The Narragansett Electric Company
d/b/a National Grid

2015 Energy Efficiency Year-End Report

May 2, 2016

nationalgrid

Raquel J. Webster
Senior Counsel

May 2, 2016

BY HAND DELIVERY & ELECTRONIC MAIL

Luly Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket 4527 - National Grid Electric and Gas Energy Efficiency Programs 2015 Year-End Report

Dear Ms. Massaro:

I have enclosed ten copies of National Grid's[1] 2015 Energy Efficiency (EE) Year-End Report, which summarizes the gas and electric results, program highlights, and customer experiences over the 2015 EE program year. A copy of this report has also been provided to the parties in this docket.

Thank you for your attention to this filing. If you have any questions, please contact me at 781-907-2121.

Very truly yours,

Raquel J. Webster

Enclosures

cc: Docket 4527 Service List
Steve Scialabba, Division
Jon Hagopian, Esq.

[1] The Narragansett Electric Company d/b/a National Grid.

40 Sylvan Road, Waltham, MA 02451
T: 781-907-2121 ■ raquel.webster@nationalgrid.com ■ www.nationalgrid.com

Table of Contents

NATIONAL GRID
2015 ENERGY EFFICIENCY YEAR-END REPORT

Overview

The year 2015 was a successful year for the Company's[1] energy efficiency (EE) portfolio of programs and initiatives. This Year-End report summarizes the gas and electric results, program highlights, and customer experiences over the entire year. The electric and gas programs are described more fully in the "Settlement of the Parties," filed in Docket No. 4527 on November 1, 2014, and approved by the Rhode Island Public Utilities Commission (PUC) in Order No. 21854, issued on March 19, 2015.

The primary goal set forth in the 2015 "Settlement of Parties" was to "create economic value and cost savings for Rhode Islanders through energy efficiency.[2]" The charts below summarize the electric and gas program benefit cost ratios, savings, and expenditures compared to planned benefit cost ratios, savings goals, and budgets, respectively. The benefit cost ratios exceeded expectations and are far greater than 1, indicating that the Company's programs created positive value to Rhode Island for every dollar invested in 2015. In total, the 2015 programs will create electric cost savings of $283.9 million and gas cost savings of $54.8 million for Rhode Island customers over the life of the installed EE measures.

In addition to cost savings, the 2015 EE programs created significant economic benefits to Rhode Island. The programs supported 695.8 full-time equivalent (FTE) workers in 2015. Most of the jobs created as a result of EE investments were local because they were tied to installation of equipment and other materials. In fact, of the 1,009 companies and agencies involved in National Grid's 2015 EE programs, 79% were located in Rhode Island[3]. In addition, the 2015 EE programs will add over $386.4 million to Rhode Island's Gross State Product (GSP).

Another goal of the 2015 Plan was to achieve electric and gas savings targets established in the 2015 EE Program Plan, which were consistent with the goals established for 2015 in the 2016-2017 Three Year Least Cost Procurement Plan. The 2015 electric savings target was 193,602 MWh. At year's end, the Company achieved 222,822 MWh energy savings, which represents 115% of that goal. The savings goal represents 2.9% of the reference 2012 load. The Company also had an annual kW savings goal of 29,715 kW, and at year's end, it had achieved 33,335 kW savings, which represents 112% of that goal.

The 2015 gas savings target was 376,963 annual MMBtu. At year's end, the Company achieved 419,778 annual MMBtu, which represents 111% of that goal. The savings goal represents 1.2% of the reference 2012 load.[4] Detailed savings information can be found in Attachment 1, tables E-1, E-2 and Attachment 2, tables G-1 and G-2.

Additional cost and savings information can be found in Attachment 1, tables E-1 and E-3, and Attachment 2, tables G-1 and G-3.

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or Company).
[2] Energy Efficiency Program Plan (EEPP) for 2015, Settlement of the Parties, November 1, 2014, Docket 4527, page 1
[3] Peregrine Energy, Analysis of Job Creation from 2015 Expenditures for Energy Efficiency in Rhode Island by National Grid, April 2016. Copy included in Attachment 5.
[4] The gas savings goal is a percent of actual 2012 sales, not the preliminary sales data used in Docket No. 4443 - RI Energy Efficiency and Resource Management Council (EERMC) - Proposed Energy Efficiency Savings Targets for National Grid's energy efficiency procurement for the period 2015 - 2017 consistent with Least Cost Procurement (filed 9/17/13). If the preliminary 2012 sales data is used, the achieved 2015 gas savings would represent 1.11% of sales. There is no noticeable difference in the 2012 preliminary electric sales and actual sales.

	2015 Goal/Benchmark[5]	2015 Actual[6]	% of Goal
Electric			
Annual MWh Savings	193,602	222,822	115%
Annual kW Savings	29,715	33,335	112%
Lifetime Benefits ($Mil)	$275.1	$312.0	113%
Benefit/Cost Ratio	2.35	2.38	101%
Gas			
Annual MMBtu	376,963	419,778	111%
Lifetime Benefits ($Mil)	$58.7	$75.4	128%
Benefit/Cost Ratio	1.97	2.60	132%
	2015 Budget ($Mil)[7]	**2015 Actual ($Mil)[8]**	**% of Goal**
Electric			
Total Expenditures[9]	$86.6	$87.4	101%
Total Implementation Expenses[10]	$82.7	$82.9	100%
Gas			
Total Expenditures	$24.5	$21.5	87%
Total Implementation Expenses	$23.1	$20.1	87%

To achieve the primary goal described above, the Company employed four strategies initially introduced in the 2015-2017 Energy Efficiency and System Reliability Procurement Plan (Three Year Plan) in Docket 4522. Below are highlights from the implementation of these four strategies. Details on these strategies, other programs, and initiatives are found in subsequent sections of this Year End Report.

The first strategy was "Promoting Cost Efficiency." It focused on identifying strategies to deliver EE services as cost-effectively as possible, while continuing to optimize the net-benefits of energy efficiency to customers. Examples of promoting cost efficiency included reducing gas weatherization incentives in EnergyWise and completing large scale gas retrofit projects with commercial customers, which were highly cost effective.

The second strategy was "Empowering communities and markets to be energy efficient." It focused on strategies to increase awareness of energy efficiency programs through the enhancement of existing programs to reach new and repeat customers." The continued success of the Community Based Initiative "Find Your Four!" in North Providence and North Smithfield were examples of empowering communities.

The third strategy was "Innovating to capture untapped savings." National Grid's multifamily programs exemplified innovative strategies in 2015 by creating a new working group, expanding the 0% interest Heat Loan to condo owners, and completing a benchmarking pilot. National Grid's municipal efforts also exemplified innovation by establishing the country's first comprehensive public sector energy data inventory using EPA EnergyStar Portfolio Manager. The company also piloted Electronically Commutated Motors (ECM) pumps, automated temperature control Wi-Fi thermostats, and heat pump dryers.

[5] *See* 2015 EEPP Settlement of the Parties, Docket No. 4527
[6] Actual savings in 2015
[7] *See* 2015 EEPP Settlement of the Parties, Docket No. 4527
[8] Actual spend in 2015; Gas does not include finance costs in expenditures or implementation costs. The $500,000 in finance funds were transferred as authorized to the C&I Revolving Loan Fund and shown as a deduction in the gas fund balance in Table G-5.
[9] Includes implementation expenses, EERMC and OER costs, and shareholder incentive
[10] Includes all DSM program-related expenses, i.e. incentives, administration and general expenses, marketing, sales, technical assistance, evaluation, and training.

The fourth strategy was "Developing opportunities for system-level savings and integration." During 2015, representatives from the Rhode Island Office of Energy Resources (OER), the Energy Efficiency and Resource Management Council (EERMC), the Distributed Generation Board (DG Board), and National Grid worked together as part of the "Systems Integration Rhode Island" (SIRI) working group. The idea of "systems integration" recognizes that Rhode Island already has effective energy platforms in place, including energy efficiency, system reliability procurement (SRP), Infrastructure Safety and Reliability (ISR), and several renewable energy programs. Rhode Island does not have to start from scratch to meet the challenges of a changing distribution system; these platforms can be built upon to support the advancement of the electric grid.

Specifically, the SIRI group analyzed the current barriers and synergies that new and emerging technologies have with the current regulatory framework to determine whether improvements are needed. Specifically, the group examined non-wires solutions in utility planning, solar PV deployment, strategic electrification, electric vehicles, and active load management. The results of this analysis are available in a report that can be found at the following website: http://www.energy.ri.gov/siri/.

The following sections outline the highlights for the different programs and initiatives that comprise the 2015 Rhode Island Energy Efficiency Portfolio. Many activities undertaken in 2015 laid the foundation for inclusion in the 2016 Energy Efficiency Program Plan, which was approved by the PUC in Docket 4580 at an Open Meeting on December 2, 2015.

Residential Programs

Overview

In 2015, the residential sector was cost-effective with total resource benefit cost (B/C) ratios of 2.21 for electric programs and 2.99 for gas programs. The Company spent 94.4% of the electric residential implementation budget, achieved 119.6% of electric targeted annual energy savings and achieved 118.4% of electric targeted annual demand savings. The Company spent 87.8% of the gas residential implementation budget and achieved 116.8% of gas targeted annual energy savings. The Company was able to administer the programs so that the sector had a strong finish in both fuel types. Additional details on spending and savings by program can be found in Attachment 1, tables E-1, E-2, E-3 and Attachment 2, tables G-1, G-2 and G-3.

EnergyWise

EnergyWise is the flagship residential, direct installation program in Rhode Island that is delivered in three stages. During the first stage, a customer receives a no-cost home energy assessment. An assessment is an in-home visit where the assessor walks through the home along with the homeowner while educating the homeowner about home energy savings opportunities. The assessor also installs energy savings products such as efficient lighting, advanced power strips, and water saving products. The homes' largest energy savings opportunities frequently come from reducing air leakages into and out of the home by sealing leaks and improving insulation levels. Installation of these weatherization improvements frequently makes a home healthier for the residents and more comfortable while also saving energy. Mechanical systems such as the heating and water heating systems as well as new appliances are also an area where energy savings can be realized.

If the customer continues to the second stage of EnergyWise, they would enter into a contract with an Independent Insulation Contractor (IIC) to install weatherization improvements. Incentives to the homeowner reduce the initial cost of stage two improvements which generally provide greater energy savings and enhanced comfort. Stage three of the program is quality assurance/quality control of the installed weatherization materials and ensures that customers receive consistent quality.

Overview of Performance

In 2015, EnergyWise served a record number of customers. The beginning of the year produced a robust number of customers interested in improving their home's efficiency after a winter of higher energy prices and messaging about this program by the state and National Grid. Gas weatherization incentives, which were reduced in 2014 from 70% to 50%, were increased back to 70% in the third quarter of 2015 to stimulate demand. There was a summer and a fall special promotion to motivate gas customers to take immediate weatherization action, but ultimately a larger incentive produced the best response with gas customers moving to second stage of service.

Another well received feature of the EnergyWise program that assists with customer initial costs came from the 0% interest HEAT Loan. In 2015, 1,008 customers took advantage of the financing opportunity from one of six lenders to finance the cost of installing efficient weatherization materials, heating, and water heating equipment.

Highlights

One of the most exciting program enhancements came from the wide-scale deployment of light emitting diode (LED) technology. By year end, almost 90% of all lighting installed through the EnergyWise program was LEDs - a tripling in the percentage of LEDs installed over 2014.

National Grid also expanded the EnergyWise offering in support of the OER's pre-pilot of energy efficiency services on Block Island. By leveraging National Grid's Lead Vendor and contracts, the OER was able to provide Energy Efficiency to New Shoram residents with Regional Greenhouse Gas Initiative (RGGI) funding, resulting in 91,852 annual kWh and 283 annual MMBtu savings.

In 2015, fourteen Independent Insulation Contractors (IICs) received the Century Club Award from ENERGY STAR® for providing 100 or more weatherization projects during 2014.

ENERGY STAR® Lighting

ENERGY STAR® Lighting provides midstream (retailer) and upstream (manufacturer) rebates for high efficiency lamps and fixtures. The lead vendor provides manufacturer and retailer outreach, recruits retail partners, conducts retail trainings, oversees point-of-purchase placement, supports special events, and coordinates the buy-down and markdown contracts. A mail-order catalog and online store is also available to customers for purchasing lighting.

Overview of Performance

The ENERGY STAR® Lighting program achieved 106% of the savings goal while reaching over 300,000 participants. Of important note is that in 2015, 51% of the lighting products receiving incentives through this program were LEDs versus the older compact fluorescent bulb (CFL) technology. Consumers are embracing LEDs and the lighting addresses many performance concerns that CFLs were challenged to overcome. Similar to CFLs, there is a wider breadth of products available to consumers where program education has been valuable in assisting consumer selection and purchase.

Highlights

In 2015, the Lighting program actively monitored and tracked the progression of non-ENERGY STAR lighting products that entered the market and were attractive to consumers due to low pricing. The longer life ENERGY STAR products were promoted by working with retailers to feature the products at end displays and with proper signage. The impact of the shorter life bulbs are also being discussed with ENERGY STAR.

Relationships with retailers remained strong with sixty-eight retailers and six hard-to-reach retailers participating in the program.

Social media campaigns continued to be a popular outreach tool and an excellent manner to introduce newer product lines and create interest around the residential lighting space.

Twenty-five schools participated in the school fundraiser program with additional schools expressing interest in 2016.

ENERGY STAR® Appliances

In 2015, the ENERGY STAR Appliances program focused on efficient washers, dryers, dehumidifiers, room air cleaners, refrigerators, pool pumps, advanced power strips, and efficient shower heads. This program works in tandem with ENERGY STAR Lighting by leveraging resources with in store retailer visits and social media campaigns when appropriate.

Overview of Performance

The ENERGY STAR® Appliances program reached 82% of its savings goal while serving almost 19,000 customers.

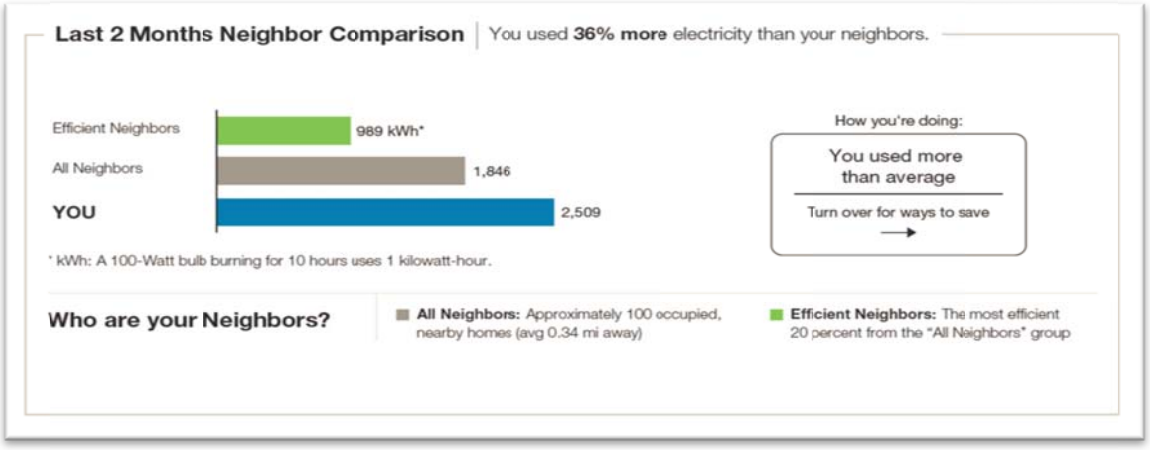
Highlights

The primary driver for not meeting the planned savings goal was due to the liquidation of a vendor that provided refrigerator and freezer recycling. Metal recycling was one factor in making the vendor cost competitive and the resulting decline in scrap metal values made it difficult for the vendor to remain solvent. Consequently, the vendor ceased operations in late November 2015. National Grid responded to this situation by ensuring that existing refrigerator and freezer commitments were met and that all participating customers were made whole. While the Company has a new vendor in place, it is also researching alternative vendors for this service. Based on the volume of calls and questions, the refrigerator and freezer recycling component of the Appliance program appears to be a valued resource.

Home Energy Reports

The Rhode Island Home Energy Reports (HER) program encourages energy efficient behavior via personalized print (see below) and email reports that document energy consumption patterns and contain a normative comparison to similarly sized and similarly heated homes, as well as to an energy reduction goal for the subject household. More than 305,000 Rhode Island households currently receive these reports.

Sample Rhode Island Home Energy Report



Overview of Performance

In 2015, the HER program helped customers save 31,117 MWh and 66,882 MMBtu, reaching 121% and 131% of the company's electric and gas goals respectively. These savings numbers are equivalent to over $6.5 million dollars in customer bill savings. Further, customers seem to be accepting and welcoming of the reports as we saw a 40% decrease in opt outs, with less than 0.1% of customers opting out in the 4th quarter.

Highlights

In 2015, Rhode Island continued to be a leader in behavioral EE innovation. National Grid grew the New Mover's program, rolled out a full time Points and Rewards offering, and incorporated new marketing modules in the report communications to drive customers to take deeper energy-saving actions.

- **National acknowledgement for innovation:** In 2015, National Grid, along with non-profit SmartPower and Opower, were asked to present at the National Energy and Utility Affordability Coalition (NEUAC) conference, the nation's largest gathering of energy assistance leaders. The

focus of this talk covered the successes, particularly with low income customers, of National Grid's behavior initiatives *Find Your Four!* and the Home Energy Reports.

- **Enhancements to Customer Experience**: In the third quarter of 2015, customers were exposed to a "gentler" neighbor comparison where households were compared to just their average neighbor and not the most efficient neighbor, the idea being that high users may be motivated to take action when they do not feel as if the bar is set too high. Further enhancements included an efficient thermostat-focused print module in preparation for winter and ice dam awareness module.

- **Points and Rewards**: Beginning in 2014 and continuing through 2015, a select group of customers received points for every kWh of electricity saved, which could then be applied for modest rewards (e.g. $3-5 to Starbucks), or can be donated to different charities. In 2015, 2,291 customers enrolled in the Points and Rewards program, an 81% increase from last years' sign ups. The program now has 10,018 enrolled participants. On average, customers redeem 1.08 rewards per person, or about $5.38.
- **Continued Strong Participation**: A recent customer survey found that 76% of RI customers who receive the reports actually read them. The same percentage of customers report "liking" the HERs. Of those who do not state liking the HERs, nearly 50% still say they find them valuable. Further, digital engagement continues to be high with a 27% email open rate, far higher than the industry standard.

Residential New Construction

The Rhode Island Residential New Construction (RNC) program is designed to guide building professionals and homeowners through the process of designing and building a quality, high-efficiency, homes. This process is done through educational outreach, a no-cost plan analysis, and in-the-field technical assistance. In 2015, the Company continued to offer three tiers of high-performance energy efficient new construction incentives for both new construction and renovation/rehabilitation projects. All tiers were offered the following no-cost services: plan analysis, insulation and air sealing analysis, third party blower door and duct blasting testing, installation of high-efficiency lighting (CFLs and LEDs) in all appropriate fixtures and locations, offering of efficient showerheads, advanced energy consulting, and a HERS (Home Energy Rating System) Index rating.

Overview of Performance

2015 demonstrated a significant market shift in the level of homes being built in Rhode Island. The Program significantly exceeded the goal for the number of Tier 2 homes and came very close to meeting the Tier 3 goal. These numbers clearly indicate a market transformation showing that RI builders can achieve the high efficiency levels and customers are asking for high

efficiency homes. Despite a lower than projected total number of completed units, the savings goals were exceed due to the overall performance of the buildings exceeding the planned performance.

	2015 Goals	2015 Total
Tier 1 (15 - 24%)*	215	128
Tier 2 (25% - 44%)*	175	258
Tier 3 (45%+)*	10	9

*Based on the 2011 User Defined Reference Home

Type of Construction	Tier Level	# of Projects
NEW CONSTRUCTION	Tier 1	64
	Tier 2	203
	Tier 3	6
RENO/REHAB	Tier 1	64
	Tier 2	55
	Tier 3	3

In 2015, the RNC Program collaborated with the Commercial and Industrial Program to develop the RI Zero Energy Task Force. The Task Force is comprised of stakeholders from both the residential and commercial sectors and is focused on developing recommendations for the State on ways to accelerate the zero energy market in RI. The Task Force will develop and submit a white paper to the State in 2016.

Highlights

<u>New Construction Project Highlight:</u>

Park Holm Phase II, Newport: This 262 unit development, originally constructed in the 1940s to provide housing for service members and their families, is being demolished and replaced with new housing in phases over several years.

This latest phase of 60-units of new affordable housing presented RNC team with several design specification challenges, including the decision to foam the roof decks, which eliminated a host of Thermal Enclosure Checklist issues for the entire project. The RNC team was able to resolve the issues and help the Park Holm project earn the Tier II level program incentives. The project achieved an average of 30% savings over the baseline, with homes scoring HERS Indexes as low as 47. This project also received Energy Star certification.

<u>Zero Energy Highlight:</u>

Mechanic Street, South Kingstown: This project is one of most efficient homes, prior to installation of solar, ever to participate in the RNC program. It achieved a Home Energy Rating System (HERS) index of 33 (the lower the score the better) and 73.9% savings over the User Defined Reference Home (UDRH). This Net Zero Ready, ENERGY STAR® certified home is also the first Passive House Institute US (PHIUS)

certified Passive House building in Rhode Island. The home has ductless mini split heat pumps, a heat pump water heater, and Energy Star lighting and appliances.

Single Family Home, Jamestown: This Zero Energy home scored a HERS Index of -5 and achieved 52.6 savings over the Program UDRH, excluding PV. The home has ground source heat pumps and a heat pump water heater, ENERGY STAR rated appliances and lighting, a super insulated thermally isolated building envelope, insulated concrete form foundation and a 12kW solar array that generates enough power to meet annual energy demand, including HVAC, lighting, and plug loads.

Event Highlight:

RNC staff supported the April 17th 2015 NESEA tour of a Passive House currently participating in the RNC Program. Attendees included architects, engineers, builders, manufacturers, and homeowners. The tour focused on three aspects of the design: the exterior weather barrier and window flashing details, thermal enclosure efficiency features, and mechanical systems. The tour concluded at URI with a 90 minute building science presentation that explained how an energy efficient home can be built with little to no extra cost when designed properly.

RI Code Compliance Enhancement Initiative (CCEI) Partnership Highlight:

The RNC Program partnered with the RI Code Compliance Enhancement Initiative (CCEI) to conduct hands-on infield training. These trainings provided a unique opportunity for participants to view projects during the construction phase to learn about both energy code requirements and how to implement best building practices.

South County Habitat for Humanity offered their project on Edwards Lane in Charlestown to demonstrate the importance of testing a home for air leaks during the rough stage of construction. The 21 participants, mainly students from the Chariho Technical School, performed much of the testing, identification of leaks, air sealing, and compilation of the testing results. Attendees received copies of the RI CCEI Residential Field Guide and learned about current and future code requirements.

Collaboration: In addition to providing trainings throughout the year to builders, developers, architects, HVAC contractors, and clients, National Grid RI RNC participated in many events to promote energy efficiency, including:

- Rhode Island Building Officials Association Expo
- RIBA Home Show
- JLC (Journal of Light Construction) Live
- Green and Healthy Homes Initiative of Rhode Island
- North East Sustainable Energy Association
- Trainings**:**
    - RISE - RNC Program, with a focus on the Reno Rehab offering as this is where the two programs intersect and represents the best opportunities for collaboration
    - Rhode Island Housing - ENERGY STAR and current RNC Program elements
    - South County Habitat and building committee – RNC Program, ENERGY STAR and a comprehensive review of plans for two homes they intend to enroll in the program. RNC staff provided technical guidance on how to bring the units from Tier II to Tier III.
    - Sankofa Apartments Project Team - Sankofa Apartments
    - Realtor Training – On-site HERS and high performance building training was held at the site of Reynolds Farm in North Kingstown.

High Efficiency "HVAC" (Electric and Gas) - Heating, Cooling and Hot Water

The High-Efficiency Heating and Cooling Programs promote the installation of high efficiency gas and electric space heating and cooling equipment, water heating measures, and controls through the use of tiered customer rebates. The programs also provide contractor training and incentives for proper equipment sizing, quality installation verification and distribution system improvements.[11]

Overview of Performance

In 2015, the Rhode Island High-Efficiency Heating, Cooling and Hot Water programs exceeded savings goals while maintaining strong working relationships with trade ally network of HVAC contractors participating in the program. Contractor interest in both the Gas Heat and Cool Smart programs continues to be strong, as does consumer demand.

Highlights

Due to oversubscription of the Gas Heat Program in 2013 and 2014, the low tier measures were eliminated and incentives were reduced in 2015. The reduction of the rebate levels allowed the Program to continue to serve customers, achieve savings, and continue strong relationships with supply houses and contractors. The program's lead vendor continued to provide outreach and programmatic support to participating contractors to ensure they had the knowledge to effectively communicate the program offering to customers.

Despite the reduced incentives, the following measures remained particularly strong with positive impacts to both gas and electric savings, and across space heating, cooling and water heating measures.

[11] Residential programs do not promote or fund fuel switching. It is only after a customer decides to switch to natural gas that they are eligible for an energy efficiency rebate. At the time the customer switches from another fuel to natural gas, they become eligible for an energy efficiency incentive that covers part of the incremental cost of higher efficiency gas equipment.

Gas Heat	Electric Cooling
Combo Condensing Boiler (95%) WiFi Thermostat Furnace (95%) Boiler (95%)	Central AC Unit Heat Pumps Heat Pump Water Heaters

Quality Installation Verifications (QIV) for both new installations and existing air conditioning systems and heat pumps increased overall during the year by 38%, with a significant 131% increase in QIV services performed on existing equipment over the previous year. High-efficiency gas furnaces with electric-saving ECM (electronically commutated motors) installed through the program increased by 120%, and condensing boilers with on-demand hot water increased by 27%.

Multifamily

The Multifamily program had a strong year in terms of savings performance and participation, as all targets were exceeded by healthy margins. Market Rate Multifamily saw achievements of 118% of goal on electric and 117% of goal on gas. Income Eligible exceeded savings targets finishing the year at 112% of goal on electric and 110% of goal on gas. 2015 also saw the implementation of several innovative ideas that came from planning in 2014 including the creation of a new working group, the expansion of the 0% Heat Loan to condo owners, and the completion of a benchmarking pilot.

Highlights

Income Eligible Building Benchmarking**:** Working in partnership with Rhode Island Housing, WegoWise and New Ecology Inc., a large-scale benchmarking of the state's low income multifamily buildings, was undertaken. The year concluded with 438 building having been evaluated with access to the WegoWise benchmarking tool made available to property owners and managers. To date, 27 buildings identified through this effort have gone through the EnergyWise retrofit program.

Multifamily Energy Efficiency Working Group: In the fall of 2015, Stakeholders united to engage in a discussion regarding the creation of an "advisory" working group that would be tasked with considering national best practices and the needs of Rhode Island Stakeholders as National Grid moves forward with planning the 2017 energy efficiency programs. The first formal meetings of the group, consisting of representatives from National Grid, the Office of Energy Resources, Green and Healthy Homes Initiative, RISE Engineering, Optimal Energy and Rhode Island Housing commenced in early 2016.

Grassroots Engagement with Condominiums: In order to increase participation at condominium complexes in the EnergyWise retrofit program, National Grid utilized the grassroots expertise of SmartPower to facilitate engagement at a mid-size condominium complex. After the development was enrolled, SmartPower sent communications to residents over two weeks and held on-site info sessions where owners could stop by and learn about the program. This resulted in additional owners signing up for retrofits who did not look to participate otherwise. We look to expand this technique in 2016 and beyond.

Community Based Initiative: Rhode Island Energy Challenge: Find Your Four!

The Rhode Island Energy Challenge wrapped its third year in 2015 with more exciting results than ever before. The call to action, "Find Your Four!", asks Rhode Islanders to pledge to find four ways to save energy in their homes and their communities. Beginning by working with municipal leadership and working our way through every facet of the community, The Challenge shows residents that National Grid is more than just a utility, but is also a trusted advisor and advocate for sustainability.

Overview of Performance

2015 kicked off with the celebration of the "Video Challenge", an online competition where students across the state submitted viral videos showing how they were saving energy. The results were nothing less than impressive. Over 11,000 votes were cast and over 13,000 page views occurred. Those with the most votes were celebrated as winners and the schools with the most submissions received monetary grants from National Grid for energy efficiency upgrades on campus.

During the summer, the Town of North Providence worked hard towards its goal of reaching 800 households through the dedication of the Mayor's Youth Commission. By September, the town had far surpassed its goal by having over 1,000 households take the Find Your Four pledge. The town received street signs proclaiming it a "Rhode Island Energy Champion" and $7,500 to be used for efficiency upgrades on a public building.

Also during 2015, our very first Energy Champion, North Smithfield, utilized their $7,500 award to upgrade to energy efficient LED lighting at the towns Department of Public Works building.

Highlights

Grassroots organizing continued through 2015 and produced the most robust outreach metrics yet. Some achievements include:

- 9,230 face-to-face customer interactions at over 58 events
- 3,935 people signed up online to take the Challenge
- Email communications to over 200,000 sent by program partners such as Roger Williams Park Zoo, Northern RI Chamber of Commerce, Raytheon, RI Housing and more.
- Took part in 57 events

Education and Outreach

Throughout the year, SmartPower held training sessions at all of the state's Community Action Programs (CAPs) to ensure that CAP staff was well versed in speaking about the benefits of energy efficiency with their clients. Custom "toolkits" were created for the CAP staff with program literature and talking points to help facilitate this discussion with the customer. Also new in 2015, partnerships were created with Brown University, Johnson & Wales University, Rhode Island College, RI School of Design (RISD), and Providence College to communicate with students about Find Your Four! and turn those students into advocates for the program.

Income Eligible Services

National Grid helps reduce electricity and heating costs for income-eligible customers without any financial obligation from the customer. Income-eligible customers as those who are currently on the A-60 Electric Low Income rate, the 1301 Low Income Heat rate, and those customers who qualify for

LIHEAP funds from the State, and/or whose household income level falls below 60% of the Area Median Income (AMI). Program services are delivered by seven Rhode Island Community Action Program (CAP) agencies.

Program services offered to Income Eligible Customers include:

- An energy assessment of lighting, appliances, and behavior to determine baseline consumption
- An inspection of existing insulation to identify opportunities for weatherization
- An inspection of the customer's heating system for safety and potential replacement if applicable. All customers receive all services and equipment upgrades at no cost
- Replacement of inefficient light bulbs
- Replacement of inefficient systems and equipment including
    - Heating systems
    - Cooling systems
    - Appliances
- Installation of weatherization measures including:
    - Air sealing
    - Insulation

Overview of Performance

In 2015, the Income Eligible Services (IES) Program exceeded the Program savings goals. This success was attributed to continual improvement in program management with ongoing implementation of technical trainings, quarterly best practices meetings, distribution of resources based on need within respective communities, and the development of statewide training manuals. The program continued to focus on training and enhancing technical knowledge of tradespeople to perform thorough and consistent home energy assessments; installation of energy efficient lighting, appliances, heating systems, domestic hot water equipment, and weatherization measures.

Highlights

In 2015, the RI Weatherization Assistance Program (WAP)/IES Field Manual was developed and produced through a collaborative process with National Grid's lead vendor, CLEAResult and RI Department of Human Services (DHS). The manual provides guidance to ensure safe, effective, consistent and efficient weatherization across the state. The RI WAP/IES Field Manual is aligned with the Department of Energy Standardized Work System.

In 2015, the RI WAP/IES Program Manual development began. This manual will align with the RI WAP/IES Field Manual and will detail all policies, procedures forms and educational materials that will be used in the RI WAP/IES program. The manual is being developed in collaboration between members from National Grid's lead vendor, CLEAResult, DHS and the CAP agencies. The RI WAP/IES Program Manual is scheduled to be released in the second quarter of 2016.

Training

In 2015, several training opportunities were made available to the Rhode Island Community Action Program teams and their contractor base.

Jules Junker, a leader energy-efficient building and owner of Thermal Works in Johnson, Vermont, provided an RI WAP/IES Field Manual training program (1 day classroom, 1-2 days field) to all CAPs and contractors.

National Grid held four Best Practice Meetings in 2015, including trainings on RI Energy Challenge, Find Your Four; Budgeting; Code of Conduct; LED Lighting; and Background Checks.

The Weatherization Technical Committee (WTC) met every 6 weeks in 2015 to review consistent audit protocols and implementation of weatherization and insulation services. Each of these meetings was provided real examples of work done in the field in order to teach the contractors about quality, consistency and completeness.

Commercial & Industrial Programs

Overview

In 2015, the Commercial & Industrial (C&I) sector was cost-effective with total resource B/C ratios of 2.61 for electric programs and 2.09 for gas programs. The Company spent approximately 106% of the electric C&I implementation budget, achieved 111.6% of electric targeted annual energy savings and achieved 107.1% of electric targeted annual demand savings. The Company spent 81.2% of the gas C&I implementation budget and achieved 105.7% of gas targeted annual energy savings. Additional details on spending and savings by program can be found in Attachment 1, tables E-1, E-2, E-3 and Attachment 2, tables G-1, G-2 and G-3.

Large Commercial New Construction

This program promotes energy efficient design and construction practices in new and renovated commercial, industrial, and institutional buildings. It also promotes the installation of high efficiency equipment in existing facilities during building remodeling and at the time of equipment failure and replacement. The program offers technical and design assistance and rebates to reduce the incremental cost of high efficiency equipment over standard efficiency equipment. Large Commercial New Construction is known as a "lost opportunities" program because a customer who does not install energy efficient equipment at the time of new construction or equipment replacement will likely never make the investment for that equipment or will make the investment at a much greater cost at a later time. Commissioning or quality assurance is also offered to ensure that the equipment and systems operate as intended.

Overview of Performance

The Company met its 2015 electric New Construction program savings goals, the largest portion of which is attributed to the Bright Opportunities (Upstream Lighting) initiative, highlighted in a section below. The Company also met 87% of its New Construction Gas savings goals. The Company continued to work with major renovations and new construction ground up projects through the comprehensive and integrated energy efficiency approach to new construction market. Several applications were generated this year but because new construction projects typically have a long completion cycle, some of these projects are expected to complete in subsequent.

Upstream Lighting

2015 was the fourth year of the Rhode Island Commercial & Industrial Upstream Lighting Initiative (more commonly referred to as Upstream Lighting). This initiative lowers barriers to commercial and industrial customers adopting Energy Star certified LED lamps, Design Lights Consortium luminaires, and Consortium for Energy Efficiency (CEE) approved high performance linear fluorescent lamps by eliminating the application required for a customer to acquire these products. Through an agreement with participating electrical distributors, a portion of the higher cost of select eligible lamps and luminaires is paid directly to the distributor by National Grid after the distributor successfully submits

lamp and customer data. This means that commercial lighting customers get premium replacement technology for the price of a conventional product if they provide the required data. In addition to being popular with customers, the initiative provided approximately 26,797 MWh of savings for the Company's New Construction Program in 2015, which is a major share of this program's savings.

Street Lighting

On August 1, 2014, the customer-owned street lighting tariff went into effect. Although municipal customers who purchased their own street lights and converted them to LEDs were eligible during 2015 for energy efficiency incentives for both lights and controls, none of them had purchased their own street lights by the end of calendar year 2015. However, there is a high level of interest from the cities and towns in purchasing their own street lights. The Company is now presenting at various meetings and sharing information on incentive levels for converting to LED street lighting. A pilot metering program (Docket No. 4513) is currently underway in conjunction with RI Department of Transportation. This pilot is expected to be completed in the third quarter of 2016.

