Advanced Metering Infrastructure (AMI)
Customer Engagement Plan

May 20, 2021



Niagara Mohawk Power Corporation

d/b/a National Grid

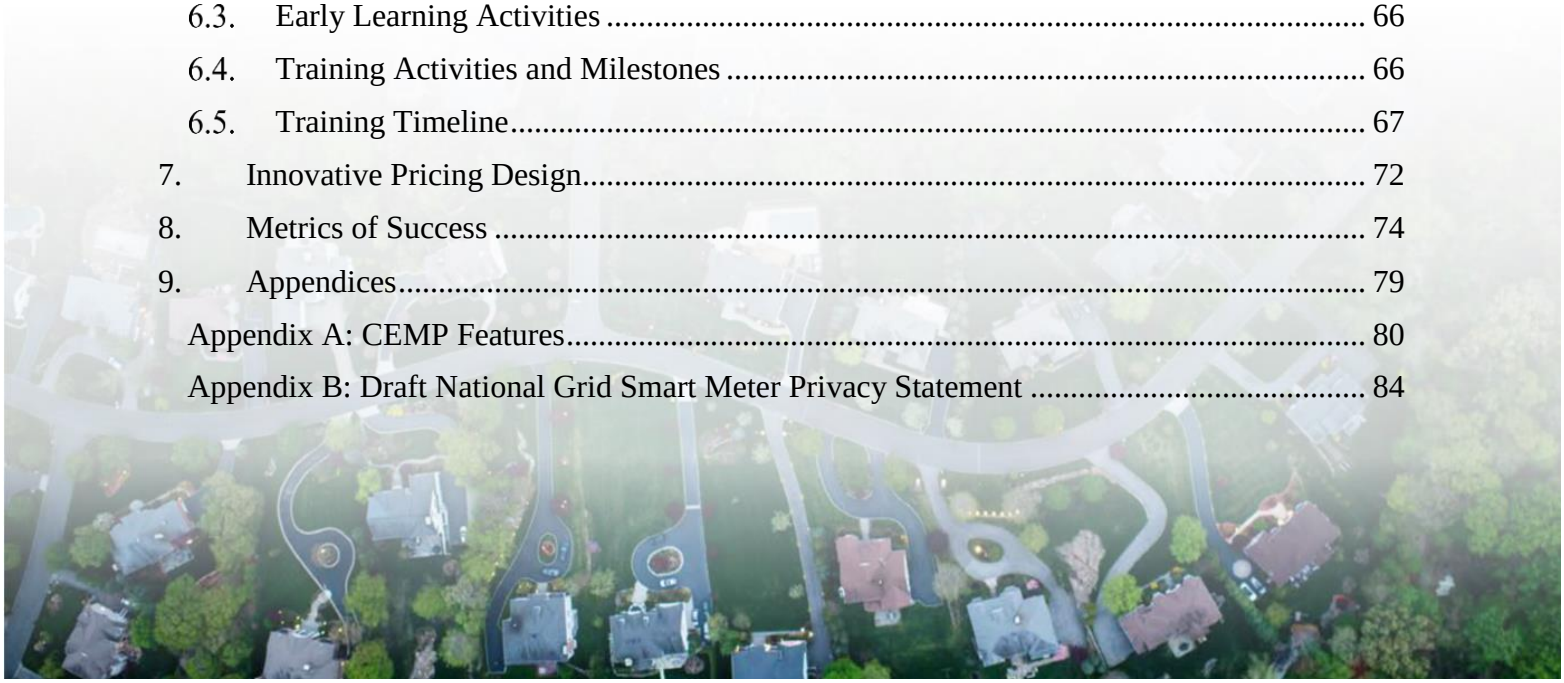
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1. Executive Summary

National Grid's vision is to be at the heart of a clean, fair, and affordable energy future. With regulatory approval to deploy advanced metering infrastructure (AMI), commonly referred to as smart meters, the Company takes another step toward delivering on that vision for customers. The Company's AMI project marks the beginning of a new era for customer energy control and convenience. With this Customer Engagement Plan (this "Plan"), National Grid defines its strategy for educating customers about smart meter technology, empowering and enabling them to derive the greatest value from the new functionality, and preparing employees to guide customers through the transformational journey.

This Plan outlines a general timeline for the AMI project, the installation of back-office systems, the deployment of AMI electric meters and gas modules, as well as the path for continued customer engagement. While the timelines reflect the Company's initial AMI plan, National Grid will actively seek opportunities to accelerate the delivery of smart meter benefits and functionalities to customers. Throughout AMI implementation, the Company will also continually refine the strategy and tactics set forth in this Plan to reflect lessons learned and customer feedback.

Embarking on this journey requires a detailed strategy – National Grid's approach focuses on three phases. First is customer awareness (Phase I). In this phase, the Company will inform customers about smart meters and begin the conversation about how the technology can improve the customer energy experience. Second is deployment (Phase II). As the Company begins to deploy the AMI electric meters and gas modules, it will step up efforts to prepare customers for installation. This strategy involves a 90, 60, 30-day pre-deployment plan for communicating with customers and answering questions. Third is empowerment and enablement (Phase III). The next-generation capabilities of the AMI technology can open the door to myriad benefits for customers, such as enhanced access to energy usage data, high-usage alerts, personalized energy efficiency recommendations, remote service connections, and enhanced outage management. It also enables the New York Public Service Commission to consider and approve future innovative pricing programs (*e.g.*, time-of-use rates). The third phase represents the Company's ongoing commitment to help customers realize the benefits.

Making it happen for customers also requires a concerted effort across the organization. The Company identified approximately 30 internal stakeholder groups that will need varying levels of training and education to deliver the AMI program. Groups include Customer Service Representatives, Account Maintenance and Operations, field operations, the control center, Customer Meter Services, and Meter Data Management, among others. The process begins by determining the change impact and training needs for each group. From there, National Grid will design, develop, and implement training for the employee groups. After initial deployment, the Company will evaluate, monitor, and adjust training to ensure employees are able to continue delivering value for customers throughout the life of the smart meter program.

2. Introduction

On November 20, 2020, the New York State Public Service Commission (Commission) approved the proposal by Niagara Mohawk Power Corporation d/b/a National Grid (National Grid or the "Company") to deploy approximately 1.7 million electric AMI meters and 640,000 AMI-enabled gas modules, and the associated communications network, across the Upstate New York service territory on an opt-out basis.[1] As part of its findings, the Commission described how the AMI investment can provide benefits to customers and the system, while also advancing clean energy goals:

- **Customer Benefits:** "[T]he deployment and use of AMI can be harnessed to transform the relationship between National Grid and its electric and gas customers."[2]

- **Operational/System:** "This presents an opportune time to upgrade to AMI while avoiding the costs of replacing the existing [automated meter reading] AMR meters in kind."[3]

- **Clean Energy:** "AMI is an important and valuable contribution to enabling the Company to assume the role of the [Distributed System Platform] (DSP), to increasing use of [Distributed Energy Resources] (DERs) to support system operation, to increasing the use of measures such as [volt-VAR optimization] (VVO) to reduce energy use and emissions, and to facilitating customer access to products and services provided by third-parties."[4]

In approving the AMI proposal, the Commission also directed the Company to refine the approach to customer engagement, which was originally filed as part of the 2018 AMI proposal. The Company developed the initial plan by looking to prior AMI filings from peer utilities, such as Consolidated Edison Company of New York, Inc. (Con Edison) and Orange and Rockland Utilities, Inc. (O&R), as well as drawing from lessons learned from two AMI pilots: the Clifton Park Reforming the Energy Vision (REV) Demonstration Project (Clifton Park Demonstration) and the Company's Massachusetts affiliates' Worcester Smart Energy Solutions Pilot (Worcester Pilot). The pilot projects allowed National Grid and its affiliates to test marketing and outreach material, understand customer needs, measure customer sentiments, and obtain other learnings to improve the customer experience for broad AMI deployment. Throughout each phase, the Company will apply a "Listen, Test, Learn" methodology refining the customer engagement plan to meet the needs of our customers. Lastly, the Company conducted surveys and external

[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").
[2] AMI Order at pages 26-27.
[3] *Id.* at page 36.
[4] *Id.* at page 27.

research, providing insight into customer preferences, as well as feedback that informed the initial plan.

To further refine its approach to AMI customer engagement, National Grid also leaned heavily on input from its AMI stakeholder collaborative, which included participants representing the full spectrum of the Company's customers, as well as industry experts and Department of Public Service Staff (Staff).[5] The collaborative process explored the three phases of customer engagement, with stakeholders highlighting the importance of leveraging community events, as well as coordinating with consumer advocacy groups and community leaders to raise AMI awareness in Phase I. Stakeholders also noted that customers have varying levels of access (and preferences) for digital communications, and, therefore, recommended the Company include a multi-channel approach for customer outreach that also uses more conventional methods, such as bill inserts. Likewise, the Company described its planned use of existing multi-lingual customer engagement capabilities, which the collaborative participants noted as a key component to making the project and its benefits accessible for all customers.

Collaborative participants also focused on the meter/module deployment communication strategy for Phase II. Together the Company and stakeholders walked through the 90, 60, 30-day pre-deployment plan. The discussion focused on the importance of training Customer Service Representatives (CSRs) on all aspects of AMI, providing clear and accurate information about AMI deployment in specific locations, as well as developing customer materials (*e.g.*, a welcome packet) to introduce customers to the new technology. The Company also walked the collaborative participants through the AMI meter opt-out process, including how National Grid intends to educate customers about meter choice, channels supporting customer decision making, and a sample process for customers choosing to opt-out.

Finally, as part of the discussion on customer empowerment and enablement in Phase III, the collaborative participants focused on: AMI pilot learnings; benchmarking and research; the Customer Energy Management Platform (CEMP); proposed AMI customer engagement metrics; data privacy and governance; and AMI-enabled time-of-use (TOU) rates. To realize the full benefits of the energy insights, tools, and programs enabled by AMI, the collaborative stakeholders encouraged the Company to leverage pre-deployment communication channels as part of the ongoing customer engagement effort. Stakeholders also suggested developing an interactive mobile "hub" to build awareness of the new AMI tools and other energy saving recommendations, establishing a bill calculator to aid customers in understanding the potential financial impact of new rate structures, and creating an integrated customer web experience for all energy-related information.

3. Vision for the Customer in the New Energy Landscape

3.1. Overview

Today's customers expect more from their utility – not only seeking affordable, reliable, and safe energy, but also increasingly looking for access to actionable information, greater choice and

[5] *See* Rate Case Proceeding, Joint Proposal (filed January 19, 2018) at pages 112-115.

control over their energy use, and delivery of energy services in a simple and convenient way. National Grid is committed to deliver on these expectations for a modern energy experience.

The Company recognizes the diverse needs and preferences across the many customers it serves. National Grid takes great pride in the opportunity to meet customer needs across every segment of society, and looks forward to enhancing its service through the "Listen, Test, Learn" methodology described further in Section 5 below.

With AMI, the Company can enable its electric and gas customers to take greater control of their energy usage with insights into their energy consumption patterns. Likewise, the Company can offer more innovative energy management and pricing options (*e.g.*, TOU rates and critical peak pricing (CPP)) and facilitate the integration of smarter devices, while enhancing the customer experience throughout all facets of the customer experience lifecycle set forth in Figure 3-1.



Figure 3-1: National Grid's Customer Experience Lifecycle

AMI will also help establish a cleaner, fairer, more resilient and efficient system, consistent with the clean energy and equity goals set forth in New York's Climate Leadership and Community Protection Act (CLPCA), the Commission's REV objectives, as well as National Grid's own clean energy ambitions[6] and Responsible Business Charter.[7]

In addition, the Company recognizes the role AMI can play in addressing the broad challenges facing customers and their communities; challenges such as economic insecurity, environmental justice, and the climate crisis. AMI is one tool the Company can use to contribute to state and national efforts to tackle these issues. The investment will provide a platform to bring innovative solutions to all customers, including historically underserved populations, and can be leveraged for customer programs in the future.

With that focus, the Company considered a variety of analyses in building this Plan. For example, recent research from the United Way using 2018 data provides "a point-in-time snapshot of economic conditions across the state in 2018."[8] The research defines three household income categories:

- Poverty, defined as households that earn less than the Federal Poverty Line;
- **A**sset **L**imited, **I**ncome **C**onstrained, **E**mployed (ALICE), defined as "households that earn more than the Federal Poverty Level but less than the basic cost of living for the state (the ALICE Threshold)"[9]; and
- Households that earn more than the ALICE threshold.

The following figure provides a breakdown of the three categories across the Company's service territory:

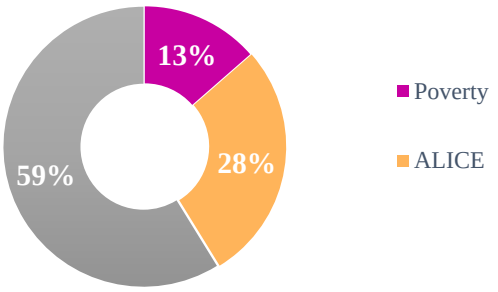


Figure 3-2: Percentage of Customers in Poverty, ALICE, and Above Alice Threshold Categories[10]

[6] *See* National Grid's *Net Zero by 2050 Plan* at https://www.nationalgridus.com/media/pdfs/our-company/netzeroby2050plan.pdf (last visited May 10, 2021).
[7] *See* National Grid's *Responsible Business Charter* at https://www.nationalgridus.com/media/pdfs/our-company/usnationalgridresponsiblebusinesscharter2020us.pdf (last visited May 10, 2021).
[8] United Way, *ALICE in New York: A Financial Hardship Study*, 2020 at page i. https://www.unitedforalice.org/new-york
[9] *Id.* at page 11.
[10] Calculated using data available at: https://www.unitedforalice.org/new-york. For more ALICE research details, see the Methodology Overview at: https://unitedforalice.org/Methodology

For many families, the COVID-19 pandemic has caused significant social and economic disruption. The Company understands the pandemic has impacted customers in different ways.[11] These disruptions worsen existing economic challenges, one of which for many people is home energy burden, defined as the percentage of household income spent on energy (*i.e.*, electricity and heating) bills.

As shown in Table 3-1 below, there are many factors (*e.g.*, physical, economic, behavioral, and policy) that drive energy burden and these factors are often compounding. For example, the same population that faces disproportionately high energy burden due to economic drivers is also disproportionately likely to experience physical drivers. This trend was quantified in a 2016 research report by the American Council for an Energy-Efficient Economy (ACEEE), which found that low-income households[12] in major US metropolitan areas pay approximately 20% more per square foot than non-low-income households, with median annual utility costs per square foot of $1.41 vs $1.17, respectively.[13]

Table 3-1: ACEEE Drivers of Household Energy Burdens[14]

Drivers	Examples of factors that increase energy burden
Physical	Housing age and type (*e.g.*, manufactured homes)
	Heating system, fuel type, and fuel cost
	Poor insulation, leaky roofs, inefficient and/or poorly maintained HVAC systems, and/or inadequate air sealing
	Inefficient large-scale appliances (*e.g.*, refrigerators, dishwashers) and lighting sources
	Weather extremes that raise the need for heating and cooling
Economic	Chronic economic hardship due to persistent low income
	Sudden economic hardship (*e.g.*, severe illness, unemployment, or disaster event)
	Inability to afford (or difficulty affording) up-front costs of energy efficiency investments
	Difficulty qualifying for credit or financing options to make efficiency investments
Behavioral	Lack of access to information about bill assistance or energy efficiency program options
	Lack of knowledge about energy conservation measures and impacts/cost savings
	Increased energy use due to age, number of people in the household, or disability
Policy	Insufficient or inaccessible policies and programs for bill assistance, weatherization, and energy efficiency for low-income household
	Certain utility rate design practices, such as high customer fixed charges, that limit customers' ability to respond to high bills through energy efficiency or conservation

[11] The Company has made resources available to help customers impacted by the effects of the pandemic. *See* https://www.nationalgridus.com/upstate-ny-home/COVID19/COVID19.aspx (last visited May 10, 2021).
[12] Households with income at or below 80% of area median income.
[13] American Council for an Energy-Efficient Economy (ACEEE), *Lifting the High Energy Burden in America's Largest Cities*, 2016 at page 4. https://www.aceee.org/research-report/u1602.
[14] ACEEE, *The High Cost of Energy in Rural America*, 2018, at page 9. https://www.aceee.org/research-report/u1806 (last visited May 20, 2021).

More holistically, the physical drivers affecting building characteristics that lower total building performance, significantly impact health, productivity, comfort, and overall wellbeing.[15] At its worst, energy inequality is a public health crisis – poor building envelopes, poor ventilation management, and aging fossil-fuel equipment can result in harmful indoor environmental quality, leading to increased occurrences of short- and long-term health conditions.[16]

Understanding these issues and the impact on customers is key to building out the Company's strategy for delivering AMI value across all customer segments. Moreover, such considerations have only grow in importance in the wake of the COVID-19 pandemic, when working from home and schooling from home became the "new normal" for many.

AMI is not a silver bullet; however, it represents a new data and technology platform for the Company to identify opportunities, such as enhancing building efficiency, that help customers improve their health, comfort, and productivity, while lowering energy burdens. Progress in these areas will be maximized by animating the market, working collaboratively with innovation leaders, and inviting customers to help build positive change in their communities. In addition to the benefits discussed above, helping customers use AMI data and analytics to identify retrofit opportunities and accelerate the deployment of today's portfolio of existing clean energy technologies will make the economy stronger and healthier.

For example, the 2020 ACEEE report recognizes that "[w]eatherization can reduce low-income household energy burdens by about 25%, making it an effective strategy to reduce high energy burdens for households with high energy use while also benefiting the environment."[17] National Grid believes there is opportunity to use AMI data to generate new engagement with existing energy efficiency programs, like NYSERDA's EmPower New York Income-Eligible Free Weatherization Program.[18] Enabling the energy transition for all will require creative new solutions and helping customer's leverage the intelligence gained through AMI will help make it happen.

Likewise, for the commercial sector, especially small- and medium-business customers, National Grid will be able to use AMI data analytics in the future to help customers find energy savings opportunities, reducing energy costs and improving profitability. Regardless of whether the business is a pizza shop, hair salon, dry cleaner, hardware store, auto repair shop, bowling alley, farm, or nearly any other business, every dollar saved on energy bills goes straight to the bottom line.[19] As such, the benefits of energy efficiency and clean energy technologies that impact total

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[15] V. Hartkopf, V. Loftness, and P. Mill, "*The Concept of Total Building Performance and Building Diagnostics*." Ed. G. Davis STP901-EB Building Performance: Function, Preservation, and Rehabilitation. West Conshohocken, PA: ASTM International, 1986. 5-22. Web. 26 Apr 2021. https://doi.org/10.1520/STP23009S (last visited May 20, 2021).

[16] U.S. Environmental Protection Agency, *Introduction to Indoor Air Quality at* https://www.epa.gov/indoor-air-quality-iaq/introduction-indoor-air-quality (last visited May 20, 2021).

[17] ACEEE, *How High Are Household Energy Burdens?*, 2020 at page ii. https://www.aceee.org/energy-burden

[18] *See* https://www.nationalgridus.com/Upstate-NY-Home/Bill-Help/Energy-Savings-Programs (last visited May 10, 2021).

[19] This has a similar economic outcome as increasing revenue by the inverse of the profit margin. For example: $50 monthly savings for a business with a 5% profit margin would produce a similar economic result as an additional $1,000 in monthly revenue ($50/0.05 = $1,000).

building performance go beyond simply saving on energy bills. Improving employee health or productivity, customer comfort, process efficiency, real estate value or rentability can deliver significant results to business performance. Moreover, long-term, granular energy use data can provide support for companies working to achieve environmental, social, and governance (ESG) imperatives.

In addition, AMI is expected to animate the market for third parties to develop new customer-focused products and services, and further the Company's progression as the distributed system platform (DSP) provider. In short, deployment of AMI is a significant advancement in the Company's current metering environment, deepening the Company's relationship with customers, and enhancing its focus on providing affordable, safe, and reliable energy service.

3.2. AMI Enables a Modern Energy Experience

Retail consumers today are enjoying new and higher levels of service and convenience thanks to the application of advanced technology and "big data" across industries. Understanding customers' diverse and evolving needs is key to developing a more modern energy experience that creates sustainable value. While reliability and affordability remain foundational for customers, the Company has found that it must also respond to an expanding range of customer expectations regarding visibility, control, choice, and convenience in their energy experience. According to an extensive study of customer expectations, including a survey of customers across National Grid's service territory (and the service territories of its Massachusetts and Rhode Island affiliates), the modern energy experience, enabled by AMI, must address numerous customer needs, including:

- **Affordability**: When given the right tools, customers will take a more active role to minimize total energy costs. For example, customers have shown a willingness to temporarily adjust or shift energy use in return for bill credits or other incentives.[20]

- **Visibility:** Customers express a need for personalized insights and information on specific actions that can help reduce their energy usage.[21] They also expect this information to be easily accessible and available through numerous channels (*e.g.*, the Company's website, mailings, Customer Service Center). With greater visibility into energy usage and cost information, customers can better manage their energy consumption and achieve cost savings.[22] This is particularly valuable in a future environment where pricing plans evolve from a traditional flat rate to a time-varying pricing (TVP) rate structure.

[20] National Grid, *Value Proposition Research: A Study of 3 Energy Solution Areas* (2017); *see also* National Grid's Clifton Park Demonstration and its affiliates' Worcester Pilot, where participants had the opportunity to respond to CPP events to achieve bill savings.
[21] Opower, *Five Universal Truths About Energy Consumers* (2013).
[22] National Grid, *Value Proposition Research: A Study of 3 Energy Solution Areas* (2017).

- **Control:** Customers want better control over how and when they use power in their homes, businesses, and facilities.[23] A majority of both residential and commercial customers express interest in tools and devices that can help them manage energy use, such as connected thermostats that can learn a customer's usage patterns and be controlled remotely.[24] The Company has already taken initial steps in this field through its existing multi-sector energy efficiency (EE) and Dynamic Load Management (DLM) programs and it expects AMI to further address customer expectations using granular usage data to develop personalized EE and demand response (DR) offerings.

- **Choice:** Greater levels of choice, whether in energy management or adopting clean energy solutions, empower customers.[25] For customers, the modern energy experience also includes choosing what communications they receive, as well as when and how they receive them. While consumers express an interest in greater levels of choice, behavioral science research also suggests that overloading consumers with too many choices can result in decision inertia and less satisfaction with an eventual choice.[26] Default options help facilitate better customer decision making as opt-out settings drive higher participation levels,[27] such as with dynamic pricing plans like TVP.[28]

- **Convenience:** Building upon "Choice," the Company recognizes that a key aspect of customer convenience is delivering information and solutions to customers through their most preferred channels. In today's connected world, this requires an increased focus on web-based and mobile solutions, allowing customers to manage and optimize energy usage via an "anytime, anywhere" experience. However, National Grid is also cognizant that not all customers prefer or have access to digital tools, and thus a multi-channel outreach strategy throughout smart meter deployment is critical.

In expanding on convenience, automation offers further decision optimization by simplifying or reducing repeatable actions; for example, the enablement of "auto-bill pay" and/or "set-and-forget" features. An industry study on "The New Energy Consumer" showed that 60 percent of those surveyed would be interested in technology that could completely automate the management of their electricity or gas use.[29] The type of complete automation sought by customers requires an enabling AMI foundation and a platform that can connect with smart devices.

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[23] *Id.*
[24] *Id.*
[25] *Id.*
[26] Sheena S. and Mark R. Lepper, *When Choice is Demotivating: Can One Desire Too Much of a Good Thing?* Journal of Personality and Social Psychology, 2000, Vol. 79, No. 6, pp. 995-1006; *see also* Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2009).
[27] Richard H. Thaler, *Unless You Are Spock, Irrelevant Things Matter in Economic Behavior*, The New York Times (online), May 8, 2015; *see also* Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2009).
[28] Opt-out default options significantly increase participation, as seen in the Worcester Pilot, where 95 percent of participating customers stayed on the default CPP rate plan and did not opt out. See Navigant, *National Grid Smart Energy Solutions Pilot Final Evaluation Report* (May 2017).
[29] Accenture, *The New Energy Consumer Architecting for the Future* (2014).

3.3. Customer Experience Transformation

3.3.1. Overview

National Grid initiated a comprehensive Customer Experience Transformation initiative that aims to fundamentally change how the Company interacts, serves, and communicates with customers via a digital engagement strategy. The initiative is structured around delivering maximum customer value during "Moments that Matter," as illustrated in Figure 3-3 below.



Figure 3-3: Customer Experience Transformation: Customer "Moments that Matter"

The Customer Experience Transformation is a key component of the Company's multi-channel AMI customer engagement strategy. Developing and expanding digital capabilities will better enable National Grid to meet the needs of its diverse customer base during and after the deployment of smart meters. Indeed, with continued expansion of high-speed broadband internet, the increasing prevalence of smart mobile phones and tablets, as well as the new functionality enabled by smart meters, the Company expects an enhanced digital experience to be a growing priority for customers.

The multi-year Customer Transformation Experience initiative seeks to deliver "best-in-class" service by continuously enhancing the customer experience through new capabilities, technologies, and product management strategies. The initiative's key focus areas (those aimed at delivering maximum customer value across the Customer Experience Product portfolio) include:

- Web self-service;
- Interactive voice response (IVR)/telecommunications;
- Preference management & communications;
- My Business Account (pilot program); and
- Distributed generation/new connections portals (electric and gas).

Furthermore, the deployment of smart meters offers opportunities for more sustainable and deeper customer engagement by enabling the Company to deliver a superior experience during the aforementioned "Moments that Matter." Such an AMI-enhanced customer experience will help deliver:

- Improved awareness of consumer needs and behaviors;
- A 360° view of the customer;
- Improved digital platforms and communications experience; and
- Personalized energy and billing solutions.

3.3.2. Customer Experience Products Work Streams

The Company's Customer Experience Products (CXP) work streams have embarked on a journey to make it easier for customers to do business with National Grid by improving processes, delivering experience improvements and creating consistency across all channels within an agile delivery framework.[30] The CXP core program objectives are:

- Implement technology upgrades through customer interaction channels to significantly increase ease of use and improve customer experience;
- Deliver an effortless experience for customers with choice and flexibility, reducing frustration, and creating value to build trust;
- Adopt agile methodologies to enable teams to be deployed in a flexible way to maintain pace and accelerate customer benefits and value;
- Drive operational efficiencies through process improvements; and
- Mitigate operational risk associated with outdated technology platforms.

