



STATE OF RHODE ISLAND
**ENERGY EFFICIENCY &
RESOURCE MANAGEMENT COUNCIL**

DRAFT ANNUAL REPORT



MAY 2019

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DRAFT



How Energy Efficiency is Paying Off for Rhode Islanders



726

full-time equivalent jobs in 2017



917

firms delivered energy efficiency services in 2017



1.28 million

metric tons of greenhouse gas emissions prevented over the life of efficiency measures installed in 2017. Equivalent to taking

274,090 cars

off the road for one year



\$320 million

in total benefits achieved by efficiency programs in 2017

Ensure Continued Leadership through 2018 Policy Recommendations



Support Least-Cost Procurement (§ 39-1-27)



Facilitate financing options, especially for schools



Support economically vulnerable households



Support efficiency in homes that use unregulated fuels, like oil and propane



Coordinate energy efficiency programs with renewable energy deployment



Adopt energy and water efficiency standards for appliances



Define aggregated or asset-based building energy information as public

The Rhode Island Energy Efficiency & Resource Management Council (EERMC) is a group of stakeholders that represents all Rhode Islanders to ensure the utility is investing in the least expensive energy resource – energy efficiency. Learn more at www.rieermc.ri.gov

LETTER FROM THE CHAIR

To Governor Gina M. Raimondo, Leaders and Members of the General Assembly, and all Rhode Island energy consumers:

On behalf of the Energy Efficiency & Resource Management Council, I am proud to present to you our 2019 Annual Report.

In the past year, we have made incredible progress, particularly with the energy star lighting program for residential consumers. Energy star LED lighting products use a fraction of the electricity of an incandescent bulb and are an easy, low-cost way for consumers to start reducing their energy use right away. These products are widely available in stores such as Home Depot, Lowes, Walmart and Target and they have become extremely popular.

However, the success of this program means that we must look to other ways of lowering our collective energy use. For the rest of 2019 and beyond, we have several new opportunities before us.

While we have been successful at reaching and influencing middle-class homeowners, there is still much work to do with our state's low-income population, particularly those who live in multi-family homes. While programs exist for this population, they must be thoroughly reexamined and reinvigorated to increase participation. We must produce new ways to engage low-income populations and deliver our programs more effectively.

Companies are advancing technology at exponential rate, making incredible breakthroughs in the world of energy efficiency. To continue creating highly competitive and streamlined energy efficiency programs, we must continually watch advancements in energy technology, including artificial intelligence. We need to develop a method to evaluate these technologies for practicality, cost-effectiveness and potential for customer satisfaction. It is up to us to create the next model of energy efficiency and bring modern technologies to the market, so they can become as mainstream as LED bulbs are today.

To help us achieve this aim, we are investing in a new energy efficiency potential study which will evaluate new energy efficiency technologies and programs across the nation, to see which may have the potential to be successful here in Rhode Island. This result of this study will be key to shaping our state's energy efficiency programs over the next five to 10 years.

While we are proud of the progress we have made, there is still much work to do. Thank you for your continued support.

Respectfully Submitted,

*Christopher M. Powell, Chair
Energy Efficiency and Resource Management Council*



LETTER FROM THE EXECUTIVE DIRECTOR

(TO BE UPDATED)

To Governor Gina M. Raimondo, Leaders and Members of the General Assembly, and all Rhode Island energy consumers:

The Rhode Island Energy Efficiency and Resource Management Council (EERMC), in partnership with the Office of Energy Resources (OER), is pleased to present the EERMC's 2017 Annual Report.



Rhode Island is a national leader in energy efficiency savings. The American Council for an Energy Efficient Economy ranked Rhode Island first in utility energy efficiency programs, and fourth in overall energy efficiency. The Union of Concerned Scientists ranked Rhode Island first in electricity savings achieved through state programs and second on the strength of its energy efficiency standards. These achievements reflect the commitment Rhode Island leaders have made to energy efficiency as part of a secure, cost-effective and sustainable energy future.

Rhode Island's energy efficiency programs deliver triple bottom-line benefits. Energy efficiency programs reduce greenhouse gas emissions, create jobs and drive economic growth by keeping energy dollars in our local economy. Every \$1 million invested in this sector leads to the creation of 45 job-years of employment, and every \$1 invested boots Gross State Product by \$4.20. The state's energy efficiency expenditures since 2008 will create over 23,000 job-years of employment and boost Rhode Island's Gross State Product by \$2.3 billion.

We are fortunate to have state leaders who understand and support the vital role energy efficiency plays in our state's energy system. OER thanks each of you for your dedication to enhancing Rhode Island's reputation and standing as a national leader.

The year ahead will bring new challenges as we build on the successful launch of the Rhode Island Infrastructure Bank and facilitate new financing options for all sectors for the economy; address the funding and support for efficiency investments in unregulated fuels for consumers and businesses; adjust to the changes in federal efficiency standards; and work to ensure that all customers have the opportunity to benefit from efficiency savings.

We also want to extend a special note of appreciation to the Rhode Islanders who serve on the EERMC. These generous volunteers donate hundreds of hours over the course of the year, working to ensure that energy efficiency programs deliver on their promise to produce energy and cost savings for Rhode Island ratepayers. Rhode Island's award-winning programs would not be possible without their support and dedication.

Sincerely,

Carol Grant

Commissioner, Rhode Island Office of Energy Resources

Executive Director, Energy Efficiency and Resource Management Council

ABOUT THE EERMC

COUNCIL MEMBERSHIP

The EERMC consists of fourteen members appointed by the Governor with the advice and consent of the Senate. Ten members are voting members with knowledge of energy regulation and law, environmental issues pertaining to energy, energy design and codes, energy efficiency education and employment tracking, and energy users in the following sectors: large commercial and industrial, small commercial and industrial, large non-profit, residential, low income, and municipal. Four members are ex-officio, non-voting members including the Commissioner of the Office of Energy Resources and others representing an electric distribution entity, a gas distribution entity and the fuel oil or heating fuel industry. Members serve voluntarily and meet year-round.

COUNCIL MEMBERS

Christopher Powell, Chair

Voting Member

Assistant Vice President, Sustainable Energy and Environmental Initiatives, Brown University

Representing Expertise in Energy Regulation and the Law

Betsy Stubblefield Loucks, Vice Chair

Voting Member

Independent Strategy Consultant
Representing Residential Users

Roberta Fagan

Ex-Officio Member

President, Oil Heat Institute of Rhode Island
Representing Expertise in Delivered Fuels

Carol J. Grant

Ex-Officio Member

Commissioner, Office of Energy Resources
Executive Director of the EERMC

Rachel Henschel

Ex-Officio Member

Director, RI Customer & Business Strategy, National Grid

Representing an Electric Distribution Entity

Anthony Hubbard

Voting Member

Director, YouthBuild Providence

Representing Low Income Energy Consumers

Jennifer Hutchinson

Ex-Officio Member

Senior Counsel, National Grid

Representing Electric & Gas Utility

Thomas Magliocchetti

Voting Member

Vice President, Facilities Management, Rhode Island Hospital

Representing Large Non-Profit Users

Karen Verrengia

Voting Member

Field Manager, CLEAResult

Former Energy Manager, Cranston Public School Department

Representing Expertise in Workforce Development

Appointment pending

Voting Member

Representing Expertise in Energy Design & Code

Appointment pending

Voting Member

Representing Municipalities

Appointment pending

Voting Member

Representing Large Commercial & Industrial Users

Appointment pending

Voting Member

Representing Expertise in Environmental Issues

Appointment pending

Voting Member

Representing Small Commercial & Industrial Users

WHO WE ARE & WHAT WE DO

The Energy Efficiency and Resource Management Council (EERMC) has been providing an integrated, comprehensive, public, stakeholder-driven organizational structure to secure for Rhode Island's energy consumers the economic and environmental benefits of energy efficiency since the Council's formation in 2006 under amendments to R.I.G.L. § 42-140.1.

In representing small and large businesses, non-profit organizations, homeowners and renters, and municipalities and government, the EERMC oversees highly successful programs that allow Rhode Islanders to access energy efficiency instead of having to purchase more costly energy supply. A valuable outcome of these programs is to also support a growing industry of Rhode Island energy efficiency service and product suppliers, which support local job growth and in-state financial investments.

Our Mission

The Council's mission is to serve Rhode Islanders in their homes and businesses. We represent your needs by providing integrated, comprehensive stakeholder feedback about energy decisions. Our goal is to ensure Rhode Islanders are getting the least expensive and most environmentally healthy energy supply through energy efficiency, conservation, and resource management.