Large Commercial Retrofit

This is a comprehensive retrofit program designed to promote the installation of energy efficient electric equipment such as lighting, motors, and heating, ventilation and air conditioning (HVAC) systems in existing buildings. All commercial, industrial, and institutional customers greater than 200 kW average demand are eligible to participate. The Company offers technical assistance to customers to help them identify cost-effective conservation opportunities, and pays rebates to assist in defraying part of the material and labor costs associated with the energy efficient equipment.

Overview of Performance

The Company had a very successful year in the retrofit program with 125% of the electric savings goals and 109% of the gas savings goals, while focusing on comprehensive upgrades.

Highlights

In addition to the regular service provided to all customers, the Company pursued different strategies in energy efficiency for the following market sectors.

Manufacturing/Industrial: In 2015, we expanded our industrial initiative to offer to all our industrial customers in RI through our lead vendor. Through the collective efforts of our customers and their contractors, the Industrial Initiative has been an astounding success. We visited 40 customer sites, and created pipeline of 138 applications in various stages of development and completion. Approximately 130 energy efficiency measures were identified of which 93% of the applications were non-lighting measures. There is expected to be a 26% estimated increase from 2015 to 2016 in applications under construction. We also streamlined our "custom" application approval process to further expedite transactional process with customers.

Strategic Energy Management Plan (SEMP)*:* SEMP, or Strategic Energy Management Plan, is a multi-year approach to planning energy optimization opportunities for the customers' building portfolio, in a way that aligns closely to their organizational goals and financial criteria. The Company continued to work with its two SEMP customers (Brown University, Lifespan Hospitals). No new customers were enrolled in this initiative specifically in 2015.

Customer Highlight:

Over the past two years of the Lifespan SEMP Memorandum of Understanding (MOU), Lifespan has achieved 21% of its overall energy savings goal, which represents approximately 40% of the electric savings performance target.

For the past 11 months of 2015, Lifespan spent $1.08 Million in energy efficiency construction projects at two hospitals that included one major lighting project, steam traps, variable frequency drives (VFDs), and two comprehensive mechanical projects that included controls, and optimization of heating and ventilation mechanical systems and operations. National Grid contributed **$**556,424 in incentives, and provided $448,040 in financing as part of a two-year, zero-percent on-bill repayment plan. The completed projects are expected to result in gross annual savings of 2,126,639 kWh and 107,772 therms.

Municipal/State Initiative and RIPEP Partnership

In October 2012, the OER was awarded a three-year competitive grant from the U.S. Department of Energy to establish the Rhode Island Public Energy Partnership (RIPEP). RIPEP is a precedent-setting collaborative effort among the OER, National Grid, the EERMC, and the University of Rhode Island Outreach Center to achieve deep energy savings in state and municipal facilities. The term of this funding ended in the last quarter of 2015. The team successfully met and exceeded the goals of the DOE grant, including:

- Establishing the country's first comprehensive public sector energy data inventory using EPA EnergyStar Portfolio Manager;
- Achieved 20% energy reductions in approximately 125 public facilities;
- Built a targeted, streamlined infrastructure, making it easier for the entire public sector to take advantage of energy efficiency programs; and
- Developed solutions to overcome longstanding barriers to energy savings in the public sector

Grocery Initiative (EnergySmart Grocer)

Through the Company's dedicated market sector delivery for its grocery customers (called the EnergySmart Grocer initiative), National Grid saved approximately 7 million kWh and 50,000 therms for its grocery customers in 2015. In addition, 75% of the savings in 2015 came from non-lighting measures.

Customer highlights:

- Dave's Marketplace:

  The Company initially got involved with this nine-store chain in RI as they tested out adding doors to open cases at two stores. The lead vendor audited all locations and supported them in a variety of lighting and refrigeration projects in 2015. The projects total 596,258 kWh in annual savings. Measures included the addition of doors to open refrigerated cases, energy efficient hand wrappers, and lighting upgrades.

- Clements Market:

  After its initial audit, Clements Market is currently working through a large retrofit project including adding doors to open cases, floating controls on their refrigeration system and an HVAC VFD upgrade. The store saved over 245,000 kWh in 2015, with more projects planned for 2016.

Combined Heat and Power (CHP)

The Company completed the commissioning of the Toray Plastics America's CHP project in December of 2015. In 2015, the Company approved 3 new CHP projects for construction in 2016. One is for a manufacturer in East Providence, one for manufacturer in Coventry and one for an apartment complex in Providence.

Small Business Direct Install

Small Business Direct Install, named an exemplary program by the American Council for an Energy Efficient Economy (ACEEE) in 2013, provides direct installation of energy efficient lighting and non-lighting retrofit measures, including gas measures. Customers with an average monthly demand of less than 200 kW are able to participate. The customer pays 30% of the total cost of a retrofit. This amount is discounted 15% for a lump sum repayment or the customer has the option of repaying the financing over a two-year period with its bill payments, interest free.

Overview of Performance

The Small Business Direct Install program had a challenging year in 2015. It exceeded expectations in gas, but fell short in electric savings. There are a few of reasons for this shortfall: customer credit, the saturation of measures, and the Upstream Lighting initiative. These reasons are described below.

1. As discussed above, the Small Business program generally offers a 70% incentive on a project with the remaining 30% paid by the customer. In order to take advantage of the financing option, the program requires that customers must have a certain minimum rating in our billing system. This rating is based on past payment history and whether the most recent bills are current. This is National Grid's informal "credit check" to make sure that the Small Business Revolving Loan Fund remains robust and that funds are returned to the system.

   After many years serving the small business community, the Company is finding it difficult to find unserved customers that pass our "credit check." Many of Rhode Island's small business customers happen to be financially troubled and they rarely have the 30% balance to make a project happen, even with the 15% prepayment discount. In order for the program to reach its goals the Company must return to previous customers where fewer savings exist due to previous participation.

2. Saturation of several popular small business electric and gas measures is high. While this means the market for those measures is nearly transformed, the challenge will be filling their place with other measures

3. The Upstream Lighting initiative continues to erode small business program savings. The Company examined the data from the Upstream Lighting initiative and found that a significant portion of the sales, in excess of 50%, were being made to small businesses. While this means that small business customers were served at a reduced cost, the Small Business Direct Install program savings did not meet plan expectations.

Despite these challenges, the Company continues to see value in this program. Below are some highlights from 2015.

Highlights

Below is a small sample of the projects the Company helped its customers complete in 2015.

- Venda Ravioli (Providence)

  This Federal Hill Italian food retailer completed a complete conversion of their interior lighting though the turnkey delivery channel. They will save nearly 11,000 kWh per year and should have a simple payback under two years.

- Ruggeri Brothers Flooring (Cranston)

  This full service flooring retailer has worked with everyone from Dunkin Donuts Center to the University of Rhode Island to Salve Regina University. They worked with an independent contractor in the Customer Directed Option (CDO) to upgrade all their lighting to LED in two phases. They are expected to see savings of around 23,000 kWh per year.

- Roosevelt International Academy (Providence)

  This facility, which serves as a combination learning center and dormitory for international students, needed something a bit more than lighting. They replaced outdated manual controls with a new Honeywell HVAC Energy Management System (EMS) and VFDs to control motors operating the heating and cooling distribution loops. They will have better control, a more comfortable space, and significant electricity and gas savings. Savings are expected to be 83,000 kWh and 3,000 therms annually.

- Tollgate Associates (Warwick, RI)

  This medical building located near Kent County Hospital replaced lighting, upgraded thermostats, and installed controls on the DHW circulation pumps. These interventions and upgrades are expected to save 95,000 kWh and nearly 3,000 therms annually.

A larger list of project types and case studies in both Rhode Island (and elsewhere in New England) can be found at: https://www1.nationalgridus.com/smallbusiness.

Codes and Standards

Codes

The Rhode Island Code Compliance Enhancement Initiative (CCEI) is designed to increase the ability and desire of architects, engineers, builders, contractors, construction managers, and energy specialists to comply with the locally mandated residential and commercial building energy codes as well as improve the ability of local building code officials to enforce the code. The CCEI completed its third year in 2015 and experienced a number of significant accomplishments during the year.

Performance Overview

2015 was a successful year for the Rhode Island CCEI. A total of 42 CCEI classroom and on-site training events were held during 2015 for residential and commercial design, construction, and code enforcement personnel.

Attendance at 24 offered energy code classroom trainings fared well against planned target goals. These trainings attracted 254 residential classroom attendees (180 target goal) and 109 commercial classroom attendees (120 target goal).

Attendance at on-site field trainings, technical tours, and vocational school trainings were robust during 2015 (see below photos). 18 trainings occurred with 248 attendees. This represented 3 more trainings and 91 more attendees than the previous year. Several in-field blower door and duct blasters hands-on trainings occurred during 2015. On-site training events were also coordinated with such entities as: Chariho Career and Technical Center, Woonsocket Career & Technical Center, Coventry Vocational High School, Amos House Carpentry Training Program, Brown University Applied Math Building (tour), and Tiverton Library (tour).

The energy code technical support toll-free "circuit rider" number helped clarify any confusion or misunderstanding that building code officials, building design, and construction professionals had regarding energy codes, and supported their efforts to better understand and execute code compliant building designs. This important service fielded 28 residential and 8 commercial related telephone inquiries. The majority of these inquiries were successfully resolved via the phone, while 9 inquiries resulted in field visits to actual job sites or office consultations. The CCEI efforts in Rhode Island most importantly realized savings during 2015. The CCEI realized residential sector savings of 558 MWh and 67,136 therms and commercial sector savings of 3,258 MWh and 77,260 Therms.

Codes Highlights

Aside from attendance at energy code trainings in 2015, the Rhode Island CCEI had many additional highlights during the year. The initiative developed and supported consistent documentation tools throughout the year. Technical bulletins developed included:

- "Blower Door Testing Required" (code requires that all residential new construction buildings or dwelling units be tested and verified for their air leakage rate)
- "Ducts Must Pass" (code requires all new residential heating and air conditioning systems with ducts in unconditioned space to pass duct leakage testing verification)
- "Daylighting For Energy Efficiency (Part 1 & 2)" (code expands the daylighting requirements for commercial buildings)

Three building tours co-sponsored with the American Institute of Architects (AIA) and the U.S. Green Building Council (USGBC) Rhode Island Chapters occurred in 2015. These three tours focused on how these buildings met or exceeded the various aspects of the Rhode Island commercial building code. These included:

- Commercial code lighting tour of the Davies Career & Technical High School in Lincoln
- Commercial code tour of the Tiverton Library
- Commercial code tour of the Applied Math Building at Brown University.

Other 2015 highlights included:

- Development of an "air and duct leakage report" which detailed results from code testing performed throughout the state of Rhode Island over the past two years.
- Flyers promoting the Rhode Island Residential Field Guide were dropped off at the offices of code official in each of the 39 cities/tows in the state. 250 spiral bound copies of the Rhode Island Residential Field Guide were printed and are now being made available to code officials and other CCEI training attendees.

Appliance Standards

Appliance standards efforts focused on working with a broad range of stakeholders to advocate for stronger appliance standards in Rhode Island. Working with the Appliance Standards Awareness Project (ASAP) as well as the Northeast Energy Efficiency Partnerships (NEEP), a target list of suitable appliances was identified. The target list was determined based on the status of Federal standards for these appliances as well as the potential for savings throughout the state. All new appliances within a given category sold in the state would be subject to the stricter standards. The resulting effort led to support within the House committee of the RI Legislature. Bill H7700 was introduced in the 2016 Legislative session led by Representative Arthur Handy with support of 4 other House members.

Pilots and Other Initiatives

Residential Pilots

ECM Motors:

In 2015, the Company received preliminary results for the Electronically Commutated Motor (ECM) Pump demonstration to explore electric and natural gas savings associated with these devices. The results show consistent savings for electricity, provided a deeper understanding of savings on a pump horsepower level, and demonstrated how the pump savings are impacted by heating system type and pump placement in the distribution system.

The results also reflected minimal gas savings associated to installing ECM pumps. There was anticipation that gas savings could be validated in the field with a high confidence factor as claimed by pump manufacturers, but this was not evidenced in the pilot. Only one of the pump manufacturer's products showed gas savings which ultimately were not statistically significant. ECM pumps on the gas side will not be introduced for future savings at this time.

Wi-Fi Thermostats:

National Grid continues to work on an analysis for the potential impact residential Wi-Fi thermostats may have on managing peak gas demand during peak winter days as reported in a previous report. The company expects to have this completed during the first quarter of 2016.

Other:

- Heat Pump Dryer demonstration which examined dryer savings as well as the impact high efficiency washers on dryer performance.

- Automatic Temperature Control (ATC) and Home Energy Monitoring (HEM) which evaluated different methods/control strategies of controlling Wi-Fi thermostats and how the uses and functionality impacted customers comfort and savings potential.

Residential Energy Efficiency Education Programs

In 2015, National Grid continued its support of the energy education curriculum and teacher professional development in partnership with the National Energy Education Development (NEED) Project. Rhode Island teachers had the opportunity to attend full-day workshops that focused on the science of energy, energy efficiency, and the generation of electricity. The workshops, which hosted 55 teachers, allowed K-12 educators to improve and enhance their science and energy skills while helping students understand energy and ways to be more efficient at home and at school.

Teachers received hands-on kits for the classroom and curriculum. The kits provided to teachers included topics such as Exploring Wind, Exploring Photovoltaics, Exploring Hydropower, Building Science and The Science of Energy. Educators were able to select the resources they felt were most appropriate for their classroom goals.

Additionally, the NEED partnership teachers facilitated 24 additional NEED workshops and events in 2015 which reached an additional 211 educators.

SolarWise

In 2015, RI Energy Efficiency Program Strategy contributed to the program design, program filings, and hearings at the PUC for the new SolarWise Rhode Island (SolarWise RI) Program. SolarWise RI is part of National Grid's 2016 Rhode Island Renewable Energy (RE) Growth Program and allows customers to earn bonus solar incentives based on their energy reductions. All SolarWise applicants must participate in National Grid's EE Programs and achieve significant energy savings to be eligible for the SolarWise bonus solar incentives. SolarWise RI was launched in April 2016. The RI EE Team worked with the RE Growth SolarWise team to align the EE Programs so that EE customers could easily understand how to use their energy savings to apply for the SolarWise Bonus Incentive Program.

System Reliability Procurement

In System Reliability Procurement (SRP), the Company develops and implements non-wires alternative projects (NWAs). This involves identifying transmission or distribution needs that have the potential to be deferred by distributed energy resources within a specified timeline. These projects are customer-focused and can include some measures that are also offered through the Company's statewide energy efficiency programs.

Currently, these efforts are in a pilot state as the Company continues to implement its Demandlink™ pilot in Little Compton and most of Tiverton.[12] Launched in 2012, the pilot's primary objective is to implement a combination of energy efficiency and demand response measures in customer homes and businesses in order to reduce 1 MW of load the affected feeders by the end of 2017. In achieving this goal, the Company projects that the need to upgrade that substation will be deferred by four years.

The pilot was approved for its fourth of six planned years by the PUC on December 19, 2014 and implemented throughout 2015. The Company maintained the same portfolio of incentives as the previous year, hoping to continue the rate of recruitment. The only addition was an enhanced incentive for the replacement of an electric resistance water heater with a heat pump water heater. The

[12] The DemandLink pilot's goal is to reduce peak load on feeders 33F3 and 33F4. These feeders serve the entire town of Little Compton and all but the northwest corner of Tiverton.

Company also continued to leverage its statewide EnergyWise and Small Business Direct Install programs in the promotion and delivery of these measures. In 2015, the pilot's marketing tactics placed additional focus on the heat pump water heater incentive and keeping participants engaged in the demand response components. Fifteen demand response events were conducted between June early September. While the summer proved to be milder than expected, three demand response events were called for engagement and evaluation data purposes. Additional SRP details on 2015 activities and 2016 plans can be found in the Company's 2016 System Reliability Procurement Report filed in Docket 4581 and approved by the PUC on December 16, 2015.

Financing

The Company offered a variety of finance options to both commercial and residential customers. Since 2011, the Company has managed several revolving loan funds that allow customers to pay for their portion of an energy efficiency project through their monthly bills. The funds allowed participants to remain cash-flow positive and helped relieve pressure on the DSM charge by reducing incentive budgets. In 2014, the Company began managing a revolving loan fund for state and municipal customers as part of the RI Public Energy Partnership (RI PEP). In 2015, the Company extended opportunities for gas projects through the Large Commercial & Industrial (LC&I) gas revolving loan fund.

Through the electric LC&I revolving loan fund, the Company offered $4.93 million in on-bill financing to 86 Large Commercial customers resulting in electric savings of 12,627 annual MWh. At the end of 2015, the fund had a balance of $10.36 million, money that will be available for more loans in 2016 and in the future.

Through the gas LC&I revolving loan fund, the Company offered $123,646 in loans to 3 Large Commercial customers resulting in gas savings of 296,701 MMBtu. At the end of 2015, the fund had a balance of $882,732, money that will be available for more loans in 2016 and in the future.

The Company continued to manage a revolving loan fund in support of the RI PEP. Since the inception of the fund in 2014, the Company offered $947,000 in on-bill finance to 12 participating municipal customers. This resulted in an electric savings of 1,722 annual MWh. At the end of 2015, the fund had a balance of $132,636. The Company received an additional allocation of RGGI funding in October 2015, of which $800,000 will be injected into the RI PEP loan fund for use in 2016. This injection will increase the available funds to $932,636 at the start of 2016.

Of the 1,049 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 $1.73 million in loans that led to more than 15,800 MWh in annual energy savings. At year end, the fund had a balance of $3.69 million.

The Company also continued offering a 0% interest Heat Loan to residential customers to finance their portions of residential energy efficiency projects. The interest buy-down program was initially funded by RGGI funds in 2011. As of 2012, The RGGI funds had been fully utilized and the EnergyWise program began to provide the needed funds.

In 2015 there were six lenders participating in the initiative: Greenwood Credit Union, Coventry Credit Union, Bay Coast Bank, Navigant Credit Union, the Capital Good Fund, and Bank Five. The Heat Loan can be used for Insulation and/or Air Sealing Upgrades, Energy Efficient Heating System Replacements, Duct Sealing and Duct Insulation, Energy Efficient Domestic Hot Water Systems, or ENERGY STAR® Thermostats. Depending on the lender, customers are eligible to receive 0% interest loans up to

$25,000 for period of up to 7 years. In total, 1,008 Heat Loans were secured, valued at approximately $6.0 million. An overview of the revolving loan funds and Heat Loan for 2015 is included in tables E-6 and E-7.

In 2015, National Grid also began discussions with the newly formed Rhode Island Infrastructure Bank (RIIB). The Company is looking forward to collaborating with RIIB, OER, and Commerce RI in 2016 on promising new financing schemes such as Property Assessed Clean Energy (PACE) and the Efficient Buildings Fund (EBF).

Rhode Island Comprehensive Marketing

In 2015, National Grid continued to increase awareness of EE programs for Rhode Island customers through a comprehensive campaign that targeted residential and C&I customers. The campaign communicated ways in which EE makes life or business better for customers. By leveraging internal and external customer research, and focusing on non-energy benefits, we reached customers with targeted messages that resonated with them. Mass media tactics included billboards, radio, print, digital, native advertising, and social media. In addition, we partnered with grass roots community groups statewide to educate and further engage customers. According to market research studies conducted throughout the year, Rhode Island customers consistently score higher in terms of familiarity with our Energy Efficiency programs than our other jurisdictions. This work helped contribute to Rhode Island being recognized as having the highest ranked utility programs in the country by the American Council for an Energy Efficient Economy (ACEEE) in their 2015 State Scorecard, and overall the 4th most efficient state.

In 2015, Trade Ally Marketing in Rhode Island focused on increasing trade awareness, engagement and satisfaction with National Grid's suite of New Construction and Energy Efficiency offerings. This was achieved through a combination of print/digital advertising (e.g., Rhode Island Builders Report), targeted e-newsletters, educational webinars, direct mail lead generation and e-communication outreach to support the Rhode Island Channel Sales team in meeting energy savings goals.

Jobs Impacts

National Grid hired Peregrine Energy Group, Inc. to conduct a study of the job impacts from National Grid's energy efficiency programs in 2015. 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 2015. The FTE counts cover a wide range of energy efficiency services, including independent contractors and plumbers, rebate processers, 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.

Peregrine determined that 695.8 full-time equivalent (FTE) employees had work in 2015 as a result of investments by National Grid in energy efficiency programs provided to its Rhode Island electricity and natural gas customers. Most of the jobs created as a result of energy efficiency investments were local because they were tied to installation of equipment and other materials.

The study identified 1,009 companies and agencies involved in National Grid's 2015 energy efficiency programs, 79% 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.

Full-Time Equivalent (FTE) Employment Supported by Energy Efficiency Programs in Rhode Island in 2015

Programs	Total FTEs
Electric Programs	
Commercial and Industrial	210.0
Residential Income Eligible	37.0
Residential Non-Income Eligible	125.4
Gas Programs	
Commercial and Industrial	32.0
Residential Income Eligible	43.8
Residential Non-Income Eligible	172.1
National Grid EE Staffing	41.6
Community Action Agency staff	34.0
Total all 2015 Rhode Island FTEs	695.8

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 2015. Peregrine Energy Group calculated the labor hours required for each installation based on industry standards and discussions with contractor experts.

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 is far larger than the total of FTEs. The study and a complete list of businesses are included as Attachment 5.

Shareholder Incentive

The Company's Shareholder Incentive earnings are determined by its performance against the established annual savings goals documented in the 2015 EEPP. Under the current incentive structure, the Company can earn a target based-incentive rate equal to 5.0% of the eligible spending budget in a program year for achieving electric and gas energy savings goals.

Beginning in 2015, the incentive structure was changed for the electric portfolio to promote both energy and demand savings. This structure allows the Company to earn a target-based incentive rate equal to 3.5% of the eligible annual spending budget for achieving MWh savings goals and 1.5% of the annual spending budget for achieving MW savings goals.

For the gas portfolio, where there is no demand savings component, the original target-based incentive rate equal to 5.0% of the eligible annual spending budget for achieving MMBtu savings goals remained in place.

The Shareholder Incentive is earned by sector. An incentive is earned if savings in a sector fall between 75% and 125% of the savings goal for the sector. An enhanced incentive up to 125% of the target incentive is available for achieving greater savings than the savings target. All sectors earned an incentive for their 2015 performance. All gas sectors earned over 100% of the target incentive. For electric, income eligible and non-income eligible earned over 100% of the target incentive.

The year-end results for 2015 highlight the benefit of the new incentive model for driving demand savings. The Company met 107% of the Commercial and Industrial sector demand goal; 136% of the Income Eligible demand goal; and, 118% of the Residential sector demand goal. In total, peak demand was reduced by 33 MW in 2015. This leads to significant benefits to customers and to the electric grid. Lowering peak demand helps to reduce price volatility, reduce strain on the grid, and improve overall system reliability.

The Company has earned a total of $5,920,439 for the successful implementation of its energy efficiency programs in 2015.

More details on the Company's Shareholder Incentive achievements can be found in Attachments 1 and 2, tables E-4 and G-4.

Attachment 1
Electric Year-End Results

Attachment 1

Electric Summary Tables of Year End Results

NATIONAL GRID ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND

Table E-1: Summary of 2015 Target and Year End Results

Sector and Program	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Demand Reduction (Annual kW)			Energy Savings (Annual MWh)			Customer Participation			Implementation Expenses ($ 000)				
Commercial & Industrial	**Target**	**Actual**	**Pct Achieved**	**Target**	**Actual**	**Pct Achieved**	**Approved Target**	**Actual**	**Pct Achieved**	**Budget**	**Actual**	**Pct Achieved**	**Lifetime MWh**	**$/kWh**
Large Commercial New Construction	6,846	7,243	105.8%	33,702	37,205	110.4%	3,698	2,133	57.7%	$9,740.3	$8,538.7	87.7%	446,408	$0.019
Large Commercial Retrofit	6,262	7,553	120.6%	48,041	59,921	124.7%	574	418	72.7%	$15,506.5	$20,809.4	134.2%	747,798	$0.028
Small Business Direct Install	4,143	3,676	88.7%	19,539	15,876	81.3%	1,407	976	69.3%	$12,000.3	$10,735.0	89.5%	187,647	$0.057
Community Based Initiatives - C&I										$76.6	$41.2	53.8%		
Commercial Pilots										$230.3	$8.4	3.6%		
Comprehensive Marketing - C&I										$192.0	$97.3	50.6%		
Finance Costs										$4,000.0	$4,000.0	100.0%		
SUBTOTAL	**17,252**	**18,472**	**107.1%**	**101,282**	**113,002**	**111.6%**	**5,680**	**3,526**	**62.1%**	**$41,746.0**	**$44,229.9**	**105.9%**	**1,381,852**	**$0.032**
Income Eligible Residential														
Single Family - Income Eligible Services	479	627	131.1%	3,680	4,010	109.0%	2,500	2,851	114.0%	$7,820.2	$7,067.9	90.4%	44,481	$0.159
Income Eligible Multifamily	120	188	156.5%	2,907	3,249	111.8%	8,000	4,610	57.6%	$2,300.1	$2,320.3	100.9%	34,954	$0.066
SUBTOTAL	**599**	**816**	**136.2%**	**6,587**	**7,260**	**110.2%**	**10,500**	**7,461**	**71.1%**	**$10,120.3**	**$9,388.2**	**93%**	**79,436**	**$0.118**
Non-Income Eligible Residential														
Residential New Construction	169	112	65.8%	559	1,263	225.8%	430	442	102.8%	$962.0	$1,003.7	104.3%	15,799	$0.064
ENERGY STAR® HVAC	197	285	144.8%	1,020	1,040	101.9%	1,322	1,945	147.1%	$1,345.6	$1,342.3	99.8%	13,760	$0.098
EnergyWise	1,383	2,498	180.6%	11,157	19,484	174.6%	9,000	11,665	129.6%	$8,883.7	$9,782.2	110.1%	208,930	$0.047
EnergyWise Multifamily	178	224	125.8%	3,898	4,592	117.8%	4,900	7,710	157.3%	$3,193.9	$3,345.0	104.7%	51,628	$0.065
Home Energy Reports	4,161	4,780	114.9%	25,634	31,177	121.6%	268,733	268,263	99.8%	$2,594.2	$2,464.2	95.0%	31,177	$0.079
ENERGY STAR® Lighting	5,125	5,455	106.4%	38,859	41,245	106.1%	104,825	302,899	289.0%	$8,660.9	$6,905.7	79.7%	476,993	$0.014
ENERGY STAR® Products	652	696	106.7%	4,605	3,760	81.6%	13,438	18,912	140.7%	$2,297.4	$1,931.6	84.1%	28,210	$0.068
Energy Efficiency Education Programs										$50.0	$38.5	77.1%		
Residential Products Pilot										$523.7	$184.5	35.2%		
Community Based Initiatives - Residential										$333.8	$211.6	63.4%		
Comprehensive Marketing - Residential										$635.7	$612.5	96.3%		
SUBTOTAL	**11,865**	**14,047**	**118.4%**	**85,733**	**102,560**	**119.6%**	**402,648**	**611,836**	**152.0%**	**$29,480.7**	**$27,821.8**	**94.4%**	**826,497**	**$0.034**
Regulatory														
OER										$564.1	$606.0	107.4%		
EERMC										$846.1	$851.6	100.7%		
SUBTOTAL										**1,410.1**	**1,457.6**	**103.4%**		
TOTAL	**29,715**	**33,335**	**112.2%**	**193,602**	**222,822**	**115.1%**	**418,828**	**622,822**	**148.7%**	**$82,757.2**	**$82,897.5**	**100.2%**	**2,287,785**	**$0.036**
RGGI										*$2,206.2*	$1,410.3	*63.9%*		
System Reliability Procurement										*$513.2*	$498.1	*97.1%*		

Notes

(1)(4) Approved Target from 2015 EEPP, Attachment 5, Table E-7.

(3) Pct Achieved is Column (2)/ Column (1).

(6) Pct Achieved is Column (5)/ Column (4).

(7) Approved Target from 2015 EEPP, Attachment 5, Table E-7. Participation was planned and is reported in 'net' terms which takes into account free-ridership and spillover.

(9) Pct Achieved is Column (8)/ Column (7).

A planning error occurred in the Income Eligible Multifamily Electric program. The correct planned participants should have been closer to 4,000, which would make the current percent achieved close to 115%.

A planning error occurred in the ENERGY STAR® Lighting program. The correct planned participants should have been 233,364, which would make the current percent achieved 129%.

(10) Approved Budget includes Implementation and Evaluation budgets from Docket 4527, Attachment 5 Table E-2, adjusted to reflect "Docket 4527 – The Narragansett Electric Company, d/b/a National Grid 2015 Energy Efficiency Program Plan Transfer of Funds Request" approved by the Energy Efficiency Resources Management Council on March 29, 2015, the Division of Public Utilities and Carriers (Division) on March 20, 2015, and the Rhode Island Public Utilities Commission on May 7, 2015.

(11) Year To Date Expenses include Implementation and Evaluation expenses.

RGGI Expenses are counted separate as those funds were not part of the approved 2015 budget. Details on RGGI spend are found in Attachment 6.

(12) Pct Achieved is Column (11)/ Column (10).

(14) $/lifetime kWh = Column (11)/Column (13)

NATIONAL GRID ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table E-2: Summary of Value, kW, and kWh by Program
2015 Program Year

	Value (000's)												kW Saved				MWh Saved	
		Capacity					Energy					Non-Electric Benefits	Maximum Annual					
		Generation					Winter		Summer									
Commercial & Industrial	**Total**	**Summer**	**Winter**	**Trans**	**MDC**	**DRIPE**	**On Peak**	**Off Peak**	**On Peak**	**Off Peak**	**DRIPE**			**Winter**	**Summer**	**Lifetime**	**Annual**	**Lifetime**
Large Commercial New Construction	$55,515	$7,694	$0	$3,184	$13,665	$598	$13,371	$7,592	$6,489	$3,398	$4,383	($4,860)	7,211	3,989	7,243	78,423	37,205	446,408
Large Commercial Retrofit	$86,722	$10,331	$0	$3,910	$16,777	$598	$20,239	$15,023	$9,880	$6,730	$6,456	($3,223)	7,552	6,777	7,553	97,844	59,921	747,798
Small Business Direct Install	$26,911	$4,448	$0	$1,759	$7,547	$304	$4,504	$4,019	$2,220	$1,820	$1,687	($1,397)	3,676	3,447	3,676	43,677	15,876	187,647
SUBTOTAL	**$169,147**	**$22,473**	**$0**	**$8,853**	**$37,989**	**$1,499**	**$38,115**	**$26,634**	**$18,589**	**$11,948**	**$12,526**	**($9,480)**	**18,439**	**14,212**	**18,472**	**219,944**	**113,002**	**1,381,852**
Income Eligible Residential																		
Single Family - Income Eligible Services	$17,145	$649	$0	$270	$1,158	$46	$1,115	$1,079	$439	$402	$381	$11,606	627	718	627	6,717	4,010	44,481
Income Eligible Multifamily	$3,910	$199	$0	$82	$354	$15	$903	$796	$314	$292	$337	$617	188	945	188	2,045	3,249	34,954
SUBTOTAL	**$21,055**	**$848**	**$0**	**$352**	**$1,511**	**$61**	**$2,018**	**$1,876**	**$753**	**$694**	**$719**	**$12,223**	**816**	**1,663**	**816**	**8,762**	**7,260**	**79,436**
Non-Income Eligible Residential																		
Residential New Construction	$2,184	$189	$0	$68	$290	$8	$222	$294	$74	$63	$64	$911	103	130	112	1,654	1,263	15,799
ENERGY STAR® HVAC	$3,267	$473	$0	$170	$729	$23	$319	$324	$201	$116	$112	$800	253	272	285	3,721	1,040	13,760
EnergyWise	$42,454	$2,596	$0	$1,081	$4,641	$199	$5,123	$4,852	$1,950	$1,904	$1,967	$18,140	2,488	3,906	2,498	26,659	19,484	208,930
EnergyWise Multifamily	$6,760	$203	$0	$89	$382	$17	$1,641	$973	$605	$297	$540	$2,012	224	590	224	2,199	4,592	51,628
Home Energy Reports	$3,564	$119	$0	$200	$860	$0	$762	$592	$284	$238	$509	$0	4,780	6,547	4,780	4,780	31,177	31,177
ENERGY STAR® Lighting	$59,052	$6,295	$0	$2,530	$10,855	$423	$10,958	$11,891	$4,524	$4,999	$3,851	$2,725	5,455	7,013	5,455	63,161	41,245	476,993
ENERGY STAR® Products	$4,517	$460	$0	$231	$993	$51	$557	$519	$364	$288	$361	$692	696	576	696	5,682	3,760	28,210
SUBTOTAL	**$121,797**	**$10,337**	**$0**	**$4,370**	**$18,751**	**$722**	**$19,583**	**$19,444**	**$8,003**	**$7,904**	**$7,404**	**$25,281**	**13,998**	**19,033**	**14,047**	**107,856**	**102,560**	**826,497**
TOTAL	**$312,000**	**$33,659**	**$0**	**$13,575**	**$58,251**	**$2,282**	**$59,716**	**$47,954**	**$27,345**	**$20,546**	**$20,649**	**$28,024**	**33,252**	**34,908**	**33,335**	**336,561**	**222,822**	**2,287,785**

NATIONAL GRID ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table E-3: Summary of B/C Ratios, Value and Costs ($000's)
2015 Program Year

Commercial & Industrial	(1) Benefit/ Cost	(2) Total Value	(3) Program Implementation Expenses	(4) Customer Contribution	(5) Shareholder Incentive
Large Commercial New Construction	6.03	$55,514.7	$8,538.7	$670.4	
Large Commercial Retrofit	2.46	$86,721.9	$20,809.4	$14,389.3	
Small Business Direct Install	1.89	$26,910.9	$10,735.0	$3,537.1	
Community Based Initiatives - C&I			$41.2		
Comprehensive Marketing - C&I			$97.3		
Commercial Pilots			$8.4		
Finance Costs			$4,000.0		
SUBTOTAL	**2.61**	**$169,147.5**	**$44,229.9**	**$18,596.8**	**$2,080.2**
Income Eligible Residential					
Single Family - Income Eligible Services	2.43	$17,144.7	$7,067.9	$0.0	
Income Eligible Multifamily	1.69	$3,910.4	$2,320.3	$0.0	
SUBTOTAL	**2.11**	**$21,055.1**	**$9,388.2**	**$0.0**	**$610.6**
Non-Income Eligible Residential					
Residential New Construction	1.05	$2,183.8	$1,003.7	$1,081.6	
ENERGY STAR® HVAC	1.73	$3,267.3	$1,342.3	$545.7	
EnergyWise	3.08	$42,453.6	$9,782.2	$3,998.8	
EnergyWise Multifamily	1.97	$6,759.7	$3,345.0	$83.3	
Home Energy Reports	1.45	$3,564.4	$2,464.2	$0.0	
ENERGY STAR® Lighting	2.29	$59,052.3	$6,905.7	$18,830.8	
ENERGY STAR® Products	1.66	$4,516.5	$1,931.6	$794.4	
Energy Efficiency Education Programs			$38.5		
Residential Products Pilot			$184.5		
Community Based Initiatives - Residential			$211.6		
Comprehensive Marketing - Residential			$612.5		
SUBTOTAL	**2.21**	**$121,797.5**	**$27,821.8**	**$25,334.6**	**$1,842.5**
Regulatory					
OER			$606.0		
EERMC			$851.6		
SUBTOTAL			**$1,457.6**		
TOTAL	**2.38**	**$312,000.1**	**$82,897.5**	**$43,931.4**	**$4,533.4**

Notes:

(1) RI Total Resource Cost test Benefit/Cost Ratio = Total Value/(Program Implementation Expenses + Customer Contribution + Shareholder Incentives).