The CXP portfolio is currently focused on four work streams:

Web Self-Service:

- Delivering a unified web portal (UWP) with a streamlined transaction experience, improved user experience, and new self-service capabilities (currently in development with a target release of Summer 2021);
- Single Sign-On (SSO) across all regions and customer segments (including dual fuel) with enhanced Identity Access Management Platform (IAM) enabling customers to manage all online accounts with a single log-in experience with improved security (foundational layer for UWP); and
- Continuous improvement of enhanced capabilities through delivered technology and agile framework.

Preference Management & Communications:

- Enabling channel of choice through digital preference center capabilities;
- Delivering enhancements and new offerings to proactive two-way communications for outages and billing; and
- Driving enhancements in email and digital communications channels and continuing to align with UWP.

My Business Account (Pilot Program):

- Online portal with enhanced digital account management and billing platform for large commercial and industrial (C&I) customers;

[30] Agile is a way of working that focuses on iteration, delivering large-scale projects or change in small, but more consumable increments.

- Improved experience to manage and transact across multiple business accounts/premises;
- Pilot program will continue through 2021 and be integrated with UWP, based on growth in customer utilization experienced so far.

Interactive Voice Response (IVR):

- Core contact center technology infrastructure and workforce management and quality tool set improvements; and
- Completed on-boarding with internal call centers and currently working on enhancements and third-party onboarding.

3.3.3. AMI-Enabled Enhancements

AMI will enhance the Company's capability to deliver on key focus areas by helping to achieve previously noted customer benefits. Toward that end, an important component of this Plan is building on the current CXP by developing a Customer Energy Management Platform (CEMP) to provide customers access to AMI data. The CEMP will serve as an integrated hub of energy data, insights, and actions available to all customers. The CEMP will allow customers to access personalized energy usage information, as well as various choices and options to enroll in Company and third-party programs and services that can leverage the more granular data provided by AMI meters. Some CEMP components, like monthly energy summaries with average usage in smaller increments or broken down by end-use, will likely also be layered into non-digital communications such as the customer bill or bill insert.[31]

The Company will coordinate the deployment of the CEMP to ensure that the initial release is fully operational and functional on day one when new meters are installed. This includes two years of back-office work that will align with other pre-meter deployment efforts, process design, and communications planning. For this Plan, the first year of back-office work will focus on detailed design and procurement of the main CEMP features. The second year will focus on testing, implementation, and deployment in advance of initial meter/module installations. Additional schedule details are provided in Section 4 below. National Grid also plans to expand and update the CEMP over time with future feature releases as necessary to meet evolving customer needs.

Overall, the delivery of enhancements across the CXP portfolio, in conjunction with AMI deployment, is a significant step change that can best empower and enable customer energy management. The CEMP (comprised of personalized insights, tools, and integrated customer actions) that results from these capabilities is described in more detail in Section 5.7.

[31] *See* Section 5.6: Phase III (Empowerment and Enablement) for more detail on how the Company plans to educate and empower customers to use and benefit from the CEMP.

4. Customer Engagement Timeline and Milestones

4.1. Electric Meter and Gas Module Deployment Timeline

The Company plans to follow a six-year AMI deployment program as shown in Figure 4-1, below, while also seeking opportunities to accelerate the delivery of smart meters and their associated benefits/functionalities, when possible. The initial ramp-up phase will include project sanctioning, onboarding resources, and contract execution. The two-year period following project kickoff will address detailed design, additional procurement activities, and the installation of the back-office systems. This period will also include key activities for further refinement of deployment planning.

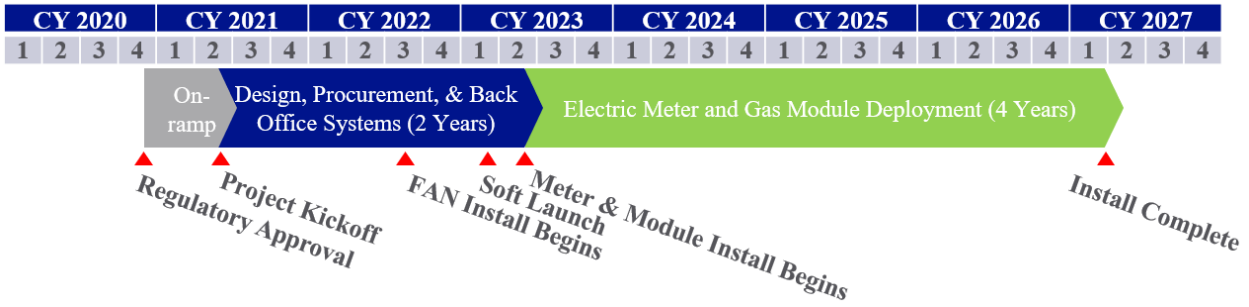


Figure 4-1: National Grid AMI Program Implementation Schedule

With this Plan, the Company anticipates installing approximately 20 percent of the 1.7 million electric AMI meters and 640,000 gas modules in the first year of deployment, followed by 35 percent in each of the succeeding two years, and 10 percent in year four. As depicted in Figure 4-1, the Company plans a soft launch approximately three months in advance of the start of largescale meter/module deployment. The soft launch will be used to test and refine deployment processes, with iteration and refinement expected to continue throughout the deployment period. The Company considered multiple factors in developing its deployment strategy, with one of the key priorities being to mitigate the risk of AMR gas module failures by prioritizing AMI replacement in those dual-fuel areas where AMR gas assets are reaching the end of their estimated useful life. The Company also plans to begin field-area network (FAN) deployment approximately nine months in advance of the electric AMI meters and gas modules to provide greater flexibility during the meter/module deployment.

The FAN will leverage devices to enable the transmission of data from the mesh-network linked AMI meters to the back-office systems (*i.e.*, collectors and relay routers). Collectors are larger bandwidth devices that manage mass data collection, while relay routers extend the range of meter communications. For areas with sufficient population density, the Company will utilize a radio frequency mesh network to facilitate meter communication with the backhaul system. However, in some areas approximately five percent of devices will not be amenable to deploying a mesh network, requiring the Company to use cellular radio communications instead. In areas lacking adequate cellular coverage, the Company will increase the coverage of the mesh network through use of mesh extenders to reach a gateway or router that is in a cellular coverage area. Where possible, the electric meter will also serve as the communications platform for the gas

module. This capability reduces the volume of FAN devices required while passing the necessary electric and gas data to back-office systems.

The Company will refine its detailed topographical analysis and network design leading up to the installation of FAN devices to optimize the location of network equipment. Through the AMI solution, the Company anticipates a monthly and three-day read rate of 99.5 percent for all meters available over the communication network.

In conjunction with the above-described deployment strategy, the AMI team will closely coordinate with Customer Meter Services (CMS) and Resource Planning groups (*e.g.*, for distribution line resources) to ensure adequate resources are designated for project activities in advance of the FAN deployment, soft launch, and mass deployment of meters and gas modules, respectively. As further described in Section 7, the Company will develop and deliver training materials prior to the installation timelines depicted in Figure 4-1.

4.2. Customer Engagement Milestones

The timeline shown in Figure 4-2 provides an initial high-level breakdown of Company's approach to the three customer engagement phases and the corresponding employee training.

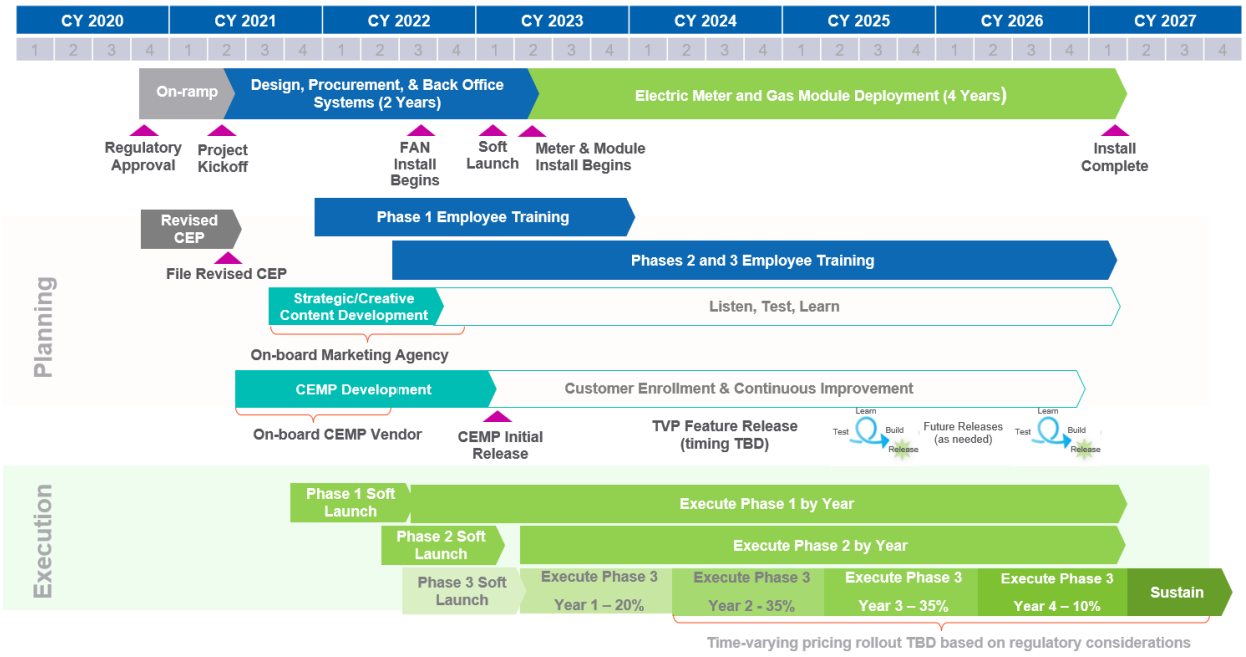


Figure 4-2: Illustrative Customer Engagement Plan Timeline

The Company intends to onboard an external marketing agency to support content development, assist with media buys, and facilitate execution of all three customer engagement phases. The detailed scope of work for the external marketing agency will be developed upon project kickoff. The procurement event is anticipated to require up to six months and the timing of the event will precede the meter/module soft launch.

Similarly, the Company is coordinating efforts to develop the CEMP. Recent years have seen an increase in market activity and there are currently a number of vendors with product offerings in

this space. The Company plans evaluate these offerings and leverage a third-party vendor to deliver the CEMP features in a cost-effective and timely manner, aligned with the CXP workstreams described in Section 3.3. The following is an estimated high-level timeline for CEMP development and deployment with projected completion dates:

- Develop CEMP deployment strategy and requirements based on proposed features and industry best practices (Q3 2021);
- Procure CEMP vendor(s) through RFP process (Q2 2022);
- Develop CEMP web and mobile digital tools with vendor(s) and internal teams in coordination with CXP portfolio and information technology (IT) architecture. Initial release to be tested and implemented prior to installing the first AMI meter (Q1 2023);
- Ongoing effort to enroll customers to receive authorized communications over email and text message via customer-selected account communication preferences (continuous);
- Utilize agile development practices to provide iterative improvements incorporating customer feedback and new AMI-related features, such as TVP, in future releases (continuous post-deployment); and
- Develop and complete employee training consistent with employee training plan (Q2 2023 to Q2 2024).

National Grid intends to de-risk the CEMP deployment by utilizing an agile delivery framework. This model is driven by customer and stakeholder value to deliver iterative and incremental feature updates. One goal is to create small and simple deliverables through proof-of-concepts to limit dependencies and help prioritize work. The Company anticipates having an initial CEMP minimum viable product (MVP) available for appropriate testing in advance of meter deployment.[32] The following section provides additional detail of the key activities highlighted above and provides an overview of the corresponding customer experience via customer journey maps.

5. Phases of the Customer Engagement Plan

The overall objective of this Plan is to inform and educate National Grid customers and interested stakeholders on the benefits of smart meters, promote acceptance of the new technology, and facilitate the introduction of new AMI-enabled products and services (*e.g.*, personalized energy insights and innovative rates). The increased granularity of usage data and reduced data latency enabled by smart meters, coupled with products and services designed to take advantage of this information, will enhance customers' energy experience, providing greater control, convenience and choice.

To achieve this, National Grid will focus on the three phases of AMI customer engagement: 1) building awareness, transparency, and interest through education and outreach; 2) managing the customer experience through AMI meter deployment to foster customer participation; and 3)

[32] Any delays in launching the CEMP will not impact meter deployment. If, however, meter deployment is delayed, the customer experience will continue based on existing AMR meter data until AMI data becomes available.

engaging customers to access new tools and options that will unlock the benefits of more actionable information and enhanced energy management, new and innovative pricing options, access to third-party services, enhanced customer alerts and personalization tools, and enablement of smart-home devices.

- **Phase I (Awareness):** The Company will build an internal foundation of resources to support communication and engagement activities, educate and train employees, and initiate a territory-wide customer and stakeholder outreach effort to build awareness of the smart metering program, generate interest and support, and proactively address customer concerns prior to meter installation.

- **Phase II (Deployment):** The Company will build on the broad education initiated in Phase I and narrow the focus of communication toward individual customers with information that will guide customers leading up to and through the day of smart meter installation, including the timeline of events, what to expect, and alternate choices available.

- **Phase III (Empowerment and Enablement):** After smart meters are installed, customers will be able to take full advantage of the CEMP functionalities and future TVP rate structures enabled by AMI meters. The sustaining nature of this phase will focus on empowering and enabling customers, including how to access energy consumption data and manage/optimize their energy usage to reduce energy and costs. This phase also includes animating the market for energy products and services by connecting customers (*e.g.*, via Green Button Connect My Data (Green Button Connect)) to third-party vendors who can help supplement customer needs with new and innovative offerings.

5.1. Customer Outreach and Education

As illustrated in Figure 5-1, this phased approach will support the customer journey and will include specific marketing strategies with defined messages, audiences, channels, and educational materials to generate customer interest, increase customer acceptance, and drive customer engagement. The materials will reach a diverse audience and be presented with customer-friendly messaging (*e.g.*, easily understandable text and images).

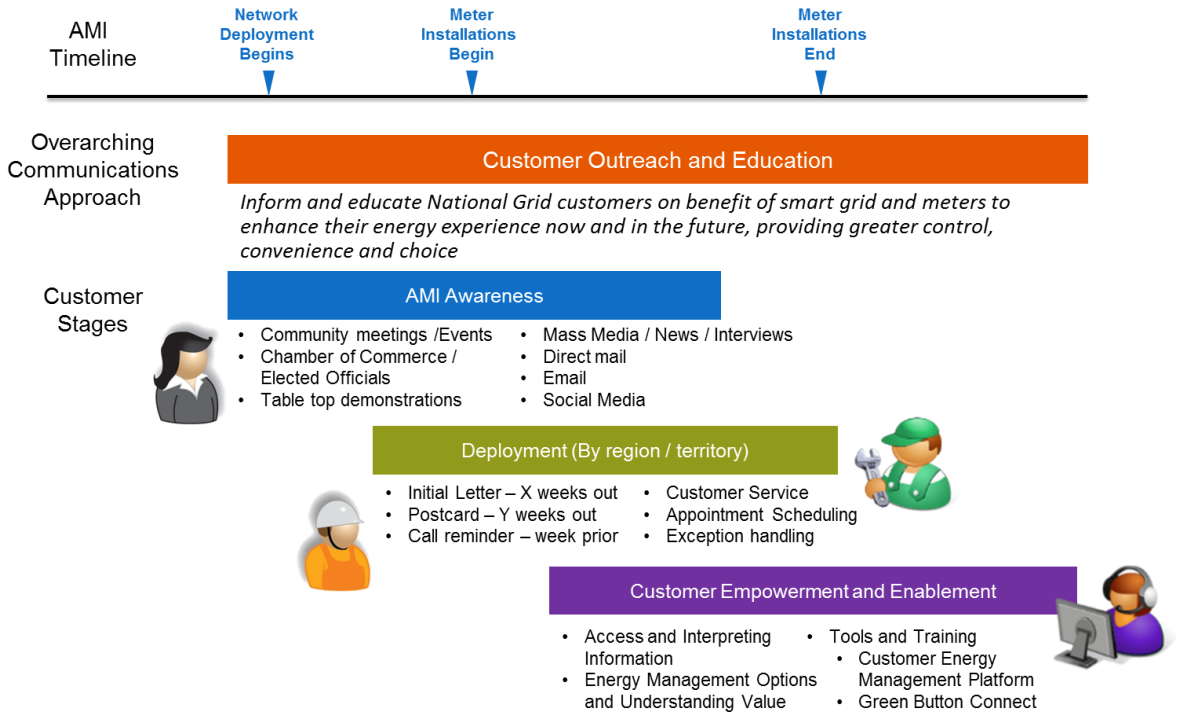


Figure 5-1: Customer Outreach and Education Timeline

Throughout each phase, the Company will apply a "Listen, Test, Learn" methodology that was useful during the Worcester Pilot to ensure the messages are being received by customers as expected. The "Listen, Test, Learn" methodology will be supported by ongoing customer surveys the Company will conduct to continue refining the messages and outreach strategies. Messages that are not resonating will be adjusted. Metrics to understand and proactively manage customer engagement performance throughout the entire experience are described in Section 8.

5.2. Customer Choice and Opt-out

National Grid is committed to customer choice. During all phases of deployment, customers will be able to choose to opt out of a smart meter at any time. If a customer chooses to opt out, the Company will seek to understand the reason the customer is declining to participate in the program. This will allow the Company to focus additional resources toward other regions, sectors, or specific customer groups that may consider opting out. Customers choosing to opt out of a smart meter will initially receive additional education on the benefits they would likely forego by not participating based on their access to features and services requiring smart meter data (*e.g.*, more personalized usage insights and bill-saving opportunities with potential future TVP plans). Customers will also be made aware that meter reading fees will be incurred if they opt out of receiving an AMI meter. Customers will not be charged a fee if they choose to later have a smart meter installed. However, customers who initially receive an AMI meter and then opt-out of the program, will incur a one-time meter change out fee.

Table 5-1 summarizes the goals of each phase and the communication channels the Company will use to convey key messages and options to customers on their ability to opt out.

Time	Before Deployment	During Deployment	After Deployment
Goal	**Education Outreach** • Inform customer of program benefits and information on privacy/security policy to minimize opt-out rates	**Mitigating Opt-out** • Mitigate opt-out decisions, facilitate calls, questions, and drive retention	**Encourage Opt-in** • If customer has opted-out in the past, provide information on program benefits, privacy/security policy and path to opt-in
Channels	• Direct mail, bill inserts, email • Website, FAQs • Community meetings, town halls, lunch-n-learns, advocacy groups • Social media • Paid media • Media relations • Customer Service support	• Direct mail, bill inserts, email • Website, FAQs • Deployment team/installers • Social media • Media relations • Customer Service support	• Website, FAQs, email • Customer Service support

Table 5-1: Opt-out Communication by Phase

5.3. Surveys and Customer Research

National Grid is committed to understanding evolving customer preferences and is continuously collecting customer feedback and opinions on its ongoing operations, services, programs, and offerings. The Company also uses a variety of methodologies such as surveys, in-depth interviews, focus groups, both in-person and online, as well as customer forums, to receive customer feedback. The feedback from these ongoing efforts will enhance the Company's overarching approach to smart meter deployment, and aid in continually improving the customer experience. For example, the Company is planning future research/studies to gain additional insights in the following areas:

- Monitoring customers' awareness of smart meters and their overall sentiment throughout all three phases of customer engagement;
- Optimizing communications throughout the entire customer engagement journey to prioritize transparency with customers and to help mitigate meter opt outs;
- Tracking the customer experience across all three engagement phases;
- Identifying customer attitudes and perspectives toward TVP structures to assist with detailed design of future pricing plans and ensure maximum customer participation and

benefits;

- Understanding unique needs of vulnerable communities; and

- Gauging customer interest in potential new service offerings to inform future design and implementation.

As the Company deploys smart meters across its service territory, it will continuously monitor the customer experience. The Company will develop valuable baselines prior to deployment, measure any changes post-deployment, help identify valuable trends, and, most importantly, continue tracking customer insights and feedback over time, especially as TVP plans are introduced. Furthermore, it allows the Company to generate insights about the customer experience throughout the AMI journey. The Company can then quickly translate such insights into program enhancements or revisions in the Company's overall outreach and education efforts. The progression of the insight gathering will generally follow the three AMI customer engagement phases, as follows:

- **Phase I (Awareness):** The first in the series of Customer Experience Surveys. Designed to get a baseline measure of awareness, interest, and attitudes towards the program. To be conducted up to 6 months prior to deployment of a given cohort at twice-annual intervals.

- **Phase II (Deployment):** Smart Meter Deployment Monitoring (1-2 months following installation). Monitor customer awareness of, and satisfaction with, the deployment of smart meters through post-installation surveys. This initial measurement following installation allows for ongoing review of recent deployment, a comparison to pre-deployment metrics, and quick insights into the initial customer smart meter experience, which will inform the remainder of the Company's deployment across the service territory.

- **Phase III (Empowerment and Enablement):** Ongoing tracking of awareness, interest, satisfaction and attitudes towards the program. To be fielded at 6-month intervals. Potential to add specific questions in "flex section" of questionnaire to address topics of relevance at a given time.

As smart meters are deployed across the service territory, customers will be grouped into cohorts based on the dates they are scheduled for deployment. Awareness, deployment, and enablement research will be conducted among each cohort to allow ongoing tracking of the customer experience. While the exact sizes of the cohorts will vary depending on the pace of deployment, they are expected to be large enough (*e.g.*, more than 100,000 customers per cohort) to allow a statistically valid readout without inducing survey fatigue. Results will be reviewed at the aggregate level, per cohort, by language, and by other vulnerable customer group as needed.

In addition to the customer experience research described above, the Company will also conduct customer need's research, as well as communications testing.

- **Communications testing:** Qualitative or quantitative studies to be conducted to gauge customer sentiments towards planned communications. Methodology will be reflective of communications channel. Testing different messages to maximize the impact of collateral development and dissemination. Insights used to optimize messaging and customer acceptance. Refresh content to ensure messaging remains applicable to customer expectations and needs.

- **Customer Needs Studies:** Low-income; senior/medical hardship; non-English, other as needed. Methodology will be optimized for target customer group – focus groups, in-depth interviews, online or in-person. Insights used to optimize program deployment, communications and education. Seek to understand interest in programs, barriers to participation, opt-outs, and motivations for participation.

In short, National Grid will continue to keep customer research, insights, and feedback at the core of its design and decision-making processes as it progresses along the smart meter deployment journey. Figure 5-2 explains a proposed research timeline across the deployment period. It provides an illustrative timeline for measuring and monitoring insights and can be adjusted as insight needs evolve.



Figure 5-2: AMI Journey Customer Research

5.4. Customer Journey Approach

As the Company progresses through the managed ramp up process to project kickoff, it has developed a customer journey approach to guide the development of customer engagement materials closer to the time of meter/module deployment. The customer journey approach is the process of creating a customer journey map, a visual story of customers' interactions with the Company during AMI deployment. Customer journey mapping is important to the development of customer education and awareness materials along with employee training, because it is a strategic approach to better understanding customer expectations. In this way, the journey mapping is critical to optimizing the customer experience. Throughout this section, the Company will provide illustrative customer journey maps for the following customer groups:

- Residential;
- Income-Eligible (10% of residential customers are in income-eligible programs);
- Seniors (65 years of age and older; 26% of residential customers);

- Indoor Meters (20% of residential meters);
- Life Support (3% of residential customers; inclusive of all 25 categories of protected status reasons);
- Small & Medium Business (88% of commercial accounts); and
- Commercial & Industrial (12% of commercial accounts; accounts managed by an Account Manager).

5.4.1. Residential and Income-Eligible Customers

The residential (*see* Figure 5-3) and income-eligible customer (*see* Figure 5-4) journeys begin with the project and continue through meter/module installation (Q4 2027). The residential and income eligible-customer journeys will be similar with income-eligible customers having access to customer advocates who can assist with any questions throughout deployment, while also advising about additional programs for income-eligible customers.