Our Purposes



Make
Recommendations



Engage Stakeholders



Monitor and Evaluate

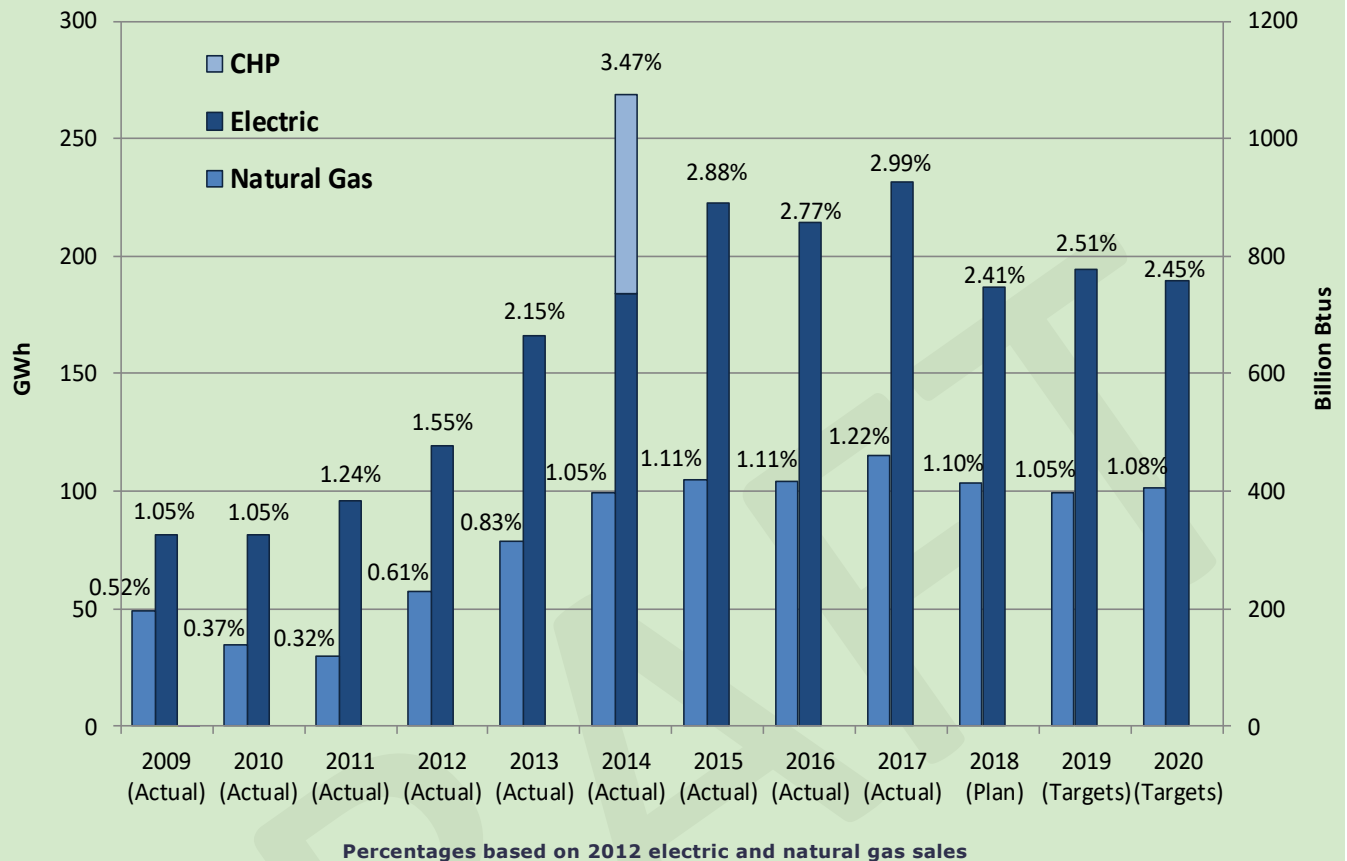


Ensure Public Benefit

The effects of energy efficiency in the last decade now cumulatively account for approximately 20% of Rhode Island's electricity needs. Without the cost-effective energy efficiency investments made over time, which cost on average about 4 cents per kilowatt-hour saved, we would now be paying more than twice that amount to supply that energy.

Rhode Island consumers are the focus of Least Cost Procurement, so ensuring the consumer voice in energy efficiency procurement decisions is critically important. The EERMC, assisted by its expert consultant team, provides meaningful input into National Grid's efficiency procurement plans and adds significant stability to investment decisions. The EERMC's model for structured stakeholder participation has been successfully deployed annually in a nationally-recognized process to set appropriate energy saving targets and then establish implementation plans that are equitable, cost-efficient and cost-effective to maximize benefits for all Rhode Islanders.

ACTUAL ENERGY SAVINGS (2009-2017) AND TARGETS (2018-



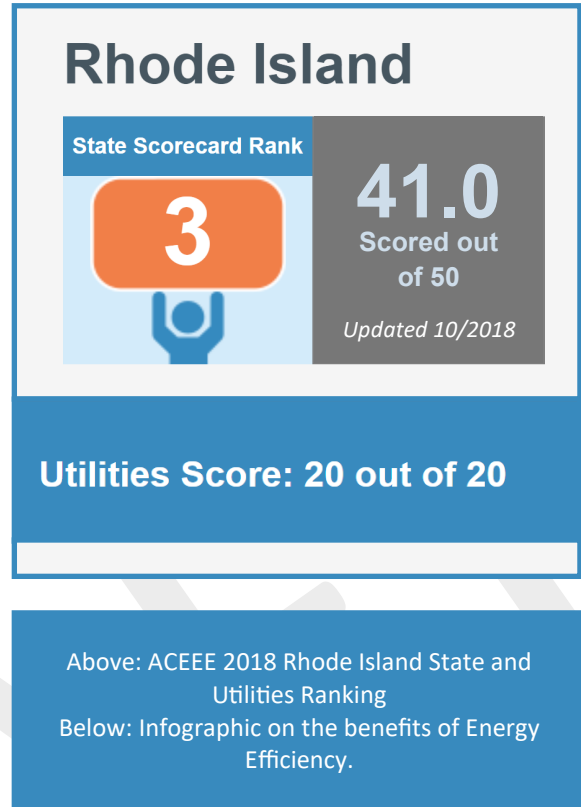
The remainder of this report describes the specific activities of the EERMC in 2018 which include:

- ◆ Providing oversight and input into 2018 program implementation, which resulted in savings **over 100% of the goal in all sectors, within budget.**
- ◆ Collaborating with National Grid and key stakeholders on the development of the 2019 Energy Efficiency Program Plan and the 2019 System Reliability Procurement Plan. The RI Public Utilities Commission unanimously approved these plans.
- ◆ Monitoring and supporting product launches and enhancements of the Rhode Island Infrastructure Bank and proposing other key recommendations for making energy efficiency even easier and more accessible to Rhode Islanders through improved financing options.
- ◆ Exploring challenges, barriers, and opportunities to have a lower cost, cleaner energy future through comprehensive energy system planning and policies.

2018 ACHIEVEMENTS AND HIGHLIGHTS

Rhode Island remains a nationally recognized leader in implementing high-quality energy efficiency programs. Since 2009, Rhode Island has consistently been in the top 10 states ranked by the American Council for an Energy Efficient Economy's (ACEEE) State Energy Scorecard.

In 2018, Rhode Island received the number 1 ranking in the category of "utility-sector energy efficiency programs and policies" after once again being the only state to earn a perfect score in that category. Rhode Island also ranked #3 overall, for the second consecutive year, for its progressive work in codes, state government facilities, combined heat and power, and transportation.

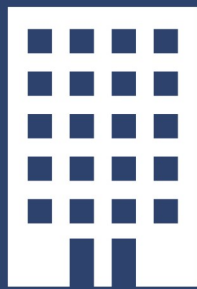


How **Energy Efficiency** is Paying Off for Rhode Islanders



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2018 ENERGY EFFICIENCY PROGRAM RESULTS



Total Participants

####



Cost Per Lifetime kWh of Electricity Saved

####



Utility Program Cost

####



Cost Per Lifetime MMBTU of Natural Gas Saved

####



Total Benefits

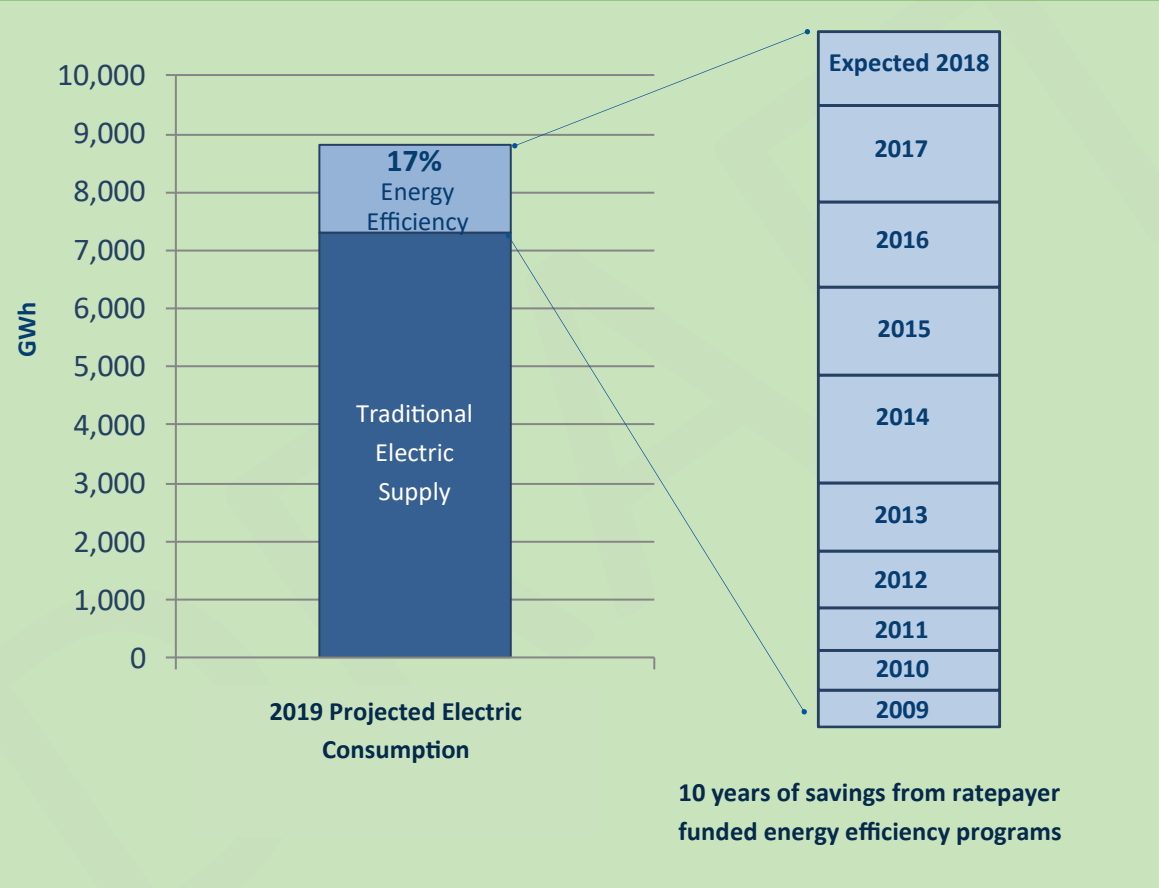
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Energy Savings as a Percent of 2012 Electric Load

####

TEN YEARS OF PROJECTED CUMULATIVE SAVINGS FROM ENERGY EFFICIENCY



2019 POLICY RECOMMENDATIONS

R.I.G.L. § 42-140.1-5 requires that the EERMC “Submit to the joint committee on energy an annual report... regarding the activities of the Council, its assessment of energy issues, the status of system reliability, energy efficiency and conservation procurement, and its recommendations regarding any improvements which might be necessary or desirable.” The EERMC submits the following recommendations that will support Rhode Island’s position as a national leader in energy efficiency and resource conservation. As in previous years, we present both *Policy Recommendations* for 2018 and a *Progress Report* on previous recommendations.

Continue Least Cost Procurement law



The EERMC strongly recommends that the executive branch and legislature continue to support Rhode Island’s Least Cost Procurement law (§ 39-1-27.7) for both electric and gas service by passing legislation that facilitates and enhances its implementation.

