications sent by calendar year quarter.

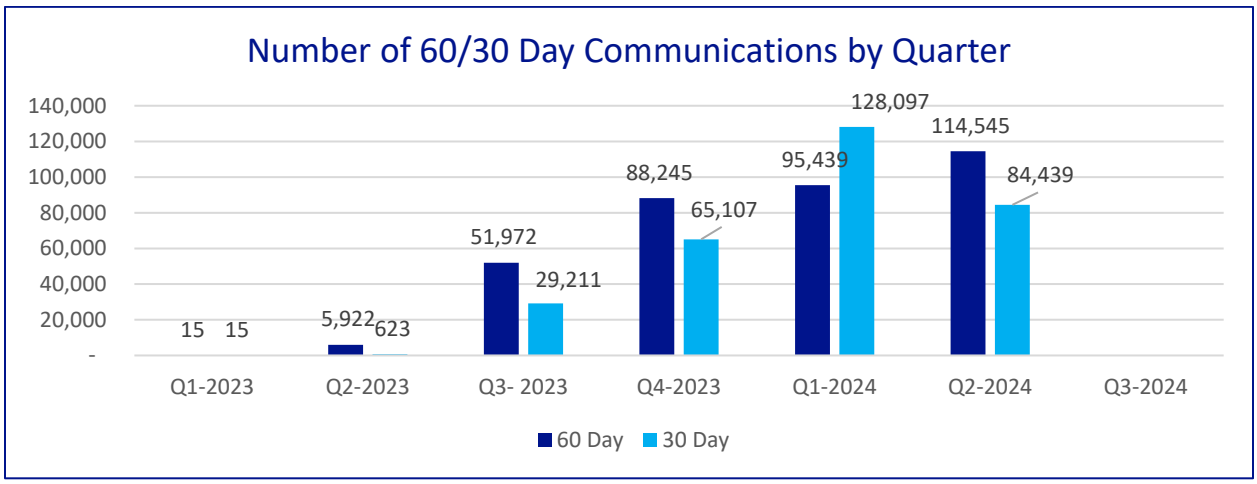

Figure 3.1.2 Smart Meter Communications sent by Quarter.

The Community and Customer Engagement team plans to review and enhance communication pieces mid- 2024 based on feedback provided by customers, surveys, and field and office staff. Further, the Company continually updates frequently asked questions (FAQs) on its website based on inquiries and concerns raised by customers, field employees, and/or customer service representatives.

Community Engagement Events

The Company has participated in and conducted multiple outreach events and community forums to enable discussions, and to answer questions regarding the Company's Smart Meter Program including deployment schedules, the installation process, and online data presentment. Table 3.1.1 shows the types of events attended and how many. Consumer advocate expos and senior events help target low to moderate income customers. During the current reporting period there have been 10 events in the Central Region and 8 events in the Capital Region. Events will continue to be scheduled throughout deployment generally aligning with meter installations.

Type of Community Event	CY2023	CY2024 (at 4/30)
National Grid Consumer Advocate Expos	3	3
Senior Organizations		3
Public Libraries	9	2
Municipality (e.g. town board)	4	1
Professional, social organizations	1	3
Youth Education	2	1

Farmers Markets	2	1
Elected Official's Events	2	
National Grid Internal Employee Events	2	
Other	2	
Total	**27**	**14**

Table 3.1.1: Smart Meter Community Engagement Events

In general, customers have responded positively to the smart meter roll out. They like the idea of having access to a visual representation of their energy use, are positive about the automatic power outage detection, and understand that the current metering infrastructure has nearly reached end of its useful life. Frequently asked questions include whether they need to be home during installation, especially if they are 'snowbirds', if it's safe for the workers because they have a backup generator, what happens if they have an inside meter, and if there are changes to how they can pay their bills. As new concerns are identified they are typically addressed in the FAQ section of the Company website.

In addition, community leaders across the Upstate New York service territory are slated to receive a semi-annual smart meter program update on a semi-annual basis. The most recent letter was mailed in March 2024. This letter series provides community leaders with updates on where deployment has occurred, how it's going, and where deployment can be expected over the next several months.