Meet Isabel, Age 61, Clay, NY
Residential Customer



Demographics

- Homeowner
- Married
- One child in 20s living at home while attending community college
- Education: College Graduate
- Employment: Realtor, full time
- Current Income: $65K

Behaviors and Actions

- Highly organized
- Does plenty of research on a product/service before I buy it
- Weighs trade-offs between environmental friendliness and price when buying products and services
- Very open to adopting more smart technology to simplify life and be as efficient as possible with time and energy
- Digital phone is main communication and organizational tool for: Social contact (mainly texting, calling and Instagram; some email) Time management (calendar, alerts/notifications/alarms)
- Regularly uses laptop/desktop/tablet when larger screen is needed:
  - Reading (news and books)
  - Shopping (increasingly going online as first resort to buy everything)
  - YouTube viewing (increasingly useful resource for instructional videos, travel videos, music, entertainment)

Pain Points

- Always on the lookout for ways to make her home more energy efficient, for both environmental and financial reasons
- Believes that climate change is one of the most important issues our world is facing, though she is unconvinced of the reasons or best way forward
- There are a lot of unknowns (with National Grid), and the nature of our products she finds to be non-trustworthy, because of the physical stuff in her neighborhood, e.g., when her street was dug up for field work

Stages	Phase I (Field Communication network Installation)			90 Days to install			60 Days to install		
Timeline	Now	9 Months	7 Months	90 Days		61 Days	60 Days		31 Days
Steps	Isabel has seen news/media coverage about Smart Grid Plans.	She is seeing crews working all over the neighborhood.	It's been a few weeks, the crews are gone.	She is seeing/hearing news/info about Smart Grid coming to my community.	Received info about Smart Meters. Benefits, FAQs, Roll Out. She is looking for more information.	National Grid is speaking at her Community Board meeting tonight. She has been seeing posts on her Social Media feeds about Smart Grid/ Smart Meters.	Received information with more details advising me of the timeline & meter	She is looking for more information.	She has been seeing posts on her Social Media feeds about Smart Grid/
Communication Channels		Agent will be prepared with talking points & FAQs			Developing educational videos that can be leveraged	Community Meetings may be virtual			

COMMUNICATION CHANNEL KEY

AGENT · EMAIL · WEBSITE · MAIL · DOORBELL · VIDEO · CONSUMER ADVOCATE · TOWN MEETING · NEWS · CALL · PAID SOCIAL

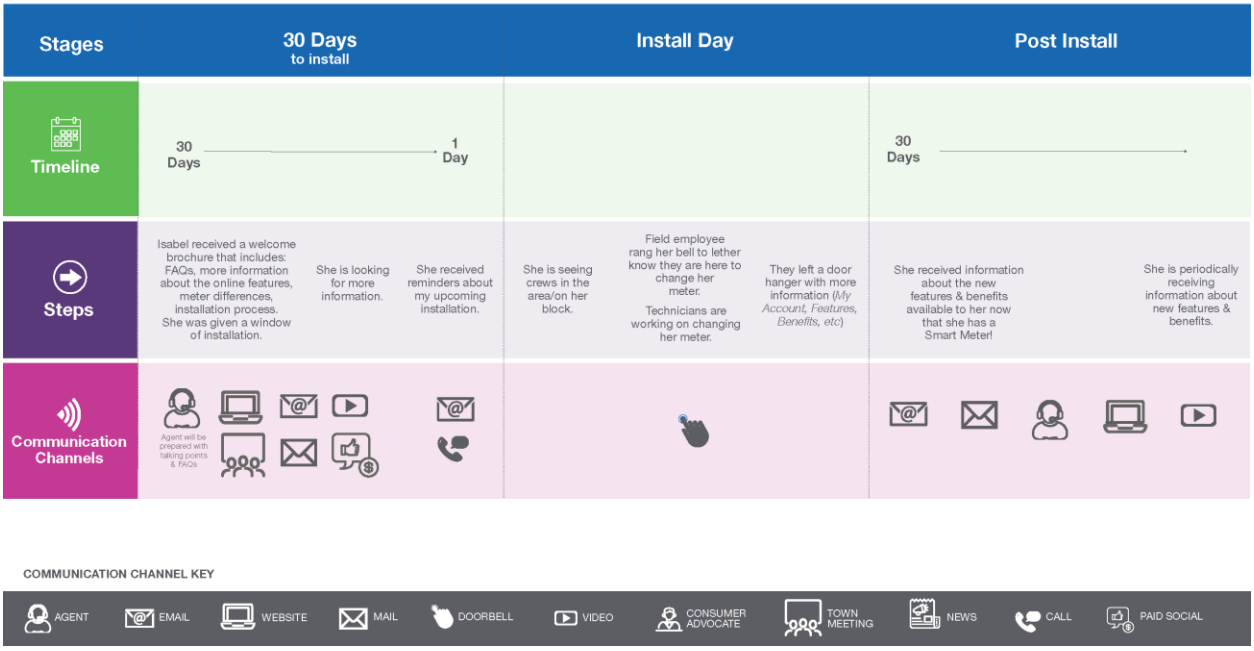


Figure 5-3: Residential Customer Journey

Meet Maria, Age 37, Syracuse, NY
Residential Customer



Demographics

- Renter
- Mother of 2 under 12
- Shares apartment with them and significant other
- Employment: Fulltime bookkeeper
- Current Income: $35K

Behaviors and Actions

- Closely tracks all spending in detailed spreadsheet; uses promotions and multiple shopping apps to "reduce my final costs" on everything from everyday necessities to discretionary purchases (cash back, rebates, discounts/sales)
- Uses mobile phone to communicate, connect, track, manage all parts of life
- #1 Apps for bill pay, information, shopping #2 Live phone customer service for when digital channels are fruitless – not preferred, but critical as backup #3 Paper bills for record keeping
- Obsessive about not wasting even small amounts of electricity and the money it represents

Needs and Pain Points

- Finding discounts, sales, rebates and other promotions to reduce any and all day-today expenses
- Low prices and good, reliable deals on things she needs
- Offer to send her (more) information to be more efficient, save on her bill

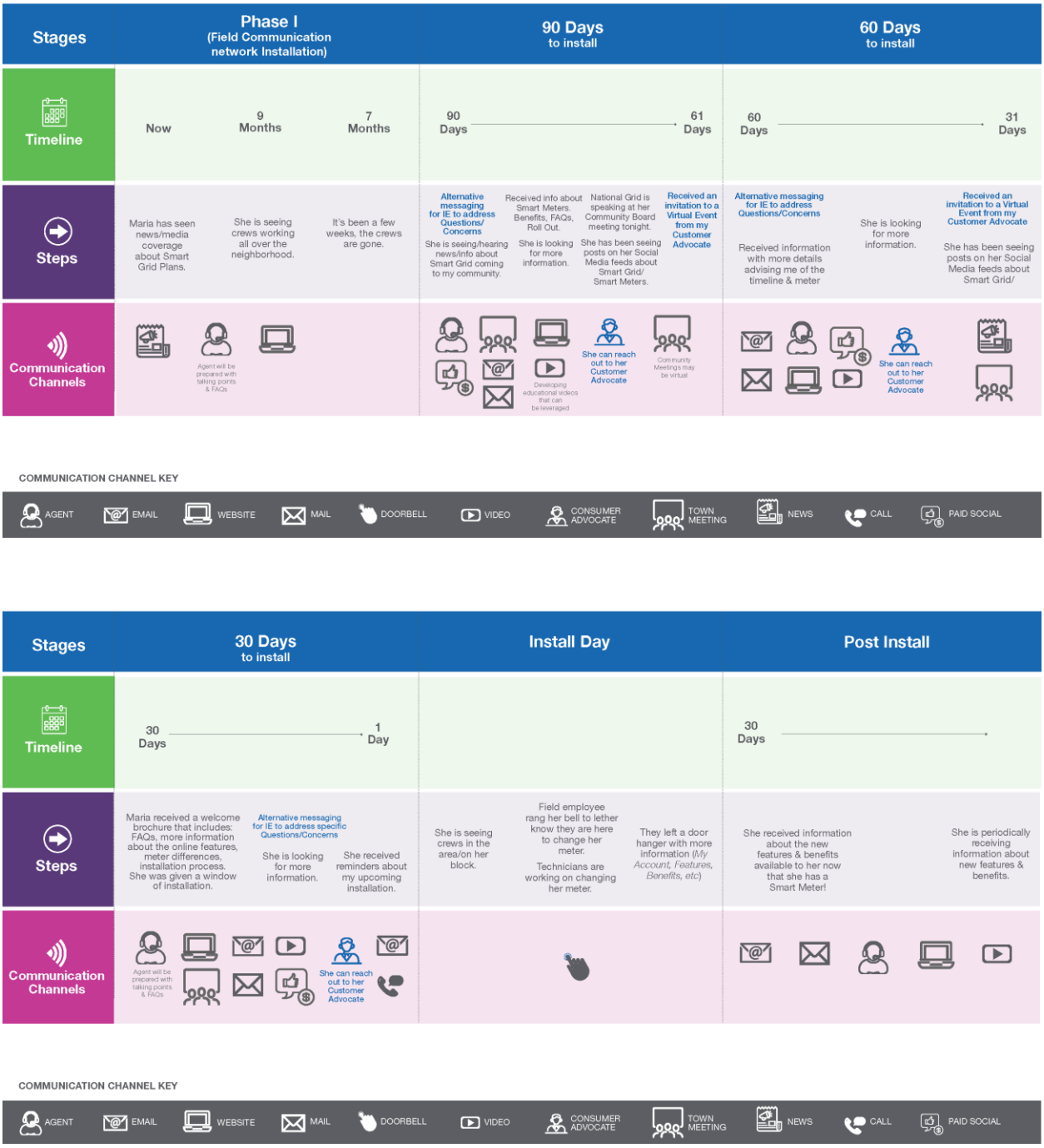


Figure 5-4: Income-Eligible Residential Customer Journey

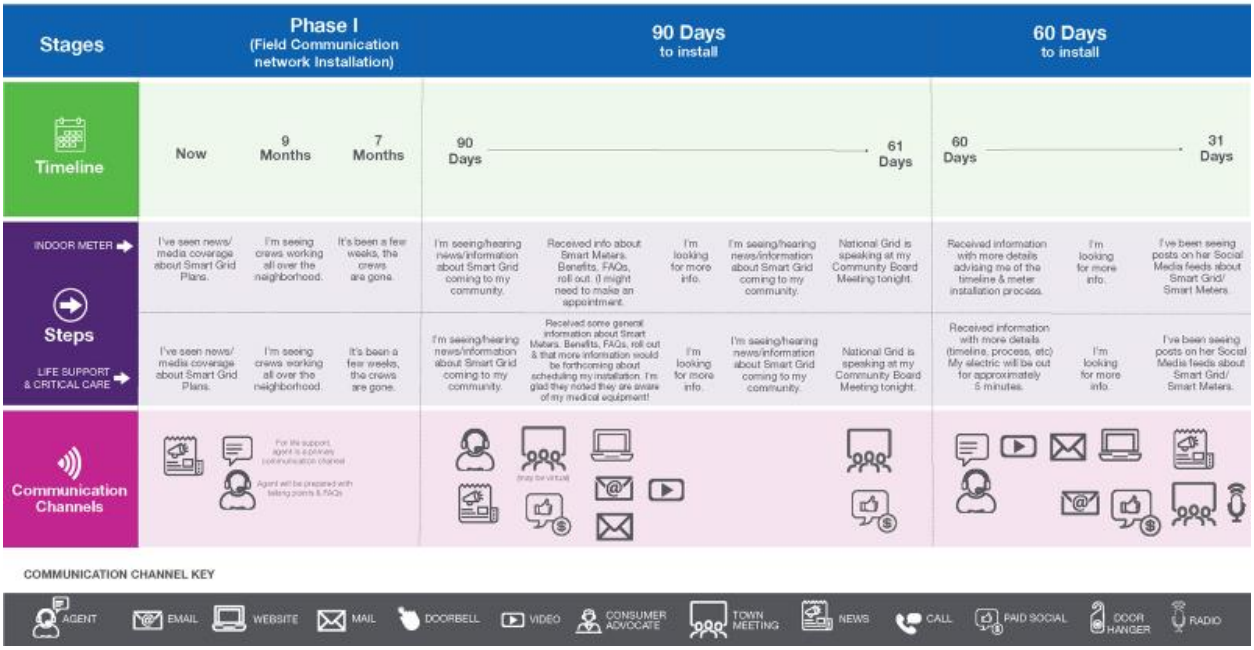
5.4.2. Indoor Meter and Life Support Customers

For indoor or inaccessible meters (*i.e.*, a meter in a basement), customers will need to grant the Company access into their home to change the meter. The Company will make at least two in-person attempts to connect with the customer. On the second attempt, the Company will leave a

doorhanger explaining why access is needed and how to contact the deployment team to schedule an appointment at their convenience to install the new AMI meter

For customers identified in the Company's systems (or with on premise markings) as possessing life support equipment or requiring uninterruptable service for medical reasons, meters will **NOT** be changed without explicit permission and the scheduling of a pre-approved meter/module change appointment. The Company will provide dedicated communications (including doorhangers) for life support/critical care customers with information about scheduling an appointment to have their AMI meter/module installed, and multiple attempts will be made to reach the customer to schedule the meter change. Such customers will not be included with the general deployment population until they make (and the Company confirms) an appointment. Please see Figure 5-5 below for the indoor meter and life support/critical care customer journey map.

Customer Journey Map: Indoor Meter and Life Support & Critical Care



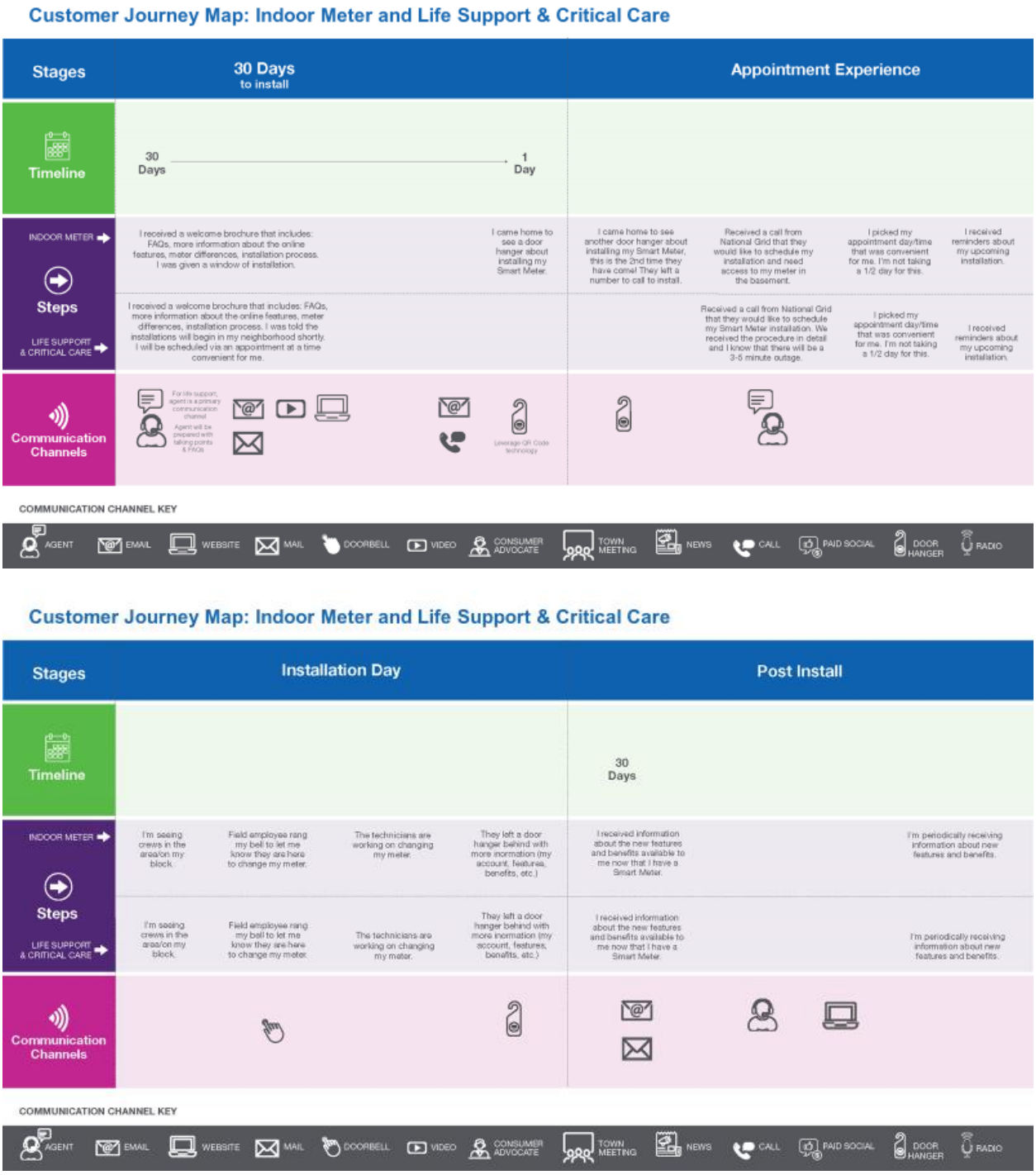


Figure 5-5: Indoor Meter and Life Support/Critical Care Customer Journey

5.4.3. Seniors

The Company recognizes that older customers may have different needs and communication preferences than other customers. As such, the Company will develop a non-digital delivery format as part of its multi-channel communication strategy. In addition, National Grid will partner with local social councils through town hall meetings to build smart meter awareness

among senior customers, and help them to understand the deployment process and benefits of the new technology. Please see Figure 5-6 below for the customer journey map for seniors.

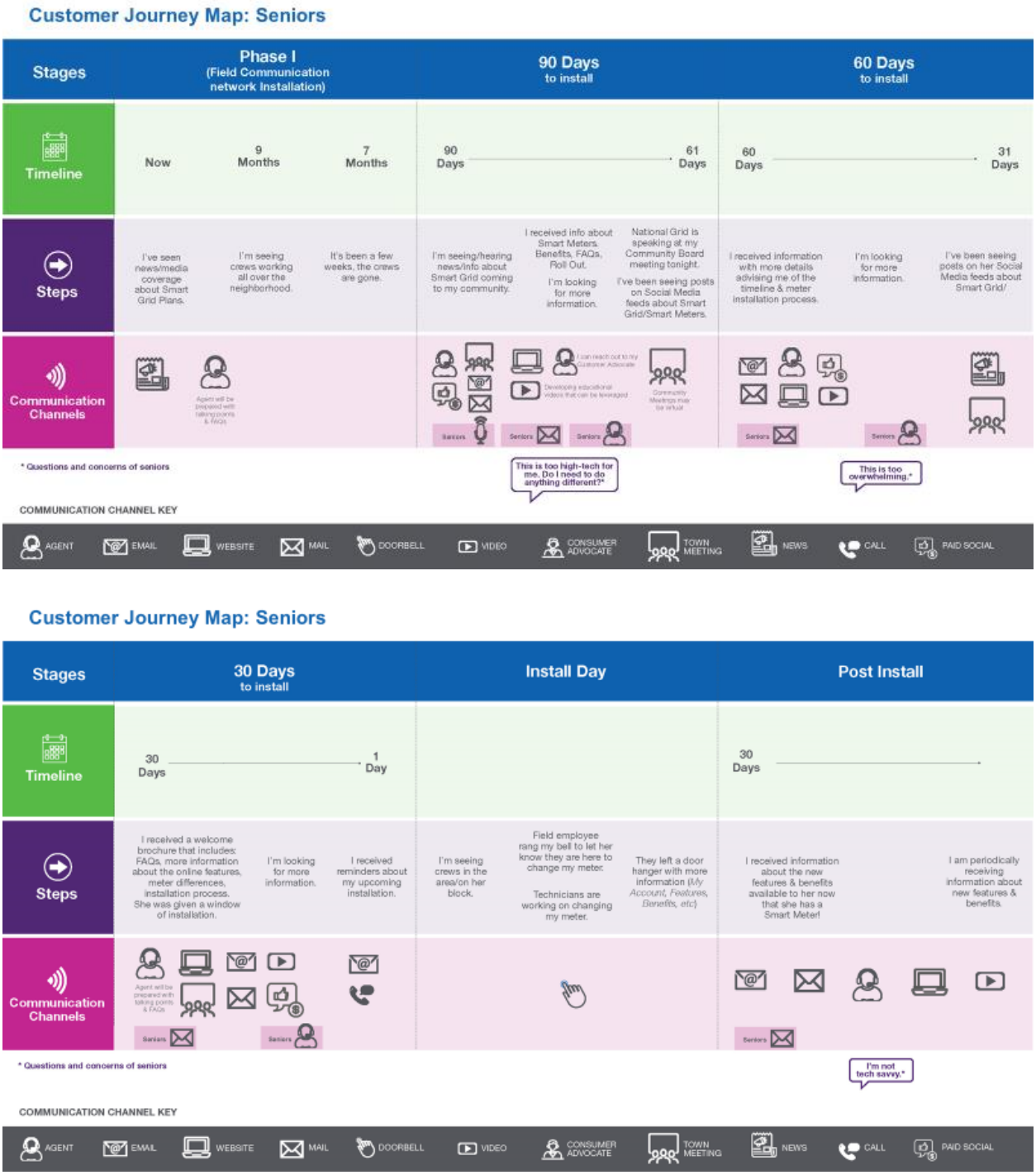


Figure 5-6: Customer Journey for Seniors

5.4.4. Small Medium Business & C&I Customers

The Small Medium Business and C&I customer journey will begin with the project and continue through meter/module installation (Q4 2027). Please see Figures 5-7, 5-8, and 5-9 below for the Small Medium Business and C&I customer journey map.

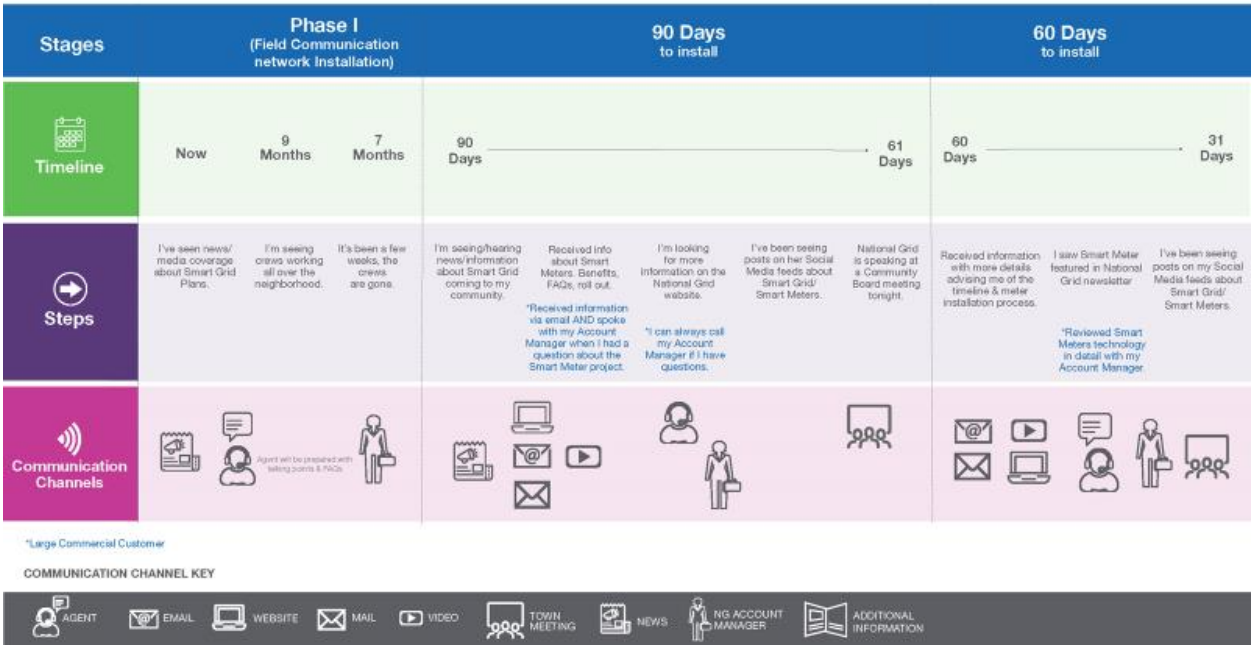


Figure 5-7: Illustrative Small Business Customer Persona

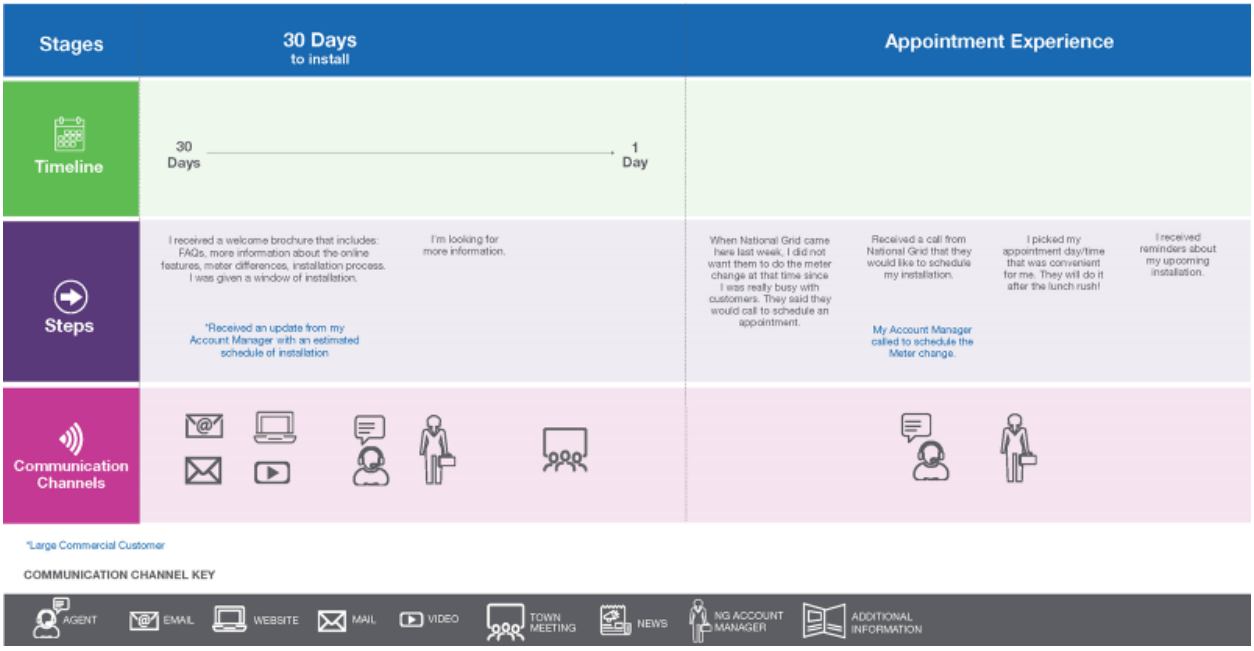


Figure 5-8: Large Commercial Customer Persona

Customer Journey Map: Commercial Customers



Customer Journey Map: Commercial Customers



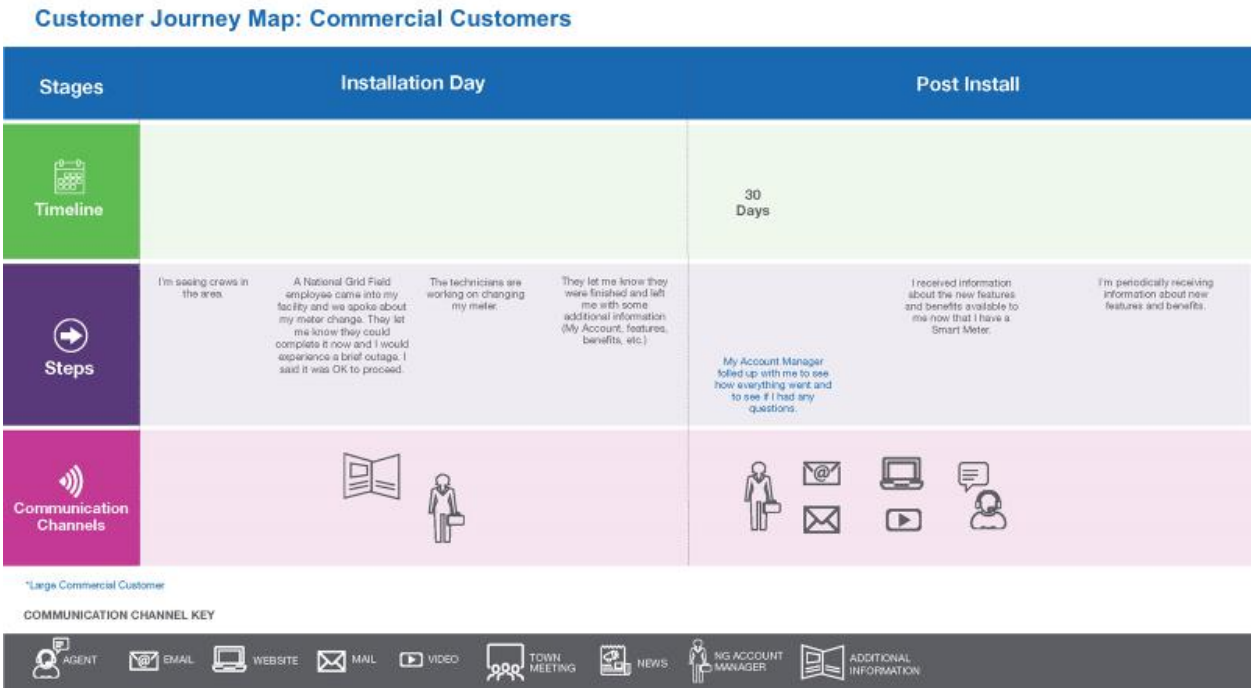


Figure 5-9: Commercial Customer Journey Map

5.5. Phase I (Awareness)

5.5.1. Objectives

The Phase I objectives are to:

- Develop customer and stakeholder trust through continuous communication and transparency;
- Build customer-facing assets and collateral for outreach and education efforts;
- Educate and train National Grid employees on AMI deployment, including CSRs, customer and community managers, account managers, and corporate communications;
- Engage stakeholders including community leaders who will interact with customers throughout the deployment process;
- Initiate general mass-market outreach efforts to build smart metering awareness and commence education; and
- Explain the benefits of smart meter installation and the enabling tools and options that will be available upon deployment.

