2019 Pilots

Summary

In 2019 all residential and commercial pilots will be included in this new attachment. The Company has redefined what it considers a pilot in accordance with the Docket No. 4600-A PUC Guidance Document.~~definition of a pilot is based on Docket 4600 definition and~~

> Pilot: As defined in the Docket 4600-A Guidance Document, "A pilot is a small scale, targeted program that is limited in scope, time, and spending and is designed to test the feasibility of a future program or rate design. It is incumbent upon the proponent of a pilot to define these limits in a proposal for PUC review. Ideally, a pilot can provide net benefits and achieve goals, but the primary design and value of a pilot is to test rather than to achieve."[1]

This attachment summarizes each pilot and describes the manner in which it ~~includes the Docket 4600 matrix for goals for the electric and gas system as well the goals it~~ advances, detracts, or remains neutral on achieving the Docket 4600 goals for the electric and gas system. ~~and on which goals the pilot stays neutral.~~

Pilots are designed to explore technologies and approaches to energy management not included in the core energy efficiency programs (Residential, Commercial and Industrial, and Multifamily).

Pilots enable the Company to test technologies, new energy management strategies, customer adoption and cost effectiveness of emerging and new technologies. If a pilot is successful for commercialization, new programs and measures may be added ~~as emerging programs or within the~~to existing core programs.

For actions in the Plan that do not fall under the Docket 4600-A definition of pilots, the Company proposes the following definitions for demonstrations and assessments:

- Demonstration: A demonstration tests a new technology or solution that is delivered as part of an existing program~~,~~ where a technical assessment ~~can~~ has estimated the savings

[1] Docket No. 4600-A PUC Guidance Document, October 27, 2017. Section V. Pilots.

and determined that the measure is ~~they are~~ likely to be ~~-~~cost effective. An example of a demonstration was beneficial electrification of heat in the HVAC program in 2018.

- Assessment: An assessment tests a measure, a bundle of measures, or a solution, that can be delivered as part of existing program~~,~~ where the savings are not known ~~and~~ but will be explored as part of the assessment. An example of an assessment is automated window shades in the C&I retrofit program.
- ~~Initiative: An initiative tests new go-to market strategy for a known measure that is cost effective (known savings)~~

~~**Highlights**~~

~~In 2019 the proposed pilots are a continuation from 2018. Following~~ The following pilots are ~~the pilots~~ proposed for 2019 ~~on for~~in the Residential, Commercial and Industrial, and Multifamily market segments.

Summaries of proposed 2019 demonstrations and assessments are included within Attachments 1 and 2 as part of the core program descriptions. These categories are expected to contribute savings to the programs in which they are offered. These categories are therefore included as part of a program's total planned costs, benefits, and savings. These categories are included in the overall cost-benefit ratio of the Plan and they are included in the calculation of the shareholder incentive.

Commercial and Industrial (C&I) Pilots

In 2019 the National Grid C&I team will focus on new lighting technologies and lighting ~~, and~~ go-to-market strategies, industrial technologies and go-to-market approaches, new construction demonstrations as well as demand response ~~in the small commercial and multifamily space.~~demonstrations. Please refer to ~~the~~ Attachment 2 Commercial and Industrial Programs, Section 3 in for a detailed list of all demonstrations and assessments. The detailed descriptions for these demonstrations and assessments are under the various programs in the C&I section.

~~for demonstrations, assessments and initiatives.~~ Listed below are the C&I pilots for 2019.

Commercial and Industrial Pilots					
	Name	Goals and Scope	Duration	2019 Budget	2019 Savings
1	Pathway to Zero Energy	Start two to three new Zero Energy Building (ZEB) pilot	2018-2020	$178,500	Not determined

	Buildings	projects in the 2018-2019 timeframe and test zero energy design, operation and collect customer feedback from building owner, designer and occupants. The goal is to inform the design of a Zero Energy Building Program in 2020-2021			
2.	Gas DR Pilot	Reduce gas consumption with large commercial customers during the winter season.	2018 (winter)-2020	$357,500	300 Dekatherms per hour

Pathway to Zero Energy Buildings Pilots

In 2018~~9~~ National Grid initiated a ~~will continue~~ Zero Energy Building (ZEB) pilot to advance interest in the RI building industry for ZEB's and a path to zero energy buildings. To accelerate these efforts National Grid will continue to focus on four areas to advance ZEB's in 2019.