(2) Year-End Value Total from Table E-2.

(3) Year-End Implementation Expenses by Program from Table E-1.

(4) Shareholder incentives from Table E-4.

NATIONAL GRID ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table E-4: National Grid 2015 EE Incentive Calculation

Energy Incentive Rate:	**3.50%**						
Sector	(1) **Approved Spending Budget**	(2) **Target Incentive**	(3) **Annual kWh Savings Goal**	(3a) **Actual Spending**	(3b) **% of Approved Spending**	(3c) **Budget adjusted target kWh savings**	(4) **Threshold kWh Savings**
Income Eligible Residential	$10,120,298	$354,210	6,587,214	$ 9,388,189	92.8%	6,110,690	4,583,018
Non-Income Eligible Residential	$29,480,742	$1,031,826	85,733,018	$ 27,821,789	94.4%	80,908,613	60,681,460
Commercial & Industrial	$37,745,993	$1,321,110	101,281,773	$ 40,229,872	106.6%	101,281,773	75,961,330
Total	**$77,347,033**	**$2,707,146**	**193,602,004**	**$ 77,439,850**		**188,301,076**	**141,225,807**

Sector	(5) **Actual kWh**	(6) **% of Target Savings**	(7) **Savings Eligible for Incentive**	(8) **Total Earned Incentive**	(9) **% of Target Incentive Achieved**
Income Eligible Residential	7,259,627	118.8%	7,259,627	$ 420,809	118.8%
Non-Income Eligible Residential	102,559,971	126.8%	101,135,766	$ 1,289,782	125.0%
Commercial & Industrial	113,002,446	111.6%	113,002,446	$ 1,473,993	111.6%
Total	**222,822,045**		**221,397,840**	**$ 3,184,585**	**117.6%**

Demand Incentive Rate:	**1.50%**						
Sector	(1) **Approved Spending Budget**	(2) **Target Incentive**	(3) **Annual kW Savings Goal**	(3a) **Actual Spending**	(3b) **% of Approved Spending**	(3c) **Budget adjusted target kW savings**	(4) **Threshold kW Savings**
Low Income Residential	$10,120,298	$151,804	599	$ 9,388,189	92.8%	556	417
Non -Low Income Residential	$29,480,742	$442,211	11,865	$ 27,821,789	94.4%	11,197	8,398
Commercial & Industrial	$37,745,993	$566,190	17,252	$ 40,229,872	106.6%	17,252	12,939
Total	**$77,347,033**	**$1,160,205**	**29,715**	**$ 77,439,850**		**29,004**	**21,753**

Sector	(5) **Actual kW**	(6) **% of Target Savings**	(7) **Savings Eligible for Incentive**	(8) **Total Earned Incentive**	(9) **% of Target Incentive Achieved**
Low Income Residential	816	146.8%	694	$ 189,756	125.0%
Non-Low Income Residential	14,047	125.5%	13,996	$ 552,764	125.0%
Commercial & Industrial	18,472	107.1%	18,472	$ 606,256	107.1%
Total	**33,335**	**114.9%**	**33,163**	**$ 1,348,775**	**116.3%**

Notes

(1) Budget from 2015 EEPP. Includes Implementation and Evaluation Expenses; excludes EERMC Costs, Commitments and Copays and Outside Finance Costs.

(2) Equal to the incentive rate (3.5% for Energy, 1.5% for Demand) x Column (1)

(3) Approved savings goal from 2015 EEPP

(3a) Actual spending includes actual Implementation Expenses from Table E-1 (including evaluation expenses). It excludes EERMC costs and Outside Finance Costs.

(3b) Column (3a)/ Column (1)

(3c) Column (3) * (3b), only if 100% of Target Savings were achieved in Column (3)

(4) 75% of Target kWh Savings

(5) Year End Savings from Table E-1

(6) Column (6)/ Column (3c)

(7) If Column (7) is less than 75%, Column (8) = 0,
If Column (7) is between 75% and 125%, Column (8) = Column 6;
If Column (7) is greater than 125%, Column (8) = 125% of Column (3c) due to the incentive cap.

(8) The shareholder is calculated as follow, where SB is the Spending Budget in the sector:
From 75% of savings to 100% of savings: Shareholder Incentive = SB x (0.15 x % of savings achieved – 0.10)
x 0.7 for energy savings
x 0.3 of demand savings
From 100% of savings to 125% of savings: Shareholder Incentive = SB x (0.05 x % of savings achieved)

(9) Column (9) / Column (2)

National Grid: NECO

TABLE E-5
OVERALL ANALYSIS OF ENERGY EFFICIENCY FUND BALANCE

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	TOTAL
1. Start Of Period Balance	$3,697,820	$8,994,500	$15,112,784	$9,772,025	$9,879,117	$10,020,301	$3,697,820
2. Revenue	$6,513,618	$9,874,190	$5,957,479	$5,260,199	$5,589,866	$6,223,393	$39,418,746
3. Monthly EE Expenses	$1,229,354	$3,779,488	$11,324,548	$5,173,883	$5,469,720	$6,471,917	$33,448,909
4. Cash Flow Over/(Under)	$5,284,264	$6,094,703	($5,367,068)	$86,316	$120,147	($248,524)	$5,969,837
5. End Of Period Balance Before Interest	$8,982,084	$15,089,202	$9,745,716	$9,858,341	$9,999,263	$9,771,777	$9,667,657
6. Interest	$12,416	$23,582	$26,309	$20,775	$21,038	$20,947	$125,066
7. End Of Period Balance After Interest	$8,994,500	$15,112,784	$9,772,025	$9,879,117	$10,020,301	$9,792,723	$9,792,723

	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	YEAR END TOTAL
8. Start Of Period Balance	$9,792,723	$12,239,355	$14,755,358	$15,495,479	$14,006,109	$12,516,405	$3,697,820
9. Revenue	$7,562,641	$7,809,912	$6,546,135	$6,046,087	$5,867,054	$11,549,160	$84,799,735
10. Monthly EE Expenses	$5,139,302	$5,322,448	$5,837,996	$7,566,646	$7,384,798	$19,607,692	$84,307,792
11. Cash Flow Over/(Under)	$2,423,339	$2,487,464	$708,139	($1,520,559)	($1,517,744)	($8,058,533)	$491,943
12. End Of Period Balance Before Interest	$12,216,062	$14,726,819	$15,463,497	$13,974,920	$12,488,365	$4,457,872	$4,189,763
13. Interest	$23,293	$28,539	$31,982	$31,190	$28,040	$17,964	$286,074
14. End Of Period Balance After Interest	$12,239,355	$14,755,358	$15,495,479	$14,006,109	$12,516,405	$4,475,837	**$4,475,837**
15. 2015 Incentive							**$4,533,360**
16. Ending Balance after Incentive							**($57,523)**
17. Transfer to Revolving Loan Fund							**$0**
18. Ending Balance after Transfer							**($57,523)**

1. Previous year's ending balance. The amount is lower than what was filed on May 1, 2015 in the 2014 Energy Efficiency Year-End Report, RIPUC Docket No. 4451. A change was made to align the ISO-NE revenues in the fund balance to the date when ISO-NE remittance billing information is available.

2. Business Objects queries for revenues
3. SAP queries for expenses
4. Line 2 minus Line 3
5. Line 1 plus Line 4
6. Interest applied
7. Line 5 plus Line 6
8. Previous month's ending balance
9. Business Objects queries for revenues
10. SAP queries for expenses
11. Line 9 minus Line 10
12. Line 8 plus Line 11
13. Interest applied
14. Line 12 plus Line 13
15. Estimated 2015 Incentive plus prior period true-ups

NATIONAL GRID ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table E-6: National Grid 2015 Revolving Loan Funds

Large C&I Revolving Loan Fund

(1)	Projected 2015 Funds Available	$9,057,728
(2)	Actual 2015 Funds Available	$10,898,519
(3)	2015 Loan Budget	$6,500,000
(4)	Paid	$4,930,123
(5)	Repayments	$4,392,503
(6)	Number of loans	91
(7)	Participants	86
(8)	Savings (MWh)	12,627
(9)	Available Year-End 2015	$10,360,900

Small Business Revolving Loan Fund

(1)	Projected 2015 Funds Available	$1,702,050
(2)	Actual 2015 Funds Available	$2,783,053
(3)	2015 Loan Budget	$1,455,000
(4)	Paid	$1,726,032
(5)	Repayments	$2,640,159
(7)	Participants	1,049
(8)	Savings (MWh)	15,876
(9)	Available Year-End 2015	$3,697,180

Rhode Island Public Energy Partnership (RI PEP)

(10)	2014/2015 Loan Budget	$1,000,000
(11)	Paid	$991,977
(12)	Repayments	$124,613
(13)	Participants	12
(14)	Savings (MWh)	1,722
(15)	Available Year End 2015	$132,636

Notes

1 Amount Company estimated in 2015 Plan, Table E-10

2 Amount of 2015 Fund Balance start balance, LC&I includes $4,000,000 fund injection.

3 Budget adopeted by Sales Team for 2015 operations.

4 Loans inititiated by Decement 31, 2015 with savings counted in 2015.

5 Repayments received by December 31, 2015

6 Number of loans made.

7 Unique customer names for large business and unique accounts small business.

8 Savings in conjunction with the projects incentive and loan.

9 Does not include projected repayments or fund injections to be made in 2016.

10 RI PEP funding over two years. Does not include $800,000 from October 2015 RGGI allocation that will be included in 2016 fund balance or projected repayments or fund injections to be made in 2016.

11 Loans initiated by Decement 31, 2015

12 Repayments received by December 31, 2015

13 Participants are unique customers

14 Savings in conjunction with the projects and loans.

15 Available funds as of December 31, 2015. Does not include projected repayments or fund injections to be made in 2016.

NATIONAL GRID ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table E-7: 2015 Heat Loans

(1)	Number of loans	1,008
(2)	Loan amount	$6,008,516
(3)	Measures	
	Pre-Weatherization	11
	Weatherization	673
	Heatsystems	552
	DHW	51
(4)	Percentage of weatherization in loans	66%

Notes

1 Equals the number of participants. As of December 31, 2015

2 Total amount of loans dispersed in 2015.

3 Measures financed through loans.

4 Percentage of Heat Loan recipients that went through with weatherization after audit.

Attachment 2
Gas Year-End Results

Attachment 2

Gas Summary Tables of Year End Results

NATIONAL GRID ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table G-1: Summary of 2015 Target and Year End Results

Sector and Program	(1) Energy Savings (MMBtu)	(2)	(3)	(4) Customer Participation	(5)	(6)	(7) Implementation Expenses ($ 000)	(8)	(9)	(10)	(11)
Commercial & Industrial	**Approved Target**	**Actual**	**Pct Achieved**	**Approved Target**	**Actual**	**Pct Achieved**	**Approved Budget**	**Actual**	**Pct Achieved**	**Lifetime MMBtu**	**$/Lifetime MMBtu**
Large Commercial New Construction	41,802	36,459	87.2%	227	96	42.5%	$ 1,517.8	$ 1,843.7	121.5%	766,520	$ 2.41
Large Commercial Retrofit	125,711	136,547	108.6%	600	610	101.6%	$ 4,208.4	$ 3,227.0	76.7%	1,067,712	$ 3.02
Small Business Direct Install	3,489	4,758	136.4%	83	120	144.0%	$ 318.9	$ 203.4	63.8%	46,468	$ 4.38
Commercial & Industrial Multifamily	9,396	12,878	137.1%	1,968	2,345	119.2%	$ 692.2	$ 705.4	101.9%	177,807	$ 3.97
Comprehensive Marketing - Commercial and Industrial							$ 102.3	$ 36.0	35.2%		
Commercial and Industrial Pilots							$ 73.5	$ 9.4	12.8%		
Community Based Initiatives - C&I							$ 10.0	$ 5.4	53.8%		
Finance Costs							$ 500.0	N/A	N/A		
SUBTOTAL	**180,397**	**190,642**	**105.7%**	**2,878**	**3,172**	**110.2%**	**$ 7,423.1**	**$ 6,030.3**	**81.2%**	**2,058,506**	**$ 2.93**
Income Eligible Residential											
Single Family - Income Eligible Services	8,780	10,990	125.2%	400	529	132.3%	$ 3,303.5	$ 2,682.7	81.2%	219,800	$ 12.21
Income Eligible Multifamily	19,098	21,061	110.3%	2,900	3,956	136.4%	$ 1,721.5	$ 1,756.7	102.0%	329,483	$ 5.33
SUBTOTAL	**27,878**	**32,051**	**115.0%**	**3,300**	**4,485**	**135.9%**	**$ 5,025.1**	**$ 4,439.4**	**88.3%**	**549,283**	**$ 8.08**
Non-Income Eligible Residential											
Energy Star® HVAC	29,081	31,023	106.7%	1,327	1,643	123.8%	$ 1,490.2	$ 1,524.8	102.3%	529,683	$ 2.88
Energy*Wise*	68,141	67,891	99.6%	2,400	2,830	117.9%	$ 6,285.2	$ 4,877.6	77.6%	1,501,310	$ 3.25
EnergyWise Multifamily	15,863	18,558	117.0%	2,500	3,147	125.9%	$ 1,657.8	$ 1,694.2	102.2%	319,204	$ 5.31
Home Energy Reports	50,806	66,882	131.6%	142,220	130,455	91.7%	$ 470.5	$ 455.5	96.8%	66,882	$ 6.81
Residential New Construction	4,796	12,732	265.5%	386	366	94.8%	$ 328.7	$ 450.8	137.2%	224,301	$ 2.01
Comprehensive Marketing - Residential							$ 90.5	$ 88.5	97.7%		
Community Based Initiatives - Residential							$ 32.3	$ 28.0	86.7%		
Residential Products Pilot							$ 93.4	$ 55.2	59.0%		
SUBTOTAL	**168,687**	**197,086**	**116.8%**	**148,833**	**138,441**	**93.0%**	**$ 10,448.6**	**$ 9,174.5**	**87.8%**	**2,641,380**	**$ 3.47**
Regulatory											
EERMC							$ 318.8	$ 309.7	97.2%		
OER							$ 212.5	$ 175.6	82.6%		
SUBTOTAL							**$ 531.3**	**$ 485.3**	**91.4%**		
TOTAL	**376,963**	**419,778**	**111.4%**	**155,012**	**146,098**	**94.2%**	**$ 23,428.0**	**$ 20,129.5**	**85.9%**	**5,249,170**	**$ 3.83**

NOTES

(1) Approved Target from 2015 EEPP Attachment 6, Table G-6.

(3) Pct Achieved is Column (2)/ Column (1).

(4) Approved Target from 2015 EEPP, Attachment 6, Table G-7. Participation was planned and is reported in 'net' terms which takes into account free-ridership and spillover.

(6) Pct Achieved is Column (5)/ Column (4).

(7) Approved Budget from 2015 EEPP, Attachment 6, Table G-5. adjusted to reflect "Docket 4527 - The Narragansett Electric Company, d/b/a National Grid 2015 Energy Efficiency Program Plan Transfer of Funds Notice" sent to the Division and the EERMC in October 2015.

(8) $500,000 in finance funds were transferred as authorized to the C&I Gas Revolving Loan Fund. Please see Table G-5.

(9) Pct Achieved is Column (8)/ Column (7).

(11) $/ Lifetime MMBtu is Column (8)/ Column (10)

NATIONAL GRID NATURAL GAS ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table G-2: Summary of Value and MMBTU Saved by Program
2015 Program Year

	Value ($000)			MMBTU Gas Saved	
	(1) **Total Value**	(2) **Natural Gas Benefits**	(3) **Non-Gas Benefits**	(4) **Annual**	(5) **Lifetime**
Commercial & Industrial					
Large Commercial New Construction	$7,669	$7,656	$13	36,459	766,520
Large Commercial Retrofit	$10,543	$10,342	$202	136,547	1,067,712
Commercial & Industrial Multifamily	$2,274	$1,848	$2,586	12,878	177,807
Small Business Direct Install	$638	$426	$212	4,758	46,468
SUBTOTAL	**$21,124**	**$20,271**	**$3,012**	**190,642**	**2,058,506**
Income Eligible Residential					
Single Family - Income Eligible Services	$4,277	$2,376	$1,901	10,990	219,800
Income Eligible Multifamily	$9,282	$3,484	$5,798	21,061	329,483
SUBTOTAL	**$13,559**	**$5,861**	**$7,699**	**32,051**	**549,283**
Non-Income Eligible Residential					
Energy Star® HVAC	$9,812	$5,603	$4,209	31,023	529,683
Energy*Wise*	$19,396	$16,495	$2,902	67,891	1,501,310
EnergyWise Multifamily	$8,147	$3,416	$4,731	18,558	319,204
Home Energy Reports	$704	$704	$0	66,882	66,882
Residential New Construction	$2,652	$2,413	$239	12,732	224,301
SUBTOTAL	**$40,711**	**$28,630**	**$12,081**	**197,086**	**2,641,380**
TOTAL	**$75,395**	**$54,762**	**$22,792**	**419,778**	**5,249,170**

Notes:

(1) Total Benefits equal Natural Gas Benefits plus Non-Gas Benefits.

(3) Non-Gas Benefits include electric benefits and non-resource benefits

NATIONAL GRID NATURAL GAS ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table G-3: Summary of B/C Ratios, Value and Costs ($000's)
2015 Program Year

	(1)	(2)	(3)	(4)	(5)
Commercial & Industrial	**Benefit/ Cost**	**Total Value**	**Program Implementation Expenses**	**Customer Contribution**	**Shareholder Incentive**
Large Commercial New Construction	2.63	$7,669.1	$1,843.7	$1,073.9	
Large Commercial Retrofit	1.86	$10,543.3	$3,227.0	$2,431.8	
Small Business Direct Install	2.63	$637.6	$203.4	$39.2	
Commercial & Industrial Multifamily	2.83	$2,274.1	$705.4	$97.3	
Comprehensive Marketing - Commercial and Industrial			$36.0		
Commercial and Industral Pilots			$9.4		
Community Based Initiatives - C&I			$5.4		
Finance Costs			N/A		
SUBTOTAL	**2.09**	**$21,124.1**	**$6,030.3**	**$3,642.2**	**$420.0**
Income Eligible Residential					
Single Family - Income Eligible Services	1.59	$4,277.0	$2,682.7	$0.0	
Income Eligible Multifamily	5.28	$9,282.3	$1,756.7	$0.0	
SUBTOTAL	**2.85**	**$13,559.3**	**$4,439.4**	**$0.0**	**$314.1**
Non-Income Eligible Residential					
Energy Star® HVAC	3.18	$9,812.0	$1,524.8	$1,556.6	
EnergyWise	2.79	$19,396.4	$4,877.6	$2,073.3	
EnergyWise Multifamily	4.41	$8,147.0	$1,694.2	$152.0	
Home Energy Reports	1.55	$703.9	$455.5	$0.0	
Residential New Construction	5.65	$2,651.9	$450.8	$19.0	
Residential Products Pilot			$55.2		
Community Based Initiatives - Residential			$28.0		
Comprehensive Marketing - Residential			$88.5		
SUBTOTAL	**2.99**	**$40,711.2**	**$9,174.5**	**$3,800.9**	**$653.0**
Regulatory					
EERMC			$309.7		
OER			$175.6		
SUBTOTAL			**$485.3**		
TOTAL	**2.60**	**$75,394.6**	**$20,129.5**	**$7,443.1**	**$1,387.1**

Notes:

1) RI Total Resource Cost test Benefit/Cost Ratio = Total Value/(Program Implementation Expenses + Customer Contribution + Shareholder Incentives).

(2) Year-End Value Total from Table G-2.

(3) Year-End Implementation Expenses by Program from Table G-1. $500,000 in finance funds were transferred as authorized to the C&I Gas Revolving Loan Fund. Please see Table G-5.

(5) Shareholder incentives from Table G-4.

NATIONAL GRID NATURAL GAS ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table G-4: National Grid 2015 EE Incentive Calculation

Incentive Rate: 5.00%

Sector	(1) Approved Spending Budget	(2) Target Incentive	(3) Annual Savings Goal (MMBTU)	(3a) Actual Spending	(3b) % of Approved Spending	(3c) Budget Adjusted target MMBtu Savings	(4) Threshold MMBtu Savings
Income Eligible Residential	$ 5,025,067	$ 251,253	27,878	$ 4,439,359	88.3%	24,629	18,472
Non-Income Eligible Residential	$ 10,448,576	$ 522,429	168,687	$ 9,174,494	87.8%	148,118	111,088
Commercial & Industrial	$ 6,923,131	$ 346,157	180,397	$ 6,030,305	87.1%	157,133	117,850
Total	**$ 22,396,774**	**$ 1,119,839**	**376,963**	**$ 19,644,158**	**87.7%**	**329,880**	**247,410**

Sector	(5) Actual MMBtu	(6) % of Target Savings	(7) Savings Eligible for Incentive	(8) Earned Savings Incentive	(9) % of Target Incentive Achieved
Income Eligible Residential	32,051	130.1%	30,786	$314,067	125.0%
Non-Income Eligible Residential	197,086	133.1%	185,147	$653,036	125.0%
Commercial & Industrial	190,642	121.3%	190,642	$419,976	121.3%
Total	**419,778**	**127.3%**	**406,576**	**$1,387,079**	**123.9%**

Notes:

(1) Budget from 2015 EEPP. Includes Implementation Expenses. Excludes EERMC, OER, Finance Costs and Shareholder Incentive.
(2) Equal to the incentive rate (5.0%) x Column (1).
(3) Approved savings goal from 2015 EEPP
(3a) Actual spending includes actual Implementation Expenses Table G-1. Excludes Finance Costs.
(3b) Column (3a)/ Column (1)
(3c) Column (3) * (3b), only if 100% of Target Savings were achieved in Column (3)
(4) 75% of Target MMBtu Savings
(5) Year End Savings from Table G-1
(6) Column (5)/ Column (3c)
(7) If Column (6) is less than 75%, Column (8) = 0,
If Column (6) is between 75% and 125%, Column (7) = Column 5;
If Column (6) is greater than 125%, Column (7) = 125% of Column (3c) due to the incentive cap.
(8) The shareholder incentive will be calculated as follow, where SB is the Spending Budget in the sector:
From 75% of savings to 100% of savings: Shareholder Incentive = SB x (0.15 x % of savings achieved – 0.10)
From 100% of savings to 125% of savings: Shareholder Incentive = SB x (0.05 x % of savings achieved)
(9) Column (9) / Column (2)

National Grid: RIG

TABLE G-5
OVERALL ANALYSIS OF ENERGY EFFICIENCY FUND BALANCE

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	TOTAL
1. Start Of Period Balance	($2,056,470)	$1,061,825	$5,027,303	$8,220,433	$10,650,440	$11,205,642	($2,056,470)
2. Revenue	$3,316,141	$5,297,791	$4,893,829	$3,552,079	$1,802,881	$1,088,563	$19,951,285
3. Monthly EE Expenses	$196,874	$1,338,269	$1,714,705	$1,142,022	$1,270,786	$980,602	$6,643,258
4. Cash Flow Over/(Under)	$3,119,267	$3,959,522	$3,179,124	$2,410,057	$532,095	$107,961	$13,308,027
5. End Of Period Balance Before Interest	$1,062,797	$5,021,347	$8,206,427	$10,630,490	$11,182,536	$11,313,603	$11,251,557
6. Interest	($973)	$5,956	$14,006	$19,951	$23,107	$23,833	$85,879
7. End Of Period Balance After Interest	$1,061,825	$5,027,303	$8,220,433	$10,650,440	$11,205,642	$11,337,436	$11,337,436

	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	YEAR END TOTAL
8. Start Of Period Balance	$11,337,436	$11,073,387	$10,365,997	$9,698,653	$9,011,776	$9,145,179	($2,056,470)
9. Revenue	$905,167	$852,474	$848,809	$978,769	$1,598,261	$2,693,624	$27,828,388
10. Monthly EE Expenses	$1,192,909	$1,582,530	$1,537,366	$1,685,426	$1,484,053	$6,003,940	$20,129,482
11. Cash Flow Over/(Under)	($287,742)	($730,056)	($688,557)	($706,658)	$114,208	($3,310,316)	$7,698,905
12. End Of Period Balance Before Interest	$11,049,694	$10,343,331	$9,677,440	$8,991,995	$9,125,983	$5,834,863	$5,642,436
13. Interest	$23,693	$22,666	$21,213	$19,781	$19,196	$15,854	$208,281
14. End Of Period Balance After Interest	$11,073,387	$10,365,997	$9,698,653	$9,011,776	$9,145,179	$5,850,717	**$5,850,717**
15. 2015 Incentive							**$1,387,079**
16. Ending Balance after Incentive							**$4,463,638**
17. Transfer to Revolving Loan Fund							**($500,000)**
18. Ending Balance after Transfer							**$3,963,638**

1. Previous year's ending balance. The amount is lower than what was filed on May 1, 2015 in the 2014 Energy Efficiency Year-End Report, RIPUC Docket No. 4451. A reconciliation to the accounting books occurred to true-up the amount of interest earned.
2. Business Objects queries for revenues
3. SAP queries for expenses
4. Line 2 minus Line 3
5. Line 1 plus Line 4
6. Interest applied
7. Line 5 plus Line 6
8. Previous month's ending balance
9. Business Objects queries for revenues
10. SAP queries for expenses
11. Line 9 minus Line 10
12. Line 8 plus Line 11
13. Interest applied
14. Line 12 plus Line 13
15. Estimated 2015 Incentive plus prior period true-ups

NATIONAL GRID ELECTRIC ENERGY EFFICIENCY PROGRAMS IN RHODE ISLAND
Table G-6: National Grid 2015 Revolving Loan Funds

Large C&I Gas Revolving Loan Fund

(1)	Projected 2015 Funds Available	$1,000,000
(2)	Actual 2015 Funds Available	$1,000,000
(3)	Paid	$123,646
(4)	Repayments	$6,378
(5)	Number of loans	3
(6)	Participants	3
(7)	Savings (MMBtu)	29,670
(8)	Available Year-End 2015	$882,732

Notes

1 Amount Company estimated in 2015 Plan, Table G-10

2 Amount of 2015 Fund Balance start blance, includes $500,000 fund injection

3 Loans paid by Decement 31, 2015

4 Repayments received by December 31, 2015

5 Number of loans made.

6 Unique customer names for large business.

7 Savings in conjunction with the projects incentive and loan.

8 Available funds as of December 31, 2015. Does not include projected repayments or fund injections to be made in 2016.

Attachment 3
Case Studies

Attachment 3

Case Studies

The Masters Family

A better home with energy upgrades

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Jane and Dean Masters moved into their 95-year-old Providence home 14 years ago and have been restoring it ever since. They knew the two-story Cape had little insulation, and their winter heating bills were high. "It's a small house, but some months we were spending $450 on oil," said Jane.

~~So~~ when the Masters decided to convert their home from oil to natural gas, they reached out to National Grid for help making their home more energy efficient. The first step was a no-cost home energy assessment. An Energy Specialist did a whole home inspection, provided them with instant energy saving measures including LED bulbs and advanced power strips, and recommended air sealing, insulation in their exterior walls and attic, and a high efficiency heating system.

With the help of contractors and National Grid, the Masters made all the improvements. "Everyone was really efficient, very professional, and clearly experienced. They guided us through the process very well," said Jane. Incentives from National Grid covered more than half the cost of weatherization, and a 0% interest HEAT Loan made the remaining cost of heating upgrades and weatherization more manageable.

"In the winter, we used to wear extra layers, plus we used an electric blanket and heated mattress pad at night. We kept the house at 58° to save on heating. Now, we're so much more comfortable and energy costs us much less." In fact, the Masters are saving $480 a year from weatherization work alone.

"Now, we're so much more comfortable and energy costs us much less."

There are benefits the Masters never expected, too. "We hear less noise from the street thanks to the insulation. Plus, our home has increased in value, and we feel like it's a better investment. We love our house now," shared Jane.

"To anyone who's considering having a home energy assessment, do it. Your house will be more comfortable, saving energy can save you money and it's good for the environment, and there are people here to help you."

To sign up for a no-cost energy assessment and learn more about our financing options and savings opportunities, visit **ngrid.com/ri-home** or call **888-633-7947.**

Home

Two-story Cape built in 1919

Efficiency Measures

- Air sealing
- Exterior wall and attic insulation
- Two heating systems
- LEDs and advanced power strips

Project Cost

$3,952 for weatherization
$2,321 covered by National Grid incentives

0% HEAT Loan for remaining weatherization and heating system costs ($20,398)
$242.83 a month

Estimated Weatherization Savings

$480 per year

Estimated Heating Savings

$310 per year

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CASE STUDY - MULTIFAMILY ENERGY EFFICIENCY

Results to write home about.

Wethersfield Commons residents invested in energy efficiency for increased energy savings and condo comfort.

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It's said there's always room for improvement – and even the residents of a luxurious condo development can agree.

In this case, improvement came in the form of specific energy efficiency upgrades. Find out how Wethersfield Commons residents decreased their energy bills while enhancing their homes.

A quick tour of Wethersfield Commons

Set on 65 lush, green acres in Warwick, Rhode Island, the Wethersfield Commons condominium development has 493 units within 101 buildings that are now over 40 years old. More than 700 residents call Wethersfield Commons home. From tennis courts to a swimming pool to an on-site library, residents enjoy a variety of amenities. There are electric-only and electric and gas units available.

Turning their attention to energy efficiency, again

About eight years before these 2015 upgrades began, residents had the opportunity to participate in an energy efficiency program established by National Grid in partnership with their lead vendor, RISE Engineering. Those residents who participated and invested in energy efficiency upgrades saw impressive results. Residents who didn't participate wished they had. Those results and a harsh 2014 winter (leading to some buildings sustaining damage from ice damming) prompted residents to once again ask for the property-wide energy efficiency program – and management listened. In fact, Wethersfield Commons not only organized the program with National Grid and RISE Engineering, but also promoted it heavily to all residents.

The perfect process

In collaboration with National Grid, RISE contractors completed the upgrades for participating residents, which included adding attic insulation and sealing air leaks throughout their units. National Grid provided sizable incentives to drastically reduce out-of-pocket costs for residents. The program covered **75 percent of the cost of insulation, up to $2,000 per unit. The air sealing was done at no cost.** In addition, numerous complimentary energy-saving measures were installed. Contractors switched out old bulbs for LEDs and installed programmable thermostats, smart power strips, low-flow showerheads and faucet aerators. **Upgrades were made to more than 150 units.**

> ***"For residents, it was a minimal investment for maximum benefits."***
>
> **– Gina Vigliotti, Wethersfield Commons Property Manager**

Win-win results

After completing various energy-saving projects, residents and the Wethersfield Commons Condo Association both benefited. Residents saved money on energy costs and realized several non-energy benefits. The association was able to keep certain condo fees down, as well as help owners looking to sell their condos, as increased energy efficiency is appealing to buyers.

"Every day at National Grid, we work with stakeholders to implement sustainable energy solutions. This project with Wethersfield Commons is a shining example." - Elizabeth Terry, Program Manager, National Grid

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The upgrades completed by National Grid and RISE Engineering produced significant energy savings:

Total Project Cost	**$314,059**
National Grid Incentive	**$292,155**
Total Contribution by All Participating Residents	**$21,904**
Energy Savings	**299,846 kWh 9,959 therms**

On top of lower utility bills, residents also enjoy these three upgrade benefits:

1. Greater home comfort

- **Achieved by:** Air sealing, attic insulation (for units with gas or electric), programmable thermostats and LED lighting.
- **How:** Sealing air leaks keeps the cold air out in the winter and the hot air out in the summer, making homes more comfortable. The same can be said for attic insulation. Insulation is also proven to prevent ice damming. Programmable thermostats enable residents to easily control the temperature of their condo based on their schedule and preferences. LED bulbs provide bright, natural, instant-on light. Switching to LEDs can make activities like reading easier for the eyes.

2. Increased convenience

- **Achieved by:** Programmable thermostats and smart power strips.
- **How:** Both of these devices give residents more control. Programmable thermostats enable control through preset temperature settings, automatically adjusting the temperature to meet the residents' needs.

  Using smart power strips is a simple way to curb your devices' electricity consumption. Many people either forget to or don't turn off their electronics when they're not in use. Even if they are turned off, they can continue to draw power. Smart power strips conserve power when devices are idle – with no effort from the homeowner.

3. Improved safety

- **Achieved by:** 200 lamppost light bulbs replaced with LEDs and in-unit light bulbs changed to LEDs
- **How:** LEDs' bright, directional light make them an ideal choice for outdoor lighting. Not only does the brighter light make some residents feel safer, but it can actually deter criminals from taking action. LEDs are also cool to the touch. Traditional incandescent bulbs become quite hot, which can cause burns and increase the risk of fire.

"Every time we've gone to Wethersfield Commons, we've had good success." - Matt Piccerelli, Coordinator Multifamily Services, RISE Engineering

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Thanks to the program's popularity and success, this won't be the last opportunity to take advantage of these energy efficiency upgrades.

Wethersfield Commons, National Grid and RISE Engineering plan to offer this program to residents again in the future.

"The people who didn't participate keep calling the office asking when the program will be available again." – Gina Vigliotti

Your multifamily buildings – and tenants – could experience these same energy efficiency benefits.

National Grid is ready to help you get started. We have the financial incentives and technical support you need to successfully complete your upgrades. Please call the phone number below and ask for the Multifamily Coordinator.

Connect with us today: 800-594-7277 energysavings@ngrid.com ngrid.com/business

Attachment 4
2015 Year-End Memo.

Attachment 4

2015 Year End Participation Memo

2015 Year-End Participation Memo

I. Participation Overview

National Grid recognizes the importance of program participation in designing efficiency services, reaching diverse markets, meeting customer demand, and finding all efficiency opportunities. Complementary to the gas and electric savings that the Company seeks to achieve each year, participation contextualizes the impact of efficiency. It reveals who is benefiting from the programs and how.

The range of programs, however, complicates the question of what is a participant. At the simplest level, participation measures customer-company interactions in energy efficiency in units that correspond to program design. A breakdown of participation units used for reporting gas and electric programs in 2015 is found below. The participation numbers found in Tables E-1 and G-1 in Attachments 5 and 6, respectively, of Docket 4527 - National Grid Electric and Gas Energy Efficiency Programs, filed with the Commission on November 1, 2014, are in these units.

Participation Reporting Units

Fuel	Sector	Program	Participation Unit
Gas	Commercial & Industrial	Large Commercial New Construction	Unique Account
		Large Commercial Retrofit	Unique Account
		Small Business Direct Install	Unique Account
		C&I Multifamily	Housing Units
	Income Eligible Residential	Single Family – Income Eligible Services	Unique Account
		Income Eligible Multifamily	Housing Units
	Residential	Energy Star® HVAC	Unique Account
		EnergyWise	Unique Account
		EnergyWise Multifamily	Housing Units
		Home Energy Reports	Unique Account
		Residential New Construction	Housing Units
Electric	Commercial & Industrial	Large Commercial New Construction	Unique Account + Unique Customer names from Upstream Lighting
		Large Commercial Retrofit	Unique Account
		Small Business Direct Install	Unique Account
	Income Eligible Residential	Single Family – Income Eligible Services	Unique Account
		Income Eligible Multifamily	Housing Units
	Residential	Energy Star® HVAC	Unique Account
		EnergyWise	Unique Account

		EnergyWise Multifamily	Housing Units
		Home Energy Reports	Unique Account
		Residential New Construction	Housing Units
		ENERGY STAR® Lighting	Estimated Housing Units
		ENERGY STAR® Products	Number of Rebates

As the table shows, participation is counted in different ways depending on the program.