Share building energy information with new homeowners and renters



Aggregated or asset-based building energy information should be shared with prospective buyers/renters when a building is put up for sale or lease. This would allow greater transparency in Rhode Island building transactions, would spur the market for more energy efficient homes, and would provide a level of customer protection not currently available to home buyers and renters.

Adopt appliance efficiency standards



Rhode Island should adopt comprehensive appliance efficiency standards that also backstop existing federal appliance standards that may languish. Such action would achieve large energy and cost savings for Rhode Islanders.

Expand workforce development in energy efficiency and renewables



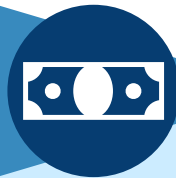
It is anticipated that the energy efficiency workforce will be rapidly changing in the coming years and will require a retooling of existing skillsets. Therefore, current efforts by the RI Department of Labor & Training as well as the Governor's Workforce Board to support the energy efficiency and renewable energy workforce in Rhode Island should be expanded and coordinated with existing energy programs wherever possible. As the energy market continues to grow and transform within the state, training for the future and current workforce is essential.

Ensure program accessibility for all types of customers



Rhode Island energy efficiency programs should constantly work to ensure that all customers and segments of the market have access to the benefits of energy efficiency savings. There should be a concerted effort to reach those who are economically vulnerable, and those who are currently above poverty guidelines, but need significant assistance to make efficiency investments. Coordination among all utility, state and federal income-eligible offerings/programs should be optimized to enhance the customer experience, increase program efficiency, and to strive for widespread program participation.

Promote well-being, energy security and affordability



A concerted effort should be made to coordinate energy efficiency programs with renewable energy deployment, state health initiatives, resiliency efforts, and any other relevant state and federal programs that promote well-being and energy security and affordability for all Rhode Islanders.

Progress on Previous Policy Recommendations

Strong progress has been made on the following, previous EERMC policy recommendations:

1. Expanding access to well-designed financing options that supplement and tie-in to successful rebate and incentive programs to allow more energy efficiency to be captured. The establishment of the Rhode Island Infrastructure Bank through the leadership of the Office of the Governor and the Office of the General Treasurer as well as the General Assembly's passage of supporting legislation successfully delivers an effective means to this end to benefit all Rhode Islanders. Financing options such as the Efficient Buildings Fund and Commercial Property Assessed Clean Energy (C-PACE) are now available for many Rhode Island municipal and commercial facilities.

2. Supporting the continuation of Rhode Island's landmark Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006 that established Least Cost Procurement as the state's overarching resource acquisition strategy for electricity

and natural gas. This act was set to expire in 2018, but due to commendable action taken by the General Assembly, Least Cost Procurement has been extended through 2024. This ensures that all Rhode Islanders can continue benefitting from investments in all cost-effective energy efficiency. It is important that this law continue to be protected and perpetuated for the benefit of all Rhode Islanders.

3. Supporting the use of energy efficiency funds collected from electricity sales for both electric and delivered fuels – such as oil and propane – efficiency improvements. By encouraging energy efficiency programs to equally support the reduction of natural gas and delivered fuels use, the State has allowed the energy efficiency programs to better support Rhode Island's greenhouse gas emission reduction goals. Moreover, these programs are helping homes and businesses that rely on oil and propane to save money.

2018 PROGRAMS & INITIATIVES

RESIDENTIAL ENERGY EFFICIENCY PROGRAMS

National Grid offers comprehensive energy efficiency solutions for all Rhode Island residential customers. The goals of these offerings and services are to educate residents on saving energy and reducing energy bills while improving the comfort in their homes. The energy efficiency solutions concentrate on creating energy efficient homes, promoting efficient products, facilitating market transformation for efficient products, and educating consumers through community outreach and annual events such as the Energy Expo at the Rhode Island Home Show and the Company's community-based initiative.

2018 marked a continuation of residential market transformation in lighting, as energy efficient LED lighting technologies became the baseline lighting offering across the residential portfolio. Progress is expected to continue in 2019 as the program aims to increase LED market saturation.

In its sixth year, the Rhode Island Home Energy Reports (HER) program continues to encourage energy efficiency behavior through personalized print and email reports, and a seamlessly integrated website. Each of the communication channels displays energy consumption patterns and contains a normative comparison to similarly sized and similarly heated homes, as well as to an energy reduction goal for each customer. 282,593 Rhode Island customers received reports in 2018.

The Town of Warren and the City of Woonsocket, ran 6-month energy saving campaigns in their communities and earned grants to be used for energy efficiency improvements on public properties. Both communities surpassed their assessment and weatherization goals, while also promoting

small business programs and mini-split heat pumps for the first time as part of the initiative.

The Energy Innovation Hub continued to serve as a community engagement destination designed to expand customer education and outreach and enrich the customer's understanding of energy and opportunities to reduce energy consumption. The Hub helps customers to understand their own energy use as well as how participation in energy efficiency programs contributes to the State's greenhouse gas and energy reduction goals. Located in the Dunkin' Donuts Center, the Hub draws walk-in customers and groups of customers from local businesses and schools.

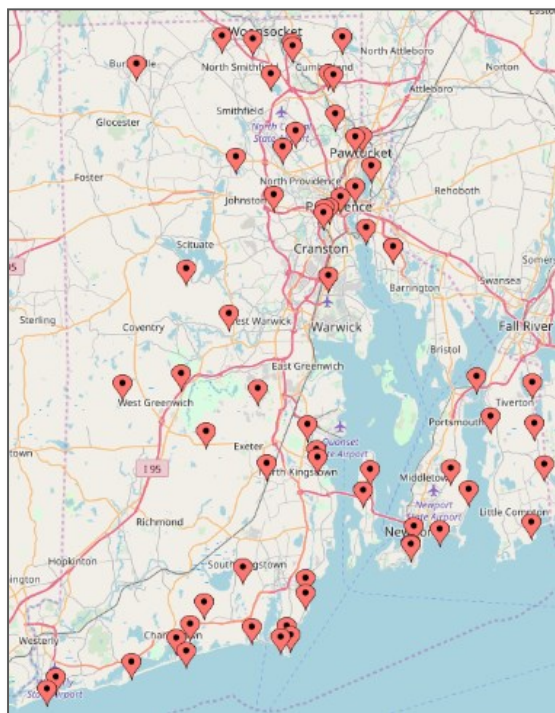
2018 Residential Results

- ##### Annual MWh Saved
- ##### Lifetime MWh Saved
- ##### Annual MMBtu Saved
- ##### Lifetime MMBtu Saved
- ##### Metric Tons of Greenhouse Gas Emissions Avoided
- ##### Program Participants
- \$### Million in Lifetime Electric Bill Savings
- \$### Million in Lifetime Gas Bill Savings
- \$### Million in Total Economic Benefits

National Grid continued its core residential energy efficiency programs in 2018:

EnergyWise offers single family customers no-cost home energy assessments, weatherization, and information on their actual energy usage. Participants in this

program receive personalized recommendations to reduce their energy consumption and improve the comfort in their home, technical assistance and education, and offers for financial incentives to replace inefficient lighting, appliances, thermostats, heating and cooling systems, and insulation with technologies that are more energy efficient. For the third consecutive year, the program was awarded the Sustained Excellence, ENERGY STAR® Partner of the Year award in program delivery. This award recognizes the robust savings Rhode Islanders are receiving as well as the innovative program design. The program also celebrated 16 Century Club recipients who are insulation contractors that weatherized 100 or more residential homes



Locations of homes completed in the Residential New Construction program in 2018

Rhode Island. In 2018, EnergyWise established a revolving loan fund at the Capital Good Fund to provide additional access to moderate income customers interested in energy efficiency financing. In 2018 the Company also provided parity in weatherization incentives for all customers regardless of heating fuel starting mid-year.

Finally, a language line was implemented so additional languages beyond Spanish and Portuguese could be supported.

The Residential New Construction (RNC) Program

provides technical support and incentives for the construction and renovation/remodeling of high-performing energy efficient single family, multi-family, and income eligible homes. The Program incentivizes both the efficient building envelope as well as high efficiency mechanical equipment. In 2017 a new program baseline to determine savings for the RNC program was developed which meant that all projects completed in 2018 were held to the new, significantly more stringent baseline. RNC representatives worked closely with participants to determine the impact on each of their projects and offered technical guidance to improve the project’s energy performance to meet the higher baseline of the program. In 2018, XX% of homes were heated with electric air source heat pumps demonstrating a continual increase year-over-year in electrically heated homes. The local HERS Rater community was expanded to create a fully open-rater program model in which Rhode Islanders can compete effectively with experienced HERS raters from surrounding states. Throughout the year, the program offers training on best practices for designing and building high efficiency homes for builders, tradespeople, designers, and code officials.

The ENERGY STAR® Consumer Products Program

promoted the purchase of high efficiency household appliances and electronics. 2018 produced strong results with strong consumer interest in dehumidifiers, dryers, pool pumps, room air conditioners, and advanced power strips.

The ENERGY STAR® Lighting Program

provides negotiated pricing to customers for the purchase of ENERGY STAR® qualified lighting, retail store promotions, and/or pop

up stores, and limited online, flash sales. This program provides retailer education and support in the efficient lighting area contributing to overall market transformation. This program benefited from consistent program support resulting in a transforming lighting market and strong consumer sales.

The ENERGY STAR® HVAC Programs (Gas Heat Program and Electric Heating and Cooling) promote the installation of high efficiency gas and electric space heating and cooling equipment, water heating measures, and controls via tiered customer rebates. In 2018, the gas heating program saw a significant increase in energy efficient combination boiler/hot water systems and a decrease in the stand-alone efficient boilers. The HVAC electric program introduced an

Tell us about your home for a better comparison.
To see a more accurate comparison and helpful tips, update your home profile. It won't take long—just 2-3 minutes.

✓	Home type	Single family
✓	Home size	1400 sq. ft.
?	Own or rent	Unknown
?	Heating type	Unknown
✓	Pool	Yes
?	Dryer	Unknown
✓	Second fridge	Yes
✓	Fireplace	No

Sign in to your account and visit Track Usage.
Go to What Uses Most to update your profile.

UPDATE HOME PROFILE

Online Home Energy Audit Campaign

electric heating solution with cold climate air source heat pumps (ASHP) for the replacement of electric heat and displacement of oil and propane systems. Mini-Split (MS) Check, a contractor-incentivized offer, became a new measure for 2018. The MS Check will ensure that savings are accurate, and equipment is working properly.