1. Education and awareness: This includes educational Forums and Seminars on a bi-annual basis that provide education and information specific to achieving low Energy Use Intensity (EUI) targets in commercial buildings as a pathway to Zero Energy Buildings. These will be coordinated with the residential Zero Energy Building efforts as there are overlaps with projects like multifamily and with the design and building community at large.
2. Marketing: Providing case studies and information on Zero Energy Building strategies for the building industry and owners and developers via various channels, including online and via newsletters.
3. Training: Providing training and access to trainings for building industry professionals and contractors.
4. ~~1.~~ Zero Energy Building projects: Identifying projects with owners, developers and architects that can achieve Zero Energy targets and providing ~~with multiple tracks under the Path to Zero Energy strategy that includes training and education for the building industry, benchmarking and building energy labeling efforts, continuing with the Performance Based Procurement initiative (under the New Construction Program) that sets Energy Use Intensity (EUI) targets early stages of a new construction project, as well as partnering with developers and architects to identify projects that can achieve~~

~~Zero Energy targets with~~ technical expertise, financial incentives, commissioning and post occupancy verification for these projects, as a way to learn and help design and launch a full Zero Energy Building program in the future.~~.~~

~~In 2019 National Grid will continue to offer educational Forums and Seminars on a bi-annual basis that are specific to achieving low EUI targets in commercial buildings and as a pathway to Zero Energy Buildings. These outreach and education efforts are coordinated with the residential sector as there are overlaps with projects like multifamily and also with the design and building community at large.~~

Early market assessment in 2018 indicates there is interest in the market for ZEB multifamily projects, higher education as well as a potential for K-12 school projects. In 2018 the Company developed criteria for Zero Energy projects as a way to solicit project partnerships with owners, developers and architects and will continue these efforts to identify projects in 2019.

~~The pilot for ZEB will include providing design assistance to build to higher EUI goals, incentives to build to higher EUI above existing New Construction levels, technical assistance specific to ZEB, commissioning and monitoring of three Zero Energy Building Pilots in 2019 and 2020. In addition the pilots funding will provide education, training and marketing outreach to the building industry in RI.~~

Pathway to Zero Energy Buildings Pilot	
4600 Goals for Electric System	**Advances/Detracts/Neutral**
Provide reliable, safe, clean, and affordable energy to Rhode Island customers over the long term (this applies to all energy use, not just regulated fuels).	Advances low energy use buildings and clean energy with renewables on site. Provides bill reduction and therefore operational savings due to higher energy efficiency coupled with renewables on site. Provides healthier buildings that are more comfortable. Improvements in customer empowerment and choice
Strengthen the Rhode Island economy, support economic	This pilot has the potential to provide new local job opportunities through the construction activities and

competitiveness, retain and create jobs by optimizing the benefits of a modern grid and attaining appropriate rate design structures.	on-going site maintenance. Participating in, and acknowledgement of, these programs increases awareness of job opportunities in emerging and sustainable energy sources, which can generate interest in these jobs and create future local jobs in these areas. Creates high performing environments that boost economic growth
Address the challenge of climate change and other forms of pollution.	Pilot advances carbon savings with energy efficiency and renewable energy.
Prioritize and facilitate increasing customer investment in their facilities (efficiency, distributed generation, storage, responsive demand, and the electrification of vehicles and heating) where that investment provides recognizable net benefits.	Investments in Zero Energy Buildings create more value for building owners
Appropriately compensate distributed energy resources for the value they provide to the electricity system, customers, and society.	Neutral – this pilot is neutral on this goal. The Company will explore customer compensation for the locational benefits to the system as ZEB market scale and emerges.
Appropriately charge customers for the cost they impose on the grid.	The current ZEB pilot will not disproportionally impact the gird at the moment. At scale ZEB's have the potential to disproportionally impact (cost) customers who do not have renewables on site. This Company will explore impacts as this market emerges.
Appropriately compensate the distribution utility for the services it provides.	Neutral – this pilot is neutral on this goal.
Align distribution utility, customer, and policy objectives and interests through the regulatory framework, including rate design, cost recovery, and incentive.	This pilot advances this goal by putting incentives towards energy efficiency measures and solutions that helps to achieve the GHG reduction goals of the Resilient Rhode Island Act of 2014 and the Rhode Island GHG Emissions Reduction Plan of 2016.