5.5.2. Approach

During Phase I, National Grid will use a two-pronged approach to educate and engage customers by building a strong foundation internally and initiating proactive and transparent outreach efforts. As the Company learned from the Clifton Park Demonstration and the Worcester Pilot, National Grid customers want to be educated early and often on new features, technologies, and offers. Furthermore, internal customer surveys have shown that customers have a limited

awareness of smart meters, indicating the need for early communication to help build awareness of AMI, generate interest and support, and mitigate any potential barriers to adoption.

5.5.3. Development of Customer-Facing Assets and Collateral

To ensure an efficient smart meter transition, the Company will utilize outreach that has been previously successful to support the multi-phase, multi-channel outreach and engagement approach. An illustration of a successful approach utilized in Clifton Park can be seen in Figure 5-10.



Figure 5-10: Scope of Clifton Park Outreach

A summary of select Company outreach activities includes:

- Develop relevant and motivating messages tailored to customer segments and channels based on insights from customer surveys, best practices from the Company's smart meter pilots, and findings from other utility smart meter deployments (an example of how the Clifton Park Demonstration translated demographic insights into tailored messaging utilized is provided in Figure 5-11).

- Finalize mass-market outreach efforts and channel strategies, including billboards, radio ads, online ads, print ads, social media, the Company's website, community official/stakeholder meetings and forums. National Grid will develop a variety of educational materials to reach customers including both mass-market and C&I customers through traditional and online channels. This approach has been tested during pilot programs and has proven successful. Outreach will be targeted by customer group and will use appropriate channels to include direct mail letters, videos to educate customers and help them better manage energy use, creating a "Getting Started Guide" to provide step-by-step instructions and visuals for customers, testimonials, engaging via social

media (*e.g.*, Facebook, Twitter, YouTube), and creating case studies to make the process more relatable for customers. All educational materials will be available in top 3 languages based on customer demographics. Throughout Phase I, the Company will regularly solicit feedback on material and channels to provide improvements and refinements. Education materials will include:

- FAQs for stakeholders, community leaders, CSRs, residential customers, small and medium businesses, commercial customers, income-eligible customers, and seniors;
- Welcome brochures;
- Step-by-step guides including, not limited to, how to opt-out, CEMP, and creating account information;
- Opt-out communications;
- Fact sheets;
- Digital assets: web banner and social media;
- Emails/direct mailers based by customer type/segmentation;
- Introduction letters; and
- Call center training manuals and scripts.

- The Company's website will have a dedicated section on smart meters to serve as a resource for information. The website will contain fact sheets, FAQs, and will be regularly updated to ensure timely and accurate information including up-to-date information for customers prior to and during meter deployment. Other important topics that this resource will address include information on smart meter security and privacy, data access policies and functionalities, and general information about smart meter benefits.

- The Company will create a mobile sustainability hub, reflecting the success of the sustainability hub[33] used in the Worcester Pilot, to bring information to hard-to-reach customers in a fun and inviting manner. The mobile sustainability hub will provide personal contact between customers and the Company, educating customers about smart meters and providing a hands-on experience of the benefits unlocked by the new technology.

[33] The Company's Worcester Sustainability Hub served as a permanent physical place where customers, the community, and interested stakeholders could learn about the Worcester Pilot and how a smarter grid can deliver greater choice, control, and convenience.

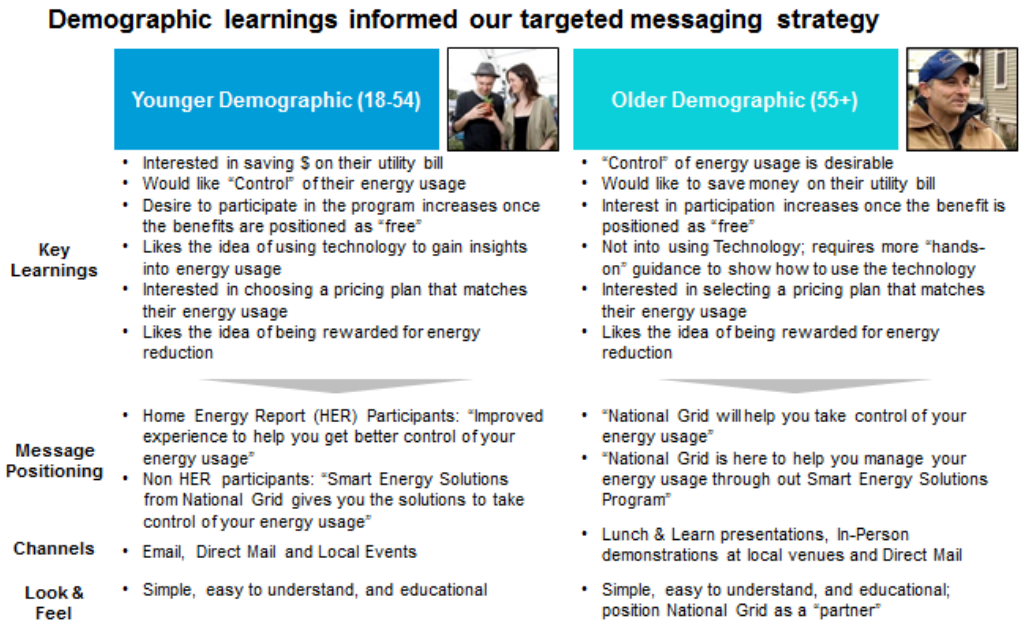


Figure 5-11: Targeted Messaging Example from Clifton Park

For each of the Company's pilots, dedicated websites provided information through relevant FAQs, and were updated to stay current, as shown in Figure 5-12.

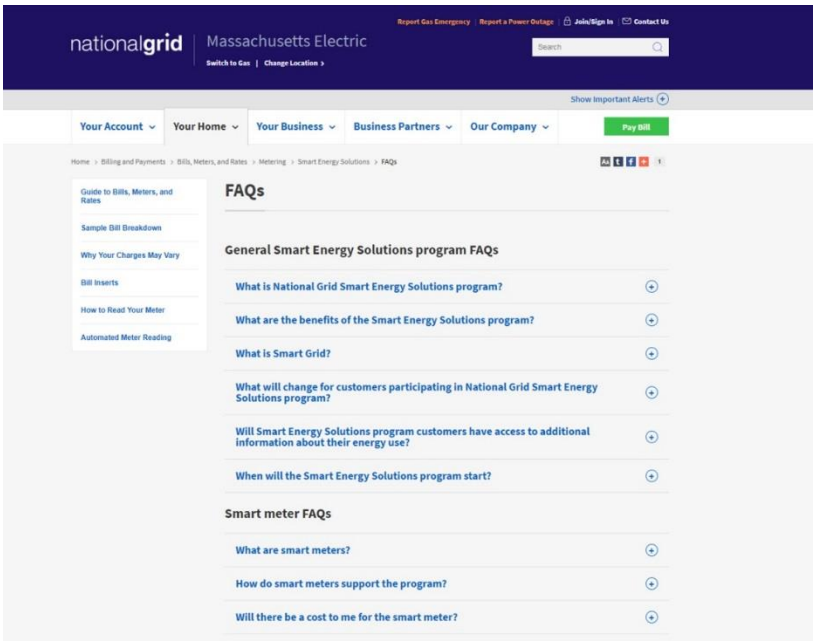


Figure 5-12: FAQs on National Grid Website for the Worcester Pilot

5.5.4. External Outreach to Stakeholders and Customers

External outreach to key stakeholders will continue through all three AMI customer engagement phases. This will ensure everyone is aware of the AMI plan, the benefits to all stakeholders, what to expect throughout the smart metering program, and the timelines associated with receiving meters/modules that enable a new level of customer energy usage insights and action.

Based on feedback provided during the AMI collaborative sessions, the Company will prioritize engagement with community leaders (*e.g.*, town managers, mayors), and specific customer groups (*e.g.*, income-eligible consumer advocacy organizations), prior to initiating broader customer outreach. Table 5-2 includes an overview of the stakeholder messages, channels and materials, which will include face-to-face meetings, phone discussions, and written communications. This prioritized engagement will continue throughout all three phases.

Messaging	Channels	Materials
• Intro to Smart Meters • Customer Benefits • Deployment Process	• Invitation • Email •Customer and Community Managers/Account Managers • Fliers/Leave Behinds • Mobile Sustainability Hub	• Education Campaign • "Hands On" Experience • Instructional Videos • FAQs • Fact Sheet

Table 5-2: Stakeholder Campaign

Following key stakeholder education on smart meters, the Company will initiate a mass market media campaign to begin proactive outreach, marketing, and education and continue to leverage existing Customer and Community Managers/Account Managers' relationships with C&I customers for more direct education and engagement (*See* Table 5-3). In major area hubs, the Company will schedule additional community events to help match the mass media efforts, with targeted outreach to more rural communities as needed. Mass media efforts may include billboards, radio ads, online and print ads, social media, and the Company's website.

Messaging	Channels	Materials
• Intro to Smart Meters • Customer Benefits	• Website • Out of Home Ads • Social Media • Online/Print Ads • Customer and Community Managers/Account Managers • Mobile Sustainability Hub	• Education Campaign • Instructional Videos

Table 5-3: Customer AMI Awareness Campaign

5.5.5. Addressing Customer Concerns

The Company plans to leverage existing customer-facing materials and communications from its pilot experiences to develop new materials to address customer concerns related to privacy, security, data sharing, and the perceived health impacts of smart meters. The Company has developed a broad repository of various customer concerns raised in both pilots, which will help ensure distribution of information across different customer touchpoints, including FAQs, customer service scripts, media materials, website posts, and town hall materials.

Figure 5-13 and 5-14 together provide an example of the Privacy and Security Brochure developed for both the Worcester Pilot and Clifton Park Demonstration. These materials serve as illustrative examples and will be updated to reflect the most relevant information for the Company's customers.

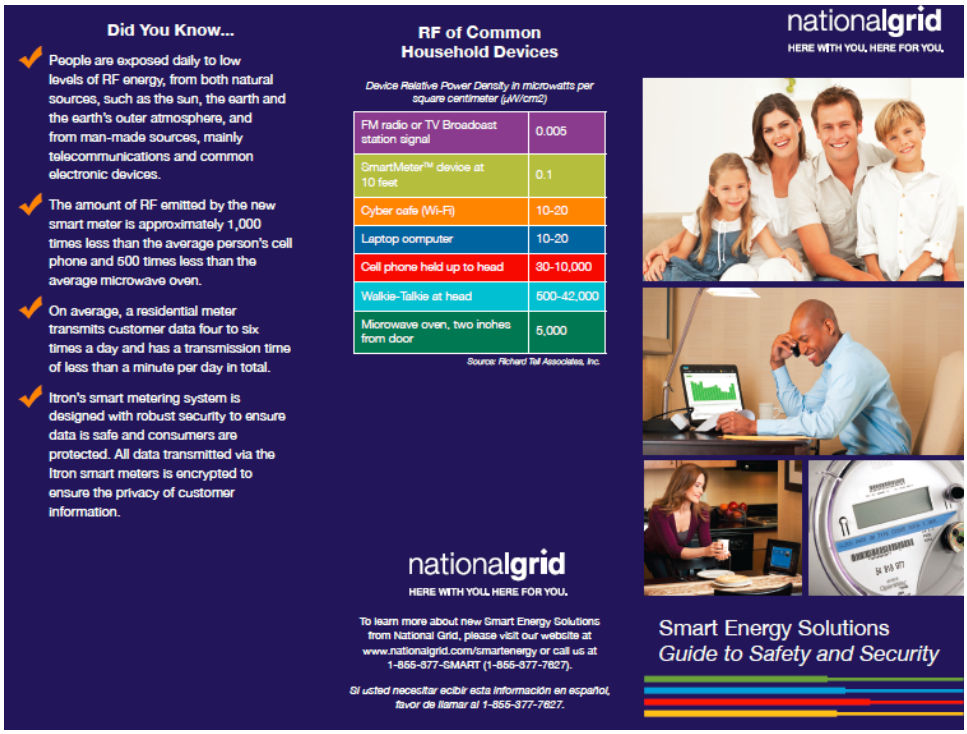


Figure 5-13: Worcester Pilot and Clifton Park Demonstration – Guide to Safety and Security Brochure (cover and back)

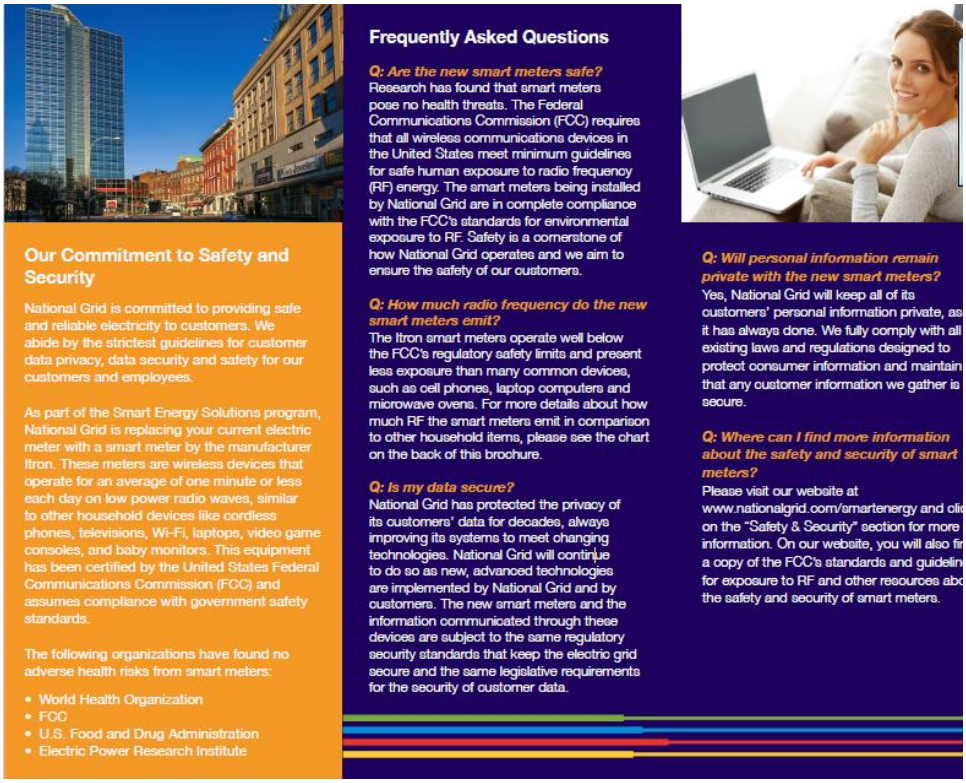


Figure 5-14: Worcester Pilot and Clifton Park Demonstration – Guide to Safety and Security Brochure (inside)

5.5.6. Customer Opt-Out in Phase I

The goals for managing opt-out will vary based on the engagement phase. In Phase I, the aim will be to inform customers of program benefits and privacy information to minimize meter opt-out rates via direct mail, email, the National Grid website, community meetings, advocacy groups, social media, paid media, and customer service support.

Customers will be able to choose to opt out of a smart meter at any time. The opt-out process can occur through customer service support and/or neighborhood installers/representatives. If a customer calls the Customer Service Center, the CSR will ask to understand the reason for opting out and provide additional information, as appropriate. The Customer Service Center will communicate to the customer that future meter reading fees will be charged monthly if an AMI meter/module is not installed and will send the customer the appropriate forms to confirm that they do not wish to participate in receiving an AMI meter and/or gas module, thereby forgoing future benefits that are unlocked by the installation of a smart meter.

5.6. Phase II (Deployment)

5.6.1. Objective

The Phase II objectives are:

- Expand outreach and education efforts on AMI meters and benefits across multiple customer touchpoints;

- Inform customers of the AMI deployment plan and transparently communicate how they will be impacted;
- Ensure that customers understand the installation process and available choices (*e.g.*, opt out) as well as address any concerns (*e.g.*, safety or privacy);
- Provide customers with timely notifications of installation; and
- Preview tools and options that will be available to customers following smart meter deployment.

5.6.2. Approach: 90, 60, 30-Day Communications Plan

National Grid will leverage the numerous mass market communication and education strategies utilized during Phase I as a foundation for focusing the message throughout Phase II. Targeted customer communications will be rolled out 90, 60, and 30 days prior to installation of the smart meter and will be locally timed to the Company's meter installation schedule. The 90, 60, 30-Day Communications Plan is summarized in Table 5-4 below.

90 days before deployment	60 days before deployment	30 days before deployment
Key stakeholder Community Engagement	Customer Awareness	Direct Customer Outreach
• Enable AMI/smart meter web presence • Jurisdictions/Account managers continue meeting with community leaders and local stakeholders • Fact sheets, outlining key messages distributed to call centers and other customer-facing employees • Small business customer engagement • Community meetings • Targeted low income, seniors non-English speaking, and medical hardship customer outreach • Mass market outreach such as billboards, out-of-home advertising	• Customer mailings - Introductory Welcome Letter • Proactively contact local media and provide information along with town meetings • Radio, print, email, and online banner ads • External affairs continues meeting with community leaders and local stakeholders • Mobile Sustainability Hub based with strategic deployment • Instructional videos	• Customer mailings and emails - Welcome Brochure with preview of new tools and options • Electronic calls to remind customers of upcoming meter installations • Doorknob hanger upon installation • Respond to media inquiries • Monitor paid and social media

Dates will adjust with meter deployment roll-out
Ad-hoc meetings and activities will be added as time and need permits for each deployment area

Table 5-4: 90, 60, 30-Day Communication Plan

5.6.3. 90 Days Prior to Deployment

As regions are scheduled for AMI meter installation, the Company will build on the steady education of, and engagement with, community leaders from Phase I to begin direct and targeted education. 90 days prior to deployment, the Company will enhance its community outreach by hosting in-person and virtual town hall meetings. The Clifton Park Demonstration has shown this type of engagement to be particularly successful in reaching customers. The outreach will include:

- Orchestrating meet-and-learn events at local venues with customers, community leaders, press and external stakeholders. Events will take place at various times (*e.g.*, daytime, evening, weekday, weekend) to accommodate varied customer schedules;
- Developing targeted presentations focused on customer benefits;
- Offering customers a "hands-on" experience with the new CEMP functionalities; and
- Providing step-by-step guides as take-home materials for customers after the events.

Additional Channels

Within this 90-day engagement period, the Company will continue to modify the web presence to include a timeline for the roll out of information for impacted areas. The website will provide contact information (such as toll-free phone numbers and email addresses) for SMEs and representatives who can assist in answering customer questions.

The Company will launch a series of messages that provide customers with more specific information about the smart meter rollout in their area. An example of this approach from Clifton Park can be seen in Figure 5-15. As part of this effort, the Company will begin deploying home and business advertising, email, and social media content.



Figure 5-15: Sample Billboard for the Clifton Park Demonstration

The messaging throughout Phase II will build upon initial education on smart meters and their benefits and will be ongoing and continue beyond deployment (*See* Table 5-5). The Company will continually adjust outreach and messaging based on feedback from customer focus groups and surveys.

Messaging	Channels	Materials
• Intro to Smart Meters • Customer Benefits	• Website • Out of Home Ads • Social Media • Online/Print Ads • Mobile Sustainability Hub	• Education Campaign • "Hands On" Experience • Instructional Videos

Table 5-5: Customer Deployment Campaign

5.6.4. 60 Days Prior to Deployment

Continuing with proactive outreach, the Company will build customer awareness of smart meter deployment through direct mail letters and emails with detailed information about the technology, benefits, and deployment process/timeline with a call to action to drive customers to

the National Grid website approximately 60 days prior to deployment. Bill inserts, social media posts, and digital ads will also be activated with updates, timelines, and links to more detailed information on the web as shown in Table 5-6.

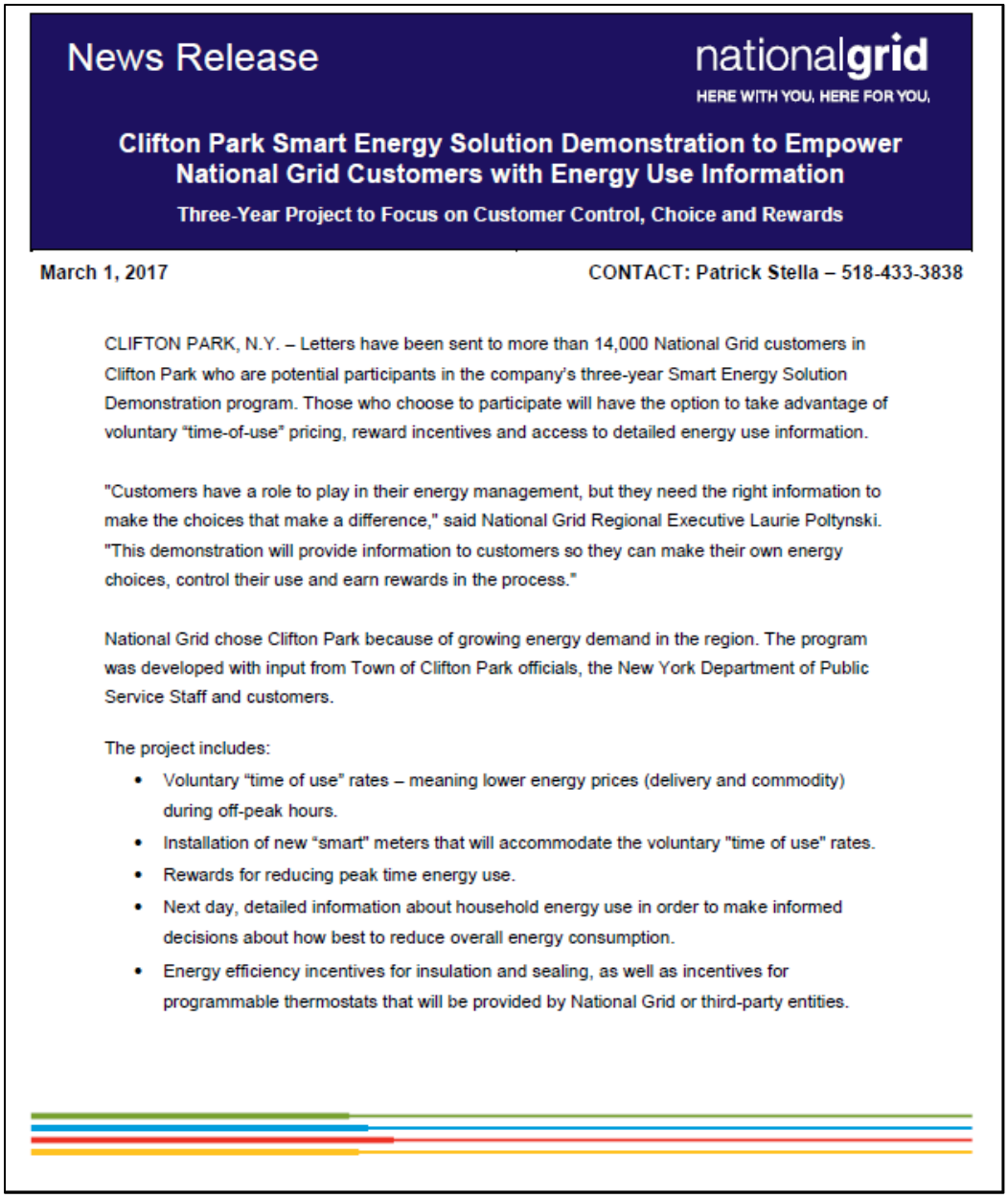
In addition, the Company will clarify in these communications what National Grid will be responsible for in the new meter replacement (*e.g.*, meter, wire to the point of attachment) and what conditions could prevent meter installation. Customers will be responsible for the same components they are currently responsible for today (*e.g.*, meter box, meter channel, after-meter channel, cable).[34] If the Company encounters an issue that could be unsafe for the customer, the Company will notify the customer of the safety hazard. Based on the prior AMR deployment, the Company does not expect a high volume of safety issues. In such instances, the Company will work with the customer to identify a time in the future to complete the AMI meter/module installation after the necessary safety repairs are complete.