The Home Energy Reports (HER) Program in 2018 expanded and improved email High Bill Alerts for customers, released an email

Personal Tracker module, cross-promoted their paperless billing program, and conducted an online home energy audit campaign. For the online home energy audit campaign, Customers were presented with the current information in their home profile and were prompted to fill out the HEA to provide more information. This information provides a better user experience with more accurate tips and a more accurate neighbor comparison. During the campaign, National Grid Rhode Island saw a 97% increase in the number of customers that had completed the HEA.

The Company's **Community Initiative**, celebrated the success of the prior year's program participants at the Customer Listening forum in 2018, and recruited the communities of Warren and Woonsocket to participate for the program year. Specified metrics were again set for these new participants including residential energy assessment goals, weatherization jobs, WIFI thermostats, and refrigerators recycled. New for 2018, the program also set goals for small business program participation and the purchase of mini-split heat pumps. Both Warren and Woonsocket had great success, both far surpassing assessment and weatherization goals.

The Multifamily Program concluded 2018 with mixed results for the year. The multifamily program was challenged in meeting its 2018 electric goals due to declining opportunities for lighting savings which make up a significant portion of the programs' savings. In contrast, the program excelled in achieving its gas goals by identifying numerous opportunities for heating boilers. One notable advancement in the program was the use of customized condo website portals to improve accessibility for this customer segment.

Income Eligible Services

The Income Eligible Services (IES) program helps reduce electricity and heating costs for residential income eligible customers without any financial obligation from the customer. Income Eligible Services are delivered by Rhode Island's six local Community Action Program (CAP) agencies to customers who are currently on the A-60 or 1301 Low Income rate; qualify for LIHEAP funds from the State; and whose household income level falls below 60% of the Area Median Income (AMI). Services offered to Income Eligible Customers include (1) an energy assessment of lighting, appliances, and behavior to determine baseline consumption and potential replacement if applicable, (2) an inspection of existing insulation to identify opportunities for weatherization, and (3) a safety and energy efficiency inspection of the customer's heating/cooling system for potential replacement if eligible. All customers receive all services and equipment upgrades at no cost.

The IES program continued to benefit from program improvements resulting in an increase in the number of assessments by **x%** from 2017 to 2018 – to a total of **x,xxx** assessments. A long awaited heating solution for electric resistance heat customers was introduced with the Cold Climate Air Source Heat Pumps to replace electric resistance heat and displace oil/propane heat. This heating solution will create significant cost savings for customers. To support consistency in the delivery of program services across the RI Community Action Program, The RI WAP/IES (Weather Assistance Program/Income Eligible Services) Field Guide was updated and approved. IES initiated the development of an Appliance Management Program (AMP) Manual that will outline the steps and goals of the AMP Assessment. This manual is designed to

increase consistency with AMP Assessments across the six CAPs. Overall, in 2018, IES exceeded the gas goal (105% of savings), and the electric goal (**1XX%** of savings).

2018 Income Eligible Results

- ##### Annual MWh Saved
- ##### Lifetime MWh Saved
- ##### Annual MMBtu Saved
- ##### Lifetime MMBtu Saved
- ##### Metric Tons of Greenhouse Gas Emissions Avoided
- ##### Program Participants
- \$##### Million in Lifetime Electric Bill Savings
- \$##### Million in Lifetime Gas Bill Savings
- \$##### Million in Total Economic Benefits

Income Eligible Program/WAP Collaborative

National Grid's Income Eligible Services are administered along with related and complementary federal, state, and local programs in collaboration with Rhode Island Department of Human Services (DHS), the CAP agencies, and other local agencies.

Low Income Home Energy Assistance Program (LIHEAP)

The Low-Income Home Energy Assistance Program (LIHEAP) block grant is funded through the U.S. Department of Health and Human Services. The purpose of LIHEAP is to assist Rhode Island's income eligible households in meeting the increasing costs of home energy and reduce the severity of

any energy-related crisis. Rhode Island's LIHEAP is administered by the Rhode Island Department of Human Services (DHS) Individual and Family Support/Community Services Division. LIHEAP intake and outreach is provided by the six local CAP agencies. Households are determined eligible for LIHEAP assistance according to income guidelines established by DHS.

Weatherization Assistance Program (WAP)

The Weatherization Assistance Program (WAP) enables income eligible families to reduce their energy bills (and helps LIHEAP funds go farther) by making their homes more energy efficient, while addressing health and safety concerns. Funds are used to improve the energy performance of income eligible dwellings using the most advanced technologies and testing protocols available in the industry.

WAP is funded through annual appropriations from the U.S. Department of Energy's Weatherization Assistance Program and the U.S. Department of Health and Human Services. The state allocates 15% of its annual LIHEAP funding to weatherization.

2019 Energy Expo at the Rhode Island Home Show

For the sixth consecutive year, the EERMC and National Grid sponsored the Energy Expo at the Rhode Island Home Show. The goal of the Energy Expo is to help Rhode Islanders reduce their energy costs while improving the comfort of their homes. This year, the show ran from April 4 – April 7 at the Rhode Island Convention Center. It provided Rhode Islanders with access to the state's energy efficiency programs, products and services. Show highlights include:

- ◆ Over ##### students from ## Rhode Island career tech schools helped to construct a home showcase which demonstrated how insulation, heating systems and

other energy technologies have changed in home construction from the 1950s through the present.

- ◆ ## energy related companies and organizations exhibited, including ## solar installers
- ◆ Over ### energy audit sign-ups were completed
- ◆ Over ##### LEDs were sold, many as part of ##### energy efficiency kits
- ◆ In total, over ##### people attended the Home Show

Commercial, Industrial & Public Programs and Initiatives

Large Commercial and Industrial Programs

National Grid offers two programs for large commercial and industrial customers with an average monthly peak demand in excess of 200kW. Each program contains a few common elements:

- ◆ National Grid offers incentives to reduce the incremental cost barrier to investing in energy efficiency.
- ◆ National Grid reduces barriers to participation by offering a range of technical assistance from identifying opportunities to improving a company's manufacturing process.
- ◆ National Grid makes available various financing solutions for customers. Depending on the program year and budget, National Grid may also have funds available to provide business owners with zero interest loans for a defined period of time with on-bill payback.
- ◆ The programs are integrated to offer assistance with gas and electric projects at the same time.

The Commercial New Construction Program

encourages energy efficiency in new construction, major renovations, planned replacement of aging equipment, and

replacement of failed equipment through financial incentives and technical assistance to developers, manufacturers, vendors, customers, and design professionals. The program supports both commercial and industrial new construction projects with proactive technical assistance during design with energy modeling and analysis.

In 2018, the Company launched a new demonstration called Accelerate Performance for New Construction projects. Accelerate Performance is a performance-based procurement process whereby the Company engages with developers and building owners early in the project process and helps the owner set Energy Use Intensity (EUI) goals before an RFP is issued to engage a design team. This goal of this demonstration is to achieve deeper energy efficiency savings for New Construction projects.

After a successful marketing campaign during 2018, 85 electric & gas high efficiency food service equipment products were sold via the upstream channel, saving 17,313 gross annual therms & 27,506 gross annual kWh.

Overall in 2018 there were more projects covering a range of building types demonstrating the ongoing increase in commercial and industrial development in Rhode Island. Projects included mid-size multifamily, university buildings, garage buildings and large commercial projects. One large financial institution built a new campus using the Comprehensive Design approach. The total project included nine Energy Conservation Measures (ECMs) with over 1,200 MWh saved.

The Large Commercial Retrofit Program encourages the replacement of existing equipment and systems with energy-efficient alternatives when the customer is not otherwise planning any investments. The program offers solutions including steam

trap repair, Combined Heat and Power (CHP), multiyear Strategic Energy Management Plans (SEMPs) with some of National Grid's largest customers, and a variety of Upstream programs. In 2018, National Grid had several notable developments in the Large Commercial and Industrial space. The Company broadened the program by expanding the Upstream Products Initiatives, continued its partnership and goals with its two SEMP customers, and engaged more customers in the industrial, grocery, and municipal verticals. The Company continued work on the SEMP with the State of Rhode Island that

2018 Large C&I Results

- ##### Annual MWh Saved
- ##### Lifetime MWh Saved
- ##### Annual MMBtu Saved
- ##### Lifetime MMBtu Saved
- ##### Metric Tons of Greenhouse Gas

Emissions Avoided

- ##### Program Participants
- \$##### Million in Lifetime Electric Bill Savings
- \$##### Million in Lifetime Gas Bill Savings
- \$##### Million in Total Economic Benefits

began in 2017. In 2018, **XXX** scoping studies and **XXX** retro-commissioning studies were performed in state facilities. In 2018, the Company also launched a Strategic Energy Management (SEM)/ Continuous Energy Improvement (CEI) demonstration for industrial customers whereby a cohort of industrial customer meet regularly and share best practices for operation and maintenance of their facilities.

This program also includes an industrial initiative with world-renowned engineering firm Leidos and training for trade allies among many other efforts.

The Industrial Initiative in Rhode Island had another successful year. Goals for electric and gas were exceeded and delivered substantial savings to Rhode Island manufacturers. A total of 96 incentive applications were paid (78 electric and 18 gas) resulting in savings for 59 large industrial customers. The program continues to focus on custom process measures with a majority of the applications relating to process, HVAC, VFDs and other custom process measures. The Industrial Initiative also assisted several smaller customers (under 400 kW) with energy efficiency measures. The customers included a beer distributor and paving company, and the measures were related to refrigeration and dust/particle collection. The Industrial Initiative team also assisted the beer distributor in identifying electric heat that was being left on during unoccupied hours. With the aid of interval data, the team was able to identify the savings to the customer from shutting the heat off during unoccupied hours.

The EnergySmart Grocer (ESG) Initiative delivered cost effective, comprehensive energy savings in the Grocery market segment in 2018 delivering over 6,300 MWh and 1,100 MMBTUs in annual net savings. Stop & Shop continued to rollout anti-sweat heater controls in their Rhode Island stores which accounted for 1,400 MWh savings. Dave's Marketplace also continued its effort to make their stores more energy efficient with projects at all ten of their locations. Upgrades included adding doors to their display cases, replacing their lights in their walk-in boxes and adding floating controls to their refrigeration systems. In total, Dave's Marketplace achieved over 1,000 MWh and 500 MMBTUs in annual savings. The initiative also continued to find opportunity



with the smaller grocers. Sizeable refrigeration projects were completed at Clements, Dino's Park-n-Shop, and McQuade's Marketplace which, in total, achieved over 400 MWh savings.