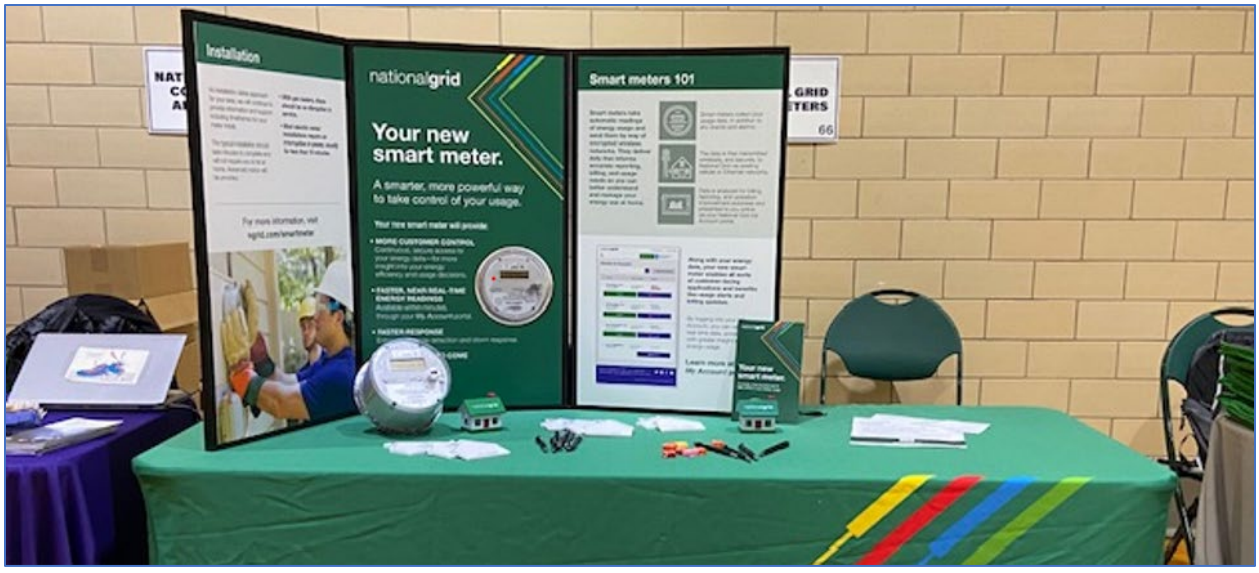

Figure 3.1.3 Smart Meter Community Events Table

Market Intelligence

As the Company rolls out smart meters in its UNY territory, the Market Intelligence team monitors customer awareness and experience with smart meters at three touchpoints along the customer's journey (pre-installation; 1-2 months post-installation; and 6 months+ post-installation).

The Pre-Deployment Baseline Survey is fielded to customers prior to the start of 90-day communications in a given geographic area and is designed to establish a baseline measure of awareness, interest, and attitudes towards smart meter offerings prior to formal communications launch. This is valuable information for the Company to understand the "starting point" of where customers are at in terms of smart meter knowledge. The Post-Installation Survey is fielded to customers 1-2 months after receipt of their smart meter. This survey is designed to monitor changes in smart meter awareness and provide insights into the installation experience. This survey was first launched in December 2023 and will be fielded monthly through the duration of deployment.

The findings in this report present a combination of results from the two surveys conducted between July 2023 and April 2024 and encompass post-installation insights from customers who received their smart meter between September 2023-February 2024; final pre-deployment insights from the Central, Capital, Mohawk Valley, and Northern regions; and initial pre-deployment insights from parts of the Northeast.

Region	Baseline Survey	Post-Installation Survey
Central	623	696
Capital	499	
Northern	476	
Mohawk Valley	270	
Northeast	60	
Total	1,928	696

Figure 3.1.4: Survey Participation to Date by Region

The Company's marketing communications are designed to educate our customers, and the data indicates that they are effective.

The Company is targeting 80% awareness of "Smart meters" at 6 months post installation. In all regions measured, customers have a shallow in-going depth of understanding of smart meter technology prior to exposure to our communications. At 1-2 months post-installation, overall awareness among customers who received a smart meter increased significantly compared to baseline, jumping from 63% awareness of the term prior to communications to 94% post-installation.

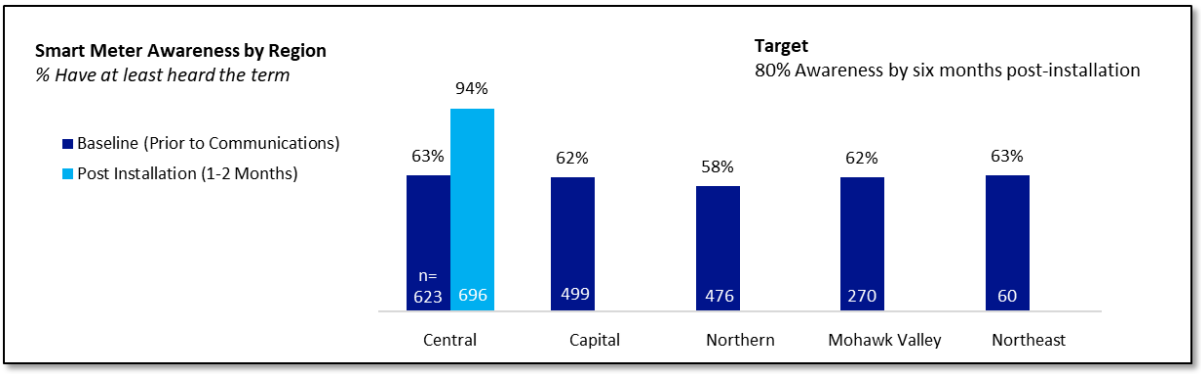

Figure 3.1.5: Baseline awareness of smart meter (By Region)

In addition to increased awareness, a large majority of customers are highly satisfied with the Company's efforts to inform them about the smart meter installation (69%); and strongly agree that communications were timely (78%), easy to understand (74%) and provided all the information they needed (69%).