1. Unique billing accounts: The predominate means for tracking participants. This is defined as one electric or gas account number.

2. Housing units: This method is used in the electric and gas Residential New Construction program and multifamily programs. For New Construction programs, buildings are typically under construction, so accounts do not yet exist. National Grid, therefore, tracks the number of housing units for participation. This method is also applied to all multifamily programs, where complexes and not individual apartments tend to have accounts. These programs are focused on the impact to the apartment dwellers, so from a program design perspective, understanding the number of housing units affected, is of greater interest. Please note that for the gas programs only gas-heated units are counted as participants. In the case that an electric or delivered-fuel-heated dwelling is part of the impacted complex, it would not be counted as a participant.

3. Rebates: In the ENERGY STAR® Products program, the Company reports the number of rebates processed because not every rebate contains account information.

4. Estimated bulbs per home: Within the ENERGY STAR® Lighting program, retailers do not disclose information identifying their customers, thereby precluding the connection of bulb purchases to utility accounts. The number of bulbs, therefore, is translated into an estimate of housing units based on purchasing pattern research.

5. Unique customer names: This method is used in the C&I Upstream Lighting Initiative. Customer account information is not attached to Upstream Lighting sales data. Therefore, the Company must analyze unique customer names and addresses to determine unique participants.

II. Unique Cumulative Participation

The Need

The integration of efficiency services, from the identification of HVAC opportunities during home audits to product offerings through the Home Energy Reports web portal, means that a single customer may be counted as a participant in multiple programs. Continued interest in efficiency, moreover, may lead that customer to participate in consecutive years. Such overlap in participation, both over time and across programs, has become important to National Grid and its stakeholders as it is important in

understanding the progress that energy efficiency programs have made in benefitting Rhode Island electric and gas customers.

Methodology

The tables and graphs below show the unique annual and cumulative customer accounts associated with certain efficiency programs, sector, and fuel for the period 2012-2015. The tables are organized using the following:

- Annual Program Counts
    - Represents the unique accounts associated with an individual program in a given year. It removes all double counting within a given program within a given year. For example, if a customer participated in the HVAC program twice in 2015, they would only be counted once.
    - Please note that some overlap exists within the home audit programs, but not because of repeat audits. Program policy requires customers wait three years before receiving another audit. However, follow-up work to an audit in 2013, such as weatherization, could occur in 2014. One account, therefore, would appear as a unique participant in two different years.
    - For the Company's 2012 and 2013 Year End Reports, the program participation counts did not remove this double counting. The program participation counts for 2012 and 2013 below, therefore, may differ from how they were reported in the 2012 and 2013 Year End Reports.

- Additive
    - The sum of Annual Program Counts.

- Cumulative
    - Eliminates all double counting within a program across multiple years. For example, if a customer participated in the HVAC program in 2013 and then again in 2015, they would only be counted once. Therefore, the cumulative count may be less than the additive count since it removes customers that participate in the same program more than once.

- Sector (Residential, Income Eligible, and Commercial) Subtotals
    - Eliminates all double counting across programs for a given year. For example, if a customer participated in the HVAC program and the EnergyWise program in 2015, they would only be counted once. Therefore, the sector subtotal may be less than the sum of all the annual program counts in a given year.

- Portfolio Total
    - Eliminates all double counting across sectors for a given year. For example, if a customer participated in the Income Eligible Single Family Program and also the Residential

Products program in 2015, they would only be counted once. Therefore the portfolio total may be less than the sum of all annual participant counts.

- Percent Unique Accounts:
    - This represents the ratio of cumulative to additive program participation counts. The result is the percentage of customers that only participated in a given program one time from 2012-2015.

- Percent Unique Participants:
    - This represents the ratio of the sector subtotal (unique counts) to the sum of annual participant counts in a given year. The result is the percentage of customers that only participated in one program during a given year.

- Portfolio Cumulative
    - The set of unique accounts across all programs and years, with all overlap removed. For example, if an account is found in EnergyWise for 2013 and Products for 2014, it would only appear once in the Portfolio Cumulative Count.

- Important Exclusions
    - The counts shown below do not include participants in Home Energy Reports, Residential Lighting, and Commercial Upstream Lighting (an initiative tracked under Commercial New Construction). While Home Energy Reports is an important program that reaches broad participation and savings while driving customers to other program opportunities, it was excluded because its hundreds of thousands of participants would overwhelm the cumulative counts, thereby obscuring any trends that could otherwise be observed. Neither Residential Lighting nor Upstream Lighting collects account information so neither could be included in this analysis. The electric and gas participants for these programs, however, are included in tables E-1 and G-1 in Attachments 1 and 2 respectively.
    - Not all rebates processed through the Residential Products Program contain account information. Therefore, rebates without account information are not included in this analysis. For this reason, annual program counts below are lower than the total number of customers that participated in this program. For example, in 2015, 18,912 rebates were processed through the program compared to 4,461 participants shown below. Likewise, the number of rebates in the Products program reported in E-1 will be higher than the number of accounts detailed below because not all rebates include account information.
    - In the year-end report, the Company counts EnergyWise Multifamily and EnergyWise Multifamily Income Eligible participation by units in treated buildings. When units are used, if 51% of the building is income-eligible, the whole building and all units within are counted as income eligible. However, since this analysis uses account numbers, and

account numbers track with a rate class, the results below will show a higher split of market rate to income eligible multifamily participants.

- 2012 was chosen as the baseline year because it represents the first year of 2012-2014 Three Year Plan.

Trends

The analysis below provides insight into participation trends across programs and years. Examining the Percentage of Unique Program Participants in a single year, it is evident that there is little overlap between programs. This trend is seen across all three sectors (C&I, Income Eligible, Residential). These results are not surprising in the Income-Eligible Sector where customers would either participate in the single family or multifamily program, nor are they in the C&I Sector where programs are more segmented. However, in the Residential Sector, customers are encouraged to participate in multiple programs in any given year. These results indicate there may be more the Company can do in terms of cross-program promotion to drive more participation in the same year. One approach the Company used in the past was to hold a cross-vendor meeting to encourage promoting all programs across vendor channels. This is an approach that the Company can bring back to encourage more cross-program participation. In addition, these results can be shared with the marketing team to further promote a collaborative approach.

Another trend can be found in the difference between the additive versus cumulative participation in a single program across multiple years, shown in the Percent Unique Accounts column. At the sector level, Electric C&I customers appear to participate in the same program, in multiple years. This trend is seen less in the Residential and Income Eligible Sectors and in C&I gas. While one can infer that these C&I customers see enough value in these programs to participate multiple times, it also may indicate that the Company is reaching a smaller portion of the total C&I customer pool. There are several reasons this could be occurring. In the C&I sector, many customers that haven't participated face barriers such as lack of financing and tenant/owner split incentives. In order to address this issue, the Company continues to grow its on-bill repayment fund to provide financing to more C&I customers. In addition, the introduction of Commercial PACE should drive new participants from sectors like commercial office buildings and nursing homes.

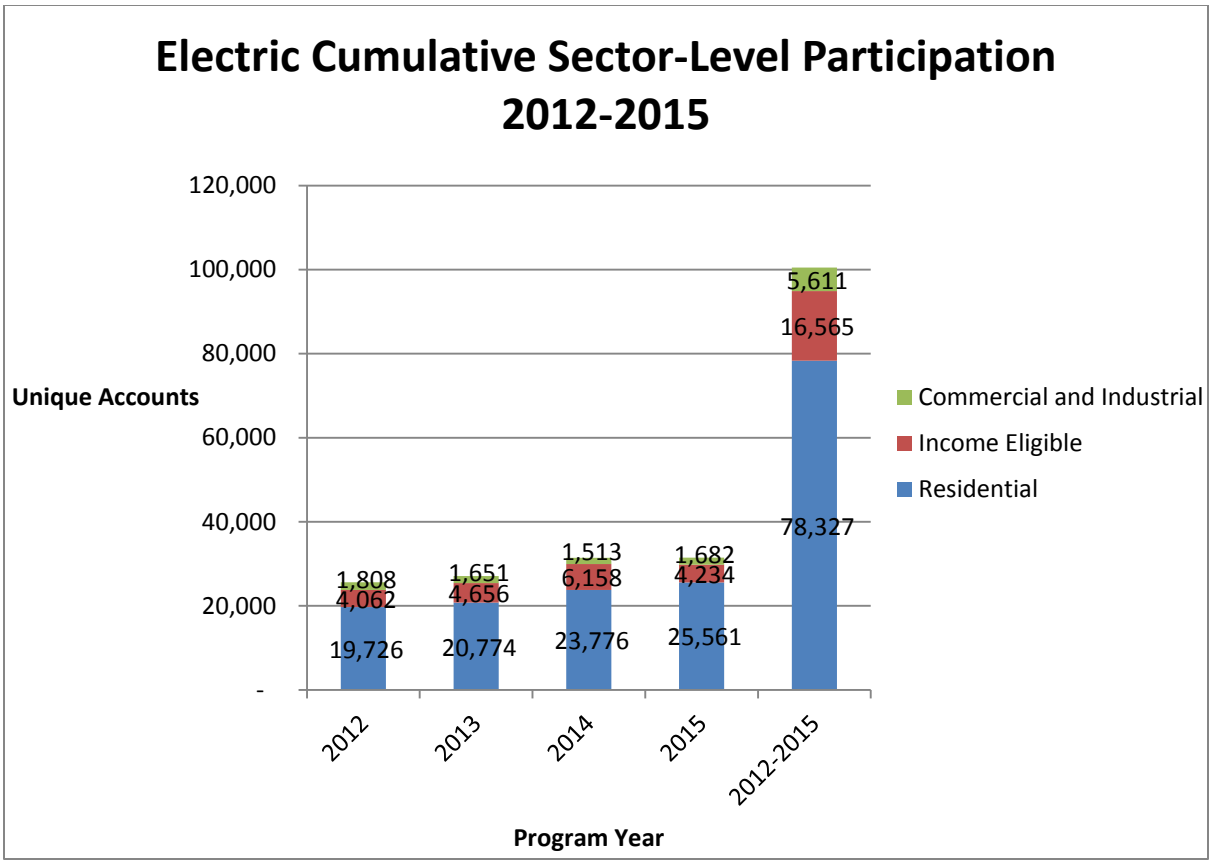
The Company also continues to work towards finding new and innovative ways to market programs and provide outreach to C&I customers that have not yet participated. This includes the market sector approach where marketing is directed and customized to an entire commercial sector such as grocery or hospitality sectors. The Company continues to move this type of marketing to more sectors. The Company also hopes to attract new C&I customers through the expansion of upstream delivery to more lighting products, gas water heaters, and HVAC products.

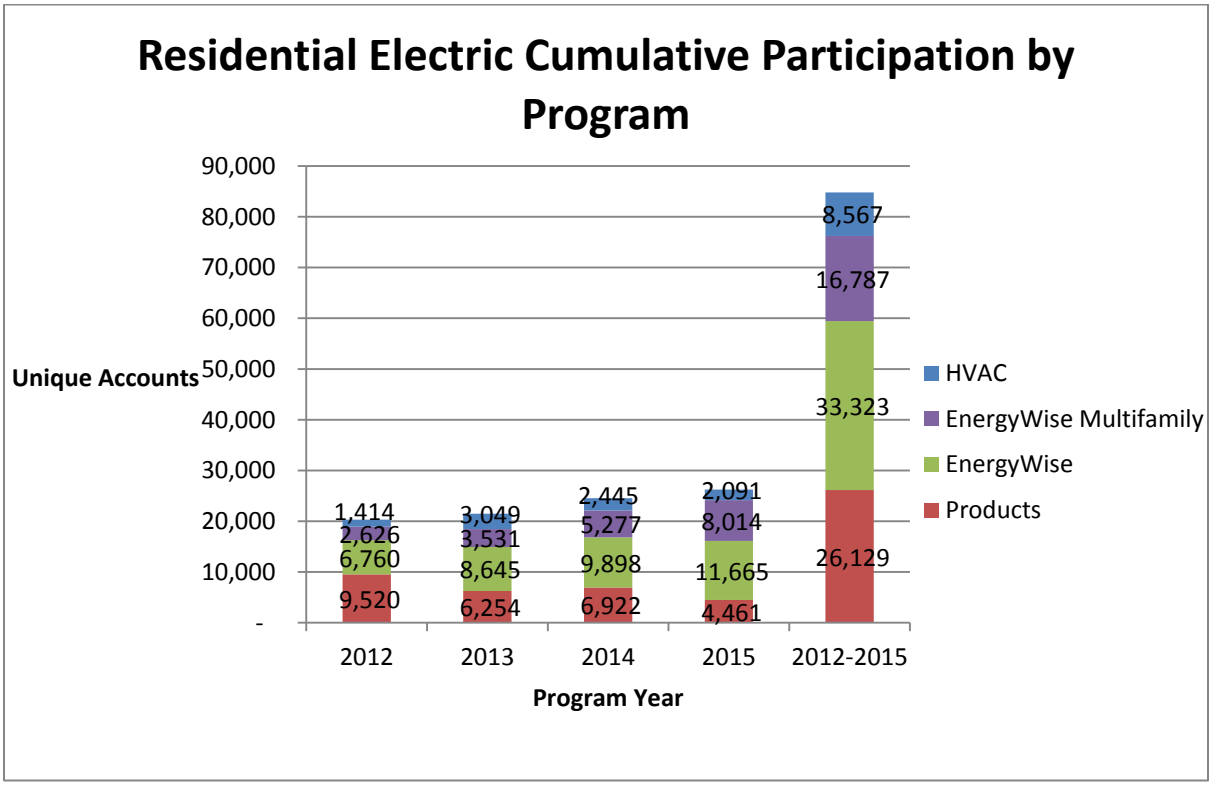
At the program level, multifamily trends are not likely representative due to the fact that the Company counts all units in a participating facility.

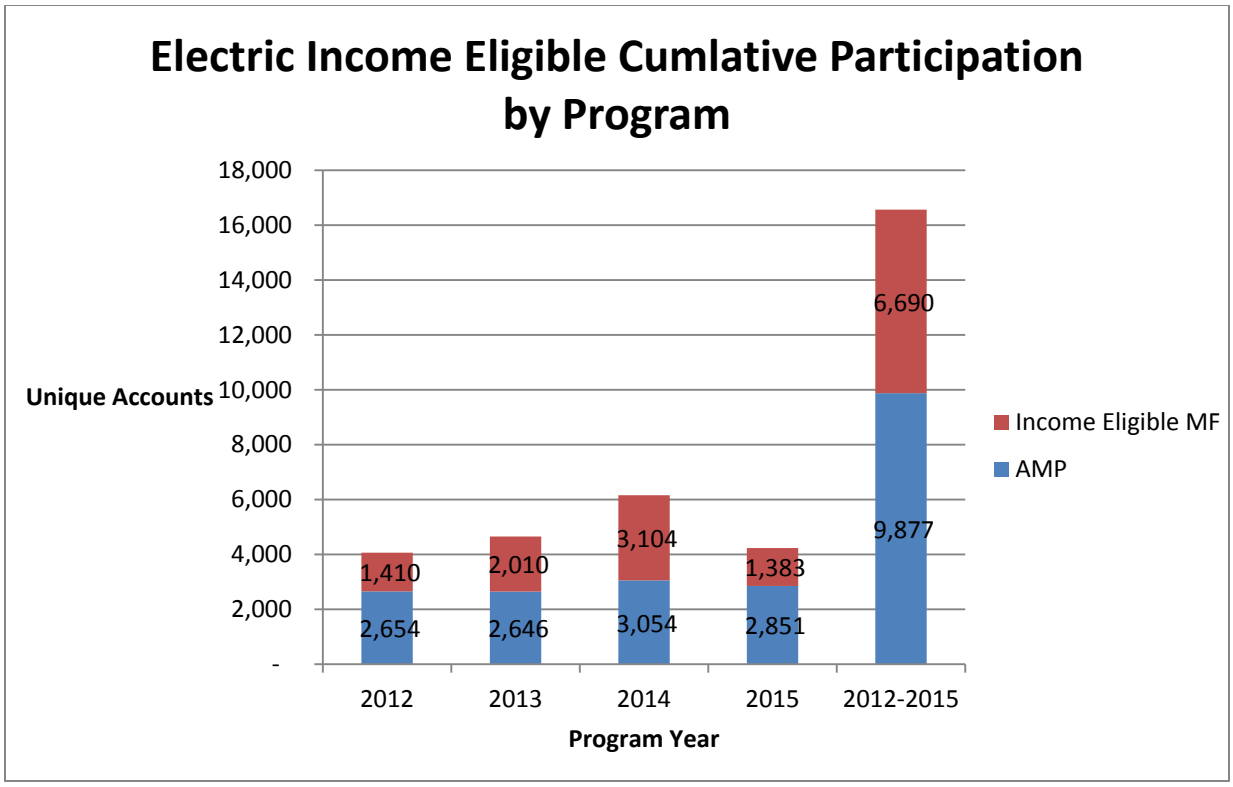
Electric Cumulative Participation 2012-2015

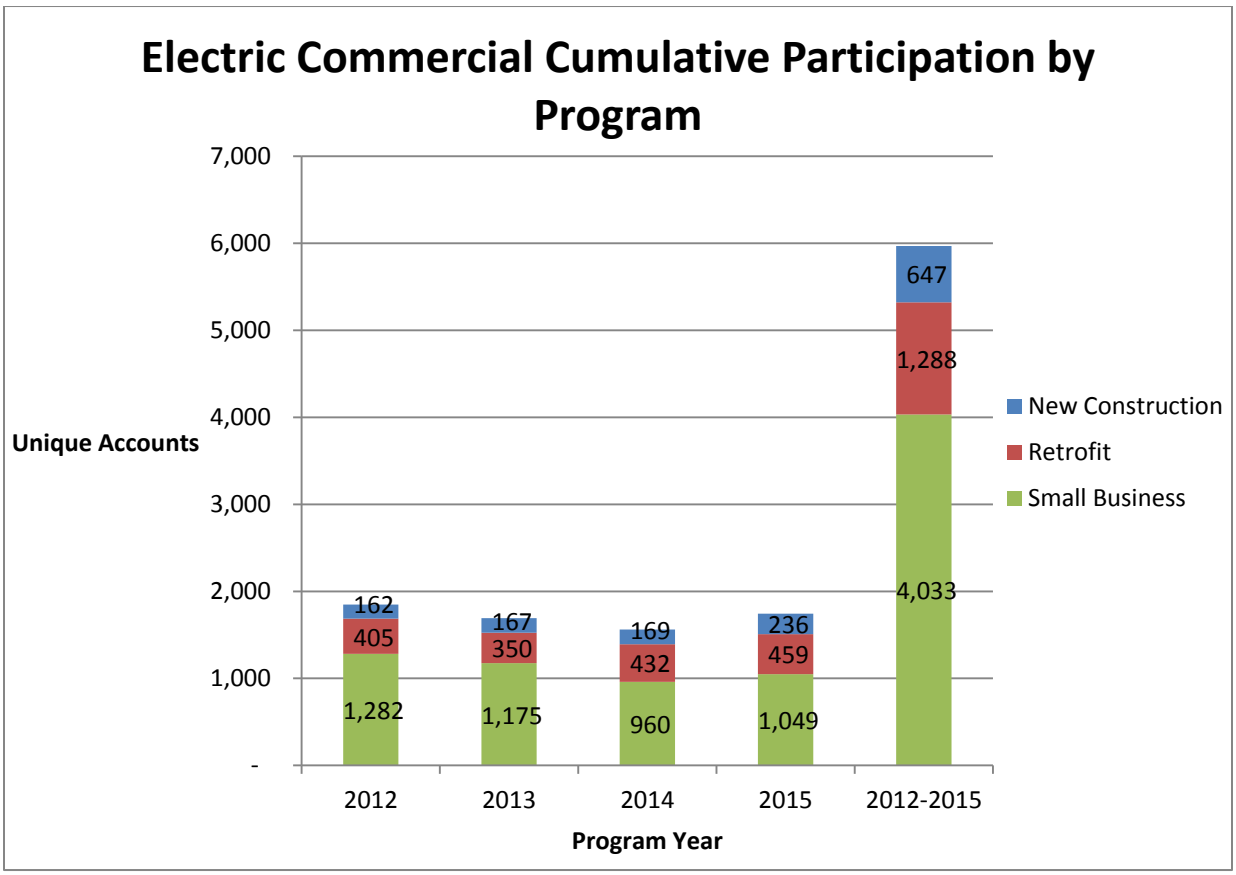
Participation by Accounts

		Annual Counts				Additive	Cumulative	% Unique Accounts
Sector	**Program**	**2012**	**2013**	**2014**	**2015**	**2012-2015**	**2012-2015**	
Residential	**HVAC**	1,414	3,049	2,445	2,091	8,999	8,567	95%
	Products	9,520	6,254	6,922	4,461	27,157	26,129	96%
	EW	6,760	8,645	9,898	11,665	36,968	33,323	90%
	EW MF	2,626	3,531	5,277	8,014	19,448	16,787	86%
	Residential Subtotal	19,726	20,774	23,776	25,561	89,837	78,327	87%
	% Unique Program Participants	97%	97%	97%	97%			
Income Eligible	**AMP**	2,654	2,646	3,054	2,851	11,205	9,877	88%
	IE MF	1,410	2,010	3,104	1,383	7,907	6,690	85%
	Income Eligible Subtotal	4,062	4,656	6,158	4,234	19,110	16,565	87%
	% Unique Program Participants	100%	100%	100%	100%			
Commercial	**New Construction**	162	167	169	236	734	647	88%
	Retrofit	405	350	432	459	1,646	1,288	78%
	SBS	1,282	1,175	960	1,049	4,466	4,033	90%
	Commercial Subtotal	1,808	1,651	1,513	1,682	6,654	5,611	84%
	% Unique Program Participants	98%	98%	97%	96%			
Portfolio Total		25,544	27,032	31,307	31,448	115,331	100,081	87%


Electric Cumulative Sector-Level Participation 2012-2015
120,000
100,000
80,000
60,000
40,000
20,000
-
Unique Accounts
1,808
4,062
19,726
1,651
4,656
20,774
1,513
6,158
23,776
1,682
4,234
25,561
5,611
16,565
78,327
2012
2013
2014
2015
2012-2015
Program Year
Commercial and Industrial
Income Eligible
Residential


Residential Electric Cumulative Participation by Program
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
Unique Accounts
1,414
2,626
6,760
9,520
3,049
3,531
8,645
6,254
2,445
5,277
9,898
6,922
2,091
8,014
11,665
4,461
8,567
16,787
33,323
26,129
2012
2013
2014
2015
2012-2015
Program Year
HVAC
EnergyWise Multifamily
EnergyWise
Products

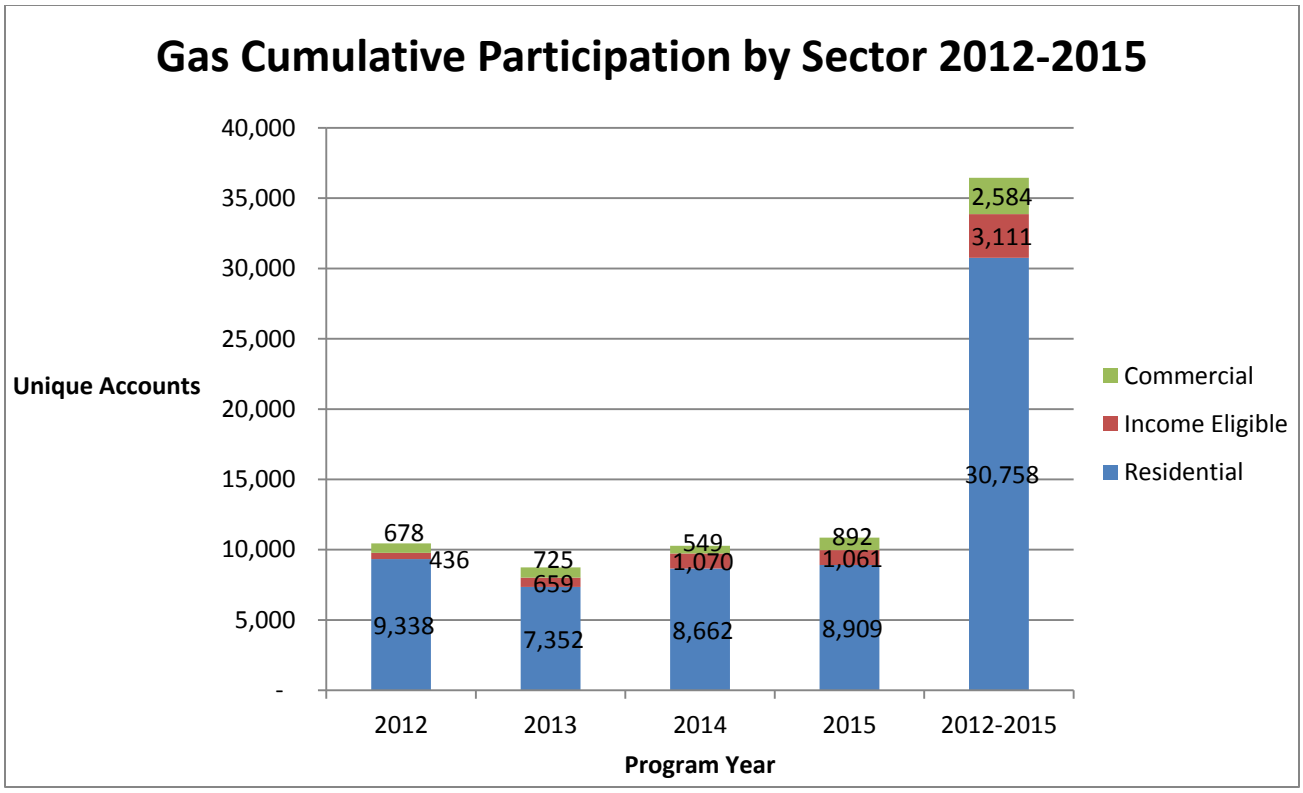

Electric Income Eligible Cumlative Participation by Program
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
Unique Accounts
1,410
2,654
2,010
2,646
3,104
3,054
1,383
2,851
6,690
9,877
2012
2013
2014
2015
2012-2015
Program Year
Income Eligible MF
AMP

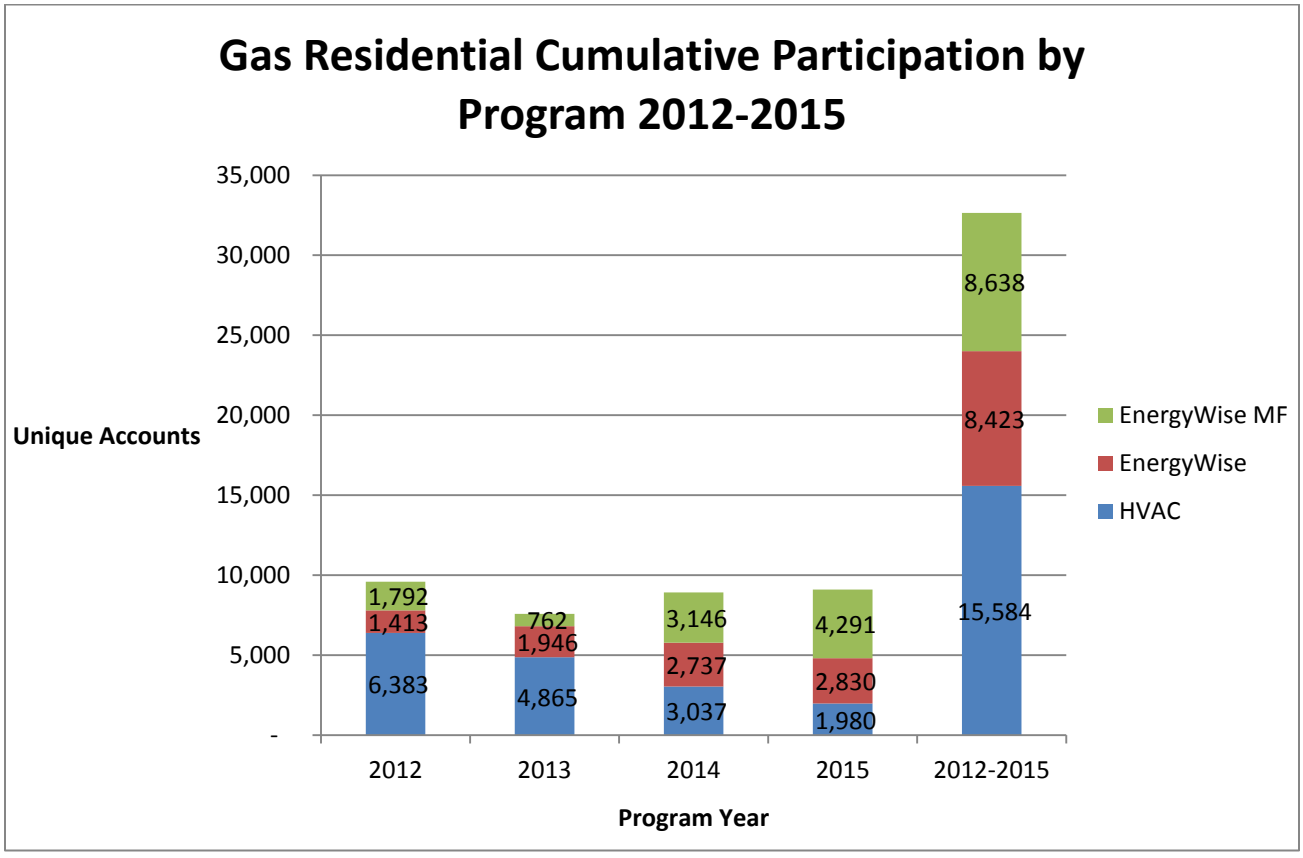

Electric Commercial Cumulative Participation by Program
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
Unique Accounts
162
405
1,282
167
350
1,175
169
432
960
236
459
1,049
647
1,288
4,033
2012
2013
2014
2015
2012-2015
Program Year
New Construction
Retrofit
Small Business

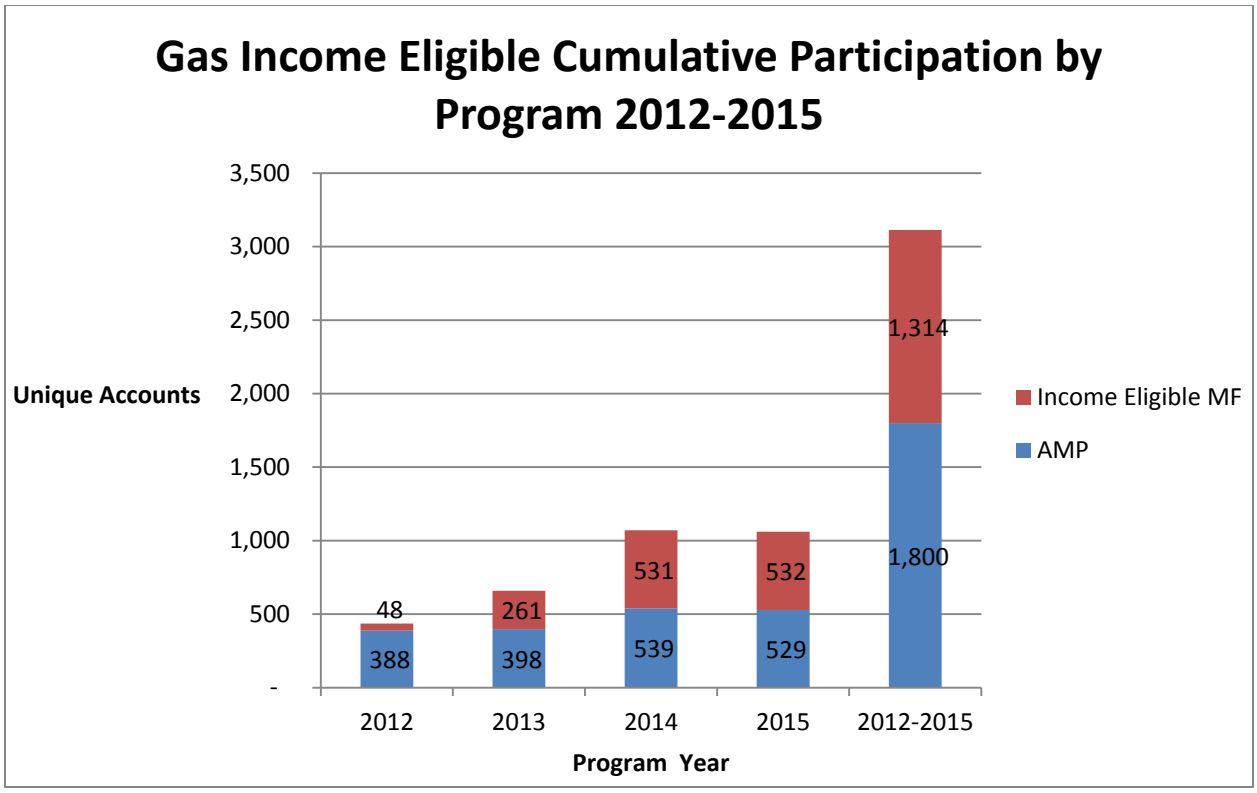
Gas Cumulative Participation 2012-2015

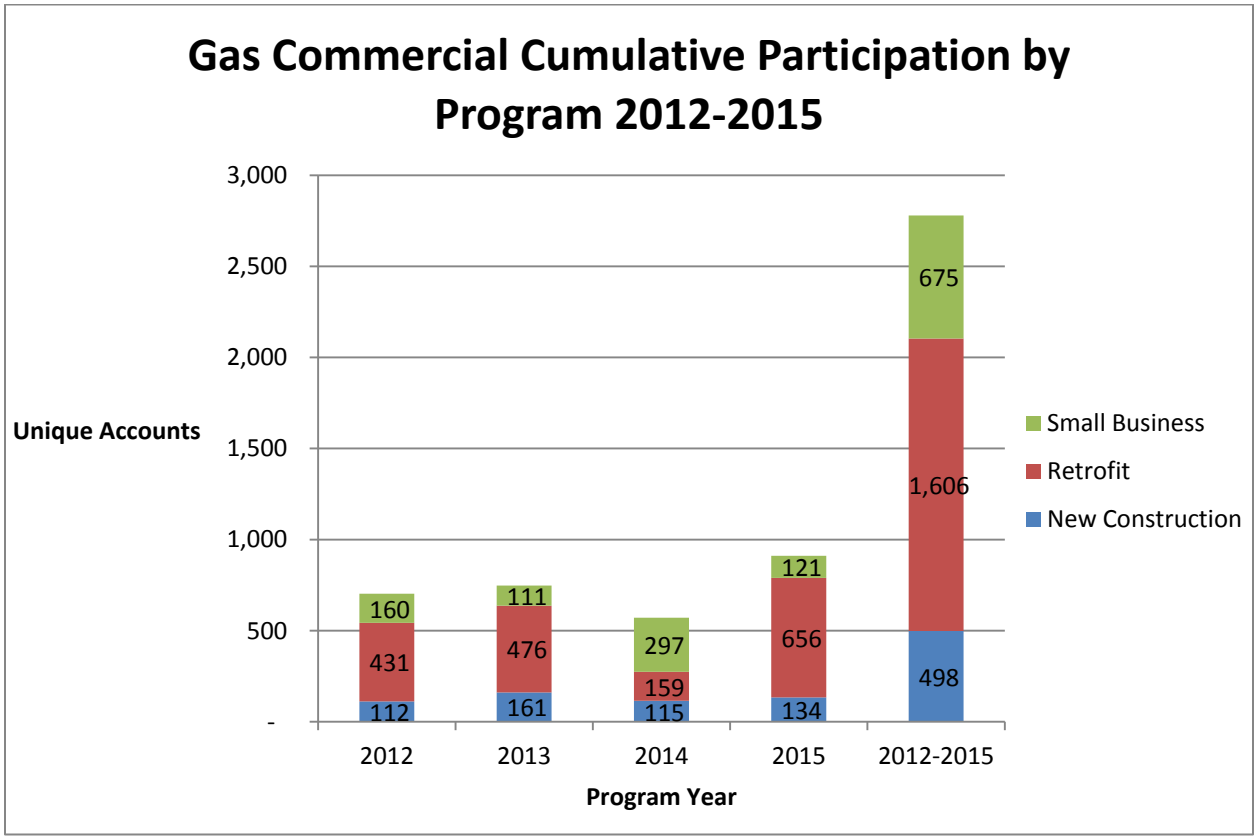
Participation by Accounts

		Annual Counts				Additive	Cumulative	% Unique Accounts
Sector	**Program**	**2012**	**2013**	**2014**	**2015**	**2012-2015**	**2012-2015**	
Residential	**HVAC**	6,383	4,865	3,037	1,980	16,265	15,584	96%
	EW	1,413	1,946	2,737	2,830	8,926	8,423	94%
	EW MF	1,792	762	3,146	4,291	9,991	8,638	86%
	Residential Subtotal	9,338	7,352	8,662	8,909	34,261	30,758	90%
	% Unique Program Participants	97%	97%	97%	98%			
Income Eligible	**AMP**	388	398	539	529	1,854	1,800	97%
	IE MF	48	261	531	532	1,372	1,314	96%
	Income Eligible Subtotal	436	659	1,070	1,061	3,226	3,111	96%
	% Unique Program Participants	100%	100%	100%	100%			
Commercial	**New Construction**	112	161	115	134	522	498	95%
	Retrofit	431	476	159	656	1,722	1,606	93%
	SBS	160	111	297	121	689	675	98%
	Commercial Subtotal	678	725	549	892	2,844	2,584	91%
	% Unique Program Participants	96%	97%	96%	98%			
Portfolio Total		10,437	8,728	10,271	10,460	39,896	40,069	100%


Gas Cumulative Participation by Sector 2012-2015
Unique Accounts
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
678
436
9,338
725
659
7,352
549
1,070
8,662
892
1,061
8,909
2,584
3,111
30,758
2012
2013
2014
2015
2012-2015
Program Year
Commercial
Income Eligible
Residential


Gas Residential Cumulative Participation by Program 2012-2015
Unique Accounts
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
1,792
1,413
6,383
762
1,946
4,865
3,146
2,737
3,037
4,291
2,830
1,980
8,638
8,423
15,584
2012
2013
2014
2015
2012-2015
Program Year
EnergyWise MF
EnergyWise
HVAC


Gas Income Eligible Cumulative Participation by Program 2012-2015
Unique Accounts
3,500
3,000
2,500
2,000
1,500
1,000
500
-
48
388
261
398
531
539
532
529
1,314
1,800
2012
2013
2014
2015
2012-2015
Program Year
Income Eligible MF
AMP


Gas Commercial Cumulative Participation by Program 2012-2015
Unique Accounts
3,000
2,500
2,000
1,500
1,000
500
-
160
431
112
111
476
161
297
159
115
121
656
134
675
1,606
498
2012
2013
2014
2015
2012-2015
Program Year
Small Business
Retrofit
New Construction

III. Housing Units

The annual housing units are defined as unique in the same sense as billing accounts. Housing units are presented below for the Commercial and Industrial (C&I) Multifamily Gas program and the Electric and Gas Residential New Construction Program.