De-stratification fans were added to the initiative in late 2018. This technology provides gas savings by delivering warmer air from the ceiling to the ground. EnergySmart Grocer will discuss this measure with customers, where appropriate, and expects to see a significant uptake of this technology in 2019.

Several **Combined Heat and Power (CHP)** projects were pursued in 2018. A proposal to RI collage was made, but the project has not yet proceeded. Two projects were also commissioned in 2018, including Calise Bakery and Avalon Post. In 2019, a pipeline of CHP projects will be developed, and several TA studies will be completed

In 2015 National Grid launched a **Solid-State Street Light Initiative** that provided energy efficiency incentives for solid state street lighting and controls to municipal customers. There are two options for participating in this initiative, customer owned, and Company owned.

- ◆ **Customer Owned Street Lighting** – Rhode Island municipal customers are now eligible to purchase their own street lights from National Grid. Incentives are being offered for solid state lighting and

controls, as funding allows. National Grid worked closely with RIOER as well as the cities and towns.

- ◆ **Company Owned Street Lighting** – National Grid filed a company owned street lighting tariff in 2016. This tariff’s effective date is January 2017. If the municipal customer prefers to continue leasing their street lights from National Grid, the customer will receive the incentive and the Company will claim the savings.

The streetlighting incentive for the Town of Tiverton helped the Town to close their fiscal year in the black. Other towns installing LED street lighting during 2018 included West Warwick, Westerly, North Providence, Central Falls, Hopkinton & Cumberland. Close to \$800,000 in incentives were awarded resulting in energy savings of nearly 4,000 MWh.

National Grid’s **Small Business Direct Install Program** is a retrofit program that provides turnkey services to customers with less than 200 kW average monthly peak electrical demand. As part of the program, customers receive a free on-site energy assessment and a customized report detailing recommended energy-efficient improvements. National Grid then completes retrofit installations at the customer’s convenience.

National Grid pays 70% of installation and equipment costs and customers can finance the remaining share of the project over as many as 60 months (typically 24) on their electric bill, interest free, using the Small Business Revolving Loan Fund providing that funds are available.

Although the program has traditionally focused on lighting and refrigeration, National Grid is constantly updating the program to apply other measures such as energy management systems, roof-top

HVAC unit replacement, and new heating systems.

National Grid has also been actively pursuing new models that serve segments within what has been traditionally considered small business in more tailored and more cost-effective ways. The Company’s success with schools, national and regional chains, food retailers, and upstream lighting are all signs of a more strategic approach to these customers.

In 2018, National Grid continued to utilize the existing contractor/electrician base through the Customer Directed Option and explored whether C-PACE may be an attractive option for some of the larger small business customers.

In 2019, the company plans to launch a restaurant initiative that will serve non-chain restaurants in Rhode Island.

2018 Small C&I Results

- ##### Annual MWh Saved
- ##### Lifetime MWh Saved
- ##### Annual MMBtu Saved
- ##### Lifetime MMBtu Saved
- ##### Metric Tons of Greenhouse Gas

Emissions Avoided

- ##### Program Participants
- \$##### Million in Lifetime Electric Bill Savings
- \$##### Million in Lifetime Gas Bill Savings
- \$##### Million in Total Economic Benefits

The **Farm Energy Efficiency Program** offers Rhode Island agribusinesses incentives for prescriptive energy efficiency measures. Program participants receive a free on-site energy assessment and a report detailing recommended energy-efficient improvements. Farmers or agribusiness owners can then choose to install any number of recommended electric or delivered fuels measures. Delivered fuels measures are eligible for incentives equal to 75% of their installed costs. Electric measure incentives vary depending on the application, but any approved electric measure cost not covered by an incentive can be paid back, interest free, through National Grid's on-bill payment system provided that funds are available.

In 2018, 12 Rhode Island farms received no-cost, farm-specific energy assessments. With help from University of Rhode Island Energy Fellows, additional outreach was conducted at 10 farmers markets in 7 towns across 4 counties, representing roughly 100 farms. Presentations were also given at 2 workshops and 1 conference. Further outreach was conducted via social media: Facebook and Instagram (@RIFarmEnergyResources).

Lead by Example: State and Municipal Entities

In December 2015, Governor Gina Raimondo issued an Executive Order directing State agencies to 'Lead by Example' by achieving robust clean energy targets and developing clean energy practices. As of August 2018, Rhode Island State agencies have reduced their energy consumption by 10.1% (2014 baseline), saved \$4.75 million (FY 2018) from competitive energy procurement processes, and continue to procure 50% of their electricity supply from "green" energy sources. The Lead by Example initiative is also promoting interdepartmental cooperation, unlocking opportunities to

invest in comprehensive energy efficiency and renewable measures that can reduce and stabilize public sector energy costs, shrink government's carbon footprint, and support Rhode Island's burgeoning clean energy economy. Major projects completed in 2018 include, the deployment of solar arrays on three buildings on Capitol Hill, Solar PV installations on the Veterans Home and the Attorney General's new building, the completion of a solar carport at the Public Utilities Commission, the conversion of almost all State-owned highway streetlights to cost-effective LEDs, and the expansion of electric vehicle charging infrastructure at State facilities including the Public Utilities Commission and the Department of Administration.

The programs and initiatives spurred by the Lead by Example executive order are also available for municipalities and quasi-public agencies. Specifically, public entities can receive technical assistance, and in some cases financial support, from Rhode Island's Office of Energy Resources and National Grid to better manage their energy bills through Portfolio Manager (a free online tool from the U.S. Environmental Protection Agency), improve the energy efficiency of their buildings, install renewable energy systems and electric vehicle charging infrastructure, and purchase all-electric or hybrid fleet vehicles. Lead by Example efforts are meant to serve as a model for businesses, organizations, and citizens as we all work together to move Rhode Island toward a more secure, cost-effective, and sustainable energy future.

Key 2018 Lead by Example accomplishments include:

- ◆ Supporting the installation of solar arrays on five state buildings
- ◆ Converting State-owned highway streetlights to LED technologies.
- ◆ Procurement of a web-based utility bill

management software to track and audit energy expenses.

- ◆ Ensuring that 50% of electricity consumed by State facilities comes from renewable energy resources
- ◆ Reducing the energy consumption across State facilities by 10% compared to 2014 baseline
- ◆ Supporting the installation of 7 new dual port electric vehicle charging stations across the State
- ◆ Launching a Demand Response Program to reduce peak energy demand and generate revenues for the State
- ◆ Developing the State's first a voluntary building Stretch Code
- ◆ Developing and managing competitive electricity and natural gas supply contracts for all state agencies
- ◆ Developing a centralized utility bill payment system for all state agencies that saves money by avoiding late fees and increasing staff efficiency
- ◆ Converting multiple facilities lighting to LED
- ◆ HVAC and control improvements at the Chapin Health Lab
- ◆ Retro-commissioning of three large facilities Energy Management System including Powers (DOA).

COMMERCIAL, INDUSTRIAL & PUBLIC FINANCE

Large C&I Revolving Loan Fund

Through the electric LC&I revolving loan fund, the Company offered \$4.5 million in on-bill financing to 43 Large Commercial customers through 77 loans resulting in electric savings of 11,226 annual MWh. At the end of 2017, the fund had a balance of \$12.6 million, money that will be available for more loans in 2019 and in the future.

In 2018, National Grid began Financial Test One. The purpose of this test, as outlined in the 2018 EE plan, was to determine if customers were willing to accept a lower incentive if they were allowed to "finance" the balance of their project costs through OBR. From the beginning of the test to the end of 2018, 35 applications had been processed from 26 unique customers for a savings of \$68,773.

Through the gas LC&I revolving loan fund, the Company offered \$822,798 in loans to 13 Large Commercial customers resulting in gas savings of 58,787 MMBtu. At the end of 2018, the fund had a balance of \$979,707, money that will be available for more loans in 2019 and in the future.

The Company continued to manage a revolving loan fund in support of the RI PEP. The Company offered \$544,772 in on-bill finance to 5 participating municipal customers. This resulted in an electric savings of 1,388 annual MWh. At the end of 2016, the fund had a balance of \$781,385.

Small Business Revolving Loan Fund

Of the 1,118 customers that participated in the Small Business Direct Install program, each received financing to cover 30% share of the project costs, either over 24 months at zero (0) percent interest or a lump sum payment with a 15% discount. Overall, the Small Business Revolving Loan fund was able to provide \$3.08 million in loans that led to more than 12,440 MWh in annual energy savings. At year end, the fund had a balance of \$2.27 million.

Efficient Buildings Fund (EBF)

Since 2015, National Grid, Rhode Island Office of Energy Resources (OER), and the Rhode Island Infrastructure Bank (RIIB) have been working together to leverage system benefit charge (SBC) funds and drive energy improvements in facilities in cities and towns

across Rhode Island.

The seed money to support this unique revolving loan fund came from a \$1.8 million allocation of rate-payer (SBC) funds, mandated by the law, and \$3.0 million in funds from the Regional Greenhouse Gas Initiative (RGGI) controlled by OER. In addition, National Grid, based on requests from RIIB, and working in conjunction with the Collaborative each program year, agreed to transfer \$5 million in energy efficiency program funds to RIIB in 2018 and in 2019. Both of these transfers were included in their respective Energy Efficiency Plan and related budgets.

In 2018, EBF helped support many energy efficiency projects in municipalities, including Pawtucket, Warren, and East Providence.

EBF helped Pawtucket complete installations of energy efficient lighting, energy management systems, and boilers in several city buildings. The Town of Warren utilized the EBF to convert their street lights from various old technologies to LED. The City of East Providence used EBF to install gas and electric measures in several city buildings.

Commercial Property Assessed Clean Energy (C-PACE)

National Grid continued to work with RIIB and its program administrator, Sustainable Real Estate Solutions (SRS), to advance the concept of C-PACE in the market, with our salespeople, and among vendors. In 2018, RIIB, SRS, Greenworks Lending, and National Grid co-wrote a presentation for National Grid sales professionals. The presentation, given by Greenworks and SRS, was well received by the National Grid sales team, enhanced their understanding of the mechanism, and cleared up some previous misconceptions. National Grid also hosted SRS and Greenworks Lending at a Project Expeditor (turn key vendors for C&I customers) meeting in August 2018. National Grid joined RIIB and Greenworks on a panel speaking about the benefits of C-PACE on a

panel at the RI Infrastructure Summit in September 2018.

As of the end of 2018 one small C-PACE project had been completed and a larger one was still in the design phase.