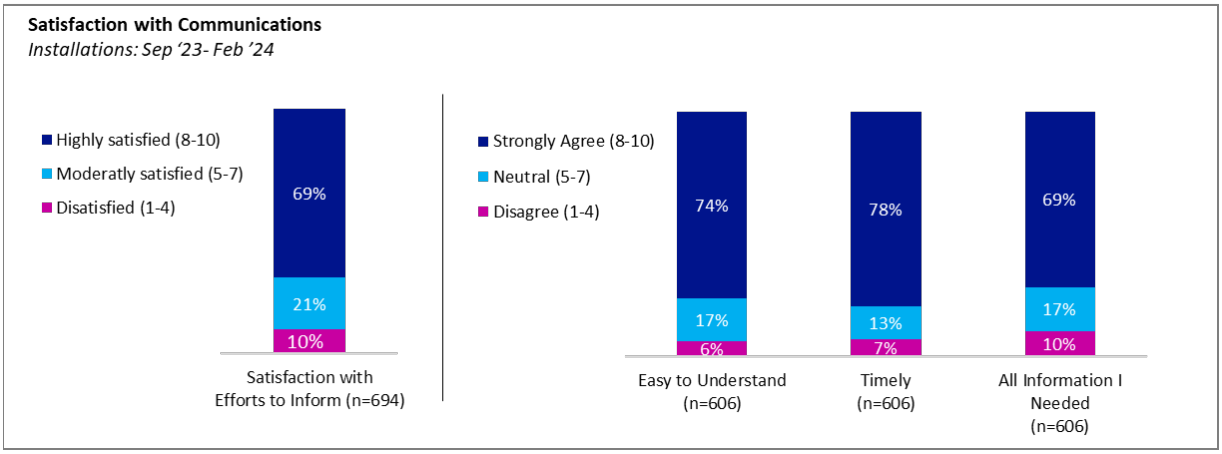

Figure 3.1.6: Satisfaction with Communications Efforts

Customers are largely satisfied with the installation process as well, with around three quarters highly satisfied (76%). A moderate proportion (61%) of customers either spoke to or saw an installer during their meter installation. Most who did interact with or see the installer feel the installers were courteous/respectful (85%), had a professional appearance/manner (91%), and left the surrounding area undamaged (85%).

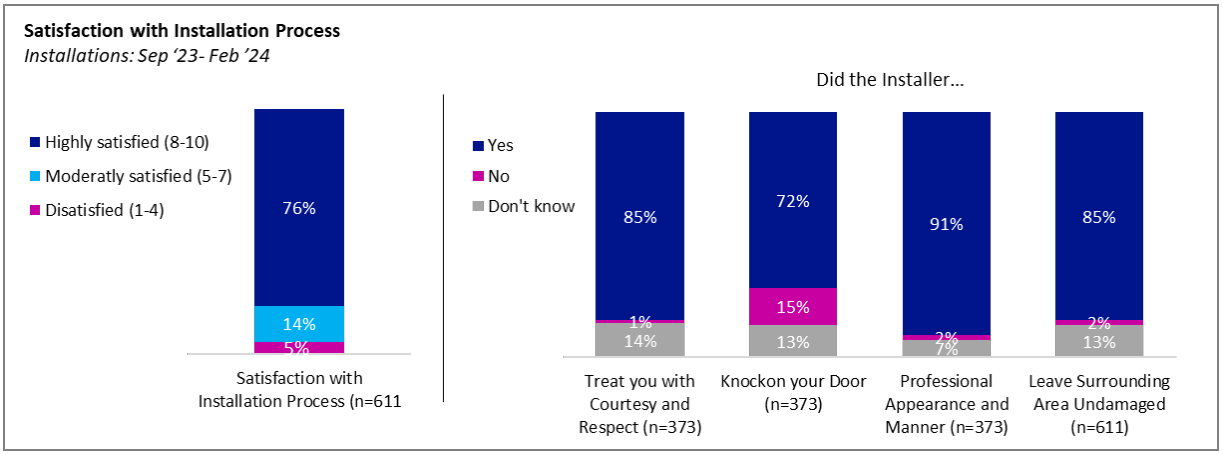

Figure 3.1.7: Satisfaction with the Installation Process

3.2. Enablement/Empowerment

Customer Energy Management Portal

The Company's website has been enhanced to show the customer's 15-minute interval data through several views (daily view, bill period view, etc.). Customers are also able to retrieve their usage data in a near-real time manner to see what their usage has been in the past 24 hours. They are also able to see their 5 highest usage days within a bill period and can drill down into any of those days to understand their detailed usage within each day. These capabilities will educate customers on their usage patterns and provide insights to better-manage their energy usage.

This same high-level load disaggregation will also be made available to the Company's customer service representatives for customers that call service centres with questions regarding their energy usage and bills.

Figure 3.2.1 Graphical Representation of Energy Usage and Costs

The Company has also enabled proactive alerts that are triggered when the average usage for the current billing period is trending to exceed 25% more than the same billing period in the previous year. The alert is sent in the middle of the bill period, allowing the customer to make behavioural changes with enough time to influence the next bill.

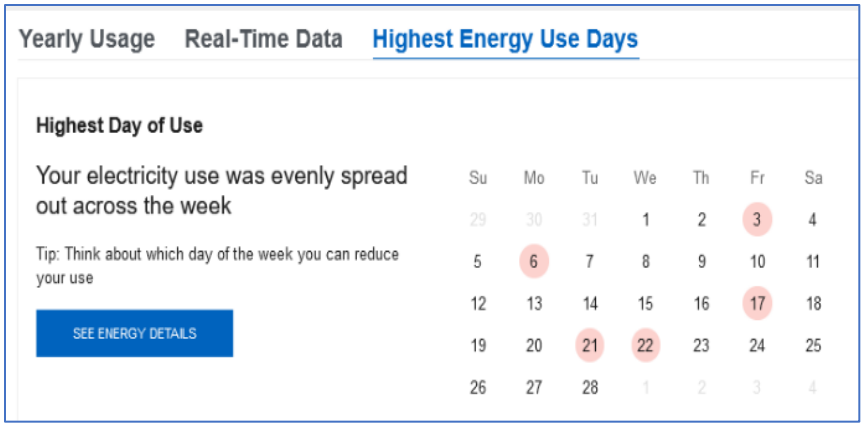

Figure 3.2.2: High Energy Use Days

The Company plans to report Customer Energy Management Platform (CEMP) performance metrics in future semi-annual reports and quarterly program updates with DPS Staff. These metrics will include number of customers with AMI/smart meters that have logged on to the platform, how many have returned to the portal, and how many have signed up for different notifications (e.g. high usage alerts). Additional information regarding which widgets are visited will be included.