Messaging	Channels	Materials
• Deployment Process/Timeline • Customer Benefits	• Email • Direct Mail/Bill Inserts • Community Meetings • Social Media • Digital Ads • Press Release • Mobile Sustainability Hub	• FAQs • Getting Started Guide • Welcome Brochure • "Hands On" Experience • Fact Sheet • Instructional Videos • Introduction Letter

Table 5-6: Deployment Area Outreach at 60 Days

The channels will be supplemented with print advertising and broadcast media channels to continue to provide information and increase program awareness. The goal is to reach as many customers and participants as possible so that knowledge of smart meter deployment becomes commonplace among neighbors and friends. There will also be continued engagement with local stakeholders. Figure 5-16 is an example of a news release that may be targeted to a region or community with Figure 5-17 showing an example of a program introduction letter that was used in the Clifton Park Demonstration.

[34] Customers are responsible for certain equipment at the premise including the meter channel and wire that runs on the outside of the house and is connected to the Company's service lateral. If these are damaged and require repair for safety purposes, it's the customer's responsibility. Once the repair is made a municipal inspector must inspect/verify the service is safe before the Company can provide service by installing the meter.



News Release

nationalgrid
HERE WITH YOU. HERE FOR YOU.

Clifton Park Smart Energy Solution Demonstration to Empower National Grid Customers with Energy Use Information

Three-Year Project to Focus on Customer Control, Choice and Rewards

March 1, 2017 **CONTACT: Patrick Stella – 518-433-3838**

CLIFTON PARK, N.Y. – Letters have been sent to more than 14,000 National Grid customers in Clifton Park who are potential participants in the company's three-year Smart Energy Solution Demonstration program. Those who choose to participate will have the option to take advantage of voluntary "time-of-use" pricing, reward incentives and access to detailed energy use information.

"Customers have a role to play in their energy management, but they need the right information to make the choices that make a difference," said National Grid Regional Executive Laurie Poltynski. "This demonstration will provide information to customers so they can make their own energy choices, control their use and earn rewards in the process."

National Grid chose Clifton Park because of growing energy demand in the region. The program was developed with input from Town of Clifton Park officials, the New York Department of Public Service Staff and customers.

The project includes:

- Voluntary "time of use" rates – meaning lower energy prices (delivery and commodity) during off-peak hours.
- Installation of new "smart" meters that will accommodate the voluntary "time of use" rates.
- Rewards for reducing peak time energy use.
- Next day, detailed information about household energy use in order to make informed decisions about how best to reduce overall energy consumption.
- Energy efficiency incentives for insulation and sealing, as well as incentives for programmable thermostats that will be provided by National Grid or third-party entities.

Figure 5-16: Sample News Release from the Clifton Park Demonstration

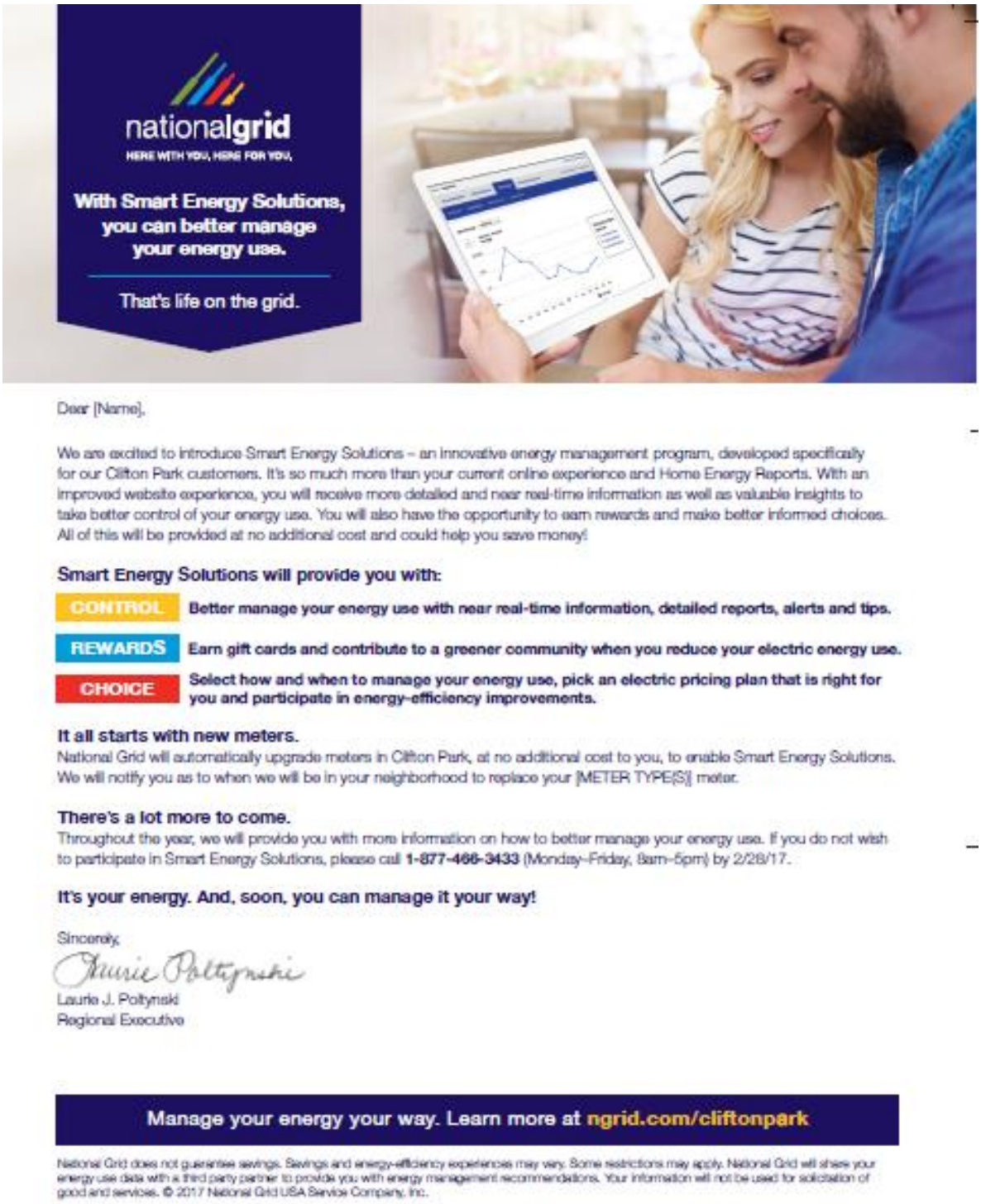


Figure 5-17: Sample Program Introduction Letter from Clifton Park Demonstration

National Grid will organize educational events to speak directly with customers about the installation and benefits of smart meters. The Company found this channel particularly useful and helpful with the Clifton Park Demonstration. The outreach will include the following:

- Orchestrating meet-and-learn events at local venues with customers. Events will take place at various times throughout the day to accommodate varying customer schedules;
- Providing customers with a "hands-on" experience with the new CEMP functionality that will be enabled by AMI meters; and
- Providing step-by-step guides as take-home materials for customers after these events.

Table 5-7 highlights campaign details associated with educational events.

Messaging	Channels	Materials
• Deployment Process • Benefits	• Email • Direct Mail • Community Meetings • Mobile Sustainability Hub	• FAQs • Welcome Brochure • "Hands On" Experience

Table 5-7: Educational Events at 60 Days

Participating in community meetings allows the Company to connect with customers directly and share the benefits of the smart metering program, help explain future pricing plans, and provide awareness and training on the new platform.

Outreach for C&I customers will occur primarily through jurisdictional representatives and account managers and will leverage preferred communication channels. The communication channels will include direct conversations, the National Grid business website, bill inserts, and emails as illustrated in Table 5-8.

Messaging	Channels	Materials
• Deployment Process • Benefits	• Jurisdictional/ Account Managers • Website • Bill Inserts • In-Person Training	• FAQs • Welcome Brochure • "Hands On" Experience • Instructional Videos

Table 5-8: C&I Outreach at 60 days

5.6.5. 30 Days Prior to Deployment

Within 30 days of deployment, communication will continue with customers to further reinforce both transparency of the process and customer awareness of smart meter benefits. As the Company approaches deployment in regional areas, customers will receive materials such as a welcome brochure, FAQs, data use and safeguard statements, emails, and postcards (Table 5-9). The messaging will build upon education and proactive outreach to emphasize smart meter benefits and opportunities to give customers more insights and control over their usage. National Grid will provide press releases, respond to media inquiries, post reminders to social media, and proactively monitor and respond to social media comments in the respective deployment areas.

Messaging	Channels	Materials
• Deployment Schedule • Benefits	• Website • Email • Social Media • Direct Mail • Mobile Sustainability Hub	• FAQs • Welcome Brochure • Data Use and Safeguard Statements • Welcome Brochure • "Hands On" Experience • Press Releases • Instructional Videos

Table 5-9: Stakeholder and Customer Outreach at 30 Days

Additional outreach targeting specific customers, such as seniors, will be included in local newspapers and direct mail pieces. These channels will highlight ways and locations in which such customers can ask questions and receive answers as to how the smart meter deployment will directly affect them. Based on learnings from the Worcester Pilot, the Company recognizes that older customers tend to prefer face-to-face interactions. Therefore, the Company plans to facilitate this interaction through direct conversations (Table 5-10).

Messaging	Channels	Materials
• Deployment Process • Benefits	• Newspaper Ads • Direct Mail • Community Meetings • Senior Events • Mobile Sustainability Hub	• FAQs • Data Use and Safeguard Statements • Welcome Brochure • "Hands On" Experience • Instructional Videos • Introduction Letter

Table 5-10: Senior Outreach

5.6.6. Day of Meter Installation

On the day of meter/module installation, field workers will first begin by attempting to contact the customer. For customers that have both electric and gas service, both the electric meter and the module on the gas meter will be replaced. For customers with electric service, the electricity will be disconnected to provide for a safe working environment for the technician. Service will be reconnected after the new meter is installed. For customers with gas service, the gas measurement module of the gas meter will be replaced and service will not be disconnected as there is no hazard imposed by replacing just the gas module.

Upon installation of the AMI meter and/or replacement of the AMI gas module, National Grid will provide the customer with a doorknob hanger that confirms services have been performed, as well as supporting “Welcome Brochure” information. This information will also include the toll-free number for customers to call and website addresses if they have questions about their new electric meter or gas module and/or general questions about the smart meter program.

In the event the Company is unable to upgrade a meter or module, the field worker will leave information at the residence providing the reason installers were unable to upgrade the meter or gas module, as well as any actions the customer may need to take for the meter/module

installation to be completed. If the issue preventing installation could cause harm to the customer or dwelling, the Company representative would not leave the property until service has been disconnected. The Company would then actively contact the customer to notify them of the issue and the required steps to rectify the situation.

The Company will monitor all communications channels to ensure customers feel supported, informed, and comfortable with their new meter. Based on the learnings from the Clifton Park Demonstration, field workers will be equipped with FAQs, "Welcome Brochures," and meter completion doorknob hangers to support the customer experience.

Messaging	Channels	Materials
• Benefits • Next Steps	• Website • Email • Social Media • Mobile Sustainability Hub	• Welcome Brochure • FAQs • Door Hangers for "missed appointments" and "meter completion"

Table 5-11: Day of Installation Outreach to Customers

5.6.7. Customer Opt-out in Phase II

If, on the day of installation, a customer chooses to opt-out when the utility representative makes initial contact, the technician will not install the new electric meter or gas module at that location. Instead, the utility representative will contact a supervisor and the Company will provide the customer with a form to confirm their choice to not receive the new equipment, with an acknowledgement that the customer will incur future meter reading fees.

The Company will aim to learn as much as possible from the customer during this time, including why they are choosing to opt out of receiving the new meter/module and forgoing the opportunity to participate in future benefits. Such customer feedback will inform future messaging and outreach strategies to help limit meter opt outs.

If the customer still chooses to opt out and submits the opt-out form, the Company will follow-up with a confirmation letter or email to the customer that clearly explains the new customer experience and specifically what the customer is responsible for moving forward (*i.e.*, payment of meter reading fees).

5.7. Phase III (Empowerment and Enablement)

5.7.1. Objectives and Approach

For the benefits of smart meter technology to be fully realized by both the customer and the Company, the Company must pair the new technology with proactive customer and market engagement initiatives that occur prior to and following deployment. As noted in Section 2, National Grid will develop and implement a CEMP. The CEMP is a long-term, holistic approach that will incorporate digital channels to educate and engage customers (primarily mass-market) in their modern energy experience that is triggered by the installation of a smart meter. With the changing customer expectations, the rise in cloud computing capabilities, and the need for new customer systems capable of fully leveraging the massive amounts of future smart meter data,

there is a significant opportunity to provide new value to customers. This necessitates a more cohesive and integrated digital solution and justifies developing the CEMP to meet changing customer needs while ensuring access to valuable information for all customers.

The envisioned customer benefits that originate post-installation are made possible by several enabling technologies. The deployment of the smart meters and associated communication network will provide significantly more granular data than is available with current AMR technology. It will establish a two-way communication pathway between National Grid and customers, a grid-edge computing platform, and smart home/business technology integration. The third-party data sharing enabled through the Green Button Connect functionality will enable increased market participation and competitive customer offerings. The CEMP will synthesize these many data sources and offerings to provide a simple, easy-to-use customer experience. To ensure maximum awareness and utilization, the Company plans to deploy and educate customers about the CEMP prior to smart meter installation (*i.e.*, prior to beginning of Phase II).

The following section provides an overview of customers' current web experience, the vision for and key features of the CEMP, as well as illustrative customer journeys (residential, commercial, industrial) to visualize the future customer experience enabled by smart meters.

5.7.2. Objectives

The Phase III objectives are:

- Provide access to new online CEMP functionality;
- Educate customers early and often about CEMP functionality and other tools and options that will be available post-meter installation;
- Encourage customers to interact with CEMP functionality to better understand energy usage and modify energy consumption;
- Provide follow-up communications on new features to customers; and
- Introduce and educate customers on new TVP plans, when available.

5.7.3. Summary of Key Activities for Both Digital and Non-Digital Delivery

As previously noted, the Company recognizes that not all customers will seek to engage digitally with the benefits enabled by smart meters. Although the CEMP functionality is a digitally focused tool that supports the modern energy experience for customers, the Company will develop educational and engagement materials that ensure all customers are empowered and enabled with the right information, insights, and opportunities to act to manage usage and total energy costs. The Company will develop relevant and motivating messages tailored to customer segments and channels based on best practices from the Company's previous smart meter pilots, which provided insights into how to deliver an omni-channel engagement strategy.

As the Company enters the sustained activity of Phase III, it will draw on the successful channels used in Phases I and II (*e.g.*, fact sheets, welcome brochures, and the mobile sustainability hub). Additional strategies planned for Phase III include developing videos to educate customers to help them understand bill statements, creating a "Getting Started Guide" to provide step-by-step instructions and visuals for customers about the post-deployment experience (*e.g.*, CEMP),

developing testimonials and case studies, and engaging with customers via social media (*e.g.*, Facebook, Twitter, YouTube). All educational materials will continue to be available in various languages based on customer demographics. The Company will continue to use feedback throughout this phase to refine and improve the customer engagement materials.

5.7.4. Approach

The Company will begin educating customers on the new post-deployment tools and services, including the CEMP, beginning in Phase I with broad awareness, continuing through deployment in Phase II, and reinforced in Phase III upon meter installation. This will allow both the meter and the new tools and services it provides to be top of mind for customers to help enable their engagement. For example, customers will be able to enroll in electric and gas high-usage alerts based on customer-selected preferred communication methods and applicable laws. AMI-enabled high-usage alerts are a feature that will notify customers during a billing cycle if they are predicted to use substantially more energy than usual by the end of the billing cycle. Educational material, both traditional and digital, describing these types of features as well as other aspects of the CEMP will be supplied on a frequent basis over the first four weeks following AMI meter/module installation.

The Company will monitor customer utilization of these new tools and services, including the CEMP, and will adjust messaging and channels by segment to drive increased utilization. Table 5-12 is an example of analysis of customer awareness and energy usage segmentation conducted as part of the Clifton Park Demonstration. This type of data helps the Company to refine messages through the "Listen, Test, Learn" approach. As customer engagement increases over time, customers are better targeted by segments to maintain and improve engagement as shown in Table 5-13.

Engagement Category	No NG Web ID	NG Web ID – NOT Logged in Past 6 Months	NG Web ID – Logged in Past 6 Months – No Portal	NG Web ID + Logged into Portal
Level of Platform Engagement	None	Low	Medium	High
Description of behavior and possible reasons	Customers with no National Grid ID have never engaged via web. - These customers will be the hardest to reach. Perhaps they are not tech savvy, not comfortable	These customers have interacted with NG online but not recently. - Why have they not logged in? Have they had difficulties using the web? Are they disappointed in the experience?	These customers have interacted with NG online recently but have not been going further and engaging with the portal. - Perhaps they are just on the NG site to pay their bill.	These customers have interacted with us online recently and logged into the portal. - This is the most engaged segment. They are familiar with the offerings and have been

Engagement Category	No NG Web ID	NG Web ID – NOT Logged in Past 6 Months	NG Web ID – Logged in Past 6 Months – No Portal	NG Web ID + Logged into Portal
	interacting online, or possibly an older demographic.	Is energy usage not top of mind?		receiving the message about the benefits.

Table 5-12: Example from Clifton Park Demonstration of Platform Awareness by Customer Segmentation

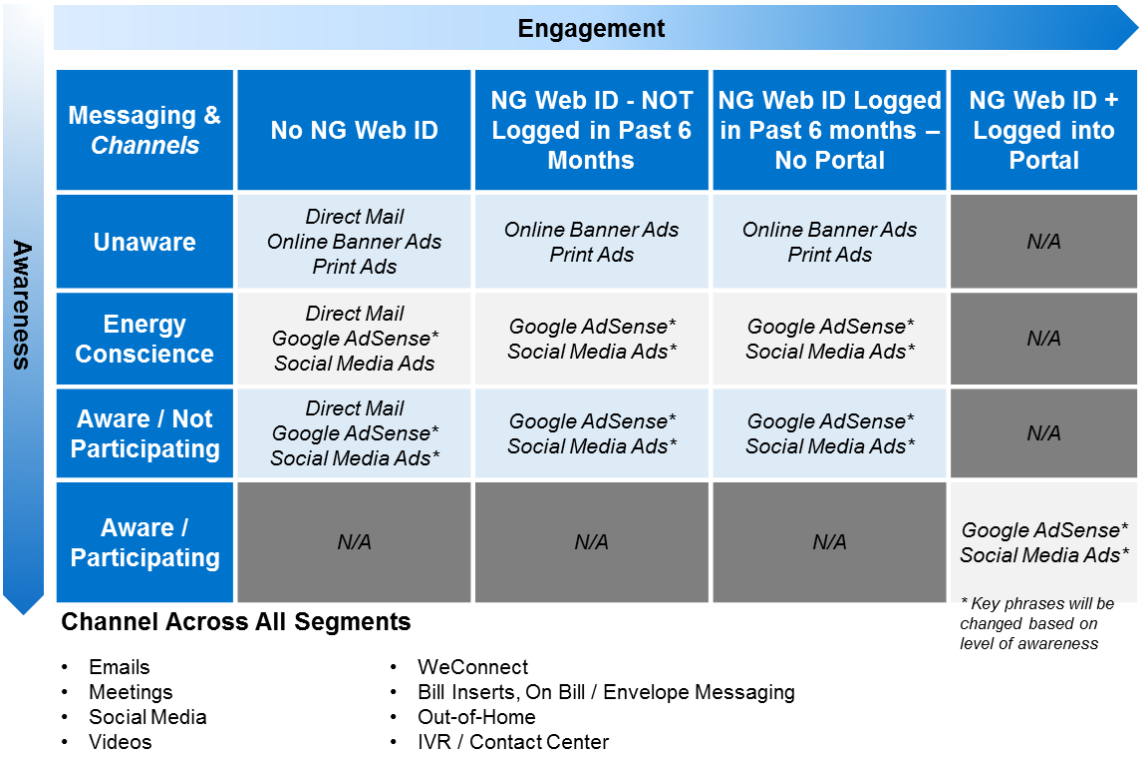


Table 5-13: Example of Clifton Park Demonstration Engagement and Awareness Matrix

5.7.5. Customer Energy Management Platform Overview

The CEMP will serve as an integrated hub of energy data, insights, and actions for all customers, delivering value and enabling benefits by connecting customers to their energy usage data. It will allow customers to access accurate and personalized energy usage information, as well as enable various choices and options to enroll in programs and services that can leverage the more granular data provided by AMI meters.

The CEMP will streamline several existing customer portals, third-party websites, and existing educational and safety information (currently provided to customers on the Company's home webpage), with the goal of providing customers with simple, seamless access to tools, information, and actionable insights that can be easily accessed via a new streamlined website or by mobile device. The same information will be made available for CSRs to share with customers who prefer to call in and speak to a live representative. Figure 5-18 below shows how current web components are available to customers today.

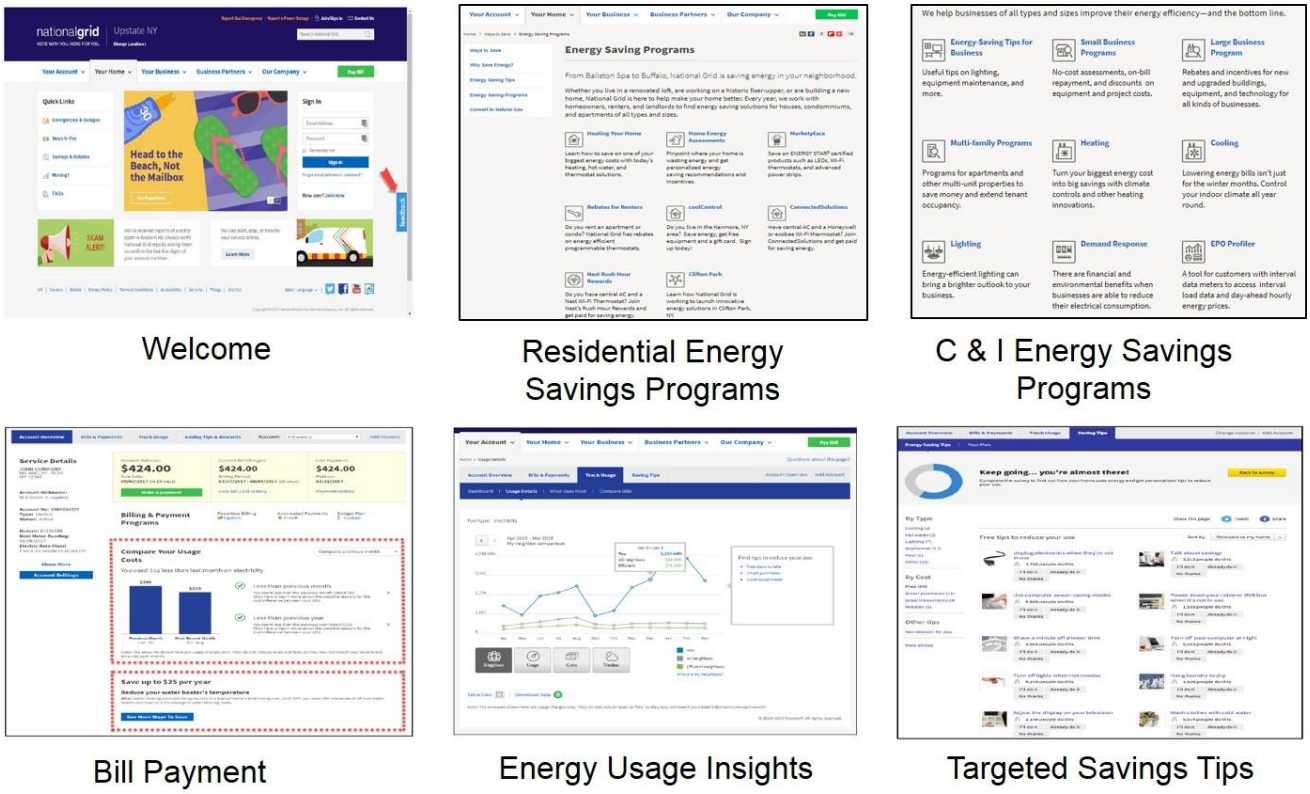


Figure 5-18: Current Customer Webpage Highlights

Today, customers can access two-years of their historical energy usage data by either logging into their National Grid account online and viewing their current consumption, downloading their usage data through Green Button Download My Data, or by contacting National Grid directly. The Company also provides historical energy usage as part of the customer's bill each month. The Company's AMI solution contains new ways of generating and sharing this data with customers. Four key advanced metering elements, as shown in Figure 5-19, that establish a pipeline for customer data are as follows:

- An integrated system of smart electric meters and gas modules capable of capturing customer energy usage data at defined intervals and supporting grid-edge applications;
- A two-way telecommunications network and related IT infrastructure for transmitting the data and control signals that utilize radio frequency and cellular communications technologies;

- A meter data management system (MDMS) to securely and efficiently collect, validate, store and manage the meter data; and
- Customer systems including billing and the CEMP to provide energy usage data access, insights, and service offerings that will enable customer energy management.

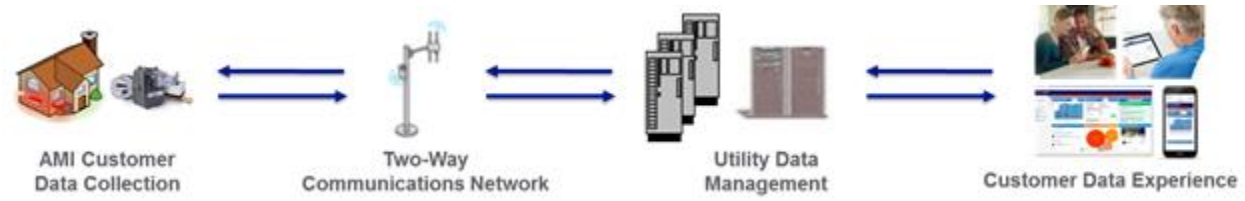


Figure 5-19: Customer AMI Data Access

National Grid plans to offer 15-minute electric interval data available on a 30- to 45-minute latency and one-hour gas interval data available every eight hours for raw data, with bill quality data available after 24 hours. National Grid intends to provide interval data at a granularity consistent with future TVR designs.