Ascentium

In 2018 National Grid continued working with Ascentium Capital, a specialty financing firm who is a leader in equipment and technology financing solutions, to offer customers another way to finance their projects. A simple, rapid approval loan process allows customers to use their incentive to buy down interest on loans (typically to zero percent depending on the term) for up to \$250,000. The company saw some interest in this offering but no funded projects in 2018.

In 2018, a school in Rhode Island completed a substantial retrofit project with a creative rental offering from Ascentium. The Company will continue to offer both loan and rental options in 2019.

Other commercial financial developments

National Grid is committed to making sure that customers have a robust selection of financial mechanisms that have proven themselves successful in other programs across the United States and Canada. In 2018, National Grid began discussing Metrus Energy's Efficiency as a Service offering. Metrus has completed projects with numerous Fortune 500 companies across the United States. Metrus has restricted this offer to customers with a combined energy gas and electric spend of greater than \$1,000,000 dollars annually.

CROSS-SECTOR PROGRAMS

The **Community Initiative** celebrated the success of the prior year’s program participants at the Customer Listening forum in 2018, and recruited the communities of Warren and Woonsocket to participate for the program year. Specified metrics were again set for these new participants including residential energy assessment goals, weatherization jobs, Wi-Fi thermostats, and refrigerators recycled. New for 2018, the program also set goals for small business program participation and the purchase of mini-split heat pumps. Both Warren and Woonsocket had great success, both far surpassing assessment and weatherization goals.

Due to the Community Initiative being expanded to include small businesses, there was a joint effort with the Northern RI Chamber of Commerce for Woonsocket to educate small business customers about energy efficiency. Forty projects were completed in Woonsocket and Warren resulting in an annual reduction of 525 MWh, saving approximately \$73,500 in energy annually.

Additionally, the Town of Coventry received a Lead by Example Energy Award from the Office of Energy Resources for investing \$5,000,000 over a five-year period in energy efficiency improvements to schools. The Town of Warren began on-the-ground promotions in the second quarter with customized marketing materials being created for both Woonsocket and Warren.

Building Energy Codes and Product Standards

National Grid’s Codes and Standards initiative is an innovative efficiency offering that provides targeted stakeholder outreach and technical guidance to:

- ◆ Improve compliance with existing

minimum efficiency requirements for buildings and the energy-using products that comprise them; and

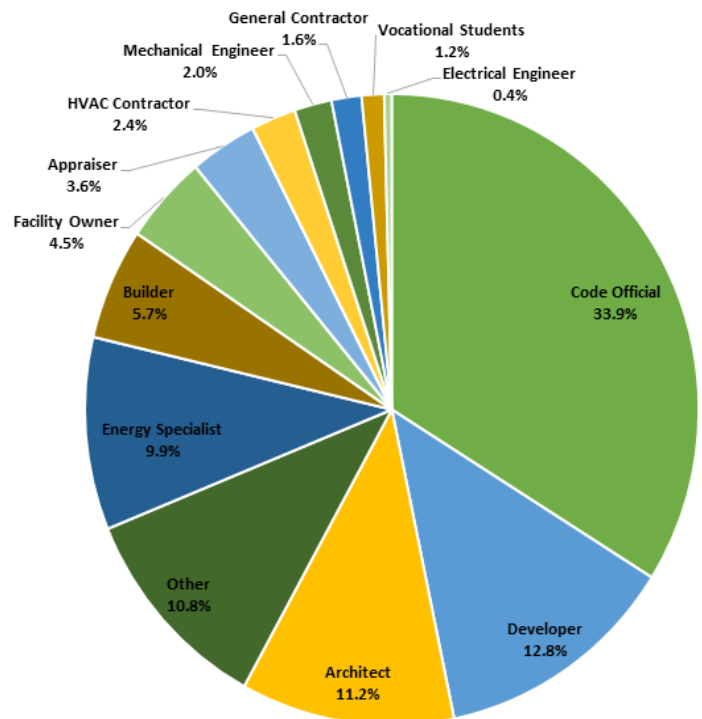
- ◆ Accelerate the improvement of these minimum efficiency requirements.

In 2018 the Company continued to provide its energy code compliance enhancement services and reached important new stakeholder groups. The Company also prepared for efforts to increase the company’s assistance for improved state energy codes and product standards in coming years, thereby unlocking new opportunities to save energy on behalf of customers.

Code Compliance Enhancement Initiative (CCEI): In 2018 CCEI conducted 40 training events across the state with 532 total attendees (an increase from 31 and 513 in 2017, respectively).

This initiative includes robust stakeholder engagement and industry outreach, classroom and hands-on trainings, project-specific technical assistance, and

2018 Attendees by Type



development and dissemination of documentation/compliance tools to reduce energy savings lost to noncompliance with the state's energy code. In 2019, CCEI will continue to focus its activities on remaining code compliance gaps identified in the 2017 new construction evaluations as well as preparing stakeholders for Rhode Island's energy code update, which is scheduled to go into effect this August.

Energy Code Development Support: In 2018 the Company began to prepare code changes it will propose when the state launches its 2018 IECC code adoption process, which is currently scheduled for fall 2019. These changes would increase the energy savings potential of the state's future code, with compliance support from CCEI helping to realize these savings.

Stretch Code Support: When the Rhode Island Stretch Code was published in early 2018, the Company shifted its support to increasing use of this new guide for high performance new residential and commercial construction. The Company provided education and outreach through our CCEI program, including promotion at every training event, to increase market awareness of this brand new tool. The Company also began financially incentivizing its increased use by aligning our new construction programs with the Stretch Code; new homes, for example, are eligible for a "bonus" incentive if they demonstrate compliance with the Stretch Code. The stretch code documents can be viewed on the Office of Energy Resources website. For more information on Stretch Codes, contact Becca Trietch at OER at Becca.trietch@energy.ri.gov.

Appliance & Equipment Standards Support: In 2018 the Company increased its role in supporting the adoption of new state appliance standards compared to

preceding years. While 2018's appliance standards bill was ultimately unsuccessful, it proceeded farther through the legislative process than its predecessors. In 2019, the Company will continue to provide technical support to proposed product standards legislation. The Company will also work with stakeholders to adapt for use in R.I. a methodology currently under development in Mass. to claim savings for product standards support in a similar manner to code compliance enhancement. The Company also proposes to continue ramping up efforts to partner with other stakeholders in the northeast as well as efficiency program administrators in California in advancing federal appliance standards.

Energy Efficiency on Block Island Saves Pilot Program

Through the Regional Greenhouse Gas Initiative, proceeds were allocated to the Block Island Power Company to support the delivery of cost-effective energy efficiency programs and incentives to customers over three years. OER is working in coordination with Block Island Power Company management to leverage existing utility funds and identify cost-effective investment opportunities in the community of New Shoreham. This program will be modeled on the Block Island Saves Pilot Program, which ran 2015-2017.

Block Island Saves was a pilot program to deliver energy efficiency assessments, education, incentives, and rebates to New Shoreham year-round residents and small businesses. The New Shoreham community faced unique energy challenges prior to 2017, including high energy prices stemming from electricity generation powered by imported and price-volatile diesel. The recent construction of North America's first offshore wind farm three miles off the coast

of Block Island also resulted in connecting the island with the mainland electric grid. This connection has helped stabilize electric prices while strengthening reliability. However, reducing energy use on the island remains critical to ensuring long-term energy affordability and reliability for this important and unique community.

OER collaborated with National Grid to leverage best practices for program development and energy efficiency offerings were carefully chosen to align with existing programs available elsewhere in Rhode Island.

Over the course of the pilot, 79 residents and 31 businesses received free energy assessments, along with rebates and incentives for energy efficiency upgrades. These energy efficiency improvements will save 3,600 MWh of electricity over the lifetime of the improvements (equivalent to the electricity needed to power over 500 Rhode Island homes for one year), in addition to 4,800 MMBtu of oil and 2,300 MMBtu of propane.

These energy savings also fostered important reductions in greenhouse gas emissions – a reduction of 2,400 tons of CO₂ equivalent over the lifetime of the efficiency upgrades. This is equivalent to taking 470 passenger cars off the road for a year or growing nearly 57,000 tree seedlings for 10 years. Participants were able to decrease their energy bills, too. In total, program participants are saving an aggregate \$597,968 (residential) and \$714,396 (business) over the lifetime of the efficiency upgrades.

Block Island Saves had a benefit-cost ratio of 3.65 for the residential program and 1.64 for the small business program, for an aggregate ratio of 2.23 for the entire pilot. In other words, Block Island Saves was a cost-

effective program with each dollar spent on Block Island Saves generating \$2.23 in economic and environmental benefits.

The final report on the Block Island Saves Pilot Program is available on OER's website.

Energy Efficiency in Pascoag Utility District

Through the Regional Greenhouse Gas Initiative, proceeds were allocated to support the accelerated adoption and delivery of cost-effective energy efficiency measures by customers located in the Pascoag Utility District. OER worked closely with Pascoag Utility District management and the Burrillville School Department to identify cost-effective energy efficiency lighting upgrades in three school buildings, leveraging additional funding from both organizations. The three schools receiving these lighting upgrades are William L. Callahan (grades 2-5), Steere Farm (grades 2-5) and Austin T. Levy (grades pre-K, K and 1). OER also worked with Pascoag Utility District management to develop a three-year strategy to enhance access to energy efficiency in the community, starting in 2019. Strategies include increasing the number of no-cost residential energy audits provided and optimizing incentive levels to encourage energy efficiency in homes and businesses.

Zero-Energy Buildings (ZEB) Task Force and Working Group

In 2018, National Grid kicked off the Path to Zero Ready Demonstration Program to complement the Residential New Construction Program and also to provide new opportunities to support the growth of the zero energy home market.

The Path to Zero Ready Demonstration Program focused on four key elements:

1. Education and awareness - In an effort to

raise awareness of the design, construction, benefits and beauty of zero energy homes in RI, 11 Zero Energy presentations were held in 2018 with over 160 attendees. In addition, tours of zero energy homes were conducted to provide hands on learning for building professional and customers.

A select group of Rhode Island designers, architects, builders, developers and other industry professionals were provided passes to attend the annual Passive House Institute US (PHIUS, www.phius.org) conference in Boston that focused on “The Path to Zero Energy”.

2. Workforce Development - In 2018, the Zero Energy Advisory Group was created. The Group is comprised of eight Rhode Island construction professionals at different stages of understanding of the zero-energy building market. A spirit of collaboration is the hallmark of the group as they strive to create momentum in the zero energy and zero energy-ready markets. Members meet periodically over the year to refine best practices and marketing opportunities.