According to the post-deployment survey, nearly half (47%) of customers who received a smart meter are aware of CEMP. This is similar to awareness compared to baseline (53%). However, among those engaging with CEMP and its features, perceived usefulness of CEMP is higher post-smart meter installation (67%) compared to baseline (55%).

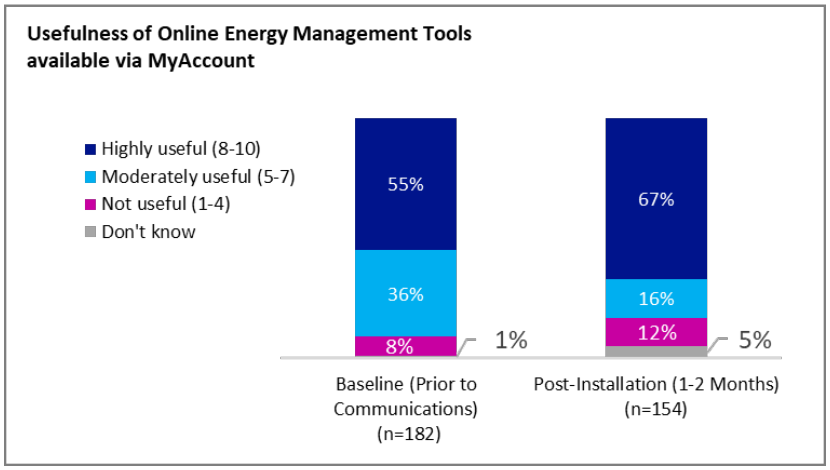

Figure 3.2.3: Usefulness of CEMP

Grid Edge Computing - Load Disaggregation

The Company is deploying next-generation AMI technology (commonly referred to as smart meters) with an embedded grid-edge computing platform, a first of its kind in the world. This innovation enables a range of use cases not possible with the previous generation of AMI, unlocking new value for customers such as appliance-level load disaggregation and a real-time

power meter. Load disaggregation will provide significant customer benefits, including higher control and automation, improved energy management, and increased home awareness and reliability.

The Company is partnering with a third-party vendor, Sense, to deliver appliance level usage data to our customers through a mobile application. The Company is taking a very cautious approach to ensure this disruptive technology is well understood and managed appropriately. The mobile application was released to a small group of 4 customers to test the infrastructure and integrations. The app is now being released to additional customers with an intent to learn about customer's experience and perceptions. This knowledge shall enable the Company to develop appropriate customer engagement and support plan when the mobile application is ready to be used by all customers.

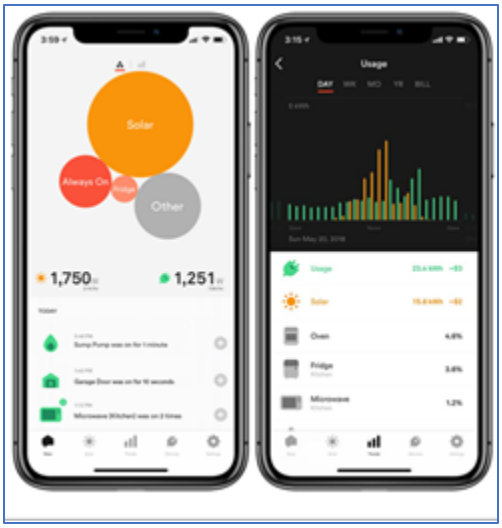

Figure 3.2.4: Sample Sense mobile platform

3.3. Green Button Connect My Data

National Grid enabled Green Button Connect My Data ("GBC") for all Upstate New York customers on March 31, 2021. Once authorized by the customer, GBC shares relevant customer data with certified third-party companies. To qualify, third-party companies must enter into a Data Security Agreement and execute a Self-Attestation.

As of April 26, 2024, fifty-three (53) qualified third-party companies have registered with the Company's Green Button Connect platform. A list of authorized third parties can be found on the Company's website.

The Company has streamlined the third-party registration process by making it possible for third parties to fill out the Data Security Agreement and Self-Attestation forms online instead of having to complete them in hard copy. The Company's GBC administrator receives an automated message prompting them to go into the system to review and approve each third party. Once approved,

third-party companies will receive an email notifying them of their approval and will receive access to designated customers' energy data.

The Company intends to further expand this program to include MV-90 and AMI meter data for the Niagara Mohawk service territory.

4. Operational and Program Metrics

4.1. Deployment

The Company continues to make good progress with the implementation of back office technical systems, introduction of processes and tools, and development of requisite capabilities. Deployment continues to afford opportunities to test end-to-end system integrations and make refinements based on lessons learned, while mitigating potential risk.

In effort to reach fully scaled deployment, the Company is working closely with Utility Partners of America ("UPA"), the installation partner, along with system integrations to their work management system, Ensight+. UPA deployment activity began in August 2023 and continues to support most of the residential meter/module installs for the program. UPA continues to increase resources and integrate processes and systems needed to be successful.

As the Company scaled its deployment, it identified minor issues related to communication firmware, resulting in pockets of delayed meter registration and the need for manual meter reads to minimize customer impact. In partnership with L+G, the Company launched a team to monitor performance, evaluate the root cause, test, and deploy solutions to support the connectivity of meters. The team is continuously improving with firmware upgrades, while continuing to measure and monitor daily performance that would support full scale deployment.