As shown in Figure 5-20:, the CEMP is comprised of three main components: personalized insights, tools, and integrated customer actions.

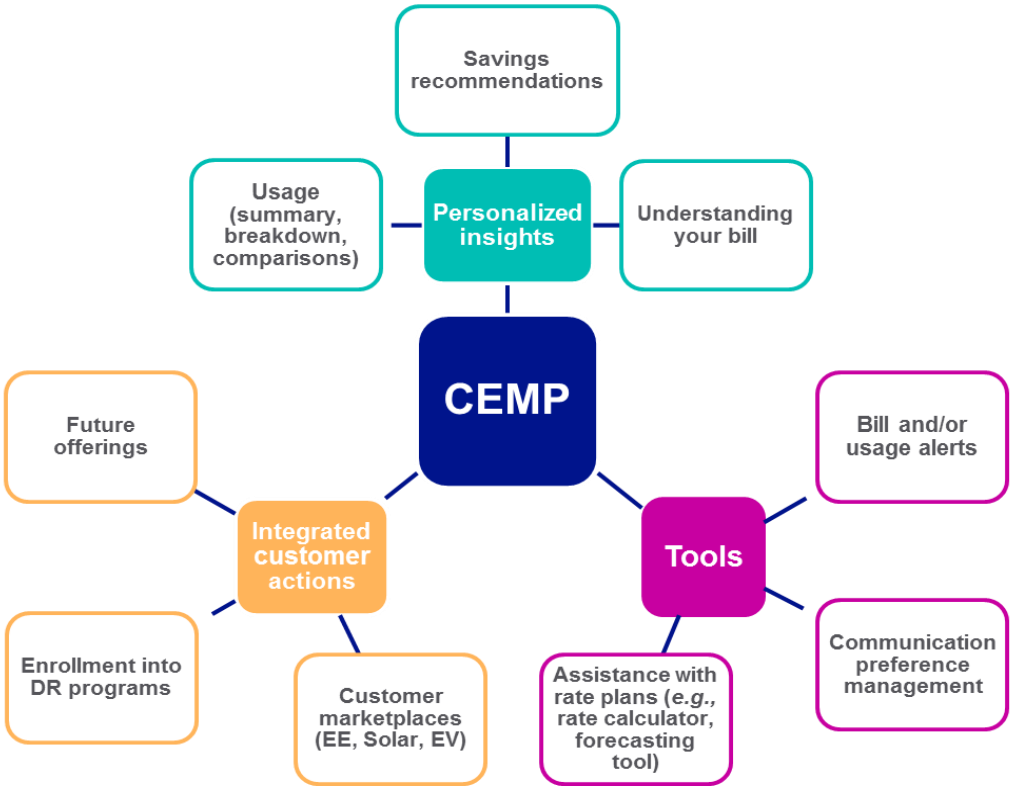


Figure 5-20: Customer Energy Management Platform Overview

The first CEMP component, personalized insights, will bring together customer energy usage (both electric and gas), better understanding of customer bills, and energy savings recommendations. Primary features include:

- The ability to view current and historical energy usage in a graphical format;
- Detailed analytics, including weather, price, and carbon footprint considerations;
- Bill education, with detailed information on reviewing and analyzing an energy bill; and
- The ability to share billing and energy consumption data with third parties via Green Button Connect.[35]

C&I customers will have access to new features, such as a portfolio-level view allowing them to seamlessly access information across multiple accounts. Personalization will leverage usage data, load profile, customer-selected preferences, account activity, load disaggregation, and other factors to enable meaningful insights for an individual customer. In a future state with TVP, this information will provide suggested actions that could help reduce consumption and/or shift load to less expensive periods.

The second CEMP component, tools, helps assist the customer with their pricing plans and energy expenses through calculators, reporting, and forecasting. Customers will be able to set (digital and non-digital) communication preferences with the Company for notifications related to energy usage, high-usage alerts, and proactive notifications of future energy-related events (*e.g.,* critical peak pricing events). Primary features will include:

- Bill forecasting to use historical usage data to predict future energy bills; and
- A rate calculator, using historical data to model customer rate plans, and enabling the Company to proactively engage customers with information about plans that may be better suited for their needs.

The third CEMP component, integrated customer actions, will empower customers to take educated actions based on the personalized insights and tools mentioned above. Actions such as enrollment in the Company's demand response and energy efficiency programs, purchases from established marketplaces for energy saving technologies,[36] and other actions can all occur in one convenient location on the CEMP. As illustrated in Figure 5-21, components like the monthly energy summary (with average usage represented by the column chart on the platform and mobile device) could also be layered into non-digital communications such as the customer bill or bill insert. Figure 5-21: provides an illustrative example at what a CEMP view might look like across web and mobile platforms. Additional feature details are provided in Appendix A: CEMP Features.

[35] *See* Section 4.2, *Third-Party Data Access*.
[36] *See e.g.*, National Grid New York's Solar Market Place, https://www.nationalgridus.com/Upstate-NY-Home/Ways-to-Save/Learn-About-Solar.

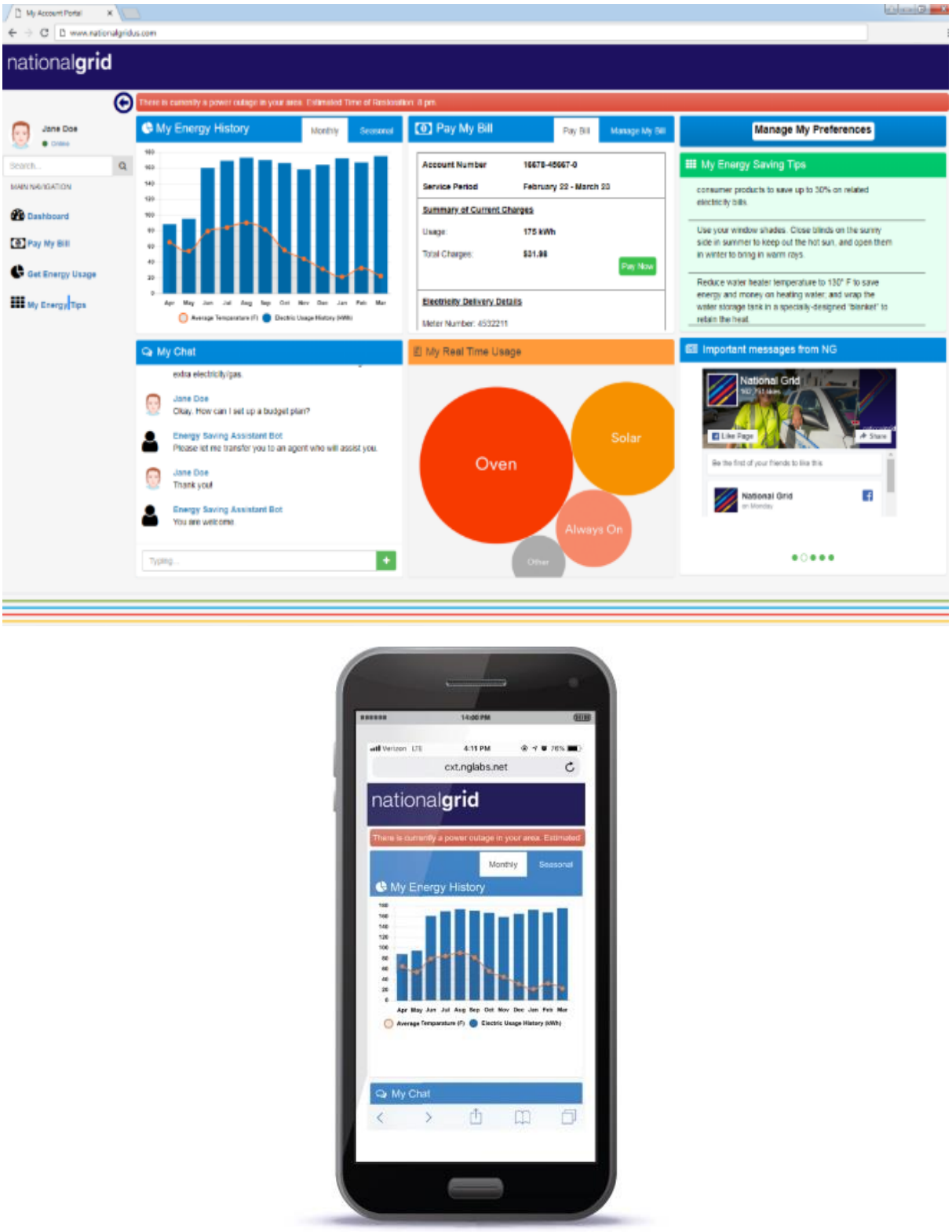


Figure 5-21: Illustrative Example of the Customer Energy Management Platform

To enable a holistic and seamless customer experience, the CEMP will include Company-facing internal features and integration with traditional communications. For example, tools for program managers, account managers, and marketing teams will enable targeted program information and offerings to improve energy efficiency program participation and performance rates for customers. Integration with billing and customer service will add personalized detail to the non-digital channels with the aim of providing equitable opportunity and customer experience for all customer sectors regardless of the customer's preferred channel.

One example of this could be providing CSRs with access to data analytics to review with customers during high-bill calls and then providing summary follow-up information on the subsequent bill. Customers will be able to enroll in high electric and gas usage alerts based on customer-selected preferred communication methods and applicable laws. The Company envisions enabling several outbound high-usage alerts, considering multiple timescales and triggers, available to customers on an opt-in basis through their online accounts or delivered over a customer-selected communication channel via Preference Center (as described in Section 3.3.2). AMI insights allow for more accurate estimates of cost and usage, allowing customers more time to respond to variances. Without smart meters as the enabling technology, it is difficult to acquire this information and act to manage energy usage.

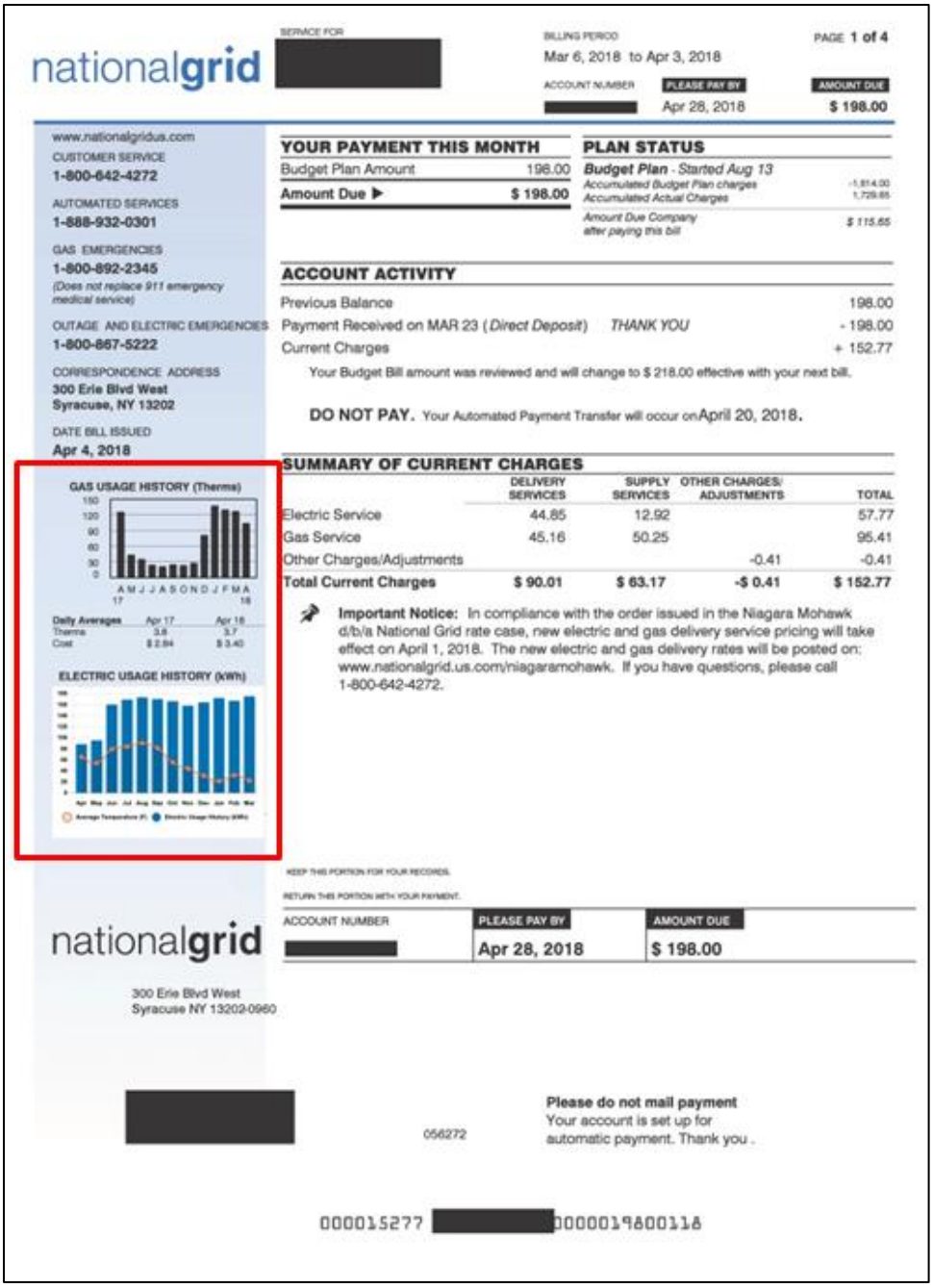


Figure 5-22: Representative view of bill with monthly summary usage

5.7.6. Complimentary Enabling Technologies

In addition to the digital and non-digital CEMP features described above, customers will have access to additional technologies to enable real-time data access, connect smart home/business devices, and third-party data sharing. These additional technologies can help customers unlock additional value and enrich the customer experience.

Foundational to these customer experience enhancements is the ability for customers to access and share their energy data. The table below provides a summary of the customer data access channels and the associated data granularity and latency.

Data Access Channel	Description	Data Latency
Customer Energy Management Platform (CEMP)	**Customers can access their usage data directly and download it for sharing with third parties.**	• **For electric customers, 15-minute raw interval data will be available every 30-45 minutes** • **For gas customers, one-hour raw interval data will be available every eight hours** • **This same information will be available at bill quality data within 24 hours.**
Green Button Connect	**Facilitates computer-to-computer communication allowing customers to provide authorized third parties with direct access to their energy usage data.**	
Meter to Home-Area-Network (HAN)	**Transmits data directly from meter to HAN.**	• **Real-time (based on meter to HAN device configuration)**

Figure 5-23: Customer Data Access Channels

AMI Home Area Network

The proposed AMI solution will include a Wi-Fi radio and associated firmware to provide a wireless signal to a home-area network (HAN). This technology will allow customers to monitor and/or control their energy usage instantaneously. Using open and secure communication standards, customers will be able to leverage third-party vendor technology to achieve real-time energy awareness and control of connected devices.

For a customer to connect a HAN-related device to an AMI meter, the customer will first confirm the eligibility/compatibility of the device with the AMI meter and then activate the device by logging into their secure online account on the CEMP. Once logged in, the customer will navigate to the activation page, enter the applicable device credentials, and receive an activation acknowledgment through encrypted channels. From there, the customer may begin using his or her HAN device, such as an in-home display or smart phone application. In this way, the Company will facilitate customer management of their total energy bill through the secure use of HAN technology to receive real-time energy usage information.

As highlighted in the AMI Order, one of the first applications to utilize this HAN architecture will be an application running on customers' smart devices, such as smart phones, to provide customers with near real-time data. The cost of the application is included in the overall solution cost, meaning customers will not have to pay an additional fee for this added functionality. The approach will help remove barriers for customers to access information and engage in cost-

saving behaviors and customer programs. The Company believes this innovative technology will maximize engagement, providing a scalable model for addressing the needs of, and providing new value to, a wide variety of customer segments. Improving access for income-eligible customers is particularly important, as these customers pay disproportionately high percentages of household income to energy bills.[37]

The Company currently promotes connected-home technology and supports the adoption of energy saving devices such as communicating thermostats through its existing energy efficiency and demand response programs. In addition to internet-based offerings, the home/business area network provides the secure network infrastructure to automate end-user response to future TVR programs. Future programs could leverage this infrastructure for innovative smart home offerings to fuel participation in energy efficiency and demand response programs, helping the demand-side become more dynamic and responsive to changing grid conditions. For example, once successfully enrolled and fully authorized by the customer, connected thermostats can help shift peak energy use by responding to signals to pre-cool buildings earlier in the day or slightly increase temperature set points to reduce peak demand during peak hours on particularly hot and humid summer days.

The Company envisions utilizing the CEMP and enabling technologies to further customers' ability to adopt smart connected devices that can help deliver additional energy and cost savings. The Company will continue to promote the use of such technologies through its evolving energy efficiency and demand response programs. If this approach demonstrates results at scale, these programs where customers can participate to reduce and/or shift load could be incorporated into new customer programs, such as non-wire alternatives. Scaling the customer capabilities described above become increasingly important as the electric power system becomes increasingly dependent on intermittent renewable generation.

Green Button Connect

The Company deployed initial Green Button Connect functionality for customers in March of 2021 and is working to enhance and certify its offering with the Green Button Alliance. The industry-led Green Button initiative is the most common method for customers to grant access to their energy data to qualified third parties. Green Button Download My Data and Connect My Data solutions (Figures 5-24 and 5-25, respectively) eliminate the need for third-party service providers to support various utility protocols and streamlines the customer authorization process.

Many utilities, including National Grid, have implemented the Green Button Download My Data functionality. This national energy data format and initiative gives every utility customer the ability to download their personal energy consumption data directly to their computer in a secure manner. Additionally, if customers are interested, they can separately upload their data to a third-party application.

[37] National Grid, *NGUSA Customer Strategy Customer Data Book* (2019).



Figure 5-24: Green Button Download My Data

The Green Button Connect functionality takes this process further by allowing customers to automate the data sharing process. With Green Button Connect, customers can securely authorize both National Grid and designated third parties to send and receive data on the customer's behalf. The Company is currently working with other New York State utilities to develop a streamlined onboarding process in hopes of making it even easier for customers and third parties to share data. This functionality will be developed and deployed as a key feature of the CEMP.

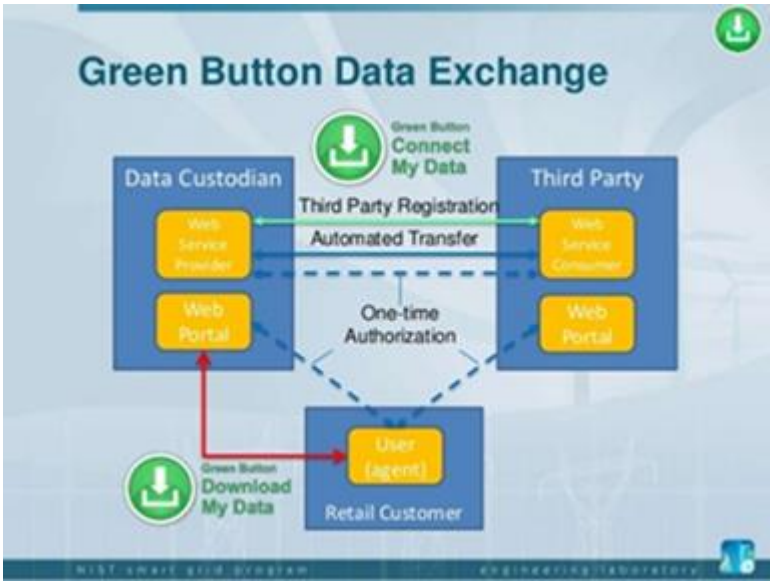


Figure 5-25: Green Button Connect My Data – Data Exchange

In general, the onboarding process will involve third parties submitting their Green Button Connect registration form online, a utility representative reviewing the form and contacting the third party regarding next steps. Once the initial step is complete, third parties will execute the required Data Security Agreement, vendor risk assessment form, and registration forms. The third party will then be listed on the Green Button Connect platform as an authorized entity with whom a customer can share energy usage data. With customer consent, data transfers are nearly instantaneous depending on the capabilities of the third party to transfer and accept the requested data. Please see Figure 5-26: Green Button Connect Third Party Onboarding Process below.

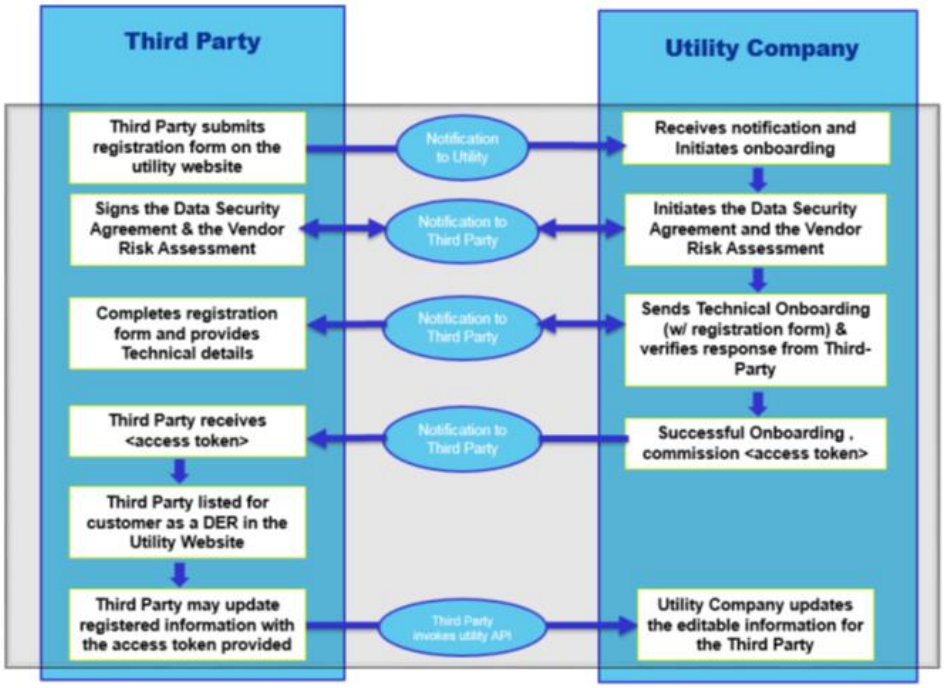


Figure 5-26: Green Button Connect Third Party Onboarding Process

Customers will have the opportunity to connect their new smart meter data with third parties on both the Company's website and via third-party websites, where available. Having multiple channels to connect customers with third parties will enable greater connection for third-party services to be made available. Below is a depiction of the two means in which customers will be able to authorize and begin to share their smart meter data. The design and process will be simple and easy for customers to understand, register, and share data. Please see Figure 5-27: Green Button Connect Authorization Process Flow below.

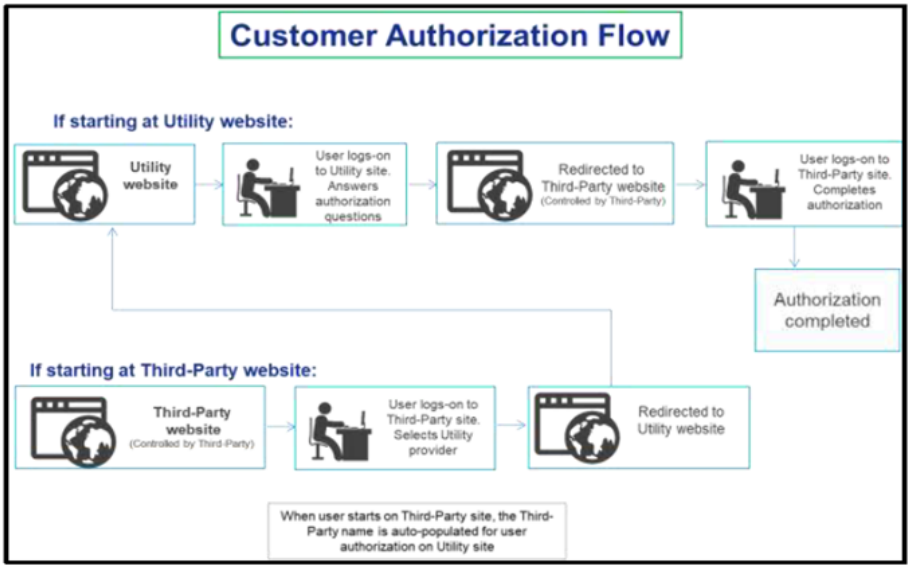


Figure 5-27: Green Button Connect Authorization Process Flow

Integrated Energy Data Resource (IEDR)

In accordance with Case 20-M-0082, *Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data Order Implementing An Integrated Energy Data Resource*,[38] the Company, along with the other Joint Utilities in New York, will design the IEDR with AMI data integration in mind. Coordinating AMI data sharing into the IEDR platform will be one of the main objectives and milestones of the Joint Utilities' effort to develop the IEDR platform over the coming years once AMI is implemented and operational.

5.7.7. Leveraging the Power of Energy Efficiency and New Program Design

The Company recognizes the deployment of smart metering as a unique opportunity to accelerate the innovation and delivery of its existing portfolio of customer-facing programs and services, ranging from offerings such as residential and commercial energy efficiency and DLM programs to its comprehensive electric transportation initiative. The deployment of AMI will also animate the market for third-party technologies and services, providing opportunities for third-party innovation and delivering additional benefits for customers under policies and programs set forth by state laws and regulations. These developments go beyond the scope of the AMI program and will require future regulatory considerations to progress. The following discussion is included to highlight future opportunities for cross-program alignment and reiterate the shared vision of the clean-energy future, in support of the shared carbon reduction and equity goals outlined in the CLCPA and the Company's Responsible Business Charter.