Support for architectural drawing revisions as well as a design charrette were conducted through this program to provide technical support to facilitate decision-making as project teams evaluate the opportunity to build a zero-energy ready project.

A series of infield trainings were held at a development in North Kingstown to demonstrate Zero Energy construction techniques including the framing stage, the rough stage before insulation, and at the point of final inspection

3. Project Incentives - In addition to the technical support and financial incentives provided through the RNC program, a project that commits to zero energy ready can receive additional technical support as well as additional incentives for meeting the

RI Stretch Code or being PV and EV ready.

4. Marketing - National Grid held a strategic planning session to gather input and insights as to how to create a market for Zero Energy Homes – who to target, how to learn from and leverage what’s currently working and develop priorities and next steps to move the local market forward.

Rhode Island Energy Innovation Hub

The Energy Innovation Hub (Hub) is a community engagement destination designed to provide a hands-on opportunity for customers to learn about energy efficiency, renewable technologies, electric vehicles, state energy goals, and a vision for a clean energy future. The Hub content, and knowledgeable staff, provide information to customers to empower them to take action to reduce their energy use, adopt smart



Entrance to the Energy Innovation Hub

technologies and learn about renewable power and electric vehicles. The space and its exhibits showcase: (a) energy solutions accessible to all customers; (b) innovative advancements for system reliability; and (c) a vision of a sustainable energy future. Visitors learn about technologies available to create smart, energy-efficient homes and businesses, renewable technologies, demand response, electric vehicles, storm

management, and core services that the Company provides. In 2018, the Energy Innovation Hub hosted 2,600 customers via on-site meetings, trainings, tours, events and walk-in customers.

2018 EERMC Public Education Event

One of the EERMC's core purposes is to promote public awareness of energy efficiency programs and their benefits. To further fulfill this mission, the EERMC hosted its first Public Education Event in April 2018. Approximately 50 people attended, including legislative staff, state agency leaders, municipal representatives, CAP agencies, efficiency vendors, efficiency program participants, environmental advocacy groups, and members of the public. Speakers highlighted the large-scale benefits of energy efficiency, including how this work supports Rhode Island's economic, environmental, and health goals. Attendees heard firsthand from program participants about how energy efficiency programs directly lowered their energy bills, from local efficiency vendors about how Rhode Island's efficiency programs support the local workforce and economy, and from EERMC Chair, Chris Powell, about how to get engaged in the public process that oversees these programs.

2018 Building Operator Certification

In 2018, the EERMC co-sponsored a Building Operator Certification (BOC) course which provided discounted or free training on energy management and maintenance to 19 building operators in Rhode Island. Through the course, participants learned about building systems, maintenance, and energy management. Those that completed the course are expected to benefit from holding the professional BOC credential, being better able to communicate with occupants about maximizing facility efficiency, being able to identify low-cost energy conservation opportunities, and knowing how to

implement best practices in preventative maintenance.

2018 Appraiser Training

The EERMC supported reduced tuition for a training about valuing energy features of buildings for appraisers through the Appraisal Institute in April 2018. Over fifty professionals attended, including RI-licensed appraisers from Rhode Island, Connecticut, and Massachusetts. In addition to appraisers, attendees included municipal tax assessors, real estate brokers, appraisal management company reviewers, and bank review appraisers. Nationally-renowned expert Sandy Adomatis led the training and the Office of Energy Resources presented on state energy policies and initiatives.

Incentives By Town

Table 1. National Grid Gas and Electric Energy Efficiency Incentives Provided to Residential, Commercial and Industrial Customers in 2018

Barrington	####	New Shoreham	####
Bristol	####	Newport	####
Burrillville	####	North Kingstown	####
Central Falls	####	North Providence	####
Charlestown	####	North Smithfield	####
Coventry	####	Pawtucket	####
Cranston	####	Portsmouth	####
Cumberland	####	Providence	####
East Greenwich	####	Richmond	####
East Providence	####	Scituate	####
Exeter	####	Smithfield	####
Foster	####	South Kingstown	####
Glocester	####	Tiverton	####
Hopkinton	####	Warren	####
Jamestown	####	Warwick	####
Johnston	####	West Greenwich	####
Lincoln	####	West Warwick	####
Little Compton	####	Westerly	####
Middletown	####	Woonsocket	####
Narragansett	####	Grand Total	####

National Grid 2018 Energy Efficiency Jobs Study

National Grid hired Peregrine Energy Group, Inc. to conduct a study of the job impacts from National Grid’s energy efficiency programs in 2018. The study estimates the number of full-time equivalent (FTE) employees engaged in all aspects of energy efficiency programs where National Grid provided funding support in 2017.

The FTE counts cover a wide range of energy efficiency services, including independent contractors and plumbers, rebate processors, engineers, and National Grid Staff. The study also includes counts of Weatherization Assistance Program (WAP) FTEs that are employed by the Community Action Program agencies that deliver low- income energy efficiency services. A complete list of all contractors and subcontractors involved in 2018 Rhode Island energy efficiency programs is included in this report on page **XX**.

The study’s findings were developed through interviews with energy services and equipment vendors and National Grid contractors, as well as through a detailed review of National Grid’s records of all energy efficiency measures installed in homes, apartment buildings, businesses, and industries throughout the state in 2018. Peregrine Energy Group calculated the labor hours required for each installation based on industry standards and discussions with contractor experts.

Peregrine determined that **XXX** full-time equivalent (FTE) employees had work in 2018 supported by investments by National Grid in energy efficiency programs provided to its Rhode Island electricity and natural gas customers. One FTE equals 1,760 work hours, or the total of one person working 8 hours a day for 220 work days in an average year. Because a “full-time equivalent” employee often represents the labors of

more than one person over the course of a year, the number of individual workers employed as result of Rhode Island energy efficiency programs funded by National Grid

Full-Time Equivalent Employment Supported by Energy Efficiency Programs in Rhode Island in 2018

Programs	Total FTEs
Electric Programs	
Commercial and Industrial	
Residential Income Eligible	
Residential Non-Income Eligible	
Gas Programs	
Commercial and Industrial	
Residential Income Eligible	
Residential Non-Income Eligible	
National Grid EE Staffing	
Community Action Agency Staff Income Eligible	
Total 2018 Rhode Island FTEs	

is far larger than the total of FTEs. Most of the jobs supported by energy efficiency investments were local because they were tied to installation of equipment and other materials.

The study also identified **XXX** companies and agencies involved in National Grid’s 2018 energy efficiency programs, **XX%** of which were located in Rhode Island. The companies identified include those whose employees are counted in the FTE analysis, as well as additional companies who assisted customers to secure equipment rebates, for example through the New Construction, Commercial Upstream Lighting, or High Efficiency HVAC programs.

The study fulfills General Law 39-2-1.2, which was enacted by the General Assembly

in 2012. The study will benefit those who work in workforce development, training or those interested in the state’s green jobs.

PLANNING INITIATIVES

State Goals: State Energy Plan & GHG reduction goals

Energy 2035: The Rhode Island State Energy Plan, formally adopted in October 2015, lays out a long-term, comprehensive energy strategy for Rhode Island. The vision of the Plan is to provide energy services across all sectors—electricity, thermal, and

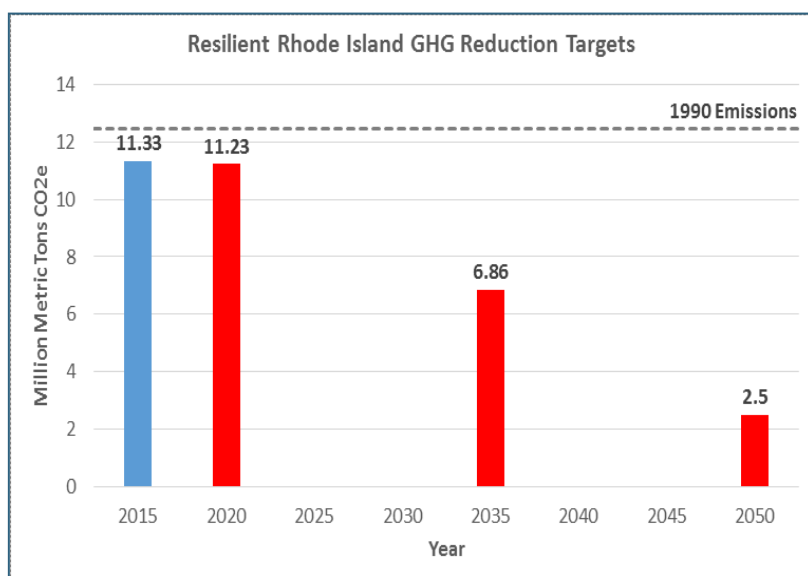
available for Rhode Island. The SEP lists Least-Cost Procurement as one of Rhode Island’s cornerstone energy policies, and the primary vehicle for delivering the benefits of energy efficiency to Rhode Island consumers and businesses.

2018-2020 Energy Efficiency Procurement Plan (Three-Year Plan)

As part of the legislated triennial process to develop Three-Year Energy Efficiency and System Reliability Plans, the EERMC worked with National Grid, the Office of Energy Resources, the Division of Public Utilities and Carriers, and additional key stakeholders to develop the 2018-2020 Energy Efficiency Procurement Plan for Rhode Island. National Grid filed the Three-Year Plan with the Public Utilities Commission on August 30, 2018. The purpose of this Three-Year Plan is to establish an overarching strategy for the next three years that will enable National Grid to successfully meet the goals of Least Cost Procurement and meet the Energy Savings Targets developed by the EERMC and approved by the Public Utilities Commission. The Three-Year Plan met the objectives of being cost-effective and less than the cost of supply, and is grounded in economics, flexible to changing market conditions, and designed to maximize consumer benefit.

The 2018-2020 Three-Year Plan is expected to achieve the following large beneficial impacts:

- Boost Rhode Island’s Gross State Product by \$328 million.
- Create over 4,822 job-years of employment.
- Deliver \$2.76 dollars in benefits to consumers for every dollar invested.
- Lead the nation in electric and natural gas



Graph adapted from the Rhode Island Greenhouse Gas Emission Reduction Plan¹

transportation—using a secure, cost-effective, and sustainable energy system. The Plan demonstrates that Rhode Island can increase sector fuel diversity, produce net economic benefits, and reduce greenhouse gas emissions by 45 percent by the year 2035. The Plan proposes state-of-the-art policies and strategies to achieve those goals.