Table 4.1.1, below, shows the four-year deployment plan by program year described in the filing and subsequent Commission Order. Note that these counts represent total endpoints and include both electric meters and gas modules. While delivery on the original volume of total endpoints is still the goal, the impacts associated with gas module availability and non-communicating electric meters have affected the forecasted endpoints to be deployed in each program year. The Company will continue to communicate these impacts, if realized, in subsequent updates to Staff.

Deployment Program Year	Original Deployment Plan (Total Endpoints)	Revised Deployment Plan (Total Endpoints)
Year 1 (7/23 – 6/24)	485,000	235,000
Year 2 (7/24 – 6/25)	849,000	1,000,000
Year 3 (7/25 – 6/26)	849,000	900,000
Year 4 (7/26 – 6/27)	165,000	175,000

Table 4.1.1: Projected Meter Deployment Count by Deployment Year

As of April 2024, the company has deployed over 130,879 AMI smart meters in the Central and Eastern Divisions. Figure 4.1.1 below shows the AMI meter installations by quarter.

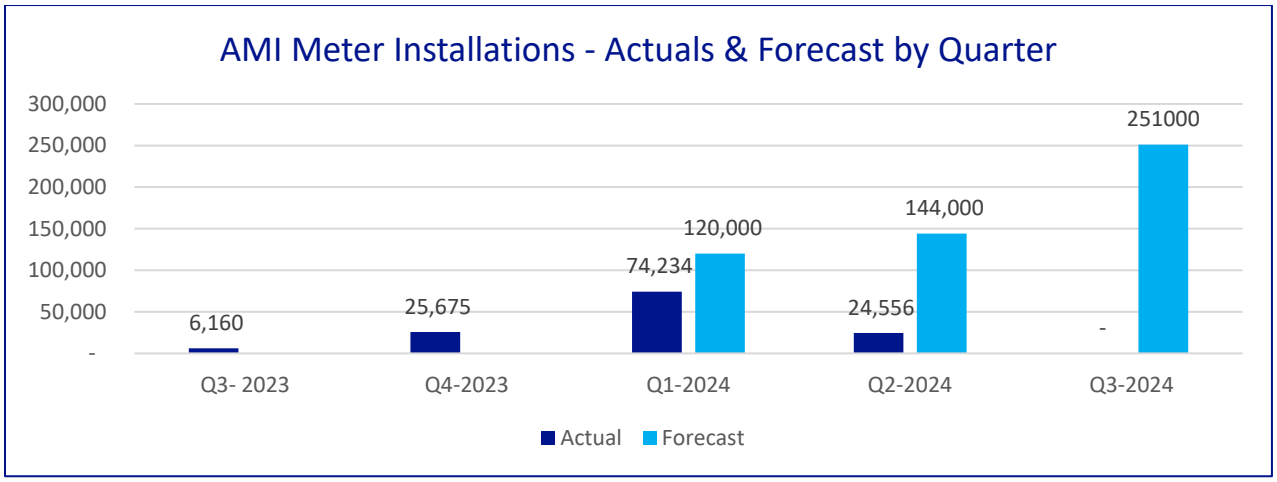

Figure 4.2.1: Progress of Meter Installation

4.2. AMI Meter Opt-Out Intents

Since AMI deployment started, the Company has received AMI meter opt-out intent requests from 1,922 customers as of April 29, 2024. This represents 1,914 electric meters and 1,139 gas meters, noting that some customers have electric-only service or gas-only service, and some have both electric and gas service. Based on the number of unique communications sent out, the rate of opt-out intent stands at 0.44%. Once a customer submits their intent to opt-out, they are provided additional information outlining the loss of benefits, additional fees, next steps, links to additional information, and instructions on how to opt back into the smart meter installation pool. To date, no non-communicating meters or associated fees have been implemented for customer meter opt-outs.

Regions	Total Number of Bill Accounts	Total number of Electric Meters	Total number of Gas Meters	Total number of Opt-Out Intents Cancelled
Capital	105	105	48	4
Central	1,627	1,621	1,036	82
Frontier	37	37	0	1
Mohawk Valley	90	88	52	0
Northeast	18	18	3	0
Northern	15	15	0	1
Western	30	30	0	1

Grand Total	***1,922***	***1,914***	***1,139***	***89***

Table 4.2.1: AMI Opt-Out Intents by Region and Fuel Type

Table 4.2.1 shows Opt-Out Intents by region by bill account, electric and gas service. To date, there have been 89 customers who have cancelled their opt-out intent and will now receive an AMI meter.

Opt out reasons	*Number of Bill Accounts*	*Percentage of Opt Out Intents*
Don't Want / Personal Preference	**629**	**33%**
No reason given	**580**	**30%**
Other or Multiple Reasons Stated	**278**	**14%**
Health / Safety	**276**	**14%**
Privacy / Data Security / Trust	**159**	**8%**
Total	***1,922***	***100%***

Table 4.2.2: Distribution of Opt-Outs by Reason

Table 4.2.2 shows the distribution of opt-out reasons to date. 'Personal Preference' (customer stating they do not want the meter) has been the most common reason for opting out, with 'No Reason Given' being a strong second category.

The Company has begun to do some additional research around the two biggest opt-out reason categories and will continuously work to improve customer communications around these areas.