Gas Demand Response Pilot

National Grid has been utilizing electric Demand Response (DR) to address grid constraints and help provide reliable service to our customers. Until recently, DR for the company customers was limited to the electric market. The Company is currently testing gas DR projects in its NY territory, conducting a study of the potential for gas demand response in MA with Fraunhofer Center for Sustainable Energy, and laying the groundwork for a pilot in RI in that will begin in the winter of 2018 - 2019. The gas DR pilot will continue in the winter of 2019-2020, in Rhode Island. With gas DR the Company will test distribution system benefits, customer adoption of gas DR as well as incentive levels to drive participation. An in-depth study will also be completed to quantify winter demand benefits.

National Grid serves as the gas and electric utility for the majority of RI, which is not the case in MA and NY. Testing gas DR will allow the Company to understand the impact on both gas and electric systems, as well as understanding if National Grid's role in the market influences rates of adoption. Finally, the gas DR pilot will involve the installation of data recording hardware that will provide granular usage data for participating customers. This will be useful context for conversations in RI regarding the need for, and potential benefits of, AMI.

The Rhode Island gas DR pilot will begin with selling to customers during the fall of 2018, will operate during the winter of 2018-2019, and will continue during the winter of 2019-2020. Data from the pilot will be evaluated each year with a summary report being produced in 2020. With gas DR the Company will test distribution system benefits, customer adoption of gas DR as well as incentive levels needed to drive participation.

Customer segment addressed*:* The gas DR pilot is focused on large, firm commercial and industrial customers, specifically those that have equipment that can be curtailed without creating an unsafe environment. The goal of the project is to test

- Are customers interested in participating in an incentivized Gas Demand Response program?
- If so, what are the acceptable price point values by customer SIC code and equipment type?
- What are the distribution system benefits?
- What is the scalability of the program throughout the pilot service territory?

The gas DR pilot will be evaluated, in the spring/summer of 2019 and 2020 for benefits to the customer and the distribution system and to determine if it has a pathway to be cost effective at scale.

Qualitative Benefits

Gas Demand Response	
4600 Goals for Gas distribution System	**Advances/Detracts/Neutral**
Provide reliable, safe, clean, and affordable energy to Rhode Island customers over the long term (this applies to all energy use, not just regulated fuels).	DR has the potential for many value streams, such as alleviating local distribution system constraints, increasing system flexibility, potentially delaying infrastructure reinforcement projects, and providing a revenue stream for participants.
Strengthen the Rhode Island economy, support economic competitiveness, retain and create jobs by optimizing the benefits of a modern grid and attaining appropriate rate design structures.	DR has the potential for many value streams, such as alleviating local distribution system constraints, increasing system flexibility, potentially delaying infrastructure reinforcement projects, and providing a revenue stream for participants, that would support economic growth. ~~N/A~~
Address the challenge of climate change and other forms of pollution.	While demand response does not directly address climate change, the additional insight into usage due to the increased data resolution provided to participants may create an opportunity for additional energy efficiency projects. Additionally, there may be a reduction in carbon due to participation in DR events.
Prioritize and facilitate increasing customer investment in their facilities (efficiency, distributed generation, storage, responsive demand, and the electrification of vehicles and heating) where that investment provides recognizable net benefits.	Neutral~~N/A~~
Appropriately compensate	Neutral – this pilot is neutral on this goal.

distributed energy resources for the value they provide to the gas system, customers, and society.	
Appropriately charge customers for the cost they impose on the grid.	Neutral – this pilot is neutral on this goal.
Appropriately compensate the distribution utility for the services it provides.	Neutral – this pilot is neutral on this goal.
Align distribution utility, customer, and policy objectives and interests through the regulatory framework, including rate design, cost recovery, and incentive.	Gas DR pilot advances this goal by putting incentives towards peak reduction on the gas distribution network that helps to achieve the GHG reduction goals of the Resilient Rhode Island Act of 2014 and the Rhode Island GHG Emissions Reduction Plan of 2016. There is also an alignment in the sense that customer participation could affect system planning, which could have a larger financial impact for all customers. In this way, participants are incentivized for providing the behavior that matches the goals of the company.