AMI also opens the door to increasingly sophisticated demand-side management programs. Hourly (gas) and 15-minute (electric) interval data enables deeper customer engagement as part of behavioral energy efficiency and DLM programs, remote home energy audits, continuous whole-home energy optimization and contribute to improving program outcomes. Granularity in data also contributes to higher accuracy in the evaluation, measurement and verification of energy efficiency and savings accuracy, and contributes to higher energy savings and administration cost savings to customers and the utility.

The following list of examples highlight a few of the ways that the AMI deployment can support demand-side management programs by facilitating:

- Identification and enrollment of customers that provide the biggest program benefits and energy savings opportunity (factors may include site location, large consumption size, weather correlation, past program participation, locational constraints, *etc.*);
- Improved marketing metrics by reducing customer acquisition cost through targeted engagement, improving open/click/conversion rates, and employing data driven sales and communication strategy;
- Improved customer experience, choice, satisfaction, and personalization of offerings and services;
- Improvement in program participation and evaluated program savings;
- Reduced localized peak load due to data availability that could support energy efficiency, demand response and DER programs targeting specific feeders or geographic regions;

- Employment of performance-based energy efficiency technologies and delivery mechanisms such as Pay-For-Performance[39] and MEETS[40] with higher accuracy of energy savings and verification methods; and
- Overall increased cost-effectiveness of demand-side management programs by facilitating data-driven propensity modelling for streamlined energy efficiency delivery.

The Company envisions that current and future program offerings will leverage AMI towards delivering data driven programs and increasing program efficiency and portfolio energy savings, thereby facilitating long-term cost effectiveness.

5.7.8. Data Privacy, Security, and Protection

National Grid is committed to protecting data that are generated by its customer and system operations. Providing customers and third-parties with access to more granular energy information comes the inherent responsibility to secure, protect, and manage the data. This section provides an overview of National Grid's data privacy policies, standards, and guidelines.

As National Grid invests in foundational technologies to advance customer offerings and operations, the Company continues to strengthen its commitment to protecting customer data. With the deployment of AMI, the Company's commitment takes on renewed importance.

National Grid has developed a comprehensive, integrated data privacy framework with policies, standards, guidelines, and statements designed to ensure compliance with privacy and information security obligations. This approach centers on three key components: a commitment to core data-privacy principles; regular assessments of the Company's performance in accordance with the principles; and constant vigilance. Such an approach to data privacy and management leaves the Company well positioned to safely and securely implement AMI.

The Company's three-tiered approach tracks across people, process, and technology:

- Setting forth policies and standards intended to ensure the Company works to common security objectives by regularly updating privacy and security guidance (including incident management and reporting) for those with legitimate business needs to access customer data;
- Addressing privacy throughout the data lifecycle, working to prevent accidental misuse/loss/exposure of information; and
- Ensuring cybersecurity controls are implemented, information risks are understood, and technologies are selected to keep pace with threats.

The supporting data privacy program utilizes a cross-functional framework that addresses legal and regulatory requirements, as well as the ever-changing landscape of privacy and identity theft vulnerabilities that can compromise customer and grid data. The framework for compliance, privacy, security, and identity theft prevention incorporates accountabilities, policies, procedures

[39] *See* https://www.nyserda.ny.gov/About/Newsroom/2020-Announcements/2020-11-05-nyserda-and-national-grid-partner-to-launch-innovative-home-energy-savings-program-in-central-new-york
[40] *See* https://www.meetscoalition.org/.

and business practices, and a fabric of technical and operational controls to effectively manage data privacy risks.

Collaboration with all key data privacy stakeholders within National Grid on a frequent basis allows the Company to address the latest technology and regulatory requirements related to customer data, including usage data, and any personally identifiable information (PII). These stakeholders provide guidance and solutions for managing and protecting this information. To address the consumer view into data privacy practices at National Grid, the Company developed a Data Privacy Policy that explains how customer data is used at National Grid.[41]

5.7.9. Home Energy Fair Practices Act

The Home Energy Fair Practices Act (HEFPA) provides residential customers consumer protection regarding application for service, customer billing, and payment and complaint procedures. With respect to AMI and remote disconnect capabilities, the Company is particularly focused on the area of service terminations and assuring HEFPA practices are followed.

AMI will enable the Company to remotely disconnect or terminate electric service. Specific to the area of terminations or disconnects related to collections, the Company is committed to HEFPA compliance and assuring all notification procedures remain in place under AMI and that customers continue to have the opportunity to pay their balance to a field representative at the time of termination. This will enable customers the opportunity to remedy their account arrears at the time of the field visit.

While the AMI remote disconnect capability will not eliminate the need for a field visit, it does allow for efficiency gains. Remote disconnect capabilities will no longer involve the need for field representative to navigate to the meter, and the field representatives will no longer be hindered by meter access barriers. These efficiencies will reduce the time of field visits and reduce the number of repeat visits needed to complete service terminations.[42]

With AMI, the Company will continue to operate under HEFPA to assure customer protections remain in place. As AMI planning continues and deployment is initiated, the Company recognizes additional areas of HEFPA may be identified that require special integration into operations to maintain compliance.

6. Employee Awareness & Training Plan

6.1. Employee Training Overview

The employee training plan for National Grid's AMI implementation is part of a robust change management plan which will engage employees and customers to increase support for the program. The employee training program will include early learning communications and activities to increase employee awareness and understanding of the AMI program and a detailed, role-specific training program where employees will learn about specific changes impacting their

[41] *See* National Grid's Privacy Policy at https://www.nationalgridus.com/Our-Company/Privacy-Policy.

[42] Meter access is a significant factor in completing field service disconnects. Reducing access issues will reduce the cost of each service termination.

jobs. Employees and other stakeholders have been classified to identify learning needs. The change management team will conduct a detailed stakeholder analysis and change impact analysis, and those insights will inform the training plan. Preliminary assessments indicate approximately 33 impacted stakeholder groups that will require communication regarding the program.[43] Approximately half of the impacted groups will require formal training to perform some job-specific tasks in a new way. Figure 6-1 provides a summary of the Company's Employee Awareness and Training Plan.



Figure 6-1: Employee Awareness & Training Plan Executive Summary

6.2. Stakeholder Identification and Analysis

Stakeholder identification is an important first step in cascading relevant communications to impacted groups, to understand the information needs and level of involvement required for each of the different stakeholder groups, to ensure the right people receive the right information, at the right time, in the right way, to proactively manage the pace and amount of change that each stakeholder group must undergo to avoid "change saturation," and to build buy-in, commitment and capacity for change. To identify stakeholders, the project team considers who is impacted by or has influence over or benefits from the project and what other areas and initiatives are dependent on the project.

A stakeholder is defined as a person or group of people who are leading, involved in, or impacted by the change. When identifying key stakeholders, considerations included:

[43] The number of groups may change, and some of the stakeholder groups may be reclassified from one classification to another based on the results of the stakeholder and change impact assessments.

- People who may be held accountable for the success or failure associated with the change resulting from the AMI deployment;
- People who will either help or hinder the change process occurring;
- People who might be impacted by changes to their role, responsibilities, and/or skills; and
- People with access to resources which can help the program team achieve its objectives.

After being identified, stakeholders were then classified into the following groups: project & leadership, primary stakeholders, secondary stakeholders, supporting stakeholders, and external stakeholders. As the analysis phase progresses, it is possible that some groups may change classifications, and that groups may be added or condensed based on their unique needs. Figure 6-2, below, depicts a draft example of the stakeholder groups. Those denoted with an asterisk have been identified as requiring formal training.

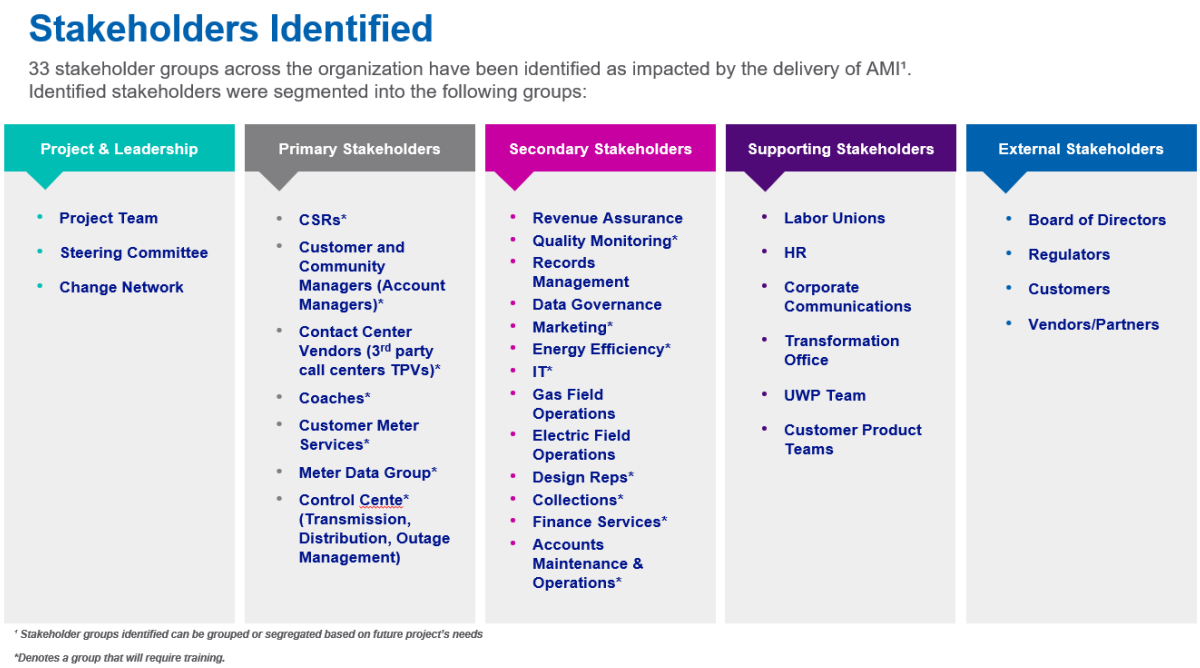


Figure 6-2: Stakeholder Groups

Individuals in the project and leadership groups are directly involved with the project. Project and leadership include the groups directly interacting with the program. This group includes the project team and relevant leadership groups and steering committees, and the organization's change ambassadors and agents. This group will be the most informed and engaged and act as ambassadors of change throughout the organization. They will be provided with communications in advance of broader audiences to allow them to be a trusted source of information.

Primary stakeholders include Contact Center Representatives, Coaches (Contact Center Supervisors), CMS, and others who will see a large degree of change from the AMI program. Members of the primary stakeholder group will require frequent communication and formal training on the parts of their job-role impacted by the program.

Secondary stakeholders will also require communication, and in many cases, training, but to a lesser degree than the primary stakeholders. This group includes marketing and energy efficiency groups who may gain the ability to offer new programs and services due to the AMI program but will not see a significant change in most of their day-to-day activities.

Supporting stakeholders are impacted by the program but not necessarily impacted by the solution. This group includes Human Resources, Corporate Communications, and the Labor Unions, all of whom must partner with the AMI Team to launch a successful program but will not need to work differently due to the technology itself. This group will require frequent communication and will be a critical partner for the AMI Team but will not require formal training regarding the technology itself.

External stakeholders are those impacted by or holding influence over the program not employed by National Grid. This group includes regulators, customers, and community leaders. This group will receive frequent communications regarding the program and anticipated changes.

6.3. Early Learning Activities

Throughout the entire program, the employee training team will coordinate with the change management and marketing teams to ensure consistent messaging throughout the organization and to our customer base. Employees will learn the basics of AMI, including the benefits for customers and the Company, early in the program. Employee early learning activities may include any or all of the following:

- Videos
- Job-aids
- Quick reference guides
- FAQs
- Lunch & learns
- Email communications
- Newsletters
- One-on-one or group meetings

6.4. Training Activities and Milestones

Detailed planning, which includes the stakeholder analysis, will be performed throughout much of 2021. This planning phase will also include developing plans, such as a detailed communication plan and an employee training strategy. The full scope, governance model, team structure, and resource needs will also be developed at this time. It is critical to account for training needs and acquire adequate resources to ensure employees are well trained for the program. Lessons learned from previous products indicate that employees prefer to learn from internal trainers, whom they trust and view as experts in the field. This will be a key consideration when selecting and contracting with the business integrator. Planned activities and outputs of the training program are depicted in Figure 6-3 below.

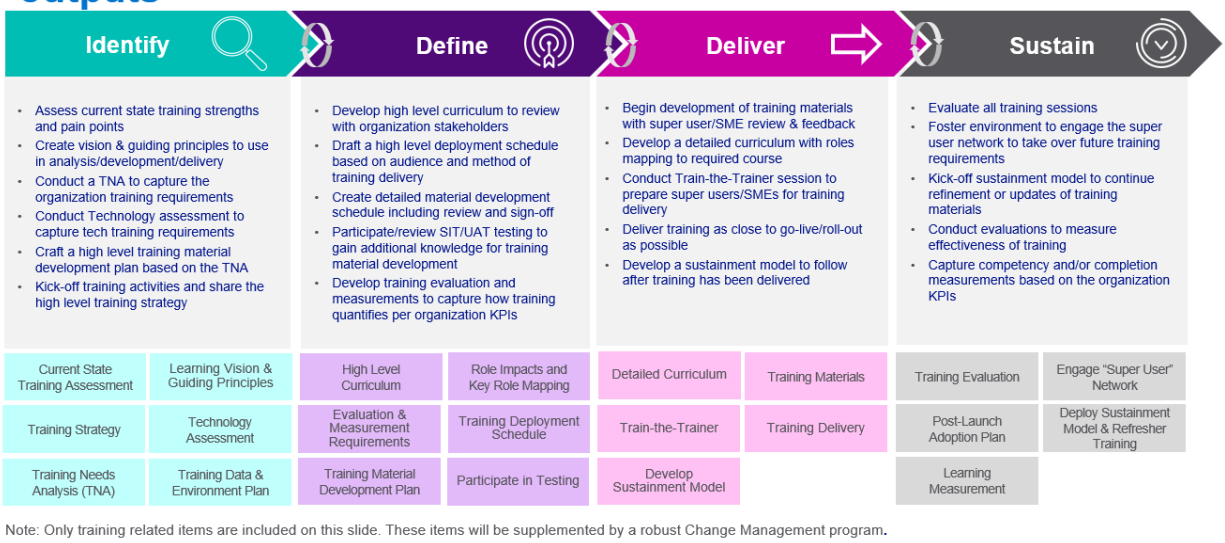


Figure 6-3: Employee Training Overview

6.5. Training Timeline

The AMI Employee Training Plan will follow a standard training model called ADDIE, which stands for Analyze, Design, Develop, Implement, and Evaluate. The phases of the ADDIE model will align to the overall project plan, working backward from the deployment of the AMI meters. These phases are depicted in Figure 6-4 below. The analysis phase will begin in late 2021 and continue into early 2022. During this phase, the training team will identify and understand change impacts and training needs. The training timeline may be updated and adjusted throughout the program and will continue to align with the field deployment and outbound customer communications.

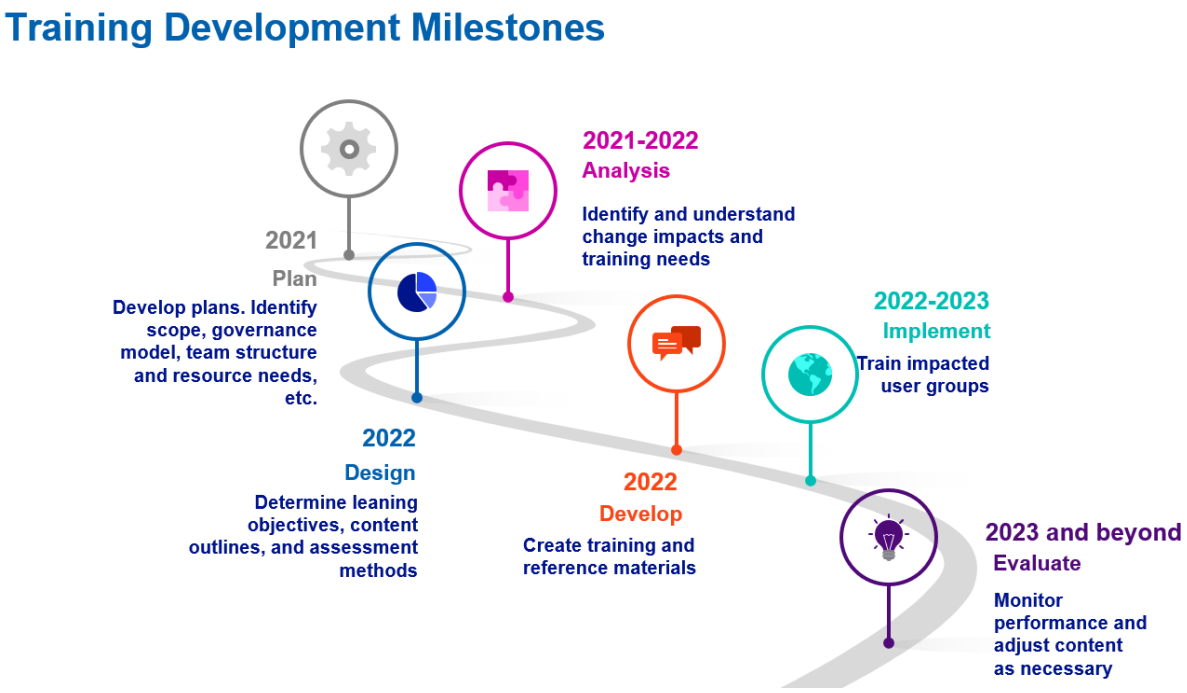


Figure 6-4: Training Development Milestones

6.5.1. Design

The design phase, beginning in mid-2022, includes determining learning objectives, content outlines, and assessment methods. In this phase, a high-level training plan will be developed, along with role mapping and a detailed plan for the development of the training materials. Journey mapping will be conducted to gain a deeper understanding of the employee training experience for some of the most heavily impacted user groups. An example of an employee journey can be seen below in Figures 6-5 and 6-6.

Meet Maya, Age 26
Contact Center Representative



Demographics	Behaviors and Actions	Pain Points
• 26 years old • Single • Education: pursuing her degree • Employment: Customer Service Representative	• Very tech-savvy and is excited about new technology advancements that National Grid is making • Highly motivated to help get her customers the answers or support their need	• Often handles bill-related calls and wishes she could provide her customers with a more detailed explanation of their usage/costs

Customer Service Representative Journey Map

Stages	Awareness							
	Prior to Direct Customer Communication				Direct Customer Communication			
Steps	I have seen general information about Smart Meters coming to UNY in At-A-Glance	I received an email with more information about Smart Meters including FAQs that customers might have	My Supervisor spoke about the Smart Meter Project in our team meeting	I've heard about the Smart Meter project at a Union Meeting	I received notification that Customers will begin receiving email/ letters/phone calls about Smart Meters	I have the updated SOPs to help to answer any questions a customer might have	My Supervisor spoke about the Smart Meter project in our team meeting	I was asked to participate in a Focus Group to share customer feedback/ questions
	I can go back and reference this information in Cite if a customer asks a question	If I have a question, I know I can ask my Supervisor because they will have more information	I've heard about the Smart Meter project through the Employee Change Network		I can go back and reference this information in Cite if a customer asks a question	If I have a question, I know I can ask my Supervisor because they will have more information	I was asked by my Supervisor to share feedback/common questions that customers have asked	
Training Awareness Methods								
Resources	Supervisor	Change Network	I'm asking my Union Rep		Supervisor			

TRAINING AWARENESS METHODS KEY

EMAIL · ONLINE TRAINING · IN-PERSON TRAINING · TRAINING GUIDE · TEAM MEETING

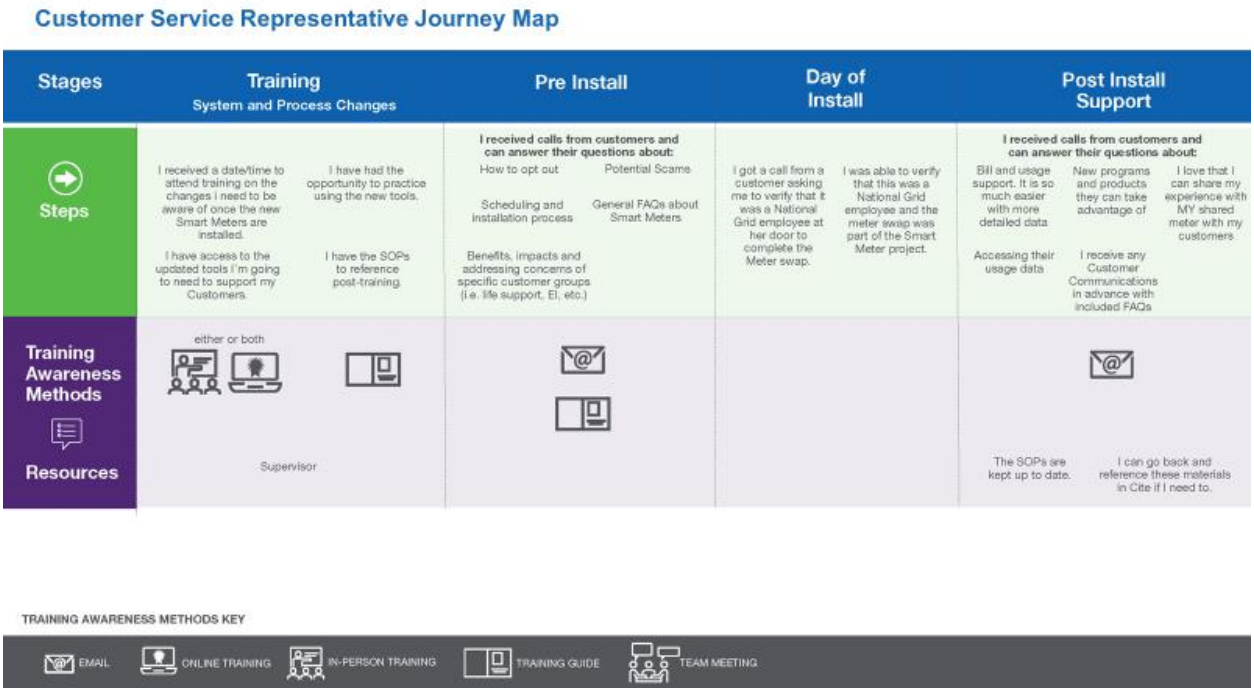
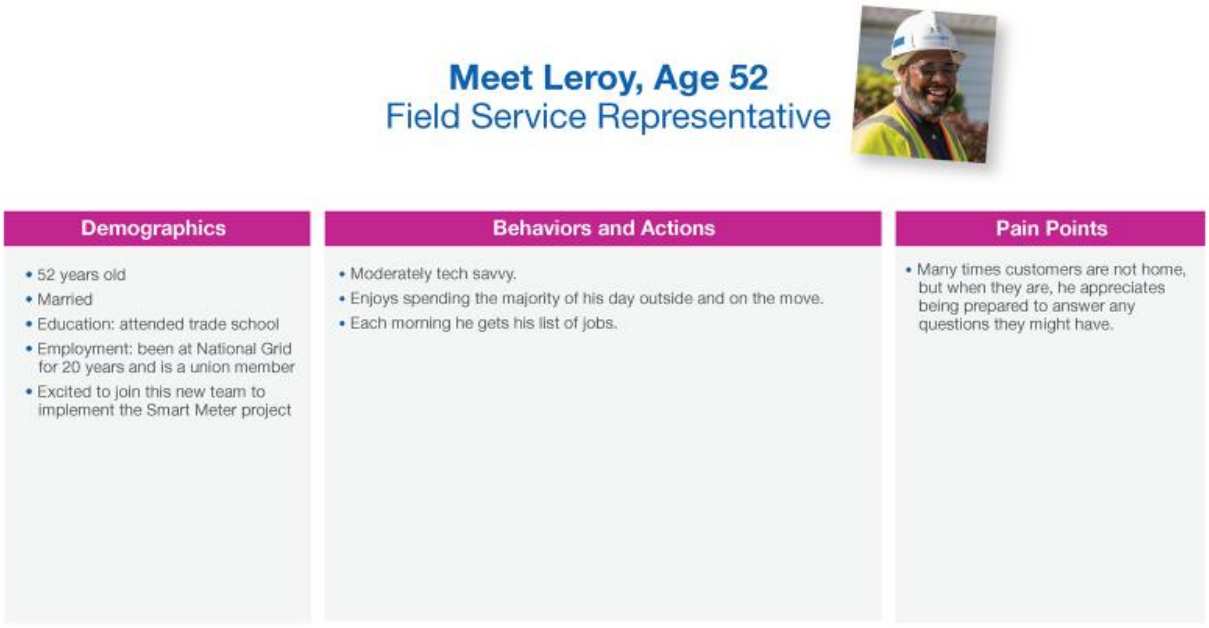


Figure 6-5: Customer Service Representative Journey Map



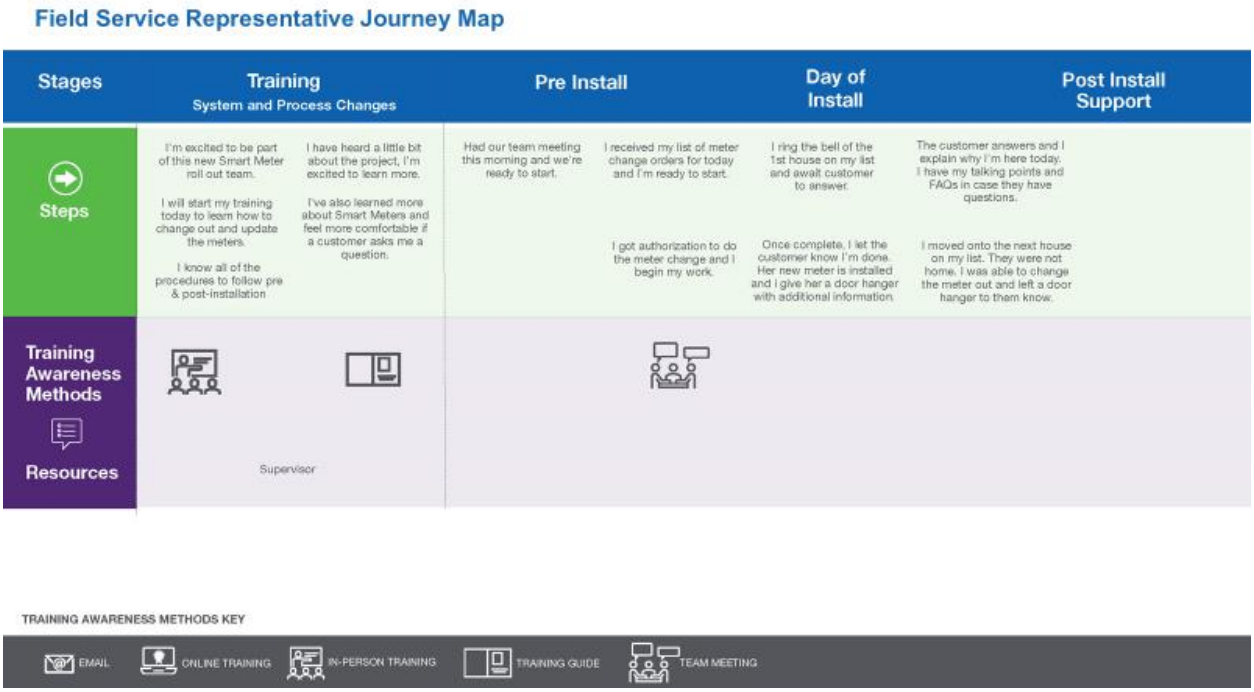


Figure 6-6: Field Service Representative Journey Map

6.5.2. Develop

In the development phase, the curriculum will be refined in greater detail, and the training materials themselves will be created. A train-the-trainer will be conducted to prepare trainers to deliver the materials. Any necessary reference materials and job-aids will be created in this phase.