In the C&I Multifamily Program, the building and not the individual units tend to have account information. For these master-metered buildings, the Company counts units in treated buildings, not accounts for participation. For this reason units cannot be shown as cumulative because the Company does not have account information for each unit and therefore cannot remove overlap between years.

Participation in the Residential New Construction program is also defined by housing units since accounts do not yet exist. In this program, housing units are only reported once, at the time of completion, so there is no overlap between units across multiple years. Therefore, the Company can show this program in terms of cumulative unique participation.

Electric Participation by Housing Units

	Annual Housing Units				Additive	Cumulative
Program	**2012**	**2013**	**2014**	**2015**	**2012-2015**	**2012-2015**
RNC	406	473	573	442	1,894	1,894

Gas Participation by Housing Units[1]

	Annual Housing Units				Additive	Cumulative
Program	**2012**	**2013**	**2014**	**2015**	**2012-2015**	**2012-2015**
C&I Multifamily	0	1,066	939	2,345	4,350	---
RNC	252	425	500	366	1,543	1,543
Portfolio Total	**252**	**1,491**	**1,439**	**2,711**	**5,893**	---

[1] Multifamily housing units cannot be shown as cumulative because the Company does not have account information for each housing unit within a treated building and therefore cannot remove overlap between years.

IV. Estimate of Customers Reached 2012-2015

This section estimates the portion of each customer class that has participated in an energy efficiency program from 2012-2015. The graphs represent a visual estimate of the combination of unique participant counts for each year as detailed above, plus residential new construction units, Home Energy Reports, residential lighting, and C&I upstream lighting.

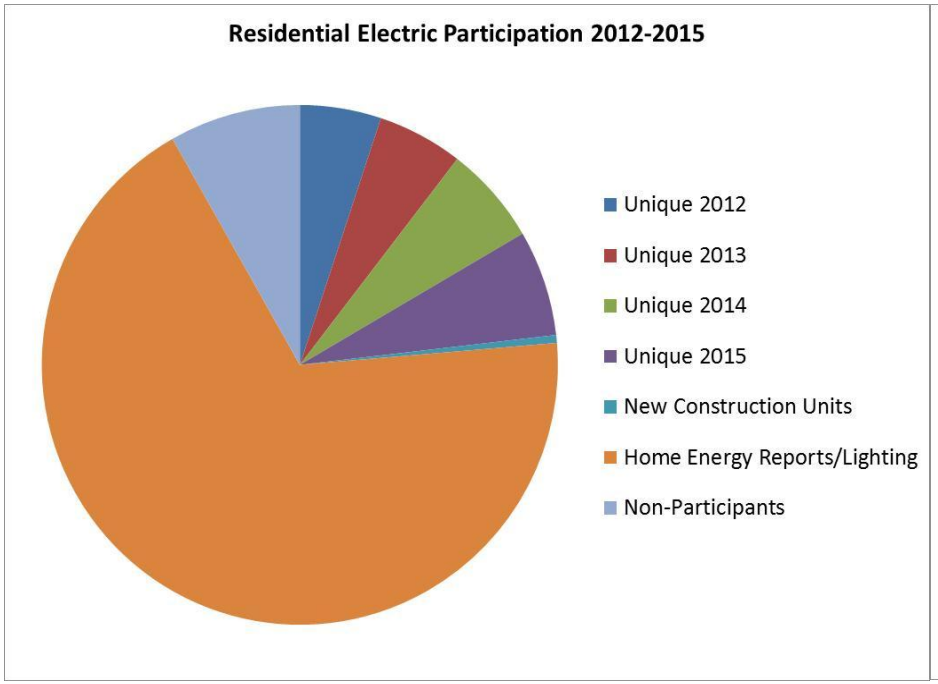
As described above, residential lighting and Home Energy Reports do not contain account information. Therefore, the graphs below may represent a single customer participating more than once since the Company is unable to remove overlap using unique customer accounts. For the C&I upstream lighting program, the Company has access to customer names and addresses and can use this information to remove overlap across years. While the graphs below show unique participants in the C&I upstream lighting program, the Company is unable to remove overlap with other C&I programs since it does not have account information for upstream participants. For this reason, the Company could not include C&I upstream lighting counts in the unique participation counts.

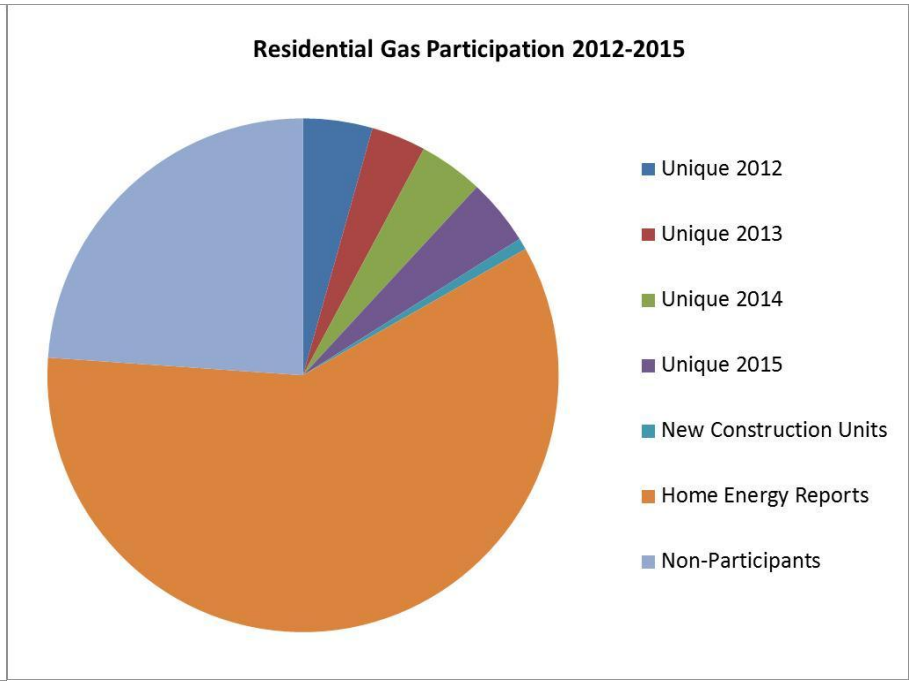
The graphs show that from 2012 through 2015, 25% of electric customers and 18% of gas customers participated in National Grid's energy efficiency programs at least once. This is significant when one considers this analysis does not include data back to 2009, when energy efficiency programs under the construct of Least Cost Procurement began. Had this data been included, the penetration rates would undoubtedly be higher.

When Home Energy Reports and residential lighting are added to these counts, a total of 78% of electric customers and 67% of gas customers participated over this period. While it is more difficult to track unique participation with Home Energy Reports and residential lighting, it is important to include these programs since they offer significant savings and benefits to customers. While the Company isn't able to confirm how many unique participants purchased high efficiency lighting, it can determine that an estimated 303,000 housing units purchased bulbs through the program in 2015 alone. In addition, the Home Energy Reports program is an important tool in not only creating significant electricity and gas savings, but also driving customers to participate in other energy efficiency programs.

The Company will continue to conduct this analysis each year to help provide more visibility around participation levels to help gain insight into programmatic changes and improvements to reach even more customers in the future.

Residential

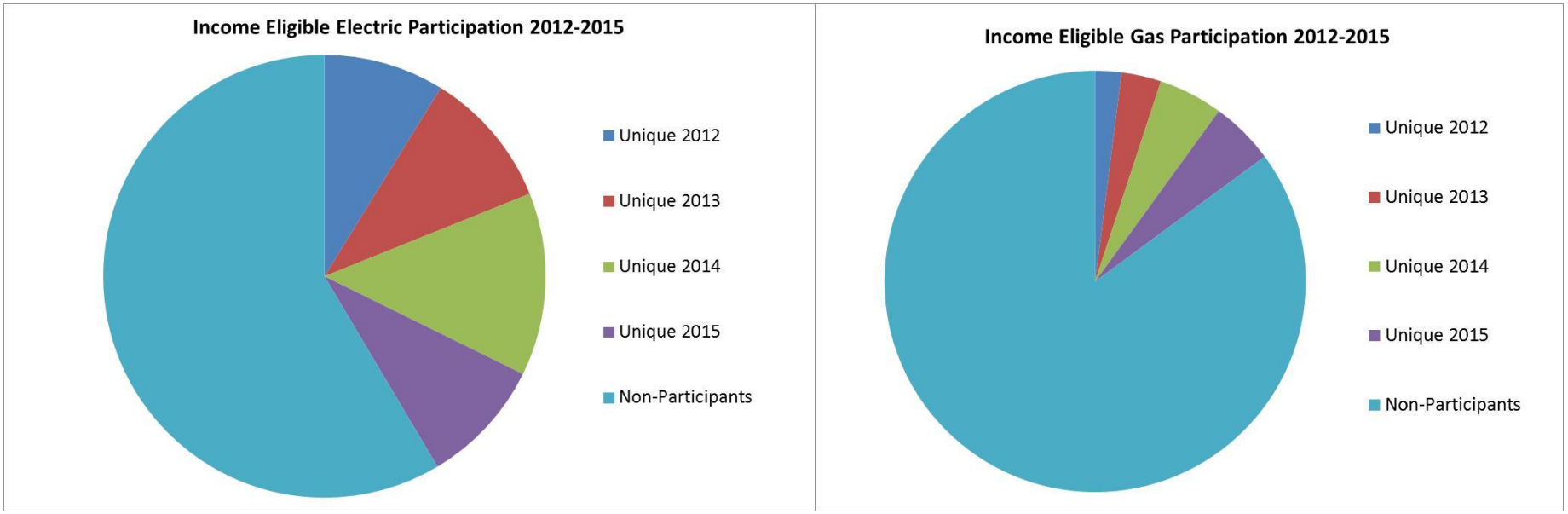




*Does not include ENERGY STAR Product Program rebates that did not contain account numbers.

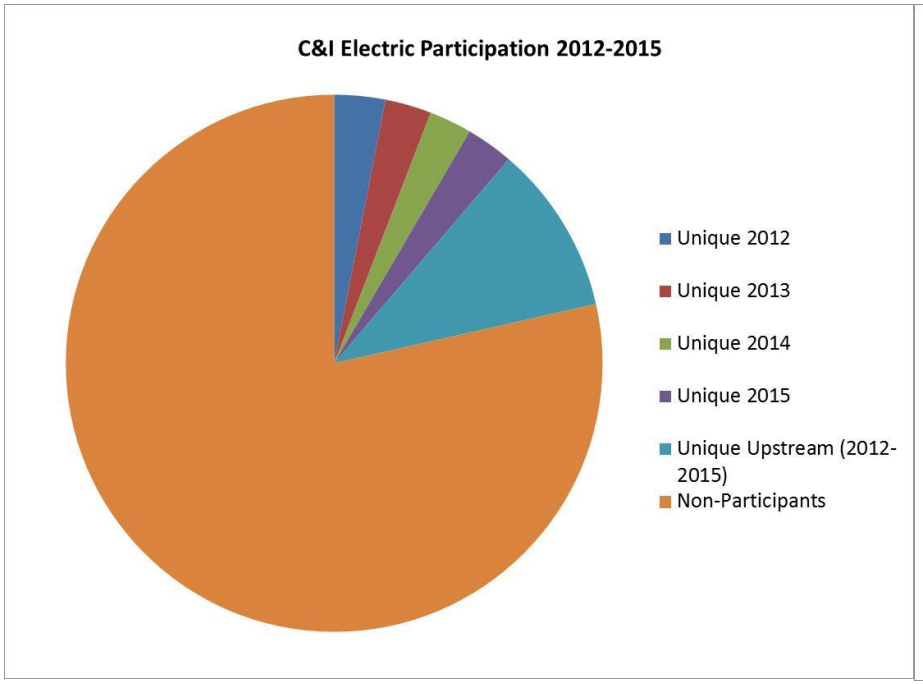
** Home Energy Report totals have been reduced to account for estimated cross particpation with other programs based on 2014 evaluation results.

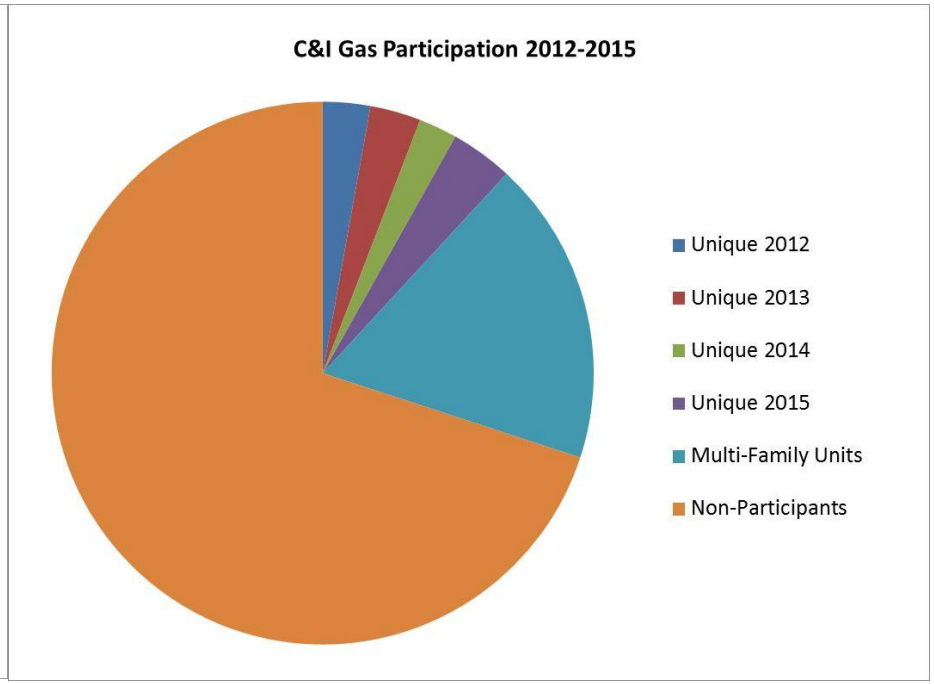
Income Eligible



*While the Company counts Home Energy Reports, Residential Lighting, Products, and HVAC participation in the market rate residential sector, it's important to note that Income Eligible customers also participate in these programs. Therefore, the above graphs likely under-represent the total number of Income Eligible customers served.

Commercial and Industrial (C&I)





*While upstream cumulative counts remove overlap between years (2012-2015), it is not possible to remove overlap between upstream lighting and other C&I programs. Therefore there may be customers in the upstream count that are also captured in the unique participation counts for 2012-2015.

Attachment 5
2015 RI Employment Rept.

Attachment 5

2015 Employment Supported by Energy Efficiency in Rhode Island Report

ANALYSIS OF JOB CREATION from 2015 Expenditures for Energy Efficiency in Rhode Island by National Grid

Prepared for National Grid

Prepared by:

Peregrine Energy Group, Inc.
2 Oliver Street
Boston, Massachusetts 02109

April 26, 2016

Table of Contents

Executive Summary

Electric and gas energy efficiency programs and services sponsored, supported, and provided by National Grid in Rhode Island are intended to help eliminate unnecessary energy use, save money for customers, improve the environment, and increase the health, comfort, and safety of homes and businesses.

In 2015, National Grid spent a total of $103,026,953 on electric and gas energy efficiency programs and services in Rhode Island and saved 222,822 MWh and 419,778 MMBtu.

The focus of this study is less *what* was done by National Grid programs than *how* it was done and by whom. Successful delivery of the 2015 energy efficiency programs to National Grid's customers includes active involvement of a broad range of workers across a wide array of businesses, including not-for-profits, contractors, plumbers, rebate processors, state agencies, engineering firms, marketing firms, and others.

In order to quantify the number of direct workers involved, National Grid commissioned Peregrine Energy Group, Inc. ("Peregrine") to conduct a study of the job impacts of National Grid's energy efficiency programs delivered to Rhode Island electricity and natural gas customers in 2015. Peregrine conducted a like study for National Grid in Rhode Island in 2014 and 2013.

Peregrine determined that 695.8 full-time equivalent (FTE) workers were employed in 2015 as a result of National Grid expenditures for energy efficiency programs provided to its Rhode Island electricity and natural gas customers. Most of the jobs created as a result of energy efficiency investments were local because they were tied to installation of equipment and other materials. 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 is far larger that the total of FTEs.

The 2015 FTE total was 5% greater than the 666.1 FTE workers that Peregrine had attributed to National Grid's Rhode Island energy efficiency program investments in 2014 and 25% greater than the 558.9 FTEs in 2013[1]. National Grid's programs and delivery strategies were

[1] 2013 and 2014 FTE counts have been updated this year for consistency purposes due to changes in methodology used in 2015 to calculate FTE jobs associated with installation of weatherization measures in multifamily and commercial buildings. These changes are described in more detail in Attachment A on page 39.

substantively the same in 2015 as they had been in the prior two years. However, 2015 was characterized by a continuing increase in customer participation, demand, and acceptance of energy efficiency services. Further, price drops for and growing adoption of more energy efficient, longer-lasting, and increasingly diverse LED (light emitting diode) lighting products, created installation opportunities and program participation by an increasing number of businesses.

The study identified 1,009 companies and agencies involved in National Grid's Rhode Island programs, 79% of which were located in Rhode Island. The companies identified include those whose employees installed energy efficiency measures, as well as companies who assisted customers to secure equipment rebates, for example through New Construction, High Efficiency HVAC, and Upstream Lighting programs. These findings for 2015 once again confirm that job creation is an additional significant benefit that National Grid's investment in energy efficiency contributes to Rhode Island's economy overall and directly to the business owners and their employees that participate in and deliver these programs and services.

Workers supported by these programs were employed by a broad range of companies and organizations involved in energy program design, management and delivery. In addition to National Grid staff, participating employers included program design consultants, energy program management specialists, marketing and advertising specialists, equipment manufacturers and suppliers, equipment and appliance retailers, architectural firms and developers, engineers and energy analysts, installation companies and independent contractors, quality assurance inspection companies, utility rebate processing houses, waste material recyclers, and program evaluators. In addition, Community Action Program agencies under contract to the state Department of Human Services delivered low-income energy efficiency services for the federal Weatherization Assistance Program (WAP). A full list of companies involved in the 2015 Rhode Island energy efficiency programs is provided at the end of this report.

Introduction

National Grid's Rhode Island energy efficiency programs focus on delivering cost-effective energy savings to residential customers, low-income residential customers, small and large commercial businesses, and industrial customers. In 2015, National Grid spent a total of $103,026,953 on electric and gas energy efficiency programs in Rhode Island created 222,822 MWh in annual electricity savings saved 419,778 MMBtu in annual gas savings. It is important to note that this funding does not include the customer share of installation costs and other leveraged funding such as Regional Greenhouse Gas Initiative (RGGI) and the Low Income Heating Assistance Program (LIHEAP).

For the third year in a row, National Grid commissioned Peregrine Energy Group, Inc. ("Peregrine") to conduct a study of the job impacts of National Grid's energy efficiency programs and services delivered to Rhode Island electricity and natural gas customers in 2015. The objective of the research was to count or estimate the number of direct jobs attributable to National Grid's 2015 energy efficiency programs. While job creation is not a formal goal of National Grid's energy efficiency programs and services, this study illustrates the additional economic benefits that investments in energy efficiency contribute to Rhode Island and to the businesses participating in National Grid's programs. This study meets the requirements of General Law 39-2-1.2, enacted by the Rhode Island General Assembly in 2012.

An additional objective of the 2015 study has been to attempt to identify and explain year-to-year changes in job impacts attributable to National Grid investments, comparing 2015 to previous years' results. Each annual study has endeavored to find and count the full-time equivalent (FTE) employees engaged in all aspects of National Grid's energy efficiency programs. Peregrine has assumed that one FTE, regardless of job type or responsibilities, equals 1760 work hours, or the equivalent of one person working 8 hours a day for 220 work days in an average year.

Unlike the energy savings resulting from these programs that are predicted, analyzed, measured, and recorded, job impacts of energy efficiency improvements are identified, if they are counted at all, as an expense. Types of employees and number of hours worked to deliver programs and services are not captured, except by employers themselves for payroll and business planning purposes. For this reason, calculating job impacts can be more art than science.

As has been the case with prior years' studies, this year's study findings were developed through interviews with managers at energy services companies, equipment vendors, and contractors identified by National Grid for Peregrine or identified as sub-contractors by companies that Peregrine interviewed. These companies voluntarily shared information on how they staff their

contracts and services and even researched payroll records to provide FTE counts. Where possible, the study cites the companies that provided information to Peregrine.

Peregrine also completed a detailed review of National Grid's records of all energy efficiency measures installed in homes, apartment buildings, businesses and industrial facilities throughout Rhode Island in 2015. Peregrine then calculated typical labor hours required for each installed energy savings measure, based on industry standards and discussions with the contractors themselves and other experts, and extrapolated total FTE employment using total counts of measures installed in 2015 that were reported to and by National Grid.

The report is divided into four primary sections:

1. An Efficiency Workforce Overview that describes the types of companies and workers engaged in providing efficiency program-related services and support in Rhode Island
2. The Delivery Approach used for individual programs
3. Summary Counts of FTEs with observations on their significance
4. Attachments describing Peregrine's methodology in more detail, providing Peregrine's interview guide, and listing specific companies that supplied the workforce.

Efficiency Workforce Overview

Peregrine recognizes two main categories of employers/employees that participate in the delivery of National Grid's energy efficiency programs. These categories are:

- "Program Support Service Providers" that are employers and employees involved in program planning / administration, marketing, rebate processing, and evaluation and market research.
- "Direct Service Providers" who are responsible for sales, technical assistance and training, and for supplying and installing approved efficiency measures that National Grid promotes and encourages with incentives and rebates.

Program Support Service Providers

The Program Support Services category includes:

- Companies engaged to provide marketing, outreach, public information, and other related support services, including media placement and design of collateral marketing materials;
- Specialized firms processing and paying out rebates offered for purchase and installation of install high efficiency equipment; and

- Evaluators of the overall performance of and savings associated with the National Grid programs.

National Grid Employees

National Grid staff engaged in energy efficiency program design, regulatory matters, administrative management of contractors, marketing, and evaluation are included in the Program Support Services category. Information provided by National Grid identified 85,204 person-hours of time associated with Rhode Island energy efficiency program activities, equal to 41.6 FTEs. Peregrine is reporting all National Grid FTEs as a separate category for purposes of this study and not allocating them to specific programs or groups of programs.

Support Services Contractors

Peregrine interviewed the majority of lead vendors who supported National Grid in these activities to obtain information on their roles and responsibilities in program delivery and FTE counts. Often, these FTEs represented the aggregation of small numbers of hours by many employees. In some instances, this was because a contractor's role may have been limited in duration and/or required contributions from a multi-disciplinary team. In other instances, it was because a team with multi-disciplinary capabilities was, for reasons of cost effectiveness, providing services to National Grid in Rhode Island and other states or to National Grid and other utility companies.

Depending on the nature of the services the vendor provided and whether the support provided could be associated with specific programs, contractor time was allocated according to the overall allocation of gas and electric spend by program sector (Residential, Income Eligible Residential, Commercial and Industrial), or allocated to a specific program sector.

Program Planners and Administrators

Vermont Energy Investment Corporation (VEIC) and its subcontractors Optimal Energy and Energy Futures Group continued to serve as consultants to Rhode Island's Energy Efficiency and Resource Management Council (EERMC) in 2015. Optimal Energy primarily provided services out of offices in Providence, Rhode Island. The VEIC team of market sector specialists assisted with planning, provided guidance for spending of Regional Greenhouse Gas Initiative ("RGGI") funds for efficiency, and helped with oversight of programs offered by National Grid. The nine staff associated with the three organizations that provided these direct services billed approximately 2.5 FTEs of time. These services were paid for out of system benefits charges and the energy efficiency budget.

Marketers

National Grid's energy efficiency marketing spend for Rhode Island in 2015 was just over $4,000,000, equal to just under 4% of the total Rhode Island energy efficiency expenditure. National Grid had eight firms engaged in a variety of marketing roles designed to increase general efficiency awareness, target specific customer segments and sub-segments for programs and services, and engage and promote trade allies. Much of the budget spend was used for media message placement, printing and direct mailing, and electronic communications.

Kelliher Samets Volk (KSV), a Vermont-based regional marketing firm specializing in the utility sector, was National Grid's primary marketing consultant in 2015, organizing brand marketing campaigns to generate awareness among customers about the breadth of National Grid's energy efficiency programs, campaigns directed at trade allies, and targeted market sector campaigns that focused on specific programs. In addition to coordinating all the efforts of other specialized marketing firms supporting National Grid, KSV's role included media placement, web-based initiatives, organizing social media campaigns, and organizing phone messaging. As KSV's Ashley Nichols described it, the marketing team's goal was "the marriage of awareness and hyper-targeting." They analyzed and reported to National Grid monthly on leads generation for each market segment, monthly marketing activities by different parties, and going forward marketing efforts planned.

KSV identified 40 individuals at the firm that touched the National Grid Rhode Island account in one way or another. Ten of this number accounted for 80% of the total 5,200 hours KSV billed to Rhode Island in 2015, down from 5,900 in 2014 ("We were more efficient in 2015."[2]). Total 2015 hours equaled 3 FTEs. Staff included a three quarter (0.75 FTE) time brand manager based in Little Compton, Rhode Island supporting National Grid.

Additional marketing firms supporting National Grid in Rhode Island in 2015 included Questline Inc., Ideas Agency Inc., Integrated Marketing Services, and InnerWorkings, Inc., Impressions ABA, Sacks Exhibits, and RAM Marketing.

Marketing FTEs are allocated across all programs.

Rebate Processors

National Grid contacted with Blackhawk Engagement Solutions (BES), formerly Parago, in 2015 to process rebates offered for a variety of energy efficient products. BES also supports other clients nationwide. BES scanned, data-entered, and validated rebate applications, processed

[2] Interview with Ashley Nichols, KSV

payments, and cut and mailed checks. All told, BES required 1.72 FTEs, equal to just over 3,000 hours, for rebate application scanning, data entry, customer service, quality assurance, processing services, reward fulfillment, account management, and technology support.

Evaluators

The total Evaluation and Market Research expenditure for Rhode Island for 2015 was $785,213, paid for out of energy efficiency program funds. Contracted firms specializing in utility program evaluation included DNVGL, Opinion Dynamics, Cadmus Energy Services, Illume Advising, and others. Generally, outside evaluator time was attributed to specific programs and the FTEs associated with those hours added to program totals. Peregrine calculated that 3.65 FTEs of labor were associated with evaluation activity in 2015.

Direct Service Providers

The Direct Service category is comprised of contractors hired by National Grid to deliver and promote Rhode Island energy efficiency programs, specialized technical support providers, and suppliers and installers of energy saving equipment.

This category included, but was not limited to:

- **National Grid account managers** providing outreach and direct technical assistance to customers, particularly for large commercial and industrial retrofits, and new construction[3];
- **Energy services companies specializing in field services and installation program management** who were engaged by National Grid to deliver programs, providing schedulers, technical specialists, engineers, installers and trades people, managers and supervisors, warehouse materials handlers, quality assurance inspectors, bookkeepers, and data entry staff;
- **Energy services companies** hired by National Grid to engage, support, manage, and coordinate product suppliers and distributors, retail store offerings, and service networks;
- **Electrical and mechanical engineers** employed by contracted consulting firms and dispatched to identify potential projects, quantify savings, and recommend actions that customers should take;

[3] As noted above in the National Grid description under Program Support Services, all National Grid FTEs are reported together in a separate category for purposes of this study and not allocated to specific programs or groups of programs.

- **Equipment suppliers** providing energy efficient equipment and approved materials directly to National Grid customers or to installation contractors.

- **Independent contractors** installing energy efficient equipment and approved materials for National Grid customers in one or more market sectors, often as subcontractors to National Grid-designated Program leads, but also, increasingly, as self-directed installation vendors.

- **Quality assurance inspectors** that were engaged independently of service delivery contractors to check a sample of completed work to ensure that program standards were being met and that projected savings would likely be realized.

The role and contributions of Direct Service Providers is described in detail in the next section.

Energy Efficiency Program Delivery

National Grid's energy efficiency program delivery strategy in 2015 varied for different market sectors and sub-sectors, based on fuel type, customer rate class, end-use technology, and whether the objective was to affect energy efficiency of current operations or to reduce energy use in new construction. While this strategy remained relatively constant from 2014 to 2015, certain programs changed somewhat in response to emerging technology and market opportunities. This section describes how National Grid delivered specific electric and gas energy efficiency programs and services in 2015 and by whom.

Residential Programs

In 2015, National Grid's residential programs offered a range of services and incentives, from home energy audits with installation of low-cost materials to full weatherization services and heating system replacement to rebates and market channels for purchases of high efficiency appliances and lighting. These programs were designed to reduce energy use by electric and gas customers living in single-family dwellings, 2 to 4 unit buildings, and larger multi-family residences of 5 to 20 units and 20 units or greater.

National Grid's residential programs were delivered primarily by contractors that specialized in supporting utility energy efficiency programs. The contractors' role was to educate a range of market players, buyers and sellers, and bring them in line with National Grid's energy efficiency objectives through education, training, and technical support. Information on each program's delivery mechanism is detailed below.

In 2015, the installation of residential energy efficiency measures again increased compared to previous years, reflecting increased levels of participation by customers. These increases in

spending and installations also resulted in increases in jobs associated with program and service delivery.

EnergyWise Single Family (gas and electric)

In 2015, EnergyWise offered customers living in single-family homes (defined as 1 to 4-unit buildings) a comprehensive energy assessment of their energy use, with building-specific recommendations for actions to take to improve the energy efficiency of their homes.

- Participants in this program received recommendations, technical assistance, and financial assistance to improve building insulation and replace inefficient lighting fixtures, appliances, and thermostats with high efficiency models.
- As part of the energy assessment, field staff installed energy efficient lighting, low-flow showerheads, faucet aerators and smart power strips.
- They also wrote work orders for weatherization services (insulation and air sealing) by insulation contractors and for new high efficiency heating and hot water system installations by plumbing and heating contractors, if warranted.
- After the installation of insulation and heating equipment, quality assurance inspections were provided to confirm that equipment was installed properly.
- The program continued to offer the Rhode Island Heat Loan, which provides 0% interest financing to eligible single-family customers to support the adoption of recommendations made during the assessment. Customers who live in one to four unit single-family residences are eligible for a 0% interest loan of a minimum of $500 up to $25,000 with terms up to seven years.

Delivery:

For 2015, National Grid again contracted with RISE Engineering, based in Cranston, Rhode Island, to manage and deliver the EnergyWise Single Family program. RISE employees, totaling nearly 60 FTEs, involved in program delivery included program managers, office and field staff supervisors, field auditors, field installers and technicians, field inspectors, intake staff and schedulers, warehouse and material management staff, electricians, quality assurance / quality control inspectors, and accounting and contract oversight personnel. In response to increased customer participation in 2015, RISE added field auditors, field technicians, and inspectors to their staff in the course of the year. Field staff completed 10,055 energy audits in 1-4 unit buildings in 2015, up from 8,654 home energy audits in 2014. Demand for services required that

RISE once again sub-contract with Ocean State Energy Audits[4] to perform single-family audits and related installation work, requiring an additional 3 FTEs in the field.

Work orders written by auditors resulted in 2,819[5] customers proceeding with weatherization services (i.e. insulation and air sealing). In 2015, 26 independent insulation contractors installed the insulation and air-sealing materials recommended by RISE. Insulation crews were led by a BPI-certified crew chief. RISE received a program management fee for its services for this program that included a fee per audit, a fee per item installed by RISE staff, and a percentage mark-up (i.e. cost plus) on insulation work completed by contractors.