Residential Pilot Projects

In 2019 the Residential New Construction Team will focus on building the zero energy ready and Passive House markets in Rhode Island. The pilot began in 2018, and will continue into 2019 in an effort to develop professional expertise, test the effectiveness of enhanced incentives, and test the energy efficiency of projects that achieve zero-energy ready or Passive House certification.

Residential Demonstration Programs					
	Name	Goals and Scope	Duration	2019 Budget	2019 Savings
1	Pathway to Zero Energy Homes Pilot	Provide enhanced incentives to projects that achieve zero energy ready or Passive House homes. Continue to support the professional	2018-2020	$186,850	Not determined

		development of the RI building community to become certified zero-energy and/or Passive House certified builders. Test zero energy design and operation and collect customer feedback from project team and occupants. The goal is to inform the design of a Zero Energy Building Program in 2020-2021			

In 2018, the Company initiated the Zero Energy Homes Pilot to help to accelerate the zero energy market in Rhode Island. This pilot will continue into 2019 in order to build upon the following four main market segments:

1. Education and Awareness
    a. Stakeholder Forums
    b. Communications
    c. Tours
    d. Home Show
2. Workforce Development
    a. Zero Energy and Passive House Training
    b. Marketing
    c. Project Certification
3. Project Incentives
    a. Components to get to zero energy ready
4. Marketing
    a. Zero Energy in RI – case studies

This pilot intends on funding these segments to test the following:

1. If there will be an increase in zero energy homes as a result of increased number and promotion of trained professionals
2. If there will be additional savings from high efficiency homes plus one of the proposed pathways to zero energy.

Pathway to Zero Energy Buildings Pilot	
4600 Goals for Electric System	**Advances/Detracts/Neutral**
Provide reliable, safe, clean, and affordable energy to Rhode Island customers over the long term (this applies to all energy use, not just regulated fuels).	Advances low energy use new construction and major renovations and creates the infrastructure for all-electric homes and on-site renewables. Provides bill reduction compared to baseline new construction homes and therefore operational savings due to higher energy efficiency coupled with renewables on site. Provides healthier buildings that are more comfortable. Improvements in customer empowerment and choice
Strengthen the Rhode Island economy, support economic competitiveness, retain and create jobs by optimizing the benefits of a modern grid and attaining appropriate rate design structures.	This pilot has the potential to increase the professional capabilities of the RI residential home building industry. The program will support the advancement of rate design structures by incentivizing all electric homes as well as smart homes. The Program will be marketed through home tours, webinars, mail/email communication, the RI Home Show and collaboration with RI residential industries. Creates high performing environments that boost economic growth
Address the challenge of climate change and other forms of pollution.	Pilot promotes carbon savings via all electric homes and building in the infrastructure for electric vehicles (EVs) and photovoltaic energy (PV).
Prioritize and facilitate increasing customer investment in their facilities (efficiency, distributed generation, storage, responsive	This Program will facilitate the investment in a zero energy home based on the additional technical design and construction assistance and additional incentives. A zero energy home will also be the

demand, and the electrification of vehicles and heating) where that investment provides recognizable net benefits.	foundation for a smart home with innovative technologies for full automation. It will serve the needs of those who want the lease amount of reliance on the grid, who want to reduce their carbon footprint and who want to be leaders in the fast paced technology and automation trends.
Appropriately compensate distributed energy resources for the value they provide to the electricity system, customers, and society.	Neutral – this pilot is neutral on this goal. The Company will explore customer compensation for the locational benefits to the system as ZEB market scale and emerges.
Appropriately charge customers for the cost they impose on the grid.	The current ZEB pilot will not disproportionally impact the gird at the moment. At scale ZEB's have the potential to disproportionally impact (cost) customers who do not have renewables on site. This Company will explore impacts as this market emerges.
Appropriately compensate the distribution utility for the services it provides.	Neutral – this pilot is neutral on this goal.
Align distribution utility, customer, and policy objectives and interests through the regulatory framework, including rate design, cost recovery, and incentive.	This pilot advances this goal by putting incentives towards energy efficiency measures and solutions that helps to achieve the GHG reduction goals of the Resilient Rhode Island Act of 2014 and the Rhode Island GHG Emissions Reduction Plan of 2016.