The Plan identifies energy efficiency as the state’s “first fuel” and a centerpiece strategy for achieving the Rhode Island Energy 2035 Vision. The SEP identifies energy efficiency as the lowest-risk, lowest-cost, and arguably, the most sustainable energy resource

savings as a percentage of total annual energy consumption.

- Create cumulative energy efficiency savings of 7.53% of Rhode Island's 2015 electric load and 2.90% of 2015 natural gas load over the period 2018-2020
- Generate approximately \$1.6 billion in benefits over the life of the installed measures.
- Reduce carbon emissions by 3.7 million tons over the lifetime of the installed measures.

Energy Efficiency Program Plans (Annual Plans)

In addition to the three-year plan, annual energy efficiency program plans (Annual Plans) are developed by National Grid with significant stakeholder input. These annual plans clearly define how the energy efficiency programs will be implemented and specify how the programs will be cost-effective. The annual plans are also reviewed and ruled on by the PUC. Work on the 2020 Annual Plan will commence in early summer 2019.

System Reliability Procurement

Through System Reliability Procurement (SRP), the Company identifies customer and grid-side opportunities that are safe and reliable, environmentally responsible, cost-effective, and provide the path to lower supply and delivery costs to customers in Rhode Island. As part of meeting this purpose, the Company develops and implements non-wires alternative (NWA) projects.

Non-Wires Alternative (NWA) is the inclusive term for any electrical grid investment that is intended to defer or remove the need to construct or upgrade components of a distribution and/or transmission system, or "wires investment". NWAs involve identifying distribution and/or transmission

needs that have the potential to be deferred by alternative solutions, such as distributed energy resources (DERs), with a specified timeline. These projects are customer-focused and can include measures that are also offered through the Company's statewide energy efficiency (EE) programs, as part of a targeted EE approach in an NWA portfolio solution.

Calendar year 2018 held the final evaluation of the Tiverton NWA Pilot, which was launched in 2012. This final evaluation catalogued the year-over-year program activities, customer engagement, and impacts of the Tiverton NWA Pilot.

The Company went live with the Rhode Island System Data Portal (Portal) through the SRP program on June 30, 2018. The Portal is an online, interactive mapping tool that provides information on National Grid's electric distribution system in Rhode Island. The Portal further provides detail on the approximate loading level of lines and substations. The Company went live with the Hosting Capacity map resource on September 28, 2018, which is a major update that illustrates how much distributed generation (DG), such as solar or battery storage installations, can be implemented on specific lines and substations. A public landing page for the Portal is located on the customer-facing National Grid website.

A corresponding Marketing and Engagement Plan was developed and implemented in the SRP program to promote the Portal to third-party solution providers. This effort aims to increase industry knowledge of the Portal and incentives available through existing Company and state programs for NWA, energy conservation, peak load relief, and renewable energy projects in highly-utilized areas. The Company implemented marketing and engagement for the Portal in calendar year 2018 and plans to continue outreach and engagement in 2019.

LOOKING FORWARD: 2019 ENERGY EFFICIENCY PROGRAM PLAN HIGHLIGHTS

The Company issued two new NWA requests for proposals (RFPs) in December 2018, to help address electric grid need in the town of Narragansett, Rhode Island. The Narragansett 42F1 NWA RFP seeks third-party market solutions to provide 2.1 megawatts (MW) load relief for the Bonnet 42F1 feeder. The Narragansett 17F2 NWA RFP seeks solutions to provide 1.8 MW load relief for the Wakefield Substation 17F2 feeder.

Additional details on 2018 SRP activities and the 2019 SRP Plan can be found in the Company's 2019 System Reliability Procurement Plan Report filed in Docket 4889 and approved by the PUC on December 20, 2018.

Power Sector Transformation

In March of 2017, Governor Gina M. Raimondo charged the Public Utilities Commission (PUC), the Office of Energy Resources (OER), and the Division of Public Utilities and Carriers (DPUC) with developing recommendations to advance power sector transformation (PST) in Rhode Island. The goal of the PST Initiative is to transition to a more dynamic utility regulatory framework in order to achieve a cleaner, more affordable, and reliable energy system for the 21st century and beyond. The three agencies partnered to solicit input from Rhode Island stakeholders and national experts, submitting a final Phase One Power Sector Transformation report with recommendations to the Governor in November 2017. The final report drew upon previous work to date by the EERMC, the Distributed Generation Board, the Systems Integration Rhode Island Working Group, and the PUC's Docket 4600 Investigation of the Changing Distribution System. Policymakers, regulators, and stakeholders are working actively to implement the PST

recommendations, including through the open docketed proceedings of National Grid's distribution rate case and Power Sector Transformation filings (Dockets 4770 and 4780).

2019 Residential Programs

EnergyWise

The EnergyWise program will provide online scheduling of EnergyWise home energy assessments. Landlords of single family residences are also eligible for a 100% weatherization incentive.

Residential New Construction

In 2019 the Company will work with building industry representatives to determine the cost-effectiveness of offering the zero energy ready initiatives in the RNC program. The Company will continue to work with the Zero-Energy Buildings Advisory Group to develop a robust plan for residential zero energy homes.

The High-Efficiency Heating and Cooling Programs (Gas Heat Program and CoolSmart Program)

In 2019 the Company will focus on the implementation of the electric heat program to ensure that contractors are properly trained in cold climate air source heat pump system design and installation as well as delivering customer education. The electric heat program is for customers with electric, oil or propane heat and who have completed an energy assessment and all recommended insulation measures. The Company will work on determining the effectiveness of the electric heat offering to ensure customer satisfaction and use as the primary heating

source. The Company will continue to participate in the development of effective integrated controls for ASHPs that will present the electric heat as the primary heating source and then call for the original, now back up heat, if necessary. The Company will continue to deliver heat pump water heaters through an efficient and cost effective up-stream model with big-box retailers and RI distributors.

Income Eligible Enhancements

In 2019, the Program aims to install cold climate air source heat pumps in 30 homes that currently heat their home with electric radiant heat, oil or propane. The Program team will continue to monitor the installation of cold climate air source heat pumps to ensure proper sizing, installation and customer education/satisfaction. There will be a focus on customer education to ensure that customers properly utilize the ASHP as the primary heating source. The IES Program will continue to participate in the Community Expos services to provide customer service and increase participation in the IES program.

Community Initiative

The Community Based Initiative in 2019 will continue the new model put forward in the prior program year that emphasized the importance of achieving certain energy saving metrics to earn the grant monies that will be used on energy efficiency projects at a municipal site. The Company will recruit up to four new communities for 2019 and will incorporate a new Demand Response program enrollment metric. The communities will again be provided with start-up funding and marketing kits to promote efficiency throughout the year.

Home Energy Reports

Customers will receive print and email reports in 2019 that are more personalized

than in previous years. For customers who have consistently been higher users than their neighbors, the program in 2019 will begin using a “Target Rank”. This new approach will encourage customers to aim for higher ranking, so they know their energy saving actions are having an impact on their usage. Also, of focus in 2019, the non-AMI High Bill Alerts program will be expanded to even more customers.

Multifamily Program

In 2019, the company has set a goal of installing 75 ductless mini-split heat pumps (DMSHP) to displace electric and oil resistance heat. The Company remains committed to offering a comprehensive program that is both cost effective yet thorough in treating this diverse segment of the population. One example of this is the Company’s commitment to serving non-profit group homes seamlessly through the multifamily program.

2019 Commercial, Industrial, Public & Other Programs

In 2019 the commercial and industrial energy efficiency programs will focus on many initiatives including finance solutions, path to zero energy buildings initiatives, as well as developing its CHP project pipeline for the future years. Demand Response will move from being a demonstration to a full program offering for commercial customers in 2019.

In 2019 the Company will have a new classification of pilots, demonstrations and assessments in RI. Pilots from 2018 will continue with new demonstrations for small business with heat pumps. The pilots, demonstrations and assessments can be broadly classified into four focus areas, lighting technologies, new construction and a path to zero energy, industrial and

manufacturing sector, and gas demand response.

In 2018, the Company continued and concluded its demand response (DR) demonstration for commercial customers. The company started the commercial customer section of this demonstration in 2017. In 2017 the program reduced peak loading on the grid by 12MW. In 2018 the program reduced peak loading on the grid by 18MW. Due to the success of this program, the company proposed to transition this demonstration to a regular energy efficiency program, and this was approved in the 2019 Energy Efficiency Plan.

Based on what the Company learned during the demonstration stage, in 2019 the company will offer two options for commercial customers to participate in the demand response programs. The Targeted Dispatch option has 2 to 8 events per summer and has an incentive rate of \$35/kW-year. The Daily Dispatch option has about 40 events per summer and pays \$300/kW-year. The added events of the Daily Dispatch option provide more system benefits. Although both options are open to any technology that can reliably perform, the Company expects the new Daily Dispatch option to attract customers with large battery storage systems.

The gas demand response pilot launched in 2018, will continue in 2019. The Company will look to enroll more customers into this program in the summer and fall of 2019 for participation in Gas DR events in the winter of 2019- 2020.

The Company is looking to continue testing two industrial initiatives that include new technologies and behavior change from small industrial facilities.

In 2016 a zero-energy building task force prepared a white paper “Zero Energy Buildings pathway to 2035” that made three

major recommendations on both the policy side and for utility programs moving forward.

The Company is looking to continue to build on the three recommendations that were outlined in the white paper:

- ◆ Launch “ZEB demonstration projects” across building segments
- ◆ Training and education that promotes low EUI buildings for stakeholders in RI to create awareness around Path to Zero Energy Buildings
- ◆ Supporting legislation like the Providence Energy Challenge with automated upload of data to EPA portfolio manager so customers can benchmark buildings and portfolio

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Appendix A:
Case Studies

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Appendix B:
2018 Energy Efficiency Vendors

The list includes contractors and subcontractors performing work directly for National Grid Energy Efficiency programs in 2018 that were counted in the FTE analysis and additional companies who assisted customers to secure equipment rebates, for example through the New Construction, upstream commercial lighting, or High Efficiency HVAC programs. The list also includes the Community Action Program agencies and their subcontractors involved with the delivery of the low-income program, whether under National Grid funding or WAP/LIHEAP/ARRA funding.

Of the **xxx** companies, agencies, contractors and sub-contractors listed here, **xxx (xx%)** are either headquartered in Rhode Island, or have a physical presence in Rhode Island. The list is organized first by state (Rhode Island first and then alphabetically), and then alphabetically by company name.

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