Independent heating contractors installed high efficiency heating system components, again using work orders generated by field auditors. Almost 900 gas-fired systems and nearly 400 liquid fuel-fired systems (oil or propane) were installed as a result, as well as many new energy-efficient domestic hot water systems.

As part of EnergyWise Single Family, RISE helped customers to secure HEAT loans to finance the installation of more efficient heating systems, hot water systems, and insulation upgrades. There were 1,008 loans in 2015 through private lending institutions, providing financing for 673 weatherization jobs and 552 new high-efficiency heating systems[6].

CMC Energy Services, Inc., doing business as Competitive Resources, Inc. whom they acquired in 2014, provided quality assurance (QA) inspections of a sample of residential customers served[7]. QA addressed all phases of service delivery and included review of field auditors' performance, post-audit counts of installed measures, and post-weatherization site visits to confirm proper installation technique and customer satisfaction with results. Nine field inspectors conducted residential QA visits in Rhode Island and Massachusetts, supported by schedulers and data entry staff. Approximately 2.25 FTEs of this team were engaged in National Grid's residential programs in Rhode Island.

EnergyWise Multifamily (gas and electric)

In 2015, EnergyWise Multifamily continued to provide comprehensive energy services to multifamily customers in buildings with five or more units, including energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting, and

[4] Ocean State Energy Audits also provides audits for income-eligible National Grid customers on a sub-contracted basis for RI Community Action Agencies.

[5] Source: Peregrine interview with RISE Engineering

[6] Many additional heating systems were installed in 2015 for audit recipients who did not elect to finance their purchases through the HEAT program.

[7] Source: CMC Energy Services, DBA Competitive Resources Inc.

appliances. These same services were offered to both market rate and income-eligible multifamily properties. The programmatic approach for serving existing multifamily properties included using a designated primary point-of-contact to manage and coordinate services offered through the full portfolio of National Grid programs, including EnergyWise, Large Commercial Retrofit, Income Eligible Services (i.e. Low Income), and ENERGY STAR® HVAC.

Delivery:

RISE Engineering also managed the EnergyWise Multifamily Program for National Grid. RISE staff included a program manager, a technical services director, field coordinators, field auditors, warehouse materials handlers, electricians, and project intake and coordination staff. This same staff was responsible for the Income Eligible Multifamily Program described below. RISE had a combined 14 FTEs working on the EnergyWise and Income Eligible Multifamily programs[8].

RISE engagements in this sector resulted in 4,312 market rate units and 4,876 income eligible units[9] participating in the program in 2015, up from 3,400 market rate and 4,000 income eligible multifamily units[10] in 2014. Standard income units were in 57 apartment buildings and 67 condominium complexes.

RISE staff served as project managers for retrofit projects, meeting with building facility managers, making presentations to condominium boards and owners, and writing work orders and scopes of work (e.g. for air sealing, attic insulation, lighting fixtures, and even replacement refrigerators from retailers for low-income residents).

Independent contractors installed weatherization materials (insulation and air sealing) and heating equipment components. RISE pre-qualified the insulation contractors that bid on this work. This program was coordinated with the Commercial Multi-family program for gas heating systems. Plumbers and electricians were engaged as sub-contractors as needed.

As was the case with the EnergyWise Single Family program, National Grid engaged CMC Energy Services to perform independent quality assurance checks on multifamily services.

Residential New Construction (gas and electric)

This program promoted the construction of high-performing energy efficient single family, multifamily, and low-income homes in both 1 to 4 unit buildings and multifamily buildings up to

[8] Source: RISE Engineering
[9] Source: RISE Engineering
[10] Source: RISE Engineering

five stories. To that end, it educated builders, developers, housing agencies, tradesmen, designers, and code officials regarding the construction requirements, performance benefits, and costs for such buildings. Changes driven by the Residential New Construction program improve lifecycle energy performance. This is primarily attributable to better materials selection and improved construction methods. Builders say that the incremental cost of these enhancements are more than offset by faster home sales and fewer call backs to address owner concerns.

In 2013, the program had adopted a performance-based tier structure with corresponding financial incentives and began to capture savings from the Renovation/Rehabilitation and Deep Energy Retrofit offerings. This continued in 2014 and 2015, with additional incentives being offered, but with increases in performance verification as well. Incentives paid were based on the percentage of improvement over an established baseline.

Delivery:

For program year 2015, National Grid again contracted with Conservation Services Group (CSG), based in Westborough, Massachusetts, to deliver this program. 2015 was the 19th year CSG had managed the Residential New Construction program. In mid-year 2015, Conservation Services Group was acquired by CLEAResult, a rapidly growing national energy services provider.

Staff located at the Westborough office focused on program management, data management, and administrative responsibilities, while three field and training personnel were based in East Greenwich (Warwick), Rhode Island. Field personnel provided trainings and reviewed plans submitted by builders and developers. A continued emphasis has been to try to reach out to all Rhode Island builders to continue to expand the impacts of the program statewide.

CLEAResult also modeled proposed buildings and completed inspections that verified and certified that construction practices for participating buildings receiving performance ratings. In 2015, 442 units of housing and homes received HERS ratings[11]. 239 of the housing units rated were multifamily units. CLEAResult brought 54 new builders and developers into the Residential New Construction program in 2015, continuing National Grid's success with market transformation.

With approval from National Grid, Peregrine did not include labor hours for this program beyond the program implementation services provided by CLEAResult. While incentives offered by National Grid influence the installation of more efficient materials and products in a new home, such installations do not substantially increase the labor hours. The labor needed to

[11] Source: CLEAResult

construct a high-efficiency home is more or less the same as for buildings that meet current code requirements. In addition, these new homes would have been built anyway without the intervention and support of the program, even though they would not achieve the same standards for efficiency in their design and function. Therefore, no construction labor component is counted for purposes of this study.

Residential Codes and Standards Initiative

The Codes and Standards Initiative's goal has been to provide information and technical support to the construction / design community and to code officials in municipalities to increase code compliance and promote advanced and stretch codes like the Rhode Island Green Construction Code.

Delivery:

National Grid continued to contract with Conservation Services Group (CSG) in 2015, now CLEAResult, to lead this initiative in parallel with the Residential New Construction program. CLEAResult trainers conducted 14 residential classroom trainings and 15 on-site residential trainings[12]. In addition, trainers delivered 12 commercial classroom trainings and three on-site commercial trainings in 2015. They also had a circuit rider to provide on-site technical assistance as needed.

Residential Home Energy Report Program (gas and electric)

National Grid began offering Home Energy Reports (HER) statewide to all residential customers in April 2013 and continued the program through 2014 and 2015. The Rhode Island HER program, the first statewide behavior program in the country, uses historical energy usage benchmarking and social comparisons to encourage energy efficient behavior in the homes of residential customers. The program provides customers with access to personalized energy usage information and the ability to directly link with National Grid's other residential energy efficiency programs and services.

Delivery:

Opower, with offices in Arlington, Virginia, delivered the Rhode Island HER program, using proprietary behavioral analysis and energy audit software. Opower is staffed with behavioral scientists, marketing experts, engineers, and software product developers, with support staff, operating in cross-functional teams to develop and deliver these audit reports in Rhode Island and elsewhere across the U.S.

[12] Source: CLEAResult

At the end of 2015, Opower had developed and distributed data-driven, software-generated reports to 268,263 residential electric and 130,455 residential gas National Grid customers enrolled in the Home Energy Report program in Rhode Island. The objective of these reports was to generate actual energy savings by providing "tips" for reducing energy use and to increase demand for and participation in other residential programs offered by National Grid. Comparing participants to a control group, Opower estimated that their reports result in a 10% – 20% lift in program participation[13]. Opower also created an online engagement platform, documenting savings and working with existing Company systems.

Residential Community Based Initiatives (gas and electric)

Rhode Island Energy Challenge is a collection of locally-based initiatives that leverage trusted community partnerships and develop targeted marketing strategies in order to promote National Grid's residential (and commercial) energy efficiency programs in targeted communities. Community-based initiatives resemble political campaigns that are trying to get out the vote. They are run through communities as municipality-wide initiatives or as market-segment focused efforts, with the goal of increasing awareness of and participation in National Grid offerings and driving residential customers to make behavioral changes that reduce energy use.

Delivery:

Connecticut-based Smart Power coordinated the Rhode Island Energy Challenge, which encouraged communities to establish energy efficiency goals and take steps to achieve them. The program had a Rhode Island-based manager, supported by operations staff in Connecticut. At the community level, the program enlisted volunteers to promote participation, though these volunteers are not counted for purposes of this study. Major initiatives in 2015 targeted the cities of Providence, North Providence, and Central Falls. A new 2015 initiative in partnership with local community action agencies targeted renters in income eligible housing complexes. This behavioral program is continuing in 2016. A church-based initiative promoting "Energy Sundays" launched with Rhode Island Interfaith Power and Light in 2014 continued in 2015. A campaign directed at college students at Brown University, Johnson and Wales, University of Rhode Island, and Providence College was also kicked off in 2015.

ENERGY STAR® Lighting (electric)

ENERGY STAR® Lighting is a point-of-purchase initiative implemented jointly with other regional utilities. It provided discounts to customers for the purchase of ENERGY STAR® rated lamps and

[13] Source: Interview with OPower

fixtures and solid-state lighting through instant rebates and special promotions at retail stores. A mail-order catalog and online store were also available to customers for lighting purchasing. As noted earlier in this report, new LED lighting has become a significant piece of this program, increasingly displacing compact fluorescent lights that dominated screw-in incandescent lighting replacements in recent years.

Delivery:

Lockheed Martin Services, with an office in Marlborough, Massachusetts, again supported the residential consumer lighting initiative in 2015, providing direct outreach and education to both product retailers and manufacturers. Staffing in 2015 included a full-time Rhode Island-based field representative and a nearly full-time (90%) Rhode Island-based account representative to work with retailers statewide, providing product information, training them to upsell to more efficient products, offering staff events, conducting in-store surveys and point-of-sale promotions. Lockheed Martin again employed a School Fundraising Coordinator in 2015, while increasing the coordinator's time Rhode Island time from 18% to 50%, who helped organize school-based lighting product and power strip purchasing and distribution. Lockheed Martin reported that program sales volumes in 2015 were as good or better than in 2014

Massachusetts-based Energy Federation, Inc. provided a product catalogue and online store for National Grid and other regional utilities to promote and supply qualified products and to provide technical assistance to customers. This fulfillment function employed a manager, required a call center that took orders, and included warehouse personnel serving orders from Rhode Island customers, customers from elsewhere in New England, and nation-wide.

As outlined in the program description, ENERGY STAR® Lighting employed a number of avenues to encourage the purchase of energy efficient lighting to residential customers. Part of this region-wide initiative focused on retail outlets. However, retail outlet employees were not counted for this study since the sale of these products had no discernible incremental effect on store employment (i.e. it primarily resulted in different lighting choices by consumers).

ENERGY STAR® Appliances (electric)

In 2015, ENERGY STAR® Appliances was again run in collaboration with other regional utilities to promote the purchase of high efficiency household appliances, including kitchen appliances, and electronics. These appliances carry an ENERGY STAR® label. The program also offered refrigerator recycling, which helped address a significant barrier to purchasing a more efficient refrigerator, while removing non-efficient units from the market, recycling their components, and capturing and properly disposing of refrigerants.

Delivery:

As was the case with ENERGY STAR® Lighting, ENERGY STAR® Appliances was primarily a retail-store based initiative. And as was the case with ENERGY STAR® Lighting, retail outlet employees were not counted for this study since the sale of these products had no discernible incremental effect on store employment (i.e. it primarily resulted in different appliance choices by consumers). Again, as with ENERGY STAR® Lighting, Lockheed Martin Services engaged major retail outlets, providing the same support as for ENERGY STAR® Lighting.

National Grid and the other regional utilities contracted with JACO Environmental to recycle refrigerators as part of the holistic strategy to encourage the purchase of energy efficient refrigerators. JACO employed a regional facility in Franklin, Massachusetts for refrigerator collection, dismemberment, and recycling. JACO employed a local program manager to service the regional program, staffed a large warehouse in Franklin, and had staff dedicated to New England utility customers at its call center in Washington State.

ENERGY STAR® HVAC (gas and electric)

The High-Efficiency HVAC programs (*Gas Heat* [heating] and *CoolSmart* [cooling]) promoted the installation of high efficiency gas heating and electric cooling systems via tiered rebate levels for more efficient technologies including ductless mini-splits, heat pumps, heat pump water heaters, boilers, furnaces, Wi-Fi thermostats, boiler reset controls, and furnaces equipped with high efficiency fans. The program provided in-depth contractor training for design, installation, and testing of high efficiency systems. Furthermore, the program provided quality installation verification training, ensuring that all equipment is properly sized, installed, sealed, and performing.

Delivery:

National Grid hired Westborough, Massachusetts-based Conservation Services Group (CSG), now CLEAResult, to deliver this Program, which included three related initiatives: *Cool Smart*, the *Rhode Island Gas Heat Program*, and *Commercial Upstream Cooling*. Both *Cool Smart* and *Rhode Island Gas Heat Program* focused on contractors, with Conservation Services Group providing training, technical support, and marketing assistance to help encourage customers to upgrade to higher efficiency systems. *Cool Smart* also provided 732 quality control inspections in 2015, called Quality Installation Verifications or QIVs. 1,500 Cool Smart rebates[14] were approved in 2015 (vs. 1,495 in 2014). For *Commercial Upstream Cooling*, a circuit rider was used to provide field support.

[14] Source: Peregrine interview with CLEAResult

Lockheed Martin Services has also been involved in this program, promoting advanced thermostats and energy efficient water heaters to big box home improvement retailers.

In evaluating FTEs associated with the program, Peregrine counted the employees of vendors under direct contract to National Grid, but did not include labor associated with installation of this equipment, since it did not increase incrementally as a result of the Program.

Income Eligible Residential Programs

Income Eligible (low-income) programs were offered to National Grid customers in single family (1-4 unit) dwellings and multifamily (5 or more unit) buildings or developments that were eligible for the Low Income Heating Assistance Program (LIHEAP). Because this target audience was already being provided with some energy related assistance already through federal and state programs, National Grid's strategy was to piggyback on and complement and support these existing programs.

Specific 2015 Income Eligible Residential Programs, included:

Income Eligible Single Family (gas and electric)

The Income Eligible Single Family program provided low-income customers with home energy assessments, installation of energy efficient lighting, appliances, heating systems, domestic hot water equipment, and weatherization measures.

Delivery:

The Income Eligible Single Family program was provided through local Community Action Program (CAP) agencies that were under contract to the Rhode Island Department of Human Services (DHS) to deliver federally funded Weatherization Assistance Program (WAP) and the Low Income Heating Assistance Program (LIHEAP). All seven Rhode Island CAP agencies participated in and delivered Single Family Income Eligible Services. They provided three types of building audits: audits focused on lighting and appliances only that installed lighting products, audits providing detailed recommendations and work orders for insulation contractors, heating system installers, and fans; and comprehensive audits that did both. BPI-certified auditors completed building assessments and work orders. Special AMP (appliance management program) auditors installed lights and refrigerator measures.

Independent weatherization contractors installed the insulation and completed air sealing for the CAP agencies. These contractors were selected off a state-approved list and offered fixed pricing statewide for installed measures. Each agency had three to five insulation contractors it typically worked with. The CAP auditing staff inspected completed insulation work post-installation to ensure it was properly installed. Heating system upgrades were put out to bid to

heating contractors, and heating contractors also were used for post-installation inspections.

In July 2013, CLEAResult, with offices in Providence, Rhode Island, became the manager of the Income Eligible Residential program and has continued in that role in 2014 and 2015. CLEAResult has been responsible for training, quality control, and oversight of National Grid-funded services and installations delivered through CAP agencies. CLEAResult also served as the conduit for National Grid payments to the CAP agencies, and they worked closely with the Rhode Island DHS staff to coordinate delivery of National Grid-funded services and traditional Weatherization Assistance. CLEAResult staffing included a program manager, an installation quality assurance / quality control inspector, and administrative support.

ACTION, Inc., based in Massachusetts, was hired to manage the refrigerator replacement service provided to income eligible residential customers. This included product procurement, ordering, delivery, removal and disposing of old appliances, and conducting quality assurance surveys.

Income Eligible Multifamily (gas and electric)

In 2013, the Company consolidated energy efficiency offerings for income eligible multifamily properties with five or more units into the Income Eligible Multifamily program, which continued in 2014 and 2015. This suite of programs addressed both gas and electric opportunities, which were previously offered as part of EnergyWise or Large Commercial Retrofit. Comprehensive energy services available to these customers included energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting and appliances. Services are coordinated with delivery of the EnergyWise Multifamily program, but tracked separately. Additionally, the Residential New Construction program worked with Rhode Island Housing, local housing authorities, and developers of income-eligible housing to encourage construction of energy efficient properties.

Delivery:

In conjunction with its delivery of EnergyWise Multifamily services, RISE Engineering, based in Cranston, Rhode Island, had primary responsibility for delivery and coordination of Income Eligible Multifamily services. RISE staff serve as project managers for retrofit projects, meeting with building facility managers, making presentations to condominium boards and owners, and writing work orders and scopes of work (e.g. for air sealing, attic insulation, lighting fixtures, and even replacement refrigerators from retailers for low-income residents. Independent contractors installed weatherization materials (insulation and air sealing) and heating equipment components.

National Grid also began a Multifamily Benchmarking initiative in 2015, supported by a grant from Chicago-based Elevate, to provide affordable housing developers and operators of public housing authorities with building-specific information about the relative energy performance of

their properties. New Ecology, specialists in affordable multifamily housing energy analysis, provided this service out of its Providence office. Collaborators included National Grid, RISE, RI Housing, the RI Office of Energy Resources, and the Energy Efficiency and Resource Management Council. New Ecology screened 428 large and small multifamily buildings and met with owners to review and interpret findings. Poor performers were referred to RISE for targeted follow-on services.

Commercial and Industrial Programs

In 2015, National Grid's Commercial and Industrial (C&I) programs employed a range of delivery mechanisms, described below, to achieve National Grid energy efficiency goals in new building construction and building retrofits for large and small businesses. C&I budgets also supported energy efficiency in municipal facilities.

C&I programs differentiate between a limited set of "prescribed measures" offered primarily to smaller businesses and "custom" or "comprehensive" measures that are approved for larger businesses. While the Small Business program, described below, has a preferred contractor installing prescribed energy conservation measures with very attractive pricing, in the same way EnergyWise does in the residential market, in general, the delivery of C&I offerings increasingly has become more "market-driven" than residential programs.

C&I programs have been structured as a whole or in part to encourage independent product and service providers to market and deliver services to National Grid customers, driving sales using incentives available to them from National Grid for purchase and installation of qualifying products. This strategy allowed customers to work within existing contractor relationships to receive program incentives, and likewise allows contractors to work within existing customer relationships to identify opportunities for placing measures that National Grid wants to promote. It also meant that multiple venders can compete for a customer's business, while assuring the customer that they could bring the same National Grid incentives.

From both a jobs and a savings perspective, this has resulted in the numbers of energy services businesses directly participating in National Grid programs increasing significantly and has created new and additional opportunities for diverse vendors to promote emerging energy efficient technology to new and existing clients.

Small Business Direct Install (electric)

In 2015, the Small Business Direct Install program continued to provide direct installation of prescriptive and custom energy efficient lighting, non-lighting retrofit measures, and minor gas efficiency measures. Electric customers with average monthly demand of less than 200 kW were eligible to participate. The customer cost share for installations was 30% of the total cost of a

retrofit. Further, with the On Bill Repayment (OBR) option, a customer could choose to be billed monthly for its share over a two-year period interest-free for the amortized OBR amount.

The Direct Install program also included the SBS Coolers sub-program, which provided refrigeration controls and other refrigeration improvements to eligible customers. These measures included fan controls, cooler and freezer door heaters, smart defrost technology, EC motors, night shut off controls for novelty coolers, and LED lighting for refrigerator applications.

Delivery:

The Direct Install program's lighting and non-refrigeration measures were delivered by RISE Engineering of Cranston, Rhode Island and sourced from one product vendor (Rexel, formerly Monro Distributing). Both RISE and Rexel were selected through a competitive bidding process.

Nearly 1,340 customers participated in this program in 2015, up from the 1,050 customers participating in 2014, an increase of nearly 30 percent[15]. RISE provided turnkey installation services to this market, with annual goals, and accounted for just fewer than 80% of the customers serviced. The remaining 20% of customers served was through the Customer Directed Option or "CDO", initiated in 2014 and described below.

RISE staff engaged in the Small Business program included employees responsible for marketing and lead generation and staffing an intake center that was responsible for pre-qualifying potential customers. RISE energy specialists performed field audits of customers' facilities, and data entry staff used completed audits to generate proposals for customers. Audits also resulted in referrals to the Commercial and Industrial Gas Program. When a customer accepted a proposal, RISE project managers ensured that sufficient product was available, issued that product to installer/electricians, and ultimately closed out the work when the installation was completed. RISE maintained a supervised warehouse for material distribution and materials handlers. Electricians were both RISE employees and employees of sub-contractor Superior Electric. RISE also employed back office and accounting staff to service this program. In general, RISE employees supporting this program were salaried or hourly, while subcontractors were paid for installation work on a piece basis. Total employment from RISE and its sub-contractor Superior Electric associated with the Small Business program totaled 43.5 FTEs[16]. RISE also used two HVAC firms as controls subcontractors for installation of custom measures.

[15] Source: National Grid program statistics

[16] Source: RISE Engineering

As noted above, customers could also choose to use their own preferred electrician through the "Customer Directed Option" of the Small Business program. In 2015, over 250 customers used this option, working with nearly 25 separate firms[17].

National Resource Management (NRM), based in Canton, Massachusetts, once again delivered the SBS Coolers sub-program in 2015, which focused on controls and equipment upgrades for commercial refrigeration. NRM staff included administration and support personnel (some with technical specialties), sales representatives, and equipment installers, totaling 6.4 FTEs. Sales staff worked out of their homes in Rhode Island.

As was the case with residential programs, National Grid used CMC Energy Services, Inc. to provide quality assurance inspections of Small Business projects. Eight field inspectors conducted QA visits in Rhode Island and Massachusetts for the Small Business program as well as for the Large Commercial Retrofit and Upstream Lighting programs (described below), supported by schedulers and data entry staff. Approximately 2.25 FTEs of this team were engaged in National Grid's commercial and industrial programs in Rhode Island.

Large Commercial Retrofit (electric)

Large Commercial Retrofit is a comprehensive retrofit program designed to promote the installation of prescriptive and custom configurations of energy efficient electric equipment such as lighting, motors, and heating, ventilation and air conditioning (HVAC) systems, controls, and even combined heat and power systems in existing buildings. All commercial, industrial, and institutional customers are eligible to participate. Participating customers tended to be larger (i.e. have a monthly demand of 200 KW or more) or were pursuing "custom" electricity saving measures not available through the prescriptive Direct Install program. As was the case for the Small Business program, National Grid paid incentives to assist with defraying part of the material and labor costs associated with installing energy efficient equipment; but incentives available through this program were generally less generous than through the Direct Install program, with customers paying a larger percentage of the installed cost of measures.

National Grid also offered technical assistance to customers to help them identify cost-effective conservation opportunities.

Delivery:

Installations

The Large Commercial Retrofit program in 2015 continued to be a primarily market-based

[17] Source: National Grid program statistics

initiative with no formal program administrator or designated suppliers. National Grid established performance standards for energy measures and allowed customers to select suppliers and installation vendors. Again, as described above, National Grid paid incentives that helped defray a portion of the material and labor costs associated with installed energy efficient equipment.

National Grid statistics for the 2015 Large Commercial Retrofit program identified projects for around 510 individual customers. The 14 National Grid-approved Project Expeditors ("PEX") pursued, secured, and installed 217 of these projects, of which 132 (61%) were lighting retrofits, 15 were HVAC projects, 12 were variable speed drives, and the additional 58 were "custom" or comprehensive projects, often involving multiple energy efficient technologies, that received customized incentives from National Grid. Of the 217 total projects installed by the PEX vendors, three firms installed 173 (80%) of them: Energy Source, Inc. (94), RISE Engineering (44) and Energy Conservation, Inc. (35). Continuing a growing trend observed in 2013 and 2014, these expeditors engaged dedicated sales / project management staff and aggressively pursued potential customers, in many cases then subbing out the field work to licensed electrical contractors and technology specialists who received unit-based fees for completing installations.

There were over one hundred other Installation Contractors active in the Large Commercial Retrofit program in 2015, who also used the program as a means to induce customers to upgrade existing systems to improve energy efficiency or purchase and install qualifying energy efficient equipment. These vendors included general energy contractors and energy services companies, as well as purveyors of energy saving technologies, such as energy management systems, advanced lighting systems, process equipment, HVAC components, etc. Between them, they completed an additional 292 projects. Of these projects, 151 were for lighting (51%), 95 were "custom" projects, 34 were for variable speed drives, and 12 were HVAC projects.

Technical support

To further support large commercial customers, National Grid contracted with consulting engineers who could be assigned at the request of an account manager to assist a customer with identifying potential custom projects and to evaluate or model the energy savings that would result, including completing required program applications. Some of these consultants brought expertise in such specialties as data center energy efficiency improvement or laboratories and clean room technology. In other situations, the customer could propose his own engineer with a scope of work that National Grid might elect to support. Additional support was available from contracted consulting engineers to witness project commissioning, to confirm that the installed measures were operating and performing as anticipated, and to ensure that predicted savings would be achieved.

In a similar vein, National Grid contracted with CLEAResult, the parent company of Portland, Oregon-based PECI, through its Massachusetts office, to offer the Energy Smart Grocer sub-

program, which helped large and small supermarket chains identify and implement energy efficiency improvements. Working in 60 kW or larger supermarkets, CLEAResult focused on refrigeration improvement and some lighting. CLEAResult employed auditors and other technical staff to identify and develop refrigeration improvement projects, help engage contractors to complete upgrades, provide technical support as needed, and perform quality assurance inspections of installations. In total, 114 customers were served in 2015, up from 73 projects in 2014 and 69 projects completed in 2013[18]. These customers were part of 17 different parent accounts, representing a significant increase in the numbers of local and regional chains participating in the program, in large part through expanded outreach through the RI Food Dealers Association. Over 25 CLEAResult staff logged 2.3 FTEs providing these support services, with installations completed by independent contractors selected by customers.

Supply channel initiatives

National Grid's Commercial and Industrial Upstream Lighting program encourages customers to choose higher efficiency lighting products at the point of purchase. The assumption was that commercial customers were going to larger lighting distributors to purchase replacement lighting as it naturally failed and for large-scale change-outs. A program requirement was that this product could not be purchased and stored, but must be installed right away to generate immediate savings. The program's concept was to bring the incremental cost of the more efficient products available at distributors in line with now-conventional products so customers opt for high efficiency and lost opportunities for efficiency improvement could be avoided.

National Grid hired ECOVA to manage, support, and promote Upstream Lighting. ECOVA engaged manufacturers and calling on distributors. They offered incentives from National Grid to reduce list prices of certain energy efficient products to electrical contractors and businesses, with the goal of transitioning and transforming stocking behavior. ECOVA processed incentives and managed a quality assurance process to ensure that recorded sales were legitimate. National Grid contracted with Competitive Resources to conduct inspections to confirm that the purchased product had been installed[19].

In 2014, 429,034 units of lighting had been sold through upstream lighting. Of these, 261,820 were high efficiency linear fluorescent lamps (LFLs) replacing standard efficiency tubes. There were also 167,214 units of LED product sold. In 2015, the total volume of product sold fell to 327,420, in part due to less promotion of the program by National Grid, a drop of 24%. At the

[18] Source: Peregrine interview with CLEAResult

[19] Source: CMC Energy Services, DBA Competitive Resources Inc.

same time, the number of LFLs sold fell from 261,820 to 75,520, a drop of 71%, while sales of LEDs increased from 167,214 in 2014 to 251,900 in 2015, growing 50%.[20]

In 2015, National Grid required that all products purchased through Upstream Lighting at a subsidized price be installed immediately (i.e., not be stored and used to replace failed lamps in the future). Given the large volume of product sold under the program, Peregrine was curious how much labor the installation of Upstream Lighting products represented.

Given our lack of information about the identity of the many individuals doing these installations, how long each of them would take to do this work, and what the basis was for their compensation (e.g. salaried, hourly, fee-based, or unit-based), Peregrine applied the same product-specific per-unit-installed times provided to us by vendors that Peregrine used to calculate FTEs for lighting installations by electricians under the Direct Install and Large Commercial Retrofit programs. We reasoned that because those installation times reflected the high productivity of experienced electricians incentivized to work quickly, the resulting FTEs calculated would be a conservative number that did not overstate labor hours.

Using this methodology, we calculated that the total 327,420 units of product sold through Upstream Lighting in 2015 would require, at a minimum, a total of 31.8 FTEs to install. However, we recognized that not all of this labor should be counted as part of this study since many of the purchasers were National Grid electric customers whose employees were most likely installing products as part of their normal job duties.

Digging deeper into the Upstream Lighting data provided by National Grid, Peregrine found that a significant portion of the product purchasers were electrical contractors who were buying and presumably installing products at customer facilities. These 350 electrical contractors accounted for 13 FTEs of the total 31.8 FTE installation labor calculated, or 41% of the installations of product sold. Electrical contractors were, per the program design, using the discounted pricing of these products available from the lighting distributers they frequent to upsell customers to replace standard efficiency lighting with high efficiency product, further driving the market transition. Some contractors, most notably Energy Source Inc. who purchased 48,000 units of lighting or 15% of the Upstream Lighting product purchased in 2015, were particularly active participants in the program.

Large Commercial New Construction (electric)

The Large Commercial New Construction program encouraged energy efficient design and construction practices in new and renovated commercial, industrial, and institutional buildings.

[20] Source: Ecova

The program also promoted the installation of high efficiency equipment in existing facilities during building remodeling and at the time of equipment failure and replacement. The program offered incentives to eliminate or significantly reduce the incremental cost of high efficiency equipment over standard efficiency equipment and provided technical support to assist customers to identify opportunities for incremental efficiency improvement in eligible buildings.

Delivery:

The New Construction program is administered internally by National Grid. As noted above, it offers both technical and design assistance to customers to identify opportunities for incremental efficiency improvement in new building designs and to help customers and their architects/engineers to refine their designs to capture these opportunities.

Outside consultants are brought in to assist customers to identify and incorporate energy efficiency solutions into new construction designs and to complete detailed studies that model and quantify energy savings. Commissioning or quality assurance is also offered to ensure that the equipment and systems operate as intended. For example, one such technical consultant, SMMA, in collaboration with National Grid's strategy team, helped provided outreach to non-profits, schools, or municipal buildings between 20,000 and 50,000 square feet in area and critiqued proposed construction projects to optimize long-term energy performance.

For purposes of this study, as is the case with Residential New Construction, construction jobs associated with commercial new construction were not counted because National Grid's involvement primarily impacts what equipment is installed and construction labor does not measurably increase in these projects.

Commercial and Industrial Gas Programs

Commercial and Industrial Gas programs supported installation of energy efficient gas heating and water heating systems, certain thermal envelope measures, and custom gas systems in existing buildings and in new construction. The program guidelines for measure eligibility were the same as for the Large Commercial Retrofit program and the New Construction program. Retrofit measures must demonstrate that they will result in added efficiency beyond existing still functional equipment. For new construction or with failed equipment, the "lost opportunity" rules apply. New equipment, to be eligible for incremental incentives, must exceed the efficiency of what codes require. All commercial, industrial, and institutional customers were eligible to participate.

The Commercial and Industrial Gas programs also offered technical assistance to customers to help them identify cost-effective conservation opportunities and paid incentives to assist in defraying part of the material and labor costs associated with the energy efficient equipment.

Delivery:

RISE Engineering served as National Grid's Program Administrator for gas programs. RISE employees working on this project included a program manager and project coordinator, mechanical and electrical engineers, field staff performing audits and minor installations, and administrative personnel and support staff. A total of 8.3 FTEs from RISE serviced the Rhode Island program. RISE Engineering's Program Manager has described RISE's role in the program as "the gears that keep moving applications forward."

RISE received leads from a variety of sources, including project expeditors, mechanical contractors, and suppliers of equipment such as steam traps. RISE would then generate a Program application and as necessary or appropriate, review the customer proposal or undertake a scoping study. If the project proposed was acceptable (i.e. met National Grid's standards), RISE issued an offer letter to the customer authorizing the project to proceed. Customers had responsibility for arranging for and completing the installation. RISE performed a post-installation inspection and closed out the application so that the rebate could be issued.

Employment Impacts of National Grid Programs

2015 Program Budgets and Full Time Equivalent Employment

Peregrine found that an estimated 695.8 full-time equivalent jobs or "FTEs"[21] resulted from National Grid Rhode Island energy efficiency programs in 2015. The table on the following page summarizes the job impacts of the 2015 electric and gas energy efficiency programs, by program and by program sector. In the table, Program Support Service Provider FTEs have been allocated and integrated into individual program FTE counts and program sector FTE counts based on spend. These are added to the Direct Service Provider count for each program. Smaller programs with limited FTE counts, including pilots and community initiatives were combined into the category titled "other". Community Action weatherization assistance program staff and National Grid staff are counted in the 695.8 FTE total, but presented separately in the table.

Peregrine was not able to develop actual head counts of individual workers participating in delivery of and support for the 2015 National Grid programs in Rhode Island. However, Peregrine can say with confidence, based on interviews with companies directly involved in the implementation of National Grid's energy efficiency programs and though our analysis of field delivery, that the number of individual workers employed in and compensated for work on Rhode Island energy efficiency programs far exceeds the total FTEs.

As described in the Energy Efficiency Program Delivery section, many companies told Peregrine that they employed multiple individuals with specialized skills or in discrete roles that were important to delivering a comprehensive, high quality product or service; but only a portion of each employee's total annual hours were attributable to Rhode Island energy efficiency activity.

Some examples:

- National Grid calculated that there were 41.6 FTE National Grid employees who worked on Rhode Island energy efficiency programs in 2015, with over 85,000 hours billed against Rhode Island accounts. That FTE count represented the aggregated contributions of many more individual National Grid staff supporting energy efficiency in Rhode Island. These were a mix of Rhode Island-dedicated employees and employees with system-wide or similar other-state responsibilities who contribute fractionally to the Rhode Island FTE total.

[21] Peregrine and National Grid have defined a FTE for purposes of this study as 1,760 annual hours of employment (or 220 total days of employment per FTE).