6.5.3. Deliver

The delivery phase is when the end-user training will be conducted. This phase will allow for training as close to deployment as possible to ensure employees receive training as close as possible to the deployment of the modules. The timeline will consider the overarching project timeline and work backward from the date employees would be required to work differently, allowing enough time for thorough and comprehensive training without completing it too early, which could result in loss of skills and the need for more frequent re-trainings and refreshers.

6.5.4. Evaluate

The evaluation phase is a critical element of the overall training program, in which the effectiveness of the training program will be measured. These measurements may take place in the form of surveys and tracking of proficiency metrics. Both qualitative and qualitive evaluations will provide a holistic measurement of the efficacy of the training program. As the effectiveness of the plan is evaluated, the insights gained will be used to continuously refine and improve the training experience. The evaluation phase will begin shortly after the initial training delivery, and will overlap much of the delivery phase, and will also extend beyond the end of the formal training delivery phase to ensure reference and new-hire training materials are updated as necessary.

Throughout the delivery and evaluation phases metrics and feedback will be assessed on a frequent basis to ensure updates are made, as necessary, to training and reference materials. Employees will also be supported post-deployment as new programs may be introduced for customers based on their usage patterns. Employees will receive communications in advance of any customer facing communications to ensure they have the requisite level of knowledge to assist customers who may have questions or require assistance understanding their interval data and/or any additional offerings for which they may be eligible.

7. Innovative Pricing Design

AMI deployment enables National Grid to provide TVP signals to customers. The modeled benefits to customers in the AMI business case come from savings derived from avoided supply costs. These savings may result from access to energy insights, as well as reduced energy consumption, or more likely, shifting usage from higher priced periods to lower-priced periods. Much of the benefit accrues to customers through avoided capacity costs. TVP is a critical component of meeting the goals and objectives of the CLCPA in a cost-effective fashion.

In the AMI proposal, the Company designed an illustrative TVP package for supply rates using simple TOU pricing to capture the variation in energy prices and critical peak pricing (CPP) to transmit some of the variability of capacity costs. The TOU periods would be pre-defined and relatively static. On the other hand, the CPP periods would cover the 70 hours in the year most likely to capture that year's New York Control Area peak, which sets the capacity obligation and costs for customers. CPP events would be called on a day-ahead basis. Customers could save money and create benefits under TOU or CPP pricing by shifting their usage away from the peak period, or lowering their usage overall.

The number of customers who participate in a TVP program is a key input in determining the actual magnitude of the associated benefits. Generally, more participants will yield higher benefits. For this reason, the Company's preference is to work with stakeholders and the Commission to ultimately propose an appropriate TVP package as a default (*i.e.*, opt-out) rate. In general, opt-out rates have far higher participation than those that require an affirmative choice from customers to "opt-in." However, the Commission's AMI Order approved the Company's AMI deployment based on an opt-in scenario, which reflects savings based on costs related to electric supply. Thus, to deliver this benefit, the Company must propose and receive approval for an opt-in rate that generates benefits equal to those modeled in the AMI business case.

In the Company's Benefits Implementation Plan, the Company made a commitment to collaborate with the New York State Electric and Gas Corporation (NYSEG) and Rochester Gas and Electric Corporation (RG&E) to develop similarly structured TVP rate proposals. National Grid and NYSEG/RG&E are on similar schedules with respect to the deployment of AMI, and will develop a regular meeting cadence to advance this endeavor.

The approach for engaging customers will depend on the rate design or designs offered and their applicability. Notably, the level of engagement and targeting may differ if the Company proposes an opt-in structure or structures versus a default structure. The Company will develop a structured approach using its available customer outreach channels to educate customers about their options and the benefits associated with moving to innovative cost-reflective pricing designs.

8. Metrics of Success

In accordance with the AMI Order,[44] the Company updated the AMI metrics and reporting requirements proposed as part of its initial AMI proposal.[45] The customer engagement metrics in the table below reflect both Awareness and Enablement/Empowerment. The metrics aim to track insights into effectiveness of the initial program launch by measuring customer awareness through surveys and forum presentations. Other metric categories covered include deployment, billing, outage management, system operation and environmental benefits, and overall AMI program progress.

Customer Engagement Metrics (continued on following page)

Category	Metric	Metric Targets	Frequency (Commencing)
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 [46] Target: 80% of customers with Awareness of AMI at 6 months post deployment for each specific region.	Semi-Annual/ Annual post meter deployment (May 31, 2023)
	Targeted Energy Forum Presentations: Number of forums to provide smart meter information: • Type of forum (town hall (in-person or virtual), neighborhood, community group, expo, etc.). • Target audience (elected officials, customers, etc.). • Date and Frequency. • Attendance numbers.	Two or more events per region based on demand; western, central, eastern, and northern regions[47]	Semi-Annual (May 31, 2023)
	Income-Eligible Customer Forum Presentations and Awareness: • Number of income-eligible events where smart meter information is presented. • Percent of new and returning income-eligible customers logging on to platform during the reporting period.	Two or more events per region based on demand; western, central, eastern, and northern regions.	Semi-Annual (May 31, 2023)

[44] AMI Order at page 52.
[45] *See* 2017 Rate Case Docket, *Report of Niagara Mohawk Power Corporation d/b/a National Grid on the Proposed Implementation of Advanced Metering Infrastructure* ("AMI Implementation Plan Report") (November 15, 2018), Exhibit I, *AMI Metrics and Reporting*.
[46] Beginning six months prior to AMI meter deployment, the Company will use pre-AMI roll out surveys to establish a baseline of customer AMI awareness. *See* Exhibit___(AMIP-1), Schedule 1, pages 173 and 246 of 313.
[47] *See* AMI Order at pages 50 ("[T]he Commission finds that a general timeline with dates is needed to further improve the Customer Engagement Plan and allow for adequate oversight.") and page 51 ("National Grid shall file the revised Customer Engagement Plan within six months of the issuance of this Order.").

Category	Metric	Metric Targets	Frequency (Commencing)
Enablement/ Empowerment	Customers Using the CEMP: • 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. • Percent of customers logging on to platform more than once per reporting period.	Number of customers to be measured post deployment	Semi-Annual (May 31, 2024)
	Customers Using CEMP Functions: Breakdown of customers using specific platform functions: • Personalized insights. • High-bill / usage alerts. • Energy marketplaces (*i.e.*, E-Commerce Platform and Solar Marketplace). • Measure percent of customers using platform year over year.	Number of customers to be measured post deployment	Semi-Annual/ Annual (May 31, 2024)
	CEMP Satisfaction: • Measurement of satisfaction with CEMP and other tools via survey. • Measurement of smart meter awareness campaign effectiveness to drive actions.	Baseline customer satisfaction to be measured 6 months prior to deployment	Annual (May 31, 2024)
	Customer use of smart phone app to access real-time energy usage data: • Track number of customers using smart phone app to track real-time usage data.	Number of customers to be measured post deployment	Annual (May 31, 2024)
	Green Button Connect: • Track the number of third parties onboarded with Green Button Connect. • Track the number of customers sharing their data via Green Button Connect.	The Company will report this information for tracking purposes.	Annual (May 31, 2022)

Operational and Program Metrics (continued on following three pages)

Category	Metric	Metric Targets	Reporting Frequency (Commencing)
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%) Year 2: 817,000 (35%) Year 3: 817,000 (35%) Year 4: 233,400 (10%)	Semi-annual (November 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%) Year 2: 4,090 (0.5%) Year 3: 4,090 (0.5%) Year 4: 1,170 (0.5%)	Semi-Annual (November 30, 2023)
	Number and percentage of AMI gas meters that were required to be replaced during the installation process (to	Year 1: 12,800 (10%) Year 2: 22,400 (10%) Year 3: 22,400 (10%)	Semi-Annual (November 30, 2023)

Category	Metric	Metric Targets	Reporting Frequency (Commencing)
	accommodate gas module installation) in comparison to estimated volume of replacements.	Year 4: 6,400 (10%)	
	Number and percentage of AMI network communications devices[48] installed in comparison to targets established by the AMI deployment schedule.	Year 1: 865 (20%) Year 2: 1,510 (35%) Year 3: 1,510 (35%) Year 4: 430 (10%)	Semi-Annual (November 30, 2023)
	Number and percent of residential customers who opt out of receiving a new AMI meter.	Year 1: 4,190 (1%) Year 2: 7,330 (1%) Year 3: 7,330 (1%) Year 4: 2,090 (1%)	Annual (May 31, 2024)
	Number and percent of income-eligible customers enrolled in the Energy Affordability Program who opt out of receiving a new AMI meter.	Number of income eligible customers will be calculated during deployment as this number is subject to change. 1% meter opt-out is assumed.[49]	Annual (May 31, 2024)
	Number and percent of small commercial and industrial ("C&I") customers who opt out of receiving a new AMI meter.	Year 1: 482 (1%) Year 2: 844 (1%) Year 3: 844 (1%) Year 4: 241 (1%)	Annual (May 31, 2024)
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	Semi-Annual (November 30, 2023)
Outage Management	Number of power restorations identified through AMI that the Company did not have to send a crew or call to confirm.	Operator commanded meter pings in lieu of rolling a truck. Operator pings the meter to get information. Number of ADMS commanded meter pings. Post-Meter Deployment: ADMS pings every meter in an outage area to see if power has been restored after an	Semi-Annual (November 30, 2023)

[48] For this metric, AMI network communication devices include connected grid routers and repeaters.
[49] The Company assumed a 1% meter opt-out rate for purposes of developing the AMI BCA. In doing so, the Company did not further identify what percentage of the 1% would consist of income-eligible customers who are enrolled in the Energy Affordability Program. In the absence of a specific target, the Company will report this information for tracking purposes.

Category	Metric	Metric Targets	Reporting Frequency (Commencing)
		outage ticket has been closed. Manual ping of the meter to get status or ADMS ping (blue sky only) based on list of meters contained in an outage to see if any report back. During a storm, the Company would not use ADMS, due to system constraints.	
	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.	Track inside trouble calls not assigned to a crew.	Semi-Annual (November 30, 2023)
	The number of outage cases[50] that the Company positively confirms through the AMI system.	Report of last gasp signals Reports identified by ADMS, AMI, manually. Tracking number of outages identified by AMI compared to the number of outages that would have been called in by a customer.	Semi-Annual (November 30, 2023)
System Operation & Environmental Benefits	Number of networks/feeders with AMI deployed and have implemented Volt-VAR Optimization ("VVO").	FY22-FY25 Estimated 21 Substations pending NMPC 2020/2021 Rate Case result	Semi-Annual (November 30, 2023)
	Incremental load reduction (MWh) attributed to VVO.	1% Estimated load reduction	Semi-Annual (November 30, 2023)
	Emissions reductions savings attributed to VVO.	Track avoided emissions using costs provided by NYSERDA annual	Annual (November 30, 2023)

[50] The AMI Order also included a reference to identifying "low-voltage" cases through the AMI system. The Company proposes deleting this reference from the metrics, as it has not tied a benefit to voltage analysis at each premise.

Category	Metric	Metric Targets	Reporting Frequency (Commencing)
		Clean Energy Standard Solicitations for Large-scale Renewables	
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.[51] These metrics will provide for the appropriate control and oversight of the program.	The Company will report this information for tracking purposes.	Semi-Annual (November 30, 2023)
	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,[52] use of AMI data for complex billing, and progress under the Customer Engagement Plan.[53]	The Company will report this information for tracking purposes.	Annual (November 30, 2023)

[51] Please note that there are separate metrics for tracking meter installations and network deployment.
[52] As set forth in the AMI Order (page 53), the Benefits Implementation Plan was filed within 60 days of the issuance of the AMI Order.
[53] As set forth in the AMI Order (page 53), the revised Customer Engagement Plan must be filed within 120 days of the issuance of the AMI Order.

9. Appendices

Appendix A: CEMP Features

Detailed Feature, Functionality, or Tool	Description	Target Audience	Offering Status	Customer Benefit	Utility Benefit
Usage Data	View current and historical energy use (kilowatt-hour ("kWh"), kilovolt-ampere reactive ("kVAR") and Therms) in graphical format. Includes both summary information and detailed load profile information. For C&I customers, this offers the same level of service provided via Energy Profiler Online (but at no cost to customer) plus near real time reporting if desired. For low income customers, this provides data to make informed choices regarding energy consumption and opportunities to lower bills with adjustments in usage patterns.	Mass market, C&I	**Enhanced** with CEMP	Customer energy awareness increases as they view information in a format they understand, via their preferred communication channel (voice, web, short message service ("SMS") or text, etc.).	Ensuring customers can access their usage data in a format they choose/understand; will lead to greater awareness and engagement, driving better management.
Bill Forecasting Insights	Ability to use historical usage, weather, and other data to illustrate financial impact of current usage and help predict future energy bills. This feature is best utilized with proactive alerts to customers	Mass market, C&I	**New** with CEMP	Bill forecasting will give customers early awareness of their energy spending, so that they can take appropriate action to reduce potential high bills, bill shock, and save money.	Bill forecasting will help reduce high bill calls and increase customer satisfaction.
Electric Load Disaggregation	Provide a breakdown of electricity consumption by appliance or end-use for educational purposes and/or recommended actions to save.	Mass market, C&I	**New** with CEMP	Disaggregation allows customers to better understand their energy usage and creates a foundation for personalized and actionable insights and recommendations.	Load disaggregation enables better load forecasting, improved $/kWh savings from demand side management ("DSM") and EE programs, increased customer satisfaction, and operations and maintenance ("O&M") savings.
Personalized Energy Insights and Tips	Suggested personalized actions that help reduce consumption and/or shift usage to less expensive periods (with TVP plans in place).	Mass market, C&I	**Enhanced** with CEMP	Customized tips based on customer consumption, pricing plan specifics, load patterns, and lifestyle changes that enable behavior change	Increased customer engagement and participation drives greater load shift/shed, reducing peak risks, and the subsequent usage of Peaker plants.

Detailed Feature, Functionality, or Tool	Description	Target Audience	Offering Status	Customer Benefit	Utility Benefit
				and customer action. Personalized recommendations are more relevant and actionable, resulting in higher engagement, improved program participation, and increased customer satisfaction. Further, personalized savings tips can provide additional future services, such as appliance replacement suggestions (based on degradation).	Personalized information and notifications enable increased customer satisfaction and reduced high-bill calls.
C&I and Multifamily Portfolio View	Enable portfolio view of C&I facilities as well as properties for multifamily unit owners and managers. Enable search/sort, aggregate data and insights, assist with evaluation, measurement, and verification ("EM&V"), and enable usage normalization on variables such as production, sq. ft., occupancy, weather.	C&I	**New** with CEMP	Detailed customer knowledge and insights of energy performance across a portfolio of buildings and/or multiple accounts.	Better customer insights improve overall engagement and satisfaction.
Carbon Footprint Calculator	Ability for customers to calculate carbon footprint based on usage data and actions to better manage usage.	Mass market, C&I	**New** with CEMP	Improved energy awareness and engagement.	Provides an engagement mechanism for customers who are motivated by their environmental impact; expands customer engagement.

Detailed Feature, Functionality, or Tool	Description	Target Audience	Offering Status	Customer Benefit	Utility Benefit
Configurable and Proactive High Bill/High Usage Customer Alerts	Proactive alerts for variety of customer needs, including projected high bill (consumption and/or costs), prediction of high usage during critical peak pricing periods, and customizable threshold alert at various points during a billing period. Customers are auto-enrolled into high bill/usage alerts, and would have opportunity to opt-in to other services.	Mass market, C&I	**New** with CEMP	Proactive alerts provide customers with a personalized understanding of their energy consumption, improving awareness and management of usage within a TVP plan, driving higher customer EE and peak demand savings.	Increased O&M savings, improved customer response to TVP (especially critical peak usage), and higher customer satisfaction.
Critical Peak Pricing Virtual Coach	Provide proactive notification of upcoming critical peak pricing events by user-selected communication channel (call, email, text, push notification, etc.). Offer personalized coaching tips on peak reduction strategies during CPP events based on insights from load profile analytics and load disaggregation, as feasible.	Mass market, C&I	**New** with CEMP	Customers will achieve greater savings by receiving timely and customized notifications based on disaggregation that is specific to their unique consumption patterns. An omni-channel approach will ensure they receive the communication via their preferred channel, in a way that is actionable and easy to understand.	Increased system wide efficiency. Improved customer participation will benefit the utility by shifting more peak load, leading to a more reliable grid, fewer capacity restraints, reduced carbon emissions from Peaker plants, and increased customer satisfaction.
Participation in Energy Efficiency and Dynamic Load Management Programs	Information and direct linkage to/enrollment in Company's existing energy efficiency and Dynamic Load Management programs. For example, an offer to immediately enroll within a DLM program would be facilitated with purchase of smart thermostat from the National Grid Marketplace. Future automated recommendations could be based on load disaggregation functionality.	Mass market, C&I	**Enhanced** with CEMP	An easier enrollment process, combined with a clearer benefit of program participation, will improve program enrollment, participation, and savings. Communication via omni-channel will improve program reach as well, increasing overall customer engagement.	Reduce program marketing spend by targeting customers who are eligible, have a higher probability of participating, and represent the highest potential load shed or shift based on specific consumption. Outreach and communications costs can be reduced by utilizing personalized channels, rather than mass marketing efforts.

Detailed Feature, Functionality, or Tool	Description	Target Audience	Offering Status	Customer Benefit	Utility Benefit
Solar Marketplace	Integrated marketplace for customer research of solar PV adoption, A customer completes an online survey/audit and numerous estimates are provided for customer's review and subsequent selection of options from qualified third-party service providers/installers.[54]	Mass market	**Enhanced** with CEMP	Better facilitated access to information and quotes for solar photovoltaic ("PV") options.	Enable easier access for customers to renewable energy options.
Green Button Download My Data and Connect My Data	Ability to download data in CSV (Excel) or XML format and ability to share data (Green Button Connect) with vetted third parties. Requires customer's authorization to facilitate data exchange with third parties.	Mass market, C&I	**Enhanced** with CEMP	Ability to interact with consumption data offline and share with third parties for additional insights and services.	Data access provided via Green Button is pivotal to enable market animation objectives established by REV.
Electric Transportation Initiative ("ETI")	Information on electric vehicles and linkage to Company's Electric Transportation Initiative ("ETI") Customer Outreach & Education efforts (vehicle information, pricing, charging station location and hosting details, TVP rate, etc.).[55] Commercial programs focused on electric vehicle supply equipment ("EVSE") and fleet charging programs.	Mass market, C&I	**Enhanced** with CEMP	Better facilitated access to information on electric vehicles and accompanying information.	Enable easier access for customers to electric vehicle information and options.
Electric Heat Initiative ("EHI")	In concert with EE programs, provide information on efficient electric heat technology (e.g., heat pumps) to help spur conversion from delivered fuels (oil/propane).	Mass market, C&I	**Enhanced** with CEMP	Better facilitated access to information on efficient electric heat technologies and available incentives for conversion.	Enable easier access for customers to view efficient electric heat information and options.

[54] https://www.nationalgridus.com/Upstate-NY-Home/Ways-to-Save/Learn-About-Solar
[55] https://www.nationalgridus.com/Upstate-NY-Home/Ways-to-Save/Electric-Vehicles

Appendix B: Draft National Grid Smart Meter Privacy Statement

National Grid Smart Meter Privacy Statement

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid" or the "Company") is committed to protecting its customers' privacy. The Company offers customers advanced metering infrastructure ("AMI"), also commonly referred to as "smart meters," which allow for the wireless transmission of detailed energy usage data. With this technology, energy usage information is automatically and wirelessly sent to the Company and made accessible to the customer.

National Grid collects smart meter energy usage data for the purpose of servicing customer accounts and encouraging customers to reduce energy use and save money. Smart meters do not store or transmit personal information (*e.g.*, addresses, phone numbers, or customer names). This Privacy Statement outlines how and why customers' smart meter energy usage data is collected, used and disclosed by National Grid.

TYPE OF DATA COLLECTED

Smart meters store and communicate customers' electric energy usage data, as well as non-energy information, such as the meter identification number, amount of energy used, meter events and alarms, the time interval during which the energy was used, frequency, reactive power, voltage, device location, status, and communication protocol. A customer's meter identification number is associated with a geolocation; however, geolocation data is not deciphered until encrypted smart meter usage data has been transmitted to National Grid and decrypted by the Company's secure systems.

National Grid only collects smart meter energy usage data: 1) as is reasonably required to provide utility services to customers; 2) as approved by regulatory agencies; and 3) as required by law. The Company does not collect any personally identifiable information ("PII") through customers' smart meter.

HOW THE COMPANY USES AND DISCLOSES SMART METER DATA

National Grid will only collect, process, retain, use, and disclose smart meter energy usage data for legitimate National Grid utility-related business purposes, or as specified by a customer's express consent to disclose such information to a third party (*e.g.*, Green Button Connect My Data or the electronic data interchange used to send information to energy service companies). The primary purpose for which the Company uses the data is to bill for electric service. In addition, the data enables the Company to identify energy usage trends, develop and promote programs and services to encourage more efficient energy use, manage electricity demand, send marketing communications to customers, and to provide quality service, among other things. National Grid complies with all applicable laws regarding the use and sale of customer data. National Grid will only share smart meter data with third parties when: 1) the customer expressly consents; 2) there is a business purpose for sharing the information and there are contractual or tariff protections in place with the third party to protect the data; or 3) the smart meter data has

been properly aggregated and anonymized in accordance with applicable regulatory requirements.

In some instances, National Grid may use smart meter data, as necessary or appropriate, to comply with applicable legal processes or requests from government or judicial authorities, or to comply with requirements or directives of governing regulatory agencies (*e.g.*, the New York State Public Service Commission and the Federal Energy Regulatory Commission). Likewise, in the event of any reorganization, merger, sale, joint venture, assignment, transfer or other disposition of all or any portion of the Company's business, assets or stock (including in connection with any bankruptcy or similar proceedings), the Company may disclose smart meter data as necessary or required to effectuate such a transaction. The Company may also use this information to enforce the terms and conditions of service in applicable tariffs, to protect the rights, privacy, safety or property of the Company and its customers, and to pursue remedies or limit damages the Company may sustain.

CUSTOMER CHOICE

Once the Company begins deploying AMI meters, customers may notify the Company's Customer Service support center at (800) 642-4272, neighborhood installers, or use online channels to inform the Company of their decision to opt-out of receiving a smart meter. Certain fees, as set forth in the Company's tariff, apply to customers who opt out of the smart meter installation. Customers are also given the opportunity to choose whether to share their smart meter data with third parties through the Green Button Connect My Data program, arrangements with an energy service company, or some other secure technical or programmatic method that complies with applicable rules and regulations.

SECURING SMART METER DATA

National Grid has implemented reasonable physical, technical, and administrative security measures to safeguard smart meter energy usage data. Specifically, National Grid works with a third-party vendor to safeguard the transmission of smart meter usage data across the entire technology infrastructure, which includes the meter itself, the communications network (which transfers meter data via a cellular radio or a mesh network) and the system that aggregates and analyzes the data for billing purposes. Further, all data transmitted from the smart meter is encrypted and de-identified. Customers' names and addresses are not tied to the data until it reaches National Grid's secure systems.

National Grid employees and third-party contractors may not access, remove, disclose or use smart meter energy usage data, unless they are doing so for legitimate business purposes, and even then, only if the individual has a need to know the information. All employees and contractors who have access to smart meter energy usage data are required to maintain the confidentiality of that information. This restriction applies during employment with National Grid or engagement as a contractor, and after the employment or engagement ends.

RETENTION AND DISPOSAL

National Grid retains smart meter data for the period reasonably necessary to carry out its business functions and services, unless a longer retention period is required or permitted by law. To that end, the Company disposes of smart meter data in accordance with its record retention and disposal guidelines.

SPECIAL NOTES

This Privacy Statement only applies to the collection, use and disclosure of customer smart meter energy usage data. It does not apply to the Company's website, mobile application, or customer agreements and means, other than smart meters, by which customers provide information to National Grid. The Company may modify this Privacy Statement from time to time to reflect legal, technological, or other developments. Such updates will be reflected on this page.

CONTACTING THE COMPANY

Please contact the Company right away at the address or email address below:

- If, for any reason, you believe your smart meter data is no longer secure;
- You have any questions about this Privacy Statement;
- To request a copy or your energy use data; or
- To update any potentially inaccurate or outdated customer information.

National Grid

Data Privacy

175 East Old Country Rd

Hicksville, New York 11801

USDataPrivacy@nationalgrid.com

Effective Date: _____