In January, the Company launched a marketing campaign on Smart Meter Health, Safety & Privacy which was sent to all customers that have opted out, with the goal of customers cancelling their opt out and electing to receive an AMI meter. Since the launch of that campaign, 65 customers have cancelled their opt-out.

The Company intends to track opt-outs from vulnerable populations such as medical emergency, elderly-blind-disabled, and income eligible. These values will be reported in future reports and quarterly updates.

5. Billing

On October 25, 2023, the Company filed a petition to update residential bill estimation procedures that align with AMI technology and capabilities. The Company will continue to collaborate with Staff on refining those procedures and anticipates filing a revised petition to address needed corrections in the coming months. In addition, the Company is awaiting response from the Commission on its petition filed June 23, 2023 regarding remote connect and disconnect fees.

AMI metrics include reporting the percentage of bills that were estimated for AMI accounts during the reporting period with a target of no more than 1.5%. For the period of November 2023 to April 2024, 314,240 bills were produced of which 2,289 were estimated. This resulted in an estimated bill rate of 0.73%, significantly below the target rate.

The AMI Operations Center ("AOC") is responsible for meter health and data integrity. The mission is to ensure that the meters are online, communicating and bringing in accurate, valuable reading data to the billing stream. The AOC focuses on Meter Data Management System ("MDMS") operations and exceptions, as well as mitigating meters that are not communicating. The AOC works with multiple internal stakeholders including Account Maintenance and Operations ("AMO"), Customer Meter Services ("CMS"), Meter Field Deployment ("MFD"), Revenue Assurance, the Unified Technology Operations Center ("UTOC").

Once there is sufficient residential customer AMI data, the Company will use the data to develop new delivery rate options.

6. Outage Management

The company is building integrations to automatically pass electric meter power loss notifications (aka "Last Gasps") from AMI-enabled meters to initiate outage restoration actions in the field. ~~The~~ **Smart Data for Outage Management (SD-OM)** is a L+G Application Module within MDMS that serves as an intelligent intermediary between Command Center and Outage Management System and performs necessary filtering of outage notifications from the meters before forwarding them to OMS/ADMS. In the initial phase, the SDOM setup and integrations will enable key outage data availability to Outage Management systems. As the systems and processes are enhanced, the Company will be able to report on operational metrics.

Beginning with the AMI Semi-Annual report to be submitted on November 30, 2024, the Company anticipates providing:

- Number of power restorations identified because of AMI and that did not require confirmation by the customer or in the field.
- Reduction in fuel consumption and vehicle emissions due to reduction in false outages requiring a truck roll.
- The number of outage cases that the Company positively confirms through the AMI system.

7. System Operation & Environmental Benefits

The Company anticipates providing the following metrics associated with Volt-VAR Optimization (VVO), upon implementation:

- Number of network/feeders with AMI deployed that have implemented VVO.
- Incremental load reduction (MWh) attributable to VVO.
- Emissions reductions savings attributable to VVO.
    - The Company will track avoided emissions using costs provided by NYSERDA's annual Clean Energy Standard Solicitations for Large-Scale Renewables.

8. Change Management

The AMI Change Management team develops learning and engagement opportunities for affected internal stakeholder groups to enhance their awareness and adoption of the AMI program. The goal is to assure employees are trained and prepared for changes in business processes as AMI is deployed.

To date, the AMI Change Management team has developed over 250 tangible training materials and provided approximately 40 live learning opportunities for all impacted internal stakeholder groups.

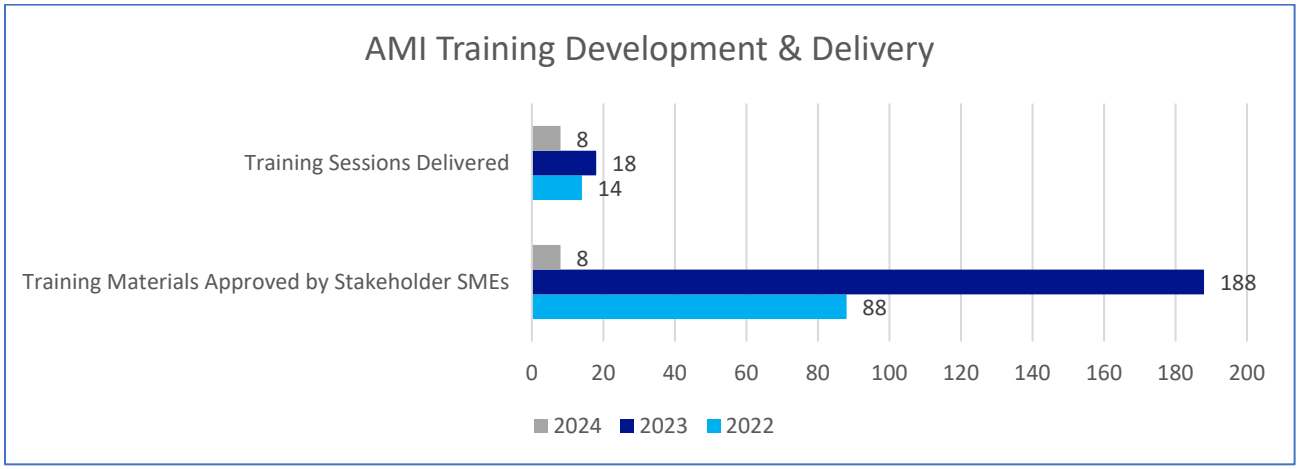

Figure 8.1 AMI Training Sessions & Training Materials

Training topics are derived from the Digital Process Design workshops to ensure process alignment with internal stakeholder approval.