2015 Full Time Equivalents by Program

PROGRAMS	2015 SPEND	TOTAL FTES
ELECTRIC PROGRAMS		
COMMERCIAL & INDUSTRIAL (C&I) TOTAL		**210**
C&I Financing	$4,000,000	**0**
Large Commercial New Construction	$8,538,704	1
Large Commercial Retrofit	$20,809,356	146.6
Small Business Direct Install	$10,734,963	60.6
Other	$146,850	1.8
LOW-INCOME RESIDENTIAL TOTAL		**37**
Single family Income Eligible Services	$7,067,927	28.6
Income Eligible Multifamily	$2,320,262	8.4
RESIDENTIAL TOTAL		**125.4**
Energy Wise	$9,782,191	97.2
EnergyStar Appliances	$1,931,580	10.1
EnergyWise Multifamily	$3,345,002	4.3
Home Energy Reports - Residential	$2,339,660	3.4
Residential New Construction	$1,003,693	3.1
Energy Star HVAC	$1,342,303	0.2
Energy Star Lighting	$6,905,723	1.6
Other	$1,047,130	5.5
NATURAL GAS PROGRAMS		
COMMERCIAL & INDUSTRIAL (C&I) TOTAL		**32**
Large Commercial New Construction	$1,843,675	0.9
Small Business Direct Install - Gas	$203,426	0.7
Large Commercial Retrofit	$3,226,992	23.9
Commercial & Industrial Multifamily	$705,437	5.8
Other	$50,774	0.7
LOW-INCOME RESIDENTIAL TOTAL		**43.8**
Single family Income Eligible Services	$2,682,705	23.4
Income Eligible Multifamily	$1,756,655	20.4
RESIDENTIAL TOTAL		**172.1**
Energy Star HVAC	$1,524,766	0.2
Energy Wise	$4,877,620	142.9
EnergyWise Multifamily	$1,694,198	26.2
Home Energy Reports - Residential	$455,512	.6
Residential New Construction	$450,772	1.4
Other	$71,851	0.8
COMMUNITY ACTION WEATHERIZATION STAFF		**34**
NATIONAL GRID STAFF		**41.6**
GRAND TOTAL		**695.8**

- Engineering firms that provided technical support, both general and specialized, to commercial and industrial programs, that provide energy efficiency services to multiple electric and gas utility companies and/or to multiple National Grid-serviced states, and dispatch staff when requested to assist individual Rhode Island customers. The intermittency of these Rhode Island requests and the necessary economics of maximizing staff utilization create a situation where Rhode Island customers are best served by engineering firms that also serve other larger markets. The Energy Smart Grocer program delivered by CLEAResult exemplifies this situation, with 25 employees based in Portland, Oregon and Springfield, Massachusetts, including three "local" field staff that did actually visit Rhode Island, used 2.3 FTEs in 2015 to work with 114 Rhode Island customers. Over the same period, CLEAResult worked with 380 National Grid customers in Massachusetts.

At the same time, for other service providers whose business focus is supporting utility initiatives and providing utility program services, the number of FTEs and the number of staff contributing to those counts may be nearly equal. For example, Rhode Island-based RISE Engineering was the lead vendor for many of the largest programs offered in Rhode Island by National Grid, including EnergyWise Single Family and Multifamily, Small Business Direct Install, and the Commercial and Industrial Gas programs. The larger size of these programs required and enabled RISE to employ full-time staff to serve in specific program roles, such as auditors and inspectors. Also, similarities between staffing needs across multiple programs, e.g. for engineering, materials handling, or accounting, allowed RISE to pool staff to provide higher levels of utilization and improved staffing economies. Additionally, similarities in technical needs between programs, e.g. for electricians, allowed RISE to employ a baseline number of full-time technical specialists, but then supplemented them on an as needed basis with sub-contracted assistance. But, at the same time, as new business opportunities in neighboring states have emerged and been secured, RISE has been able to grown further, shifting specialized staff back and forth between states as demand for services dictates, while maintaining or increasing the efficiency of staff utilization and improving labor economics.

As the table shows, the number of FTEs attributable to different programs was not necessarily proportionate to the relative size of program spending. For example, the Large Commercial Retrofit program included a significant installer labor component because the program replaces fully functional equipment. On the other hand, point-of-purchase programs like Upstream Lighting that use incentives to change buyer choices and supplier behaviors, may also replace fully functional equipment, but we assume that customer employees, who we not count as program-driven labor, install a large portion of this replacement lighting. Likewise, both residential and commercial New Construction programs impact the choice of materials, equipment, and construction techniques, but do not significantly increase amount of labor and time needed to construct the building.

Another factor influencing the number of FTEs associated with program spend was whether the energy efficiency measures installed, on a per dollar spent basis, were more labor intensive or equipment intensive. For example, weatherization materials (e.g., cellulose insulation, caulking, foam) to improve thermal performance and reduce air leakage in residential buildings (i.e. for installed insulation and air sealing) are simple and inexpensive. Most of the cost associated with weatherization is labor during the installation process. Other energy efficiency measures such as energy management controls systems, chiller and boiler replacement, or major HVAC upgrades deploy sophisticated, factory-manufactured equipment where the equipment is perhaps the greatest portion of the measure cost. While these measures often require design engineering as well as field labor to install, the considerable manufacturing labor hours is not represented in program FTE counts, so the FTEs per dollar spent is lower.

A countermanding force in terms of job impacts continues to be the ongoing desire of regulators and program administrators to increase the energy saved for each dollar spent. National Grid uses competitive bidding where practical to secure materials and labor vendors, requiring would-be contractors to devise strategies to tighten their belts and structure their workforce ever more cost effectively. Contractors have been increasingly paid on a fixed fee or a performance basis, encouraging them to keep their labor costs down, not only to be more competitive, but also to maximize margins. A vendor delivering a program or performing an installation who is not compensated on an hourly basis naturally looks for ways to maximize worker productivity, resulting in less labor required overall to achieve energy reduction goals and fewer FTEs for Peregrine to count.

Comparing 2015, 2014, and 2013 FTEs

Peregrine has calculated that 695.8 full-time equivalent jobs or “FTEs” were attributable to National Grid’s Rhode Island energy efficiency program spending in 2015, compared to 666.1 FTE jobs in 2014, and 558.9 FTEs in 2013. This represents an increase of 25% over the three years. Over the same period, total energy efficiency program spending and resulting savings increased as well.

During 2013, 2014, and 2015, National Grid’s programs and delivery strategies were not substantively different. The growth in job impacts over those years reflects increased customer and trade ally participation in National Grid energy efficiency programs, increased demand for energy efficient products and related services, and expanded service delivery. Over the same time frame, electric savings grew from 2.1% of 2012 sales in 2013 to 2.9% of 2012 sales in 2015, while gas savings increased from 0.87% of 2012 sales to 1.2% of 2012 sales. The following

section examines trends over the three years and makes several observations regarding impacts that program design, participation, and other dynamics may have on FTEs.

FTE Job Impacts by Program, 2015, 2014, and 2013[22]

	2015 FTEs	2014 FTEs	2013 FTEs
Electric Programs			
Residential Non-Income Eligible	**125.4**	**109.0**	**98.8**
Residential Income Eligible	**37.0**	**38.6**	**24.1**
Commercial and Industrial	**210.0**	**199.5**	**142.6**
Gas Programs			
Residential Non-Income Eligible	**172.1**	**178.0**	**159.1**
Residential Income Eligible	**43.8**	**42.5**	**34.9**
Commercial and Industrial	**32.0**	**27.0**	**30.3**
Community Action Agency staff	**34.0**	**32.5**	**30.7**
National Grid staff	**41.6**	**38.9**	**38.5**
TOTAL RHODE ISLAND FTE JOBS	**695.8**	**666.1**	**558.9**

Increased customer participation

One trend observed over the three year period is that programs experiencing increases in participation tend to experience increased FTEs. For example, the EnergyWise 1-4 Unit Building program for gas and electric customers experienced a growth in audit completions over the three years, with 7,800 audits delivered in 2013, 8,654 in 2014, and 10,055 in 2015. Over this same time period, combined electric and gas FTEs associated with the program increased from

[22] FTEs for 2014 and 2013 were updated to reflect a change in the methodology for counting multifamily and commercial insulation installation labor for 2015 and therefore do not match the previous reports. The updated methodology was applied to the previous counts in multifamily and commercial electric and gas programs so trends could be compared across the three-years. Detailed methodology can be found in Appendix A, page 39.

211.2 in 2013 to 240.1 in 2015. A similar trend is found in the EnergyWise Multifamily and the Income-Eligible Multifamily programs, delivered to both gas and electric customers by RISE Engineering. 4,312 market rate units and 4,876 income eligible units participated in the program in 2015, up from 3,400 market rate and 4,000 income eligible multifamily units in 2014. With this increase in participation, there was a combined corresponding increase from both programs delivered to both gas and electric residential customers from 46.7 FTEs in 2014 to 59.3 FTEs in 2015. Lastly, this can also be seen in the C&I sector where participation in the Large Commercial Retrofit program (electric) increased from 348 customers and 484 applications in 2013, to 430 customers and 578 applications in 2014, and to 459 customers and 614 applications in 2015, with corresponding increases in FTEs.

Broader trade ally engagement

National Grid continued to move away from program delivery models that limit participating vendors to being direct contractors to National Grid and their sub-contractors. This has expanded the opportunities for trade allies to initiate projects with new or existing customers, supported by direct access to National Grid incentives. This has been particularly true in programs serving commercial and industrial customers where one can see an increase in FTEs over the three-year period, particularly in the electric sector. Notable examples of this trend include the Large Commercial Retrofit program (electric) described above where installation contractors, suppliers, and project expeditors drove the sale and installation of energy efficient projects; the Small Business program where an increasing number of electrical contractors are participating under the Customer Directed Option, exploiting existing relationships; and Commercial Upstream Lighting, where electrical contractors used the discounted pricing of products available from lighting distributers to upsell customers to replace standard efficiency lighting with high efficiency product, further driving the market transition.

Changing Measure Mix

In 2014, there had been a significant jump in FTEs supported by the Large Commercial Retrofit program (electric) due to the Toray Plastic America's 12.5 MW combined heat and power project. This project alone had resulted in 42 FTEs of jobs in 2014.

But even without a similarly large CHP project in 2015, the Large Commercial Retrofit program (electric) continued to see an increase in FTEs. We conclude that this is most likely a reflection of the different mix of technologies installed in 2015 and the relatively higher labor intensiveness of installed costs. The units of prescriptive lighting products installed through the Large Commercial Retrofit program increased from 32,692 in 2014 to 89,701 in 2015. These were primarily conversions to LED lighting, with a resultant increase in associated labor from 34.3 FTEs to 71.2 FTEs, an increase nearly equal to the total FTEs associated with the Toray CHP project in 2014.

Additional drivers affecting total FTES

Peregrine also found that total FTEs in the residential sector, generally associated with installation of energy efficiency measures to manage heating costs, can also vary significantly year-to-year. For example, looking at the Income-eligible residential program in 2015, there was a measurable, though not large, drop in FTEs for income-eligible electric customers served from 2014 to 2015. Total FTE's in this category fell by 4% from 2014 to 2015 after a significant jump of 60% from 2013 to 2014. During this same period, the number of income-eligible gas customer FTEs increased slightly from 42.5 in 2014 to 43.8 in 2015, though 2014 represented a significant increase in weatherization and heating system installation activity (22%) compared to 34.9 FTEs in 2013.

Such differences in FTE jobs created year-to-year and fuel-to-fuel can be caused by a number of factors. One factor is, of course, the natural variability of customer preferences, retrofit opportunities at customer residences, and the mix of measures installed as a result. Customer choice and measure mix can often be impacted by changes in energy prices and weather. The very large spike in FTEs for the installation of weatherization materials and heating systems for income-eligible electric customers in 2014 was likely due to the combination of a very cold winter with extraordinarily high oil and propane prices. This may have driven customers on limited fixed incomes to request services from Community Action Agencies. These same cold temperatures likely also drove income eligible natural gas customers to seek assistance in that cold winter, but the relatively lower cost for natural gas probably mitigated that demand and the FTEs created.

Conclusions

The FTE jobs associated with the implementation of energy efficiency services will likely continue to increase during the coming years along with the pace of increased participation and spending on these programs. While such increases in participation and spend appear to correlate closely with growth of FTE jobs, there are other factors in play that can reduce or encourage job creation over time.

- Changing energy costs can affect customer behaviors, encouraging or discouraging customer choice to invest in energy efficiency measures that would result in job creation.
- Continuing evolution of and price drops for energy technology, as has been demonstrated by the emergence and growth of LED lighting, could create new cost-effective installation opportunities for energy efficient products. In the case of LEDs, the availability of low-cost LED linear lamps in the next year or so would result in an opportunity to replace all existing linear fluorescents, re-opening a huge, labor intensive lighting retrofit market that had been maxed out by the limits of fluorescent technology.

- Program design adjustments that further encourage all natural trade allies to make use of incentives available from National Grid, enabling them to sell products and services to existing and new customers can lead to increases in FTEs.

We will watch and see how these influences and factors affect job creation resulting from expenditures for energy efficiency in Rhode Island by National Grid in 2016 and beyond.

Attachment A: Methodologies used for Assessing Employment

Program Support Service Providers

National Grid

National Grid provided to Peregrine a summary of billed hours and FTE counts for employees involved with individual energy efficiency programs in Rhode Island in 2015. Responsibilities of these employees included program planning and development, program administration, regulatory affairs, marketing, evaluation, and market research. Peregrine is reporting National Grid FTEs as a separate category for purposes of this study and not allocating them to specific programs or groups of programs.

Support Services Contractors

Peregrine interviewed most of the larger contractors who supported National Grid in these activities, and they described their roles and responsibilities and provided counts and hours for employees supporting National Grid in Rhode Island. Often, the FTEs Peregrine is reporting represent the aggregation of small numbers of hours by numbers of employees. Often, this was because the contractor's role was required contributions from many members of a multi-disciplinary team. Depending on the nature of the services provided and whether the support role could be associated with specific programs, time of these contractors is assigned to programs according to the overall allocation of gas and electric spend by program sector (Residential, Residential Income Eligible, Commercial and Industrial), or allocated to a specific program sector.

Direct Service Providers

Employee numbers reported by Direct Service Providers was a primary input to FTE counts. Peregrine Interviewed the major contractors directly engaged by National Grid to support or deliver Rhode Island programs to get information about type, number, and responsibilities of personnel employed. Some of these contractors provided the same services in 2015 to National Grid customers in multiple states and in some cases to multiple utilities, often using the same team of employees. Peregrine relied on their informal calculations of allocations of time to Rhode Island when formally reported hours from time cards were not available.

Where employer-sourced information on employment was not available, Peregrine relied on program records and statistics for 2015 to calculate person-hours, person-days, and ultimately annual full time equivalent field staff. Peregrine used Totals for individual energy efficiency measures installed or, in some cases, totals of specific products installed in 2015 to calculate FTEs by multiplying the average time required (in person-hours or person-days) for each installation by the number of installations and converting the result to FTEs based on an

assumed 1,760 work hours per year or 220 work days per year. These unit-based installation times were secured from representative installation companies that performed this work or from organizations that supervised installation activity. In cases where major employers could provide actual installer hours of work to Peregrine, those actual hours or days of work were used instead of calculated FTEs.

Residential Programs

EnergyWise 1 – 4 Unit Residential Program

For the EnergyWise Residential program, Peregrine spoke with RISE Engineering's program manager who provided an overview of how the program functions and changes from 2014, as well as updated FTE counts of RISE employees in various roles based on payroll tracking. We then allocated this total number of FTEs to gas and electric programs.

In 2014, RISE had shared general rules of thumb for how weatherization contractor crews and heating contractors perform site work that had been borne out by direct interviews with a sample of the insulation installation companies and interviews with community action program supervisors with similar responsibilities for low-income residential services. Peregrine continued to use these rules of thumb in 2015 to estimate numbers of FTE insulation and heating system contractor personnel that installed major energy efficiency measures.

Peregrine learned that it takes a crew made up of three insulation contractors an average of two days to complete a weatherization job (insulation and air sealing). National Grid provided counts of numbers of insulation jobs completed by each participating insulation contractors in 2015. We then used the total numbers of insulation jobs and the average number of man-days required for each installation to calculate a total number of FTEs (again, assuming work 220 days per person per year) providing insulation services in 1-4 unit buildings. FTEs were marked up by 20% to account for a contractor's support and management staff.

For heating system installations, we learned that it requires a two-person team four days on average to remove and replace a heating system. Peregrine secured counts of high efficiency heating systems and related equipment installed in 2014 from Blackhawk Engagement Solutions which processes the incentives paid out for these installations. Since Peregrine had differentiated counts for replacements furnaces and boilers, Peregrine assigned less installation time to replacement furnaces (due to less piping work) and adjusted time estimates accordingly. Replacement residential gas equipment was allocated to the gas program and replacement residential oil or propane heating equipment was treated as an expense of the electric program. Average number of hours required for an installation was multiplied by the total number of items installed. The total number of calculated hours was then divided by 1,760 hours to convert it to FTEs, and the FTEs were marked up by 20% to account for a contractor's support and management staff.

EnergyWise Multifamily Residential Program

As with the EnergyWise 1-4 Unit Residential Program, Peregrine interviewed RISE's program manager and was provided with staffing counts. In addition to general program supervision, responsibilities included technical leadership, auditing, field coordination and inspections, and electrical installation work. Again, RISE was able to convert staff counts to FTEs associated with this particular program. Peregrine relied on installation counts from National Grid to determine numbers of individual measures that had been installed by independent insulation contractors and heating contractors in these buildings. As was the case for contractors installing ECMs in 1 to 4 unit buildings, these counts were multiplied by average times for installations in hours or portions or hours, and the resulting total hour counts were divided by 1,760 hours per FTE to arrive at annual FTE counts.

Adjustment to calculation methodology from prior years

Calculations for FTEs for multifamily insulation work had, in prior years, always been calculated in *time per square foot of insulation installed* (unlike for the 1 – 4 unit program where calculations were based on *average total man-days per job*) that had been provided by a Program contractor in 2013. In reviewing this methodology as we began our 2015 calculations, Peregrine found it had insulation for the 1-4 unit program presented both as total jobs and as square feet of production installed and decided to compare total results using the per square foot metric and the man-day metric. In doing so we realized that the square foot metric used for multifamily and commercial insulation labor had been undercounting by around a factor of 10. We calculated and applied a new time factor for "per square feet of insulation installed" in 2015 in these buildings, based on this finding. We also revisited the calculations for multifamily and commercial insulation installation FTEs for 2013 and 2014, revised the FTE counts using the new time factor, and are using these revised total FTEs in the comparison discussion of total 2013, 2014, and 2015 job counts.

Residential New Construction
Residential Home Energy Report Program
Residential Community Based Initiatives
ENERGY STAR® HVAC Program

The residential programs in this grouping were all funded in 2015 by both residential gas and electric year-end spend. For each of these programs, there was no significant incremental labor impact associated with product installed or purchased because the program did not so much affect whether product was installed as it did which product was installed. Peregrine generated FTE counts through interviews with individual businesses that provided support services (e.g. marketing assistance, informational mailings, technical assistance and training, quality assurance inspections). These businesses provided staffing counts for 2015 from their

accounting records. Total FTEs were then allocated to gas or electric based on the ratio of spending in each residential gas and electric program.

ENERGY STAR® Lighting
ENERGY STAR® Products

Both of these programs were funded solely through the residential electric budget. For both programs, there was no significant incremental labor impact associated with amount of product installed or purchased. Further, retailers' staff engaged at the point-of-sale were not counted as incremental FTEs. Peregrine generated FTE counts through interviews with individual businesses that supplied support services (e.g. marketing assistance, refrigerator recycling). These businesses provided staffing counts for 2014 from their accounting records. Total FTEs were then allocated to the residential electric spend.

Low Income Residential Programs

Income Eligible 1-4 Unit Residential

FTE counts for this program for 2014 include program management staff by the program vendor CLEAResult, Community Action Program (CAP) agency staff counts, and calculated labor required to complete installations. CLEAResult staff FTEs came from direct interviews. Total CAP agency staffing was developed from counts of staff in different roles by CAP agency that were put together by the Rhode Island Department of Human Services. National Grid provided the counts of weatherization and heating system installations completed in 2014. CAP agencies provided guidance on contractor crew sizes and installation practices that Peregrine used to calculate the numbers of FTE installers who performed this work.

Income Eligible Multifamily Residential

Peregrine used the same approach to calculating FTEs for the Income Eligible Multifamily program as for the EnergyWise Multifamily Residential Program since both programs were administered by RISE Engineering and used the same delivery strategy.

<u>Adjustment to calculation methodology from prior years</u>

As was the case with EnergyWise Multifamily installations of building insulation, Peregrine applied calculated and applied a new time factor for "per square feet of insulation installed" in 2015 in income eligible multifamily buildings, based on a determination that we had undercounted labor FTEs in prior years. As with the EnergyWise Multifamily program, we revisited the calculations for income eligible multifamily insulation installation FTEs for 2013 and 2014, revised the FTE counts using the new time factor, and use these revised total FTEs in the comparison discussion of total 2013, 2014, and 2015 job counts.

Commercial and Industrial Programs

Small Business Direct Install Program

Peregrine used counts of employees provided by RISE Engineering, the regional program administrator, to generate FTEs for RISE staff involved in program management and measure installations and for their sub-contractors as well. No actual measure counts and calculated FTEs were used to compile job counts attributable to the work of RISE and its subcontractors, as all workers were accounted for without a piecework analysis. Peregrine also calculated additional FTEs associated with the "customer-directed option" (or "CDO") that allowed customers to use an electrician they had an existing relationship with to install program measures and receive the same incentives as were available through RISE. These numbers were based on information from RISE about numbers of electrical contractors that were active through CDO and then cross tabulating this number against installation time that would be required for actual items installed.

CLEAResult provided staff counts for the Smart Grocer sub-program. National Resource Management (NRM) tallied total hours of individual support staff by responsibility, as well as provided FTE counts of installers it employed.

Large Commercial Retrofit Program (electric)

As described in the section on energy program delivery, the Large Commercial Retrofit program was the most market-based of all electric programs provided. There was no program manager under contract to facilitate or organize installation work. Customers initiated projects, as did businesses that had products or services they were trying to sell.

Peregrine used National Grid's descriptions and counts of technical assistance and installations performed during 2015 to calculate workforce impacts. They only exception to this approach was counts Peregrine secured from interviews with Project Expeditors regarding sales and project management staff they were employing to secure and oversee projects.

National Grid provided engineering services to customers through retained contractors, in particular where "custom" energy efficiency solutions required technical support to determine what could be done, what should be done, what energy savings would result, and what incentive levels were appropriate. To calculate the FTEs associated with technical assistance support provided by engineers under contract to National Grid, Peregrine took the total dollars paid out for this work and calculated how many hours of labor it represented at an assumed $120 per hour. Total hours were then converted to FTEs.

Installation work performed was treated in a number of ways, depending on how much information was available to Peregrine in the data sets supplied by National Grid. For Upstream

Lighting, National Grid provided counts of product sold, which Peregrine converted to installation hours using per unit labor requirements and then counted the times for installations by electrical contractors that purchased these materials on behalf of customers.

Large Commercial Retrofit projects that were identified as part of a specific technology group (e.g. lighting, motors) and that had counts of products installed were the easiest to develop FTE estimates for. In other cases, particularly "custom" projects where installation numbers might be missing or no separate labor cost component of projects is identified to National Grid for these projects, Peregrine extrapolated labor required from total cost. Peregrine used the average installation times provided to us by installation vendors to estimate workforce requirements and number of hours or days (for more labor intensive projects) per installation and converted this to FTEs. In doing these calculations, Peregrine did not concern itself about whether the contractor of record for the job was a customer, a general contractor, or an installation contractor. We assumed that installation contractors who were motivated to work as efficiently as possible were doing the installation work.

For larger, more complex custom projects, the energy efficiency project component of the total cost may only be a portion of the total project cost identified in the National Grid database so Peregrine used incentive levels paid out to tease out the total efficiency project cost. This required comparing incentives paid for simple projects and the complex custom projects covered by the program to determine the efficiency project size. Once the size of the efficiency project was determined, we could apply assumptions about the ratios of labor cost to material cost for different technologies and calculate the type and number of labor hours this represented, aggregate the total hours, and convert them to FTEs.

Commercial and Industrial Gas Programs

The Commercial and Industrial Gas programs were managed for National Grid by RISE Engineering, and Peregrine interviewed RISE to secure counts of RISE employees and FTEs. A variety of contractors installed energy efficiency measures installed. Peregrine used measure counts that National Grid provided to calculated how many FTEs of labor they represented, applying average installation times provided to us by installation vendors, determining how many hours or days were required in aggregate, and converting these hours or days to full-time equivalent jobs.

Attachment B: Interview Guide

National Grid 2015 RI Labor Study
Organization Interview Guide

Interview date:

National Grid Program:

Program overview and how delivered/program volumes in 2015:

Supplier company/organization:

Interviewee/position/phone/email:

Company role (i.e. services provided):

Changes from prior year?

How long has company been involved in the program? ____

Staff assigned:

- Name/Title/Role Number / FTEs Pay (salary, hourly, piece, commission)?

Location(s) of office(s) providing services and activities:

RI based staff?: Yes/No. Head count? _____

Are sub-contractors used?

- Names Roles compensation type Contact info

Are there installation contractors involved in service delivery to Nat Grid customers?

- Names Roles compensation type Contact info

Does Program result in increased employment or additional hours for RI contractors?

Additional comments:

Attachment C: Participating Companies

The list includes contractors and subcontractors performing work directly for National Grid Energy Efficiency programs in 2015 that were counted in the FTE analysis and additional companies who assisted customers to secure equipment rebates, for example through the New Construction, High Efficiency HVAC programs, and upstream lighting. 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 1,009 companies, agencies, contractors and sub-contractors listed here, 793 (79%) are either headquartered in Rhode Island, or have a physical presence in Rhode Island. The list is organized first by state (alphabetically), and then alphabetically by company name. To find the Rhode Island companies, move to the first appearance of "RI" in the far right column.

Vendor	Town	State
Accurate Background, Inc.	Irvine	CA
Bigspeak Inc.	Santa Barbara	CA
Energy Efficiency Funding Group Inc.	San Francisco	CA
Interviewing Service of America	Van Nuys	CA
Nest Labs Inc.	Palo Alto	CA
Regency Lighting	Chatsworth	CA
Waypoint Building Group	San Francisco	CA
Heschong Mahone Group Inc.	Gold River	CA
Apex Analytics	Boulder	CO
E Source Companies LLC	Boulder	CO
AMCO and Co.	Dayville	CT
AMS Greensolutions LLC	Willington	CT
Best Energy Plumbing Heating Air Conditioning	Pawcatuck	CT
Competitive Resources Inc.	Yalesville	CT
D Mac and Son	Moosup	CT
DDLC Energy	New London	CT
George Chartress	Norwich	CT
Greenleaf Energy Solutions	Oxford	CT
Harrington Plumbing and Heating	Pawcatuck	CT
Irvin McLaughlin Ebd	North Grosvenor Dale	CT
JK Muir LLC	Durham	CT
Lantern Energy, LLC	Norwich	CT
Nick Zaharie	Pawcatuck	CT
Shannon NRG Resource	Waterbury	CT
Techniart Inc.	Collinsville	CT
Upland Construction Group	North Stonington	CT
Wattsaver Lighting Products Inc.	East Hartford	CT

WJR Plumbing and Heat	Voluntown	CT
American Council for an Energy-Efficient Economy	Washington	DC
Energy Solutions Center	Washington	DC
Smartpower	Washington	DC
A Led Lights LLC	Jacksonville	FL
Apollo Lighting	Fort Lauderdale	FL
Green Lumens LLC	Boca Raton	FL
Pro. Unlimited Inc.	Boca Raton	FL
Hill Phoenix Inc.	Conyers	GA
National Energy Educational Development Need	Manassas	GA
Innerworkings Inc.	Chicago	IL
Gexpro	Indianapolis	IN
3-D Lighting	Franklin	MA
A Plus J Home Air	Attleboro	MA
Action Inc.	Fall River	MA
Advanced Plumbing and Heating	Seekonk	MA
Alternative Creative Energy and HVAC Inc.	Blackstone	MA
Alternative Weatherization, Inc.	Fall River	MA
American Plant Maintenance	Woburn	MA
Anctil Plumbing and Heating Inc.	Somerset	MA
Andelman and Lelek Engineering Inc.	Norwood	MA
Anthony F Vieira III Heating and Air Conditioning	Attleboro	MA
Apollo Brothers LLC	Fitchburg	MA
Araujo Bros Plumbing and Heating	New Bedford	MA
B2Q Associates Inc.	Andover	MA
Backlund Electric Corporation	Norfolk	MA
BDL Heating and Cooling Inc.	North Attleboro	MA
Beaupre Electric	Assonet	MA
Ben Therrien Home Improvement	Attleboro	MA
Bob Costa	Seekonk	MA
Briggs Mechanical Inc.	North Attleboro	MA
Bruin Corp.	North Attleboro	MA
Building Science & Construction	Braintree	MA
C & S Electric	Groveland	MA
Caliber Building and Remodeling	Sandwich	MA
Camaras Heating and Air Conditioning Services	Westport	MA
Center for Ecological Technology	Florence	MA
Champion Resources	Ipswich	MA
Cloud Sherpas LLC	Boston	MA
Columbus Energies Inc.	Swansea	MA
Compressed Air Technologies Inc.	Shutesbury	MA
Conservation Services Group Inc.	Westborough	MA

Consolidated Marketing Services	Burlington	MA
Consortium For Energy Efficiency	Boston	MA
Controlled Temperature Heating & AC	Westport	MA
Conventures Inc.	Boston	MA
Coolidge Coolant Company Inc.	Waltham	MA
Copland Mechanical Services Inc.	South Attleboro	MA
Copperline Plumbing and Heating	Rehoboth	MA
Dalpes P and M Services Ltd	Bellingham	MA
Datasense Solutions Inc.	Waltham	MA
Deschenes Plumbing and Heating	North Attleboro	MA
DMI	Wellesley	MA
Don Dalpe Plumbing	Blackstone	MA
Douglas Ahaesy Electric	Fall River	MA
DW Smith Plumbing and Heating HVAC	Uxbridge	MA
E & V Oil Co Inc.	Swansea	MA
Ecast Video LLC	Boston	MA
Ecova Inc.	Boston	MA
Einhorn Yaffee Prescott Architecture	Boston	MA
EM Corbeil Inc.	Millville	MA
ENE Systems Inc.	Canton	MA
Energy & Resource Solutions Inc.	North Andover	MA
Energy Federation Inc.	Westborough	MA
Engineered Solutions Inc.	Natick	MA
Ferreira Builders	Attleboro	MA
FL Machado Plumbing and Heating LLC	Seekonk	MA
Forest Hills Electrical Supply Inc.	Randolph	MA
GH Electrical Service	Attleboro	MA
GM Refrigeration	Fall River	MA
Graybar	Boston	MA
Greenleaf Associates Inc.	Weston	MA
Gustave Mattos Electric Co Inc.	Fall River	MA
Heating and Air Conditioning Contractors	Swansea	MA
HVAC 360	Rehoboth	MA
IBM Corp.	Cambridge	MA
Indresano Energy Company	Wellesley Hills	MA
Inline Plumbing and Heating	Fall River	MA
Insulate 2 Save	Fall River	MA
Jaco Environmental	Franklin	MA
Jaquez General Contractor	Lynn	MA
Jarosz Plumbing and Heating	Rehoboth	MA
Jay Sheldons Heating	Seekonk	MA
JPS Plumbing Heating and Air Conditioning	Westport	MA

KEMA	Burlington	MA
Larrys Heating and Ac	Rehoboth	MA
Lavoie	Seekonk	MA
Lewis Rheaume Plumbing and Heating	Seekonk	MA
Litemor	Norwood	MA
Lockheed Martin	Burlington	MA
LS Heating and Air Conditioning	Seekonk	MA
M & M Plumbing and Heating Inc.	Rehoboth	MA
M Sardinha and Sons Plumbing and Heating Inc.	Fall River	MA
Marcs Sheet Metal Inc.	Assonet	MA
Mark Cordery HVAC	Berkley	MA
Matt Machado Plumbing and Heating	Dighton	MA
MJ Electric and Refrigeration LLC	Rehoboth	MA
Motus LLC	Boston	MA
National Resource Management	Canton	MA
NESCO	Canton	MA
New Ecology Inc.	Boston	MA
New England Energy Management Inc.	Leominster	MA
New England Weatherization, LLC	Attleboro	MA
Nexant Inc.	Burlington	MA
Next Step Living	Boston	MA
Northeast Efficiency Supply (NES)	Sutton	MA
Northeast Electrical and Mechanical Services Inc.	Walpole	MA
Northeast Energy Efficiency Partnerships	Lexington	MA
O'Brien & Neville Inc.	Holliston	MA
Olean Mechanical	Seekonk	MA
O'Neill Mechanical Services	Seekonk	MA
Opinion Dynamics Corporation	Waltham	MA
Opterra Energy Services	Norwell	MA
P & P Plumbing	West Roxbury	MA
Pacheco-Cooke Electrical	North Attleboro	MA
Patriot Sheet Metal HVAC	Seekonk	MA
Paul Whitman Electrical	Pembroke	MA
Peregrine Energy Group	Boston	MA
Propane Plus Heating and Cooling	Rehoboth	MA
Quality Climate Control Inc.	Fall River	MA
Rebello Weatherization Inc.	Swansea	MA
Reis Electric	Westport	MA
Rethinking Power Management	Boston	MA
Retrocool Energy Inc.	Natick	MA
Retrofit Insulation	Fall River	MA
Rhode Island Sheet Metal LLC	Rehoboth	MA

Rickard and Sons Plumbing and Heating	Seekonk	MA
Ritchie's Insulation	Westport	MA
River Energy Consultants	Fall River	MA
Robert Main	Seekonk	MA
Roia Jason Electrical	North Dartmouth	MA
Ronald Houde	Somerset	MA
Sacks Exhibits	Wilmington	MA
Savio Lighting	Needham	MA
Southeastern Gas Services LLC	Swansea	MA
Standard Electric	Wilmington	MA
Steam Trap Systems	Amesbury	MA
Sylvia Contracting	Acushnet	MA
Tetra Tech Ma Inc.	Boston	MA
The Cadmus Group Inc.	Waltham	MA
The Gas Man	Brockton	MA
The Heating Man	Rehoboth	MA
The Royal Flush Plumbing Inc.	Seekonk	MA
Theroux Mechanical	South Attleboro	MA
TJ's Plumbing and Heating Inc.	Attleboro	MA
TNZ Energy Consulting Inc.	Stoughton	MA
Triangle Refrigeration	Fall River	MA
Valley Plumbing and Heating	Kingston	MA
Vaughan Plumbing	Dedham	MA
Veolia ES Technical Solutions LLC	Boston	MA
Watermark Electric Co	Somerset	MA
Wayne Griffin Electric Co	Holliston	MA
Weston & Sampson Cmr, Inc.	Peabody	MA
Bulbs.Com	Worcester	MA
Earth Networks Inc.	Germantown	MD
Boyko Engineering Inc.	Gorham	ME
Douglas C Baston	Alna	ME
Controltec LLC	Allen Park	MI
Energy Management Collaborative LLC	Plymouth	MN
Compressor Energy Service	Merrimack	NH
FW Webb	Amherst	NH
IMMI (International Marketing Management, Inc.)	Portsmouth	NH
KT&T Distributors Inc.	Nashua	NH
Weller & Michal Architect	Harrisville	NH
Clear Energy LLC	Bloomfield	NJ
CMC Energy Services Inc.	Cranbury	NJ
Ideas Agency Inc.	Blairstown	NJ
Russell Marketing Research	East Rutherford	NJ