Trainings continue to be well received with strong attendance and positive feedback:

- "Session was really good, informative and engaging. Thank you!"
- "Good info to know and very good presentation both written materials and their explanation!"

Stakeholders have reported an overall training feedback score of 4.4 out of 5 and exhibit a high level of program confidence.

Figure 8.2 – AMI Internal Stakeholder Training Feedback

In addition to training, the Change Management team has facilitated appreciation events and informative workshops to continue building positive sentiment and excitement towards the benefits AMI technology will bring to employees and customers alike. For example:

- January 24th: An interactive session with CMS Special Ops where a simulated customer interaction regarding smart meters was presented. Techs also had a tour of the AMI Smart House at Henry Clay Blvd and a review of smart meters with some of the meter engineers.
- April 30th: Appreciation event for Upstate NY Contact Center Reps for displaying a noticeable improvement in smart meter calls and confidence in answering customer questions about AMI.
- May 18th: An interactive workshop for CMS Special Ops techs to engage with the members of the AMI Operations Center to learn more about how meter events and alarms are displayed in National Grid systems.

Strategic communications are also shared with internal stakeholders to keep them abreast of program updates and milestones in the form of newsletters, FAQs, information sessions, bulletins, and live videos.

Figure 8.3 – Internal AMI Communications

9. Expense Summary

Details of the cumulative expenditures related to AMI, from program inception through the end of the fiscal year 2024 (March 31, 2024), are provided below in Table 9.1 and Table 9.2. The reported expenditures contributed to back-office system support and development, infrastructure development, and progress toward the 6-year program implementation.

Capital Grouping	AMI Capital Types	Capital Description	FY21	FY22	FY23	FY24	FY25 (April)	Cumulative
A	AMI Electric Development	AMI Electric Meter Equipment and Installation Equipment and Installation Refresh Cost Support Infrastructure Project Management	$0	$147,748	$13,443,190	$55,130,493	$6,543,327	$68,721,430
B	AMI Gas Development	AMI Gas Module Equipment and Installation Equipment and Installation Refresh Cost Support Infrastructure Project Management	$0	$148,994	$1,622,609	$1,884,510	$612,012	$3,656,112
C	AMI Field Area Network Development	Network Equipment and Installation Equipment and Installation Refresh Cost Support Infrastructure Project Management	$0	$213,205	$1,503,029	$21,927,921	$423,157	$23,644,154
E	AMI IT Development	Ongoing Business Management Customer Service System Cyber Security Software IS Infrastructure	$0	$2,565,927	$15,088,131	$17,944,593	$608,421	$35,598,651
	Total		**$0**	**$3,075,873**	**$31,656,958**	**$96,887,516**	**$8,186,917**	**$131,620,347**

Table 9.1: Cumulative Capital Expense Summary through Fiscal Year 2025 (April)

Expense Grouping	AMI O&M Expense Types	FY21	FY22	FY23	FY24	FY25 (April)	Cumulative
A	Energy Monitoring Portal CSS Enhancements Data Lake ESB Information Management	$0	$850,447	$1,469,620	$2,227,548	$254,123	$2,320,066
B	Meter Inventory Management Upgrade Load Disaggregation Software OMS Integration	$0	$0	$0			$0
C	Cyber Security Project	$0	$38,435	$34,780	$106,449	$8,935	$73,215
D	Professional Services - Head End/MDM Solution Program Management Professional Services - Head End/MDM Systems Implementation Workstream	$0	$0	$0			$0
E	Software Purchase Fees - Headend Software (HES, MDMS, NMS, FDM) Software Fees - Headend Software (HES, MDMS, NMS, FDM)	$0	$0	$0			$0
F	Telecom	$0	$113,896	$122,306	$791,888	$44,679	$236,202
G	AMI Additional Meter Data Services Labor	$0		$167,759	$134,884		$167,759
H	Cost from account maintenance and operations, implementation	$0		$96,486	$955,282	$90,556	$96,486
I	Customer Engagement Plan Customer Engagement Plan Labor	$0	$37,134	$1,330,563	$3,340,521	-$416,463	$1,367,697
J	AMI Demonstration Period	$0	$17,888	$76,979	$79,555	$2,828	$94,867
K	AMI External Project Management AMI Internal Project Management AMI Internal Project Management Business Support	$325,149	$9,559,952	$16,959,781	$12,958,926	$1,268,378	$26,844,882
	Total	**$325,149**	**$10,617,752**	**$20,258,273**	**$20,595,052**	**$1,253,036**	**$31,201,174**

Table 9.2: Cumulative Downward Only Operational Expense Summary through Fiscal Year 2025 (April)

Appendix A – AMI NY Metrics Tracker

National Grid NY AMI Regulatory Metrics - May 2024 Semi-Annual Report

Category	Metric	Metric Targets	Data as of April 30, 2024
			Total
Awareness	**Customer knowledge of smart meters: Measurement of awareness of smart meter technology, features, and benefits via survey.** *Baseline awareness to be measured 6 months prior to deployment*		
	Targeted Energy Forum Presentations: Number of forums to provide smart meter information:	**Two or more events per region** based on demand; western, central eastern, and northern regions	
	Type of forum (town hall(in-person or virtual), neighborhood, community group, expo, etc.).		**10 Central**
	Target audience (elected officials, customers, etc.).		**8 Capital**
	Date and Frequency.		**Please see report**
	Attendance numbers.		**Please see report**
	Income-Eligible Customer Forum Presentations and Awareness	**Two or more events per region** based on demand; western, central eastern, and northern regions.	
	Number of income-eligible events where smart meter information is presented.		**Please see report**
	Percent of new and returning income-eligible customers logging on to platform during the reporting period.		**n/a**
Enablement/ Empowerment	**Customers Using the Customer Energy Management Platform:**	**Number of customers** to be measured post deployment	
	Number of new and returning customers in each region with smart meters that log onto the usage / analytics page at least once broken down by service class and income-eligible customers.		**n/a**
	Percent of customers logging on to platform more than once per reporting period.		**n/a**
	Customers Using Customer Energy Management Platform Functions: **Breakdown of customers using specific platform functions:**	**Number of customers** to be measured post deployment	
	Personalized insights.		**n/a**
	High-bill / usage alerts.		**n/a**
	Energy marketplaces (i.e., E-Commerce Platform and Solar Marketplace).		**n/a**
	Measure percent of customers using platform year over year.		**n/a**
	Customer Energy Management Platform Satisfaction:	**Baseline customer satisfaction** to be measured 6 months post to deployment	
	Measurement of satisfaction with Customer Energy Management Platform and other tools via survey.		**n/a**
	Measurement of smart meter awareness campaign effectiveness to drive actions.		**n/a**
	Customer use of smart phone app to access real-time energy usage data	Number of customers to be measured post deployment	
	Track number of customers using smart phone app to track real-time usage data.		**n/a**
	Green Button Connect:	The Company will report this information for tracking purposes.	
	Track the number of third parties onboarded with Green Button Connect.		**53**
	Track the number of customers sharing their data via Green Button Connect.		**n/a for AMI customers**
Deployment	**Number and percentage of AMI electric meters and gas modules installed in comparison to targets established by the AMI deployment schedule.**	Year 1: 466,800 (20%)	**130,625 electric AMI meters at 4/30/2023**
	Number and percentage of AMI electric meters and gas modules that were deemed to be faulty during the installation process.	Year 1: 2,330 (0.5%)	**n/a**
	Number and percentage of AMI gas meters that were required to be replaced during the installation process (to accommodate gas module installation) in comparison to estimated volume of replacements.	Year 1: 12,800 (10%)	**gas modules nt deployed yet**
	Number and percentage of AMI network communications devices installed in comparison to targets established by the AMI deployment schedule.	Year 1: 865 (20%)	**3,199 FAN devices installed at 4/30/2024**
	Number and percent of residential customers who opt out of receiving a new AMI meter.	Year 1: 4,190 (1%)	**2,012 accounts at 4/30/2024 (0.43%)**
	Number and percent of income-eligible customers enrolled in the Energy Affordability Program who opt out of receiving a new AMI meter.	1%	**n/a**
	Number and percent of small commercial and industrial ("C&I") customers who opt out of receiving a new AMI meter.	Year 1: 482 (1%)	**n/a**
Billing	**Percentage of bills that were estimated for accounts with AMI meters during the reporting period.**	Less than 1.5% of bills will be estimated for customers with AMI	Total Billed Meters: 314,240 Total Estimated Meters: 2,289 **Estimated Read Percentage: % 0.73**
Outage Management	**Number of power restorations identified through AMI that the Company did not have to send a crew or call to confirm.**	**Number of operator commanded meter pings** in lieu of rolling a truck. Operator pings the meter to get information.	**n.a**
		Number of ADMS commanded meter pings. ADMS pings every meter in an outage area to see if power has been restored after an outage ticket has been closed.	**n/a**
		Manual ping of the meter to get status or ADMS ping based on list of meters contained in an outage to see if any report back. During a storm we would not use ADMS as it would put too much strain on the system, we would only do this in blue sky.	**n/a**
	Reduction in fuel consumption and vehicle emissions due to reduction in false outages requiring a truck roll. Add: meter investigations, connects and disconnects from item below.	Report of inside trouble calls not assigned to a crew.	**n/a**
	The number of outage cases that the Company positively confirms through the AMI system.	Report of last gasp signals	**n/a**
		Outages created by ADMS, AMI, Manually.	**n/a**
		Run a report for the number of outages created by AMI over the number of outages that would have been called in by a customer.	**n/a**
System Operation & Environmental Benefits	**Number of networks/feeders with AMI deployed and have implemented Volt-VAR Optimization ("VVO").**	FY 18-2 Sub-stations	**n/a**
		FY 20-3 Sub-stations	**n/a**
		FY 21- 4 Sub-stations	**n/a**
		FY22-FY25 Estimated 21 Substations pending NIMO 2020/2021 Rate Case Settlement	**n/a**
	Incremental load reduction (MWh) attributed to VVO.	1% Estimated load reduction	**n/a**
	Emissions reductions savings attributed to VVO.	*To be calculated pending the success of the prior two metrics.* Avoided emissions costs are provided by NYSERDA annual Clean Energy Standard Solicitations for Large-scale Renewables	**n/a**
AMI Program Progress	**Achievements of key program milestones**. Program milestones, such as the completion of the back-office systems, customer engagement solutions, and the number of meters installed. These metrics will provide for the appropriate control and oversight of the program.	The Company will report this information for tracking purposes.	**n/a**
	Identify and track delays in meeting key program milestones, the cause of such delays, and updates to the project schedule by key milestone. At a minimum, these key milestones shall include progress under the AMI Benefits Implementation Plan, use of AMI data for complex billing, and progress under the Customer Engagement Plan.	The Company will report this information for tracking purposes.	**n/a**