SHI International Corp.	Somerset	NJ
AM Home Delivery	Brooklyn	NY
Edoe Inc.	New York	NY
Illuminating Engineering Society	New York	NY
Integral Group	New York	NY
Integrated Marketing Services Inc.	Liverpool	NY
MRY US LLC	New York	NY
Owens Kopilak Klein Lurie	New York	NY
Ram Marketing	Saint James	NY
SPPRO Inc.	Bronx	NY
Questline Inc.	Columbus	OH
Ecobee Inc.	Toronto	ON
Real Winwin Inc.	Philadelphia	PA
2 Sons Electric LLC	East Providence	RI
2Story Design Build	Providence	RI
3Js Plumbing	Warwick	RI
A & C Burner Service HVAC	East Providence	RI
A & I Electric	Pawtucket	RI
A & J Electric	Cranston	RI
A & L Plumbing Mechanical and Consulting	Westerly	RI
A & M Compressed Air Products Inc.	Providence	RI
A & T Construction	Warren	RI
A E Costa Electrical Contractor LLC	Warwick	RI
A Perry Plumbing and Heating	Coventry	RI
A Rooter Man Plumbing Heating Drains	Providence	RI
A.R. Heating and Cooling Inc.	Providence	RI
A.T. Electric Contractors	Providence	RI
A1 Electrical Construction LLC	North Providence	RI
ABC Heating Services	Bristol	RI
Abernathy Lighting Design Inc.	North Providence	RI
ABM Enterprises Inc.	Exeter	RI
Aces Plumbing and Mechanical	North Providence	RI
Acme Electric Inc.	North Providence	RI
Acorn Maintenance	Warwick	RI
ACR Construction and Management Corporation	Pawtucket	RI
ADI Energy	Warwick	RI
ADM Contractors	Albion	RI
Advance Electrical Corporation	Providence	RI
Advanced Comfort Systems Inc.	North Smithfield	RI
Affordable Building and Weatherization Inc.	East Greenwich	RI
Affordable Heating and Air Conditioning Services	Providence	RI
Affordable Insulation Inc.	Providence	RI

AIA and Sons Construction	Warwick	RI
Air Conditioning Services Of New England Inc.	Cranston	RI
Air Metalworks Ltd	North Providence	RI
Air Synergy Cooling and Heating Systems Specialist	Providence	RI
Air Tech Heating and Air Conditioning	Rumford	RI
Air Temp	Riverside	RI
Aire Serv Heating and Air Conditioning	Pawtucket	RI
Airhart Electric Inc.	Coventry	RI
AJC Electrical Services LLC	Cranston	RI
AJ's Contractors	Providence	RI
Al Swajian and Son Plumbing and Heating	Cranston	RI
Alan Jerauld	North Providence	RI
Alan Paul Electric	Warwick	RI
Albert S Gizzarelli Plumbing and Heating Inc.	Greenville	RI
All In One Plumbing Heating and Cooling	West Warwick	RI
All Phase Heating Concepts	Woonsocket	RI
All Seasons Heating and Air Inc.	Johnston	RI
All Star Insulation	Providence	RI
Allan Menard Plumbing LLC	Pawtucket	RI
Allen Plumbing and Heating	North Providence	RI
Alliance Plumbing and Heating Inc.	Cumberland	RI
Almeida Plumbing and Heating and Air Inc.	Greenville	RI
Alpha Electrical Contractors Inc.	Riverside	RI
Alpha Mechanical	East Providence	RI
Al's Plumbing and Heating	West Warwick	RI
Alternative Heating and Cooling	Cranston	RI
AMC Construction Service	West Warwick	RI
American Development Institute Inc.	Warwick	RI
American Electric Service Inc.	Cranston	RI
American Home Heating and Air Conditioning Inc.	Providence	RI
Amity Electric	Wyoming	RI
AMJ Contracting	Cranston	RI
Anchor Insulation	Pawtucket	RI
Anchor Plumbing and Heating Company Inc.	Providence	RI
Andy's Overhead Electric	Kingston	RI
Angell Heating and Cooling	Peace Dale	RI
Anibal Ramos	Providence	RI
Anne The Plumber	Woonsocket	RI
Anthony Berard	Cumberland	RI
Anthony Januario Heating Co	Bristol	RI
Anthonys Quick Plumbing and Heating	Johnston	RI
Antonio's Electric Company	East Providence	RI

Anytime Plumbing Service	Harrisville	RI
APuzzo Plumbing and Heating	North Scituate	RI
Arden Engineering Constructors LLC	Pawtucket	RI
Ardente Supply Co Inc.	Providence	RI
Armor Plumbing	Exeter	RI
Arthor Dipetrillo Plumbing and Heating	Johnston	RI
Arthur W Adler	Bristol	RI
Aten Energy	Pawtucket	RI
Atlantic Control Systems	Exeter	RI
Atlantic Supply Inc.	Coventry	RI
Atlantis Comfort Systems Corp	Smithfield	RI
Atlas Insulation	North Scituate	RI
Auburn Electric Company	Cranston	RI
Autiello Plumbing and Heating LLC	Cranston	RI
Automatic Heating Equipment Inc.	Providence	RI
Azverde Electric Co	Cumberland	RI
B & B Consumers Natural Gas Service	Woonsocket	RI
B & J Matzner	Warwick	RI
B & K Electric, LLC	Cranston	RI
B & P Plumbing and Heating	Westerly	RI
Baptista Electric	Cumberland	RI
Barlow Heating LLC	Warwick	RI
Barradas Construction Co., Inc.	Pawtucket	RI
Barrington Plumbing and Heating	Barrington	RI
Bay Plumbing Service Inc.	North Kingstown	RI
Baynes Electric	Westerly	RI
Bayside Electric Company	Warwick	RI
Beacon Electric	East Providence	RI
Beauchemin Design	North Smithfield	RI
Berard Heating and Mechanical	Warwick	RI
Bermudez Plumbing and Heating	Pawtucket	RI
Bert Gardiner Plumbing	Charlestown	RI
Bertrand Plumbing Inc.	Pascoag	RI
Big Dog Plumbing and Heating	Ashaway	RI
Bileau HVAC Inc.	Woonsocket	RI
Bill Gardiner Plumbing and Heating LLC	East Providence	RI
Bill Gornostai Electric	Warwick	RI
Bill Handyman/Painting	Smithfield	RI
Bill The Plumber	North Smithfield	RI
Bills Heating Service Inc.	Warwick	RI
Blackstone Valley Community Action	Pawtucket	RI
Bluestone Energy Services Ltd	Providence	RI

Bob Larisas Plumbing and Heating Inc.	Barrington	RI
Bob Martel Plumbing and Heating	Central Falls	RI
Bob Sequeira	West Warwick	RI
Bodell Plumbing and Heating	South Kingstown	RI
Botelho Electric	Cranston	RI
Boucher HVAC	Wakefield	RI
Boulevard Plumbing and Heating	Middletown	RI
Bradley Plumbing and Heating	East Providence	RI
Bradley R Highling LLC	North Kingstown	RI
Brandon Schiano	Cranston	RI
BRH Electric	East Providence	RI
Brian Amadon	Coventry	RI
Brian Cargill HVAC Inc.	Cumberland	RI
Brians Heating Concepts Inc.	Tiverton	RI
Bristol County Plumbing and Heating LLC	Bristol	RI
Briteswitch LLC	Warwick	RI
Brookside Electric	Westerly	RI
Bruno & Son Electric Inc.	Providence	RI
BSH Heating and Appliance	Barrington	RI
Buckley Heating and Cooling	Wakefield	RI
Build Pros	Pawtucket	RI
Buono Electric	Johnston	RI
Burbanks Plumbing and Heating Inc.	North Kingstown	RI
Burns Cold Heating and Cooling	West Warwick	RI
Butler and Sons Plumbing and Heating Inc.	Providence	RI
BZ Electric	West Warwick	RI
C & D Mechanical	Cranston	RI
C & K Electric Company Inc.	Providence	RI
C & L Energy Corp	Cranston	RI
C.J. Nemes Inc.	Woonsocket	RI
C.W. Cummings Plumbing Company Inc.	Coventry	RI
Cal Supply Co., Inc.	Cranston	RI
Calcourt Heating Inc.	Little Compton	RI
Caldwell & Johnson Inc.	North Kingstown	RI
Calyx Retrofit	Lincoln	RI
Canales Construction	Lincoln	RI
Candela Systems	Cranston	RI
Capitol Plumbing Company	Cumberland	RI
Capwell Heating and Air Conditioning	Greene	RI
Carello Plumbing	East Providence	RI
Carjon Air Conditioning and Heating Inc.	Smithfield	RI
Carl Mancuso Construction & Plumbing Inc.	Warwick	RI

Carl Pecchia Heating Contractor LLC	Johnston	RI
Carlos Silva	Pawtucket	RI
Carter Bros Inc.	Pascoag	RI
Carter Plumbing and Heating Co.	Warren	RI
Cassana HVAC LLC	North Providence	RI
Century Heating	Smithfield	RI
Charette Plumbing	Richmond	RI
Charland Oil Company	Pawtucket	RI
Charles Doherty	Warwick	RI
Chaves Plumbing & Heating	Middletown	RI
Chris Electric Ltd	Middletown	RI
Cipriano Plumbing and Heating	Wakefield	RI
CK Contractors Inc.	Providence	RI
Clearesult	Providence	RI
Clermont Mechanical Plumbing & Heating Services	Glendale	RI
Climate Masters	Providence	RI
Coast Modern Construction	Providence	RI
Cola Plumbing and Heating Inc.	North Kingstown	RI
Colaluca Plumbing and Heating	Johnston	RI
Comfort Zone Inc.	Hopkinton	RI
Community Action Partnership of Providence	Providence	RI
Comprehensive Community Action	Cranston	RI
Conti Sheet Metal	Providence	RI
Continental Heating and Cooling Indoor Air Quality	Johnston	RI
Corrigan Plumbing	Warwick	RI
Cost Modern Construction	Providence	RI
Cox Electric LLC	Narragansett	RI
CP Plumbing	North Kingstown	RI
CRM Modular Homes	Johnston	RI
Cross Insulation	Cumberland	RI
Crown Petroleum Plumbing and Heating Inc.	Barrington	RI
Crown Supply Company Inc.	Providence	RI
Crystal Plumbing and Heating Inc.	Providence	RI
CSV Mechanical Inc.	Wakefield	RI
Cumberland MG Land LLC	Cumberland	RI
D & D Electric Company	East Greenwich	RI
D & D Home Industrial Services	North Providence	RI
D & J Plumbing and Heating Inc.	Cumberland	RI
D & S Construction Company	Lincoln	RI
D & V Mechanical Inc.	Westerly	RI
D. Costa Electric Company LLC	East Providence	RI
D. Gallagher Plumbing	Coventry	RI

Dan Bracewell	Lincoln	RI
Danfoss LLC	Johnston	RI
Daniel Charette Plumbing	Hope Valley	RI
Daniel Prentiss	Providence	RI
Daniel Simoes Electric	Exeter	RI
Daniels Plumbing	Warwick	RI
Dante Gonzales	Providence	RI
Danti and Sons Plumbing and Heating Inc.	Pascoag	RI
David Ciancio SR	Providence	RI
David E Berardinelli Plumbing and Heating	Providence	RI
David Narcisi Plumbing and Heating	Warwick	RI
David Parrillo Plumbing and Heating LLC	Hope	RI
David W Bradley Plumbing and Heating Inc.	East Providence	RI
Davidsons Plumbing and Heating	Warwick	RI
Dayco Electric	Warwick	RI
Deal Electric	East Greenwich	RI
Delmonico Enterprises -Plumbing and Heating Doc	Cranston	RI
Dels Plumbing and Heating	North Scituate	RI
Desimone Electric	Cranston	RI
Desmarais Plumbing and Heating Inc.	Johnston	RI
Dessaint Electric Co Inc.	Warwick	RI
DFS Plumbing Services	West Greenwich	RI
Difazio Electric	West Warwick	RI
Dimeglio Builders LLC	Cranston	RI
Dionne and Sons	Coventry	RI
Direct Home Improvement	West Greenwich	RI
Dirocco Plumbing and Services LLC	North Providence	RI
Divona Plumbing and Heating Co	Cranston	RI
DJs Plumbing Services	West Greenwich	RI
DK Plumbing	Pawtucket	RI
DLD Plumbing & Mechanical Co. Inc.	Tiverton	RI
Don Allard	Woonsocket	RI
Don Jordan Construction	Foster	RI
Don Mendes Electrician	Providence	RI
Donovan and Sons Inc.	Middletown	RI
DPS Plumbing and Heating	Hope	RI
Drivers Plumbing and Mechanical Inc.	Providence	RI
DSA Mechanical	Barrington	RI
Dupuis Energy	Pawtucket	RI
Durante Electric	Lincoln	RI
Dynamic Air Systems Inc.	East Providence	RI
E & M Plumbing and Heating	Foster	RI

E.G. Electric Co.	East Greenwich	RI
EA Marcoux and Son Inc.	Woonsocket	RI
East Coast Remodeling	Johnston	RI
East Greenwich Oil Co Inc.	East Greenwich	RI
Eastbay Community Action	Riverside	RI
Eastern Electric	Cranston	RI
Eastern Plumbing Co Inc.	North Kingstown	RI
Ecologic Spray Foam Insulation Inc.	Jamestown	RI
Econ Electric Contractors	Bristol	RI
Edmond Alvares	Greenville	RI
Ed's Plumbing and Heating	Tiverton	RI
Edward A Tomolillo	North Providence	RI
Edward C Silvia Plumbing and Heating Contractor	Middletown	RI
Electrical League of RI	Warwick	RI
Electrical Wholesaler Inc.	Cranston	RI
Electro-Tec Systems Inc.	Lincoln	RI
Elmhurst Engineering Inc.	Providence	RI
Emergency Response Plumbing Heating & AC	Warwick	RI
Energiwise Inc.	East Providence	RI
Energy 4 Life Building Performance LLC	Smithfield	RI
Energy Conservation Inc.	South Kingstown	RI
Energy Efficient Exteriors, Inc.	Lincoln	RI
Energy Efficient Plumbing Technologies	Cranston	RI
Energy Geeks	North Smithfield	RI
Energy One Southern Mechanical	West Warwick	RI
Energy Source LLC	Providence	RI
ESCO Energy Services Company	Newport	RI
Eurotech Climate Systems LLC	Pawtucket	RI
Evergreen Plumbing and Heating Co., Inc.	Warwick	RI
EW Flagg Plumbing and Heating	Warwick	RI
F & S Electric Inc.	Bristol	RI
Feather HVAC	Cumberland	RI
Feula Plumbing and Heating LLC	Johnston	RI
FG Lees and Son Plumbing and Heating	Providence	RI
Figliozzi Plumbing and Heating	Peace Dale	RI
First Choice Plumbing	East Providence	RI
Five Star Plumbing and Heating	Johnston	RI
Fleet Plumbing and Heating Inc.	North Scituate	RI
Fletcher Heating Burner Repairs	Ashaway	RI
FLOU PHCC First Quality Installations	Saunderstown	RI
Francis Heating and Hydronics	East Providence	RI
Francis Plumbing	Bristol	RI

Frank Dimaio Heating LLC	Cranston	RI
Frank Lombardo and Sons Inc.	Providence	RI
Fred Manuppelli Plumbing and Heating	Johnston	RI
Fredrick Bailey P&H	Johnston	RI
Fressilli Plumbing Inc.	Riverside	RI
Frontier Mechanical LLC	Providence	RI
Fullport Plumbing and Heating	Rumford	RI
G & L Electric Inc.	Woonsocket	RI
Gambit Electric Inc.	Johnston	RI
Garbiner Construction Inc.	Narragansett	RI
Gas Doctor	Providence	RI
Gas Master Inc.	Little Compton	RI
Gas Pro Inc.	Cumberland	RI
Gasman NC	Warwick	RI
Gasperts	Smithfield	RI
Gem Air Services Inc.	Pawtucket	RI
Gem Plumbing and Heating Services Inc.	Lincoln	RI
Glenn J Martinelli	West Greenwich	RI
Globex Industries Inc.	Narragansett	RI
GM Perron and Son Plumbing and Heating	North Smithfield	RI
Golden Installations	Smithfield	RI
Gordon Goncalves	Riverside	RI
Goulart Petroleum Inc.	Little Compton	RI
Granite City Electric Supply Inc.	Pawtucket	RI
Gravel Electric Inc.	Harrisville	RI
Greanseal Insulation	North Kingstown	RI
Greenville Insulation Company Inc.	Smithfield	RI
Greenwich Insulation	West Greenwich	RI
Greenwood Plumbing and Heating	Warwick	RI
Gregg Balnchette	North Smithfield	RI
Griff Electric LLC	Portsmouth	RI
Groom Energy Solutions	Providence	RI
Guardian Energy Management Solutions	Middletown	RI
Gunn Inc.	Westerly	RI
Guy Clermont Plumbing and Heating	Cranston	RI
H.K. Heating Inc.	Greene	RI
H.V. Holland Inc.	Jamestown	RI
Harris Plumbing and Heating Inc.	Narragansett	RI
Hawkes Plumbing and Heating Co Inc.	Chepachet	RI
HD Supply Facilities Maintenance	Warwick	RI
Heat Tech LLC	Warwick	RI
Heavenly Homes Plumbing and Heating	Cranston	RI

Heffernan Mechanical Services	Warwick	RI
Henderson Electric	Warwick	RI
Henry Oil	Providence	RI
HF Robinson and Sons Plumbing and Heating	Cranston	RI
HH Heating	Lincoln	RI
Hill Electrical Services	Cumberland	RI
Hodson Heating and Cooling	Harrisville	RI
Holiday Home Builders	Lincoln	RI
Holland Electric	Peace Dale	RI
Home Style Construction	North Providence	RI
Homestead Plumbing	Johnston	RI
Horizon Solutions LLC	Smithfield	RI
Houle Plumbing and Heating	Greene	RI
Howard Saucier	Pawtucket	RI
Howard's Heating Service	North Kingstown	RI
Hutchins Electric	Greenwich	RI
HVAC Inc.	Cumberland	RI
Hynson Electrical Services Inc.	Bristol	RI
Ianniello Plumbing & Heating Co	Cranston	RI
Iasimone Plumbing-Heating & Drain Cleaning Inc.	North Providence	RI
ICSNE Inc.	Warwick	RI
Industrial Burner Service Inc.	Providence	RI
Interstate Electrical Services	Warwick	RI
IPS	Cranston	RI
Ironman Heating and Cooling	Riverside	RI
Island Carpentry Inc.	Newport	RI
IWIRE Electrical Services and Fire Alarm	Providence	RI
Izzo & Sons Electric	Providence	RI
J & A Electric	Providence	RI
J & J Electric	Warwick	RI
J & J Plumbing and Heating Inc.	Johnston	RI
J & M Plumbing LLC	Coventry	RI
J & R Contractors Inc.	Coventry	RI
J Argenti & Sons Electric LLC	Johnston	RI
J Dasilva Plumbing and Drain Cleaning	Pawtucket	RI
J Dunford Plumbing and Heating	West Greenwich	RI
J Joyce Plumbing and Heating Inc.	Warwick	RI
Jack Kenny	West Greenwich	RI
Jacobson Energy Research LLC	Providence	RI
James P Insana	Portsmouth	RI
Janton Electric Contractors	West Warwick	RI
JAS Plumbing	North Providence	RI

Jatwire Electric LLC	Tiverton	RI
JD Mechanical Inc.	Greenville	RI
JD Mello Plumbing and Heating Inc.	Newport	RI
Jed Electric Inc.	Greene	RI
Jeff Berard Heating	Warwick	RI
Jefferson Electrical Corp	Pawtucket	RI
Jenkins Heating	Smithfield	RI
Jimenez Plumbing and Heating	Providence	RI
JJ McNamara Electric	Providence	RI
JKL Engineering Company Inc.	Providence	RI
JM Construction	Warwick	RI
JMAC Plumbing and Heating Inc.	Warwick	RI
Joe Chaves Heating and Plumbing	Middletown	RI
Joe Falcone Plumbing & Heating	Westerly	RI
Joe Gruttadauria Plumbing and Heating	Johnston	RI
Joe Palombo Plumbing Heating and Cooling	West Kingston	RI
Joe Roy's Plumbing and Heating	Millville	RI
Joe Soave	Providence	RI
Joe Vigneault Electrician	Riverside	RI
Joel Matzner Residential Plumbing and Heating	Warwick	RI
John Babcock Plumbing Heating Unlimited	Westerly	RI
John Berard Plumbing	North Providence	RI
John Farren	Johnston	RI
John McDonough Electrician	Exeter	RI
John Nicholson Mechanical Contractor	North Scituate	RI
John Perrault	Woonsocket	RI
John R Bileau HVAC	Woonsocket	RI
John Simard Electric Contractor	North Smithfield	RI
Johnny Home Solutions LLC	Central Falls	RI
Johnny Mack Electric	Narragansett	RI
Johnny's Oil and Heating Inc.	Providence	RI
John's Heating	Riverside	RI
Johnson and Johnson Plumbing and Heating Inc.	Saunderstown	RI
Joseph A Gelinas Plumbing	Warwick	RI
Joseph A Palmieri Plumbing	Cranston	RI
Joseph Brito	Providence	RI
Joseph Giorno Plumbing and Heating	Cranston	RI
Joseph Truppi Electric	Cranston	RI
Joshua B Tait Electric	Riverside	RI
Jouberts Heating and Air Conditioning	Warwick	RI
Jow Vigneault Electrician	Providence	RI
JP Ari Pereira	Middletown	RI

JP Island General Services	Middletown	RI
Juan Villanueva	Cumberland	RI
Julio De La Rosa	Providence	RI
Just Heat	Portsmouth	RI
K & B HVAC LLC	North Providence	RI
Kafin Oil Company Inc.	Woonsocket	RI
Kenneth Hallberg	Warwick	RI
Kenneth P Adams	Cranston	RI
Kens Heating	Providence	RI
Kesslers Sheet Metal Co Inc.	Cranston	RI
Kevin Barry	Warwick	RI
Kevin Cilley	Westerly	RI
Kevin L Masse	Johnston	RI
Kevin Lahane	Tiverton	RI
KMB Plumbing Inc.	Warwick	RI
Koolco Inc.	Wakefield	RI
Kwik Plumbing and Heating Inc.	Johnston	RI
L & B Remodeling	North Providence	RI
L & F Plumbing LLC	Cranston	RI
Laframboise Carpentry	East Providence	RI
Lain Electric Co	Providence	RI
Lambert DBM LLC	Middletown	RI
Lanagan Plumbing and Heating	Woonsocket	RI
Lance Plumbing and Heating	Scituate	RI
Landry and Martin Oil Co Inc.	Pawtucket	RI
Lang Plumbing and Heating	North Scituate	RI
Larry Giorgi Plumbing and Heating Inc.	North Providence	RI
Lauders Energy Solutions Inc.	Tiverton	RI
Lawrence Air Systems Inc.	Barrington	RI
Ledoux Electric	North Kingstown	RI
Lefevre Electric Inc.	Cranston	RI
Leidos Engineering	Newport	RI
Leonard Hines	Providence	RI
Leveille Electric	Smithfield	RI
Liberty Plumbing and Heating	Jamestown	RI
Lighthouse Contracting Services	Johnston	RI
Lighthouse Propane Inc.	East Greenwich	RI
Lincoln Energy Mechanical Services Inc.	West Warwick	RI
Louie Electric & Son	Providence	RI
Louis Avarista Jr Plumbing	Cranston	RI
Lubera Plumbing LLC	Coventry	RI
Luso Plumbing and Heating Inc.	Cumberland	RI

M & G Correias Plumbing and Heating Supplies	East Providence	RI
M & M Electric	Richmond	RI
M & R Electric, LLC	Westerly	RI
M D'Andrea Electric LLC	Portsmouth	RI
M Deltufo Plumbing and Heating Inc.	East Greenwich	RI
M.J. Bouchard Heating and Air Conditioning	Greenville	RI
Madden Electric	Little Compton	RI
Mador Electric	Providence	RI
Magnetic Electric Inc.	Warwick	RI
Mags Heating and Air Conditioning	Warwick	RI
Malone Plumbing and Heating Inc.	Cranston	RI
Maloney Oil	Pawtucket	RI
Manfredo Electric	Warwick	RI
Manning Plumbing	Warwick	RI
Marcel Multi Services	Pawtucket	RI
Marco Desrochers Electric	North Providence	RI
Marinelli & Sons Electric	West Kingston	RI
Marisa Desautel	Providence	RI
Martel Plumbing and Heating	Lincoln	RI
Massed Electric Company	Warren	RI
Mastro Electric Supply Co Inc.	Providence	RI
Mastrocinque and Sons Plumbing and Heating LLC	Portsmouth	RI
Matthew Fournier	Lincoln	RI
Matts Mechanical	Greenville	RI
McBurney Electric, Inc.	Pawtucket	RI
McCormick Electrical	North Kingstown	RI
McDonough Electric LLC	West Warwick	RI
McKee Brothers Oil Corporation	Cumberland	RI
MD Heating and Air Conditioning	North Providence	RI
Menard Electric	Manville	RI
Metro Electric	Woonsocket	RI
MH Electric	Cranston	RI
Michael Bowry	Cranston	RI
Michael Freitas Plumbing and Mechanical	Pascoag	RI
Michael J. Brown	Portsmouth	RI
Michael Newbury	Tiverton	RI
Michael Tramontano Plumbing and Heating	Cranston	RI
Mike Simone Plumbing and Heating LLC	Cranston	RI
Miller Electric Corporation	West Warwick	RI
Miller Mechanical Inc.	Rumford	RI
MJF Plumbing and Heating	Bristol	RI
MJS Electrical	Lincoln	RI

MO Refrigeration	Warwick	RI
Modern Mechanical LLC	Woonsocket	RI
Modine Manufacturing Comp	West Kingston	RI
Morgan Electric	Warwick	RI
Morra Electric Inc.	Johnston	RI
MPG Mechanical LLC	Charlestown	RI
Mr. Rooter Plumbing	Warwick	RI
MTG Heating	Pawtucket	RI
Multi State Restoration Inc.	North Providence	RI
Mustrocinque and Sons Plumbing and Heating LLC	Newport	RI
Mutual Engineering Service Company	Warwick	RI
Nasons Heating Cooling Sheet Metal	Middletown	RI
National Refrigeration Inc.	Warwick	RI
NDS Plumbing and Heating	Pawtucket	RI
New England Insulation	Woonsocket	RI
New England Plumbing Heating and Air LLC	Greenville	RI
Newport Electric	Portsmouth	RI
Newport Plumbing and Heating Gas Company	Portsmouth	RI
Nexgen Mechanical Inc.	Cranston	RI
NGB Electric	Smithfield	RI
Nicholas Fizzano	Ashaway	RI
Nolin Electric Incorporated	Providence	RI
North Atlantic Heating Inc.	Coventry	RI
Northeast Contracting	Cumberland	RI
Northeast Electrical Distributors	Cumberland	RI
Northeast Energy	Lincoln	RI
Northeast Heating and Cooling	North Scituate	RI
Northern Energy Services Inc.	Providence	RI
Northern Power Electrical Services	North Scituate	RI
Nouel Contractor Services	Providence	RI
O.A. Pagnozzi and Sons Inc.	Smithfield	RI
Ocean State Electric	Johnston	RI
Oceanline Combustion Service Inc.	Pawtucket	RI
Old Tyme Electric, Inc.	Pawtucket	RI
O'Neil Electric Company	Warwick	RI
Optimal Energy	Providence	RI
P & D Plumbing	Providence	RI
P & S Electric Inc.	East Greenwich	RI
P Mandatini Inc.	Cranston	RI
Pal Electric	Exeter	RI
Parrella Electric	Providence	RI
Patrarca Plumbing and Heating	Warwick	RI

Patrick Bragg	Warwick	RI
Patriot Plumbing Inc.	Coventry	RI
Paul Del Bonis	Providence	RI
Paul Manfredo Electric	Warwick	RI
Paul Pinheiro	North Providence	RI
Paul Scotto Electrical	Portsmouth	RI
Payne & Son Electrical Services	Foster	RI
PC Construction	Cranston	RI
PECI	Portsmouth	RI
Pellegrino Plumbing and Heating	Westerly	RI
Pelletier and Son Plumbing and Heating Inc.	North Kingstown	RI
Pemlico Plumbing	Warwick	RI
Percivalle Electric Inc.	Warwick	RI
Perez Plumbing and Heating LLC	Cranston	RI
Peter Bibby	Providence	RI
Petes Plumbing Inc.	North Smithfield	RI
Petrarca Plumbing and Heating	Warwick	RI
Petro Heating and Air Conditioning Services	East Greenwich	RI
Petronelli Plumbing and Heating	Cranston	RI
Phil Paul Plumbing and Heating	North Smithfield	RI
Philips Precision Plumbing LLC	Greene	RI
Phillco Electric	Central Falls	RI
Phillip J Bolster Plumbing and Heating	Wakefield	RI
Phillips Plumbing and Mechanical Inc.	Cranston	RI
Phil's Heating and Air Conditioning	Westerly	RI
Pickles Plumbing and Heating LLC	Mapleville	RI
Pinnacle Plumbing and Heating	Greenville	RI
Pipe Fixer	Coventry	RI
Plumb Perfection	Johnston	RI
Plumber Pros Inc.	Coventry	RI
Plumbing and Heating Solutions LLC	East Greenwich	RI
Polar Air	Wakefield	RI
Polaris Plumbing and Heating Inc.	Johnston	RI
Portland Group	Providence	RI
Potvin Enterprises Inc.	Warwick	RI
Power Trip Electric Inc.	Hope	RI
Pratt Plumbing and Heating LLC	Harrisville	RI
Precision Power	Wyoming	RI
Preferred Heat Inc.	Providence	RI
Premair HVAC	Warwick	RI
Premier Heating and Cooling	Lincoln	RI
Prince Noah HVAC	Central Falls	RI

Priority Plumbing and Heating Inc.	Providence	RI
Prism Consulting Inc.	Providence	RI
Pro Plumbing of Rhode Island	West Warwick	RI
Professional Services	Lincoln	RI
Providence Electric Inc.	Chepachet	RI
Providence Mechanical Services LLC	Smithfield	RI
R & M Electric Inc.	Coventry	RI
R. Vento & Son Electric	Johnston	RI
R.B. Queern Company Inc.	Portsmouth	RI
R.E. Coogan Heating Inc.	Warwick	RI
R.E.M. Electric, Inc.	Jamestown	RI
R.W. Bruno Heating & Cooling	Lincoln	RI
Ralph Devivo Plumbing and Heating	North Smithfield	RI
Ralph E Geiselman Plumbing and Heating	Pawtucket	RI
Ralph Ferra Plumbing	North Smithfield	RI
Randy Pomeroy	Pascoag	RI
Ray Christopher	Foster	RI
Raymond J Reinsant Plumbing and Heating	Lincoln	RI
Raz Heating and Plumbing Services	Foster	RI
RB Homes	Johnston	RI
RC Plumbing and Heating	North Providence	RI
RCS Energy Services	Providence	RI
Reddy Piping Concepts Inc.	Cranston	RI
Regan Heating & Air Conditioning Inc.	Providence	RI
Reichert and Sons Fuel Oil Inc.	Chepachet	RI
Reinhold Plumbing and Heating Inc.	Johnston	RI
Reliable Plumbing and Mechanical Inc.	North Providence	RI
Reliant Electric	Cranston	RI
Renaissance Sheet Metal LLC	Cranston	RI
Renewable Plumbing Heating Solar and Air	East Providence	RI
Resendes Heating Service LLC	Coventry	RI
Resource Construction Inc.	Jamestown	RI
Restivos Heating and Air Conditioning	Johnston	RI
Rexel Energy Solutions (Munro Distributing)	Cranston	RI
Rhode Island Electrical Rooter and Plumbing	Providence	RI
Rhode Island HVAC	Pawtucket	RI
Rhode Island Insulation	Hope	RI
Rhode Island Interfaith Power and Light	North Kingstown	RI
Rhode Island Plumbing and Heating Inc.	Cumberland	RI
Rhody Electric	Warwick	RI
Rhody Plumbing	Smithfield	RI
RI Electric LLC	Providence	RI

Richard Dufresne	Mapleville	RI
Richard Gayer Electric	Bristol	RI
Richard Migliori	Newport	RI
Richard R Lavey	Warren	RI
Ridge Property LLC	Cumberland	RI
Right View Electric. Inc.	East Providence	RI
Rise Engineering	Cranston	RI
Ritacco Electric LLC	Westerly	RI
RMS Ruggieri and Sons Mechanical LLC	Richmond	RI
RN Electric	North Providence	RI
Robert Colaluca Plumbing	Johnston	RI
Robert Dionne Electrical Contractor	Providence	RI
Robert Rachiele Electrician	Coventry	RI
Robert Schnaible	Hope	RI
Roberts Electric	Pawtucket	RI
Rock House Construction LLC	Johnston	RI
Roger Adam Electrician	Manville	RI
Roland and Son Building and Remodeling	Saunderstown	RI
Roland M Belanger Plumbing and Heating	Pascoag	RI
Ron Manish	Scituate	RI
Ronald Lima	Rumford	RI
Ronald Stamp	Johnston	RI
Rooter Man Plumbing Heating Drains	Cumberland	RI
Rossi Electric Company	Cranston	RI
RSC Plumbing LLC	Exeter	RI
RSM Electric	Greenville	RI
RST Mechanical	North Kingstown	RI
Rumford Mechanical Systems LLC	Rumford	RI
Russ Lembo Electrician	Johnston	RI
Russell Barron Plumbing	Cranston	RI
Ryan Balme Electric	Chepachet	RI
Ryan Electric Construction	Warwick	RI
S & C Boilers	West Warwick	RI
S & P Machine	West Warwick	RI
S & S Electric	Chepachet	RI
S.B. Carbone Plumbing and Heating Company Inc.	Cranston	RI
Sakonnet Plumbing and Heating Inc.	Little Compton	RI
Sal Manzi and Son Plumbing and Heating Inc.	Cranston	RI
Sam Bliven Jr Plumbing & Heating Inc.	Westerly	RI
Sanford Electric	Bristol	RI
Santoro Oil Company Inc.	Providence	RI
Sargent Plumbing	North Kingstown	RI

Sasa Mechanical Contractors Inc.	Johnston	RI
Satti Construction	Lincoln	RI
Savard Oil Company Inc.	East Providence	RI
Schwegler and Sons Plumbing and Heating Inc.	North Smithfield	RI
Scott Gatta Electric	Johnston	RI
Seddon Electric	Rumford	RI
Seekonk Supply Inc.	Providence	RI
Seminole Development	Lincoln	RI
Sensible Heating and Air Conditioning LLC	Hope Valley	RI
Sergio Alves	Central Falls	RI
Shamrock Electric	Middletown	RI
Sheridan Electric Inc.	Warwick	RI
Siemens Industry	Cranston	RI
Sine Plumbing and Heating Company Inc.	East Providence	RI
Sizemore Plumbing and Heating	Johnston	RI
Small'S Plumbing Inc.	Woonsocket	RI
SMC Mechanical	East Providence	RI
Smithfield Plumbing & Heating Supply Company	Greenville	RI
Sosa & Son Heating Air Conditioning & Refrigeration	Woonsocket	RI
Sound Building Corporation	Portsmouth	RI
Sousa Electric	Warwick	RI
South County Community Action	North Kingstown	RI
South Shore Electrical Contractors	Wakefield	RI
Spencer's Plumbing	North Kingstown	RI
SPL Electrical Corporation	North Smithfield	RI
St Angelo Plumbing	Barrington	RI
Standish Heating and Air Conditioning	Coventry	RI
Startrak Studios Inc.	Warwick	RI
State of Rhode Island	Providence	RI
Statewide Insulation	North Smithfield	RI
Statewide Plumbing and Heating Co Inc.	Cranston	RI
Stedman & Kazounis Plumbing and Heating	Charlestown	RI
Stem Electrical	Warwick	RI
Stephen Andrea Fire & Electric, LLC	Coventry	RI
Stephen Larochelle	Cumberland	RI
Sterling Mechanical Services	Greene	RI
Steve Dupre Plumbing	Pawtucket	RI
Steven Dubois Inc.	Bradford	RI
Steven Maymon	Warwick	RI
Sturbridge Home Builders Inc.	Warwick	RI
Suburban Heating and Cooling	Tiverton	RI
Summit Electrical Contractors Inc.	Lincoln	RI

Sunrise Plumbing and Heating	Johnston	RI
Sunshine Fuels and Energy Services Inc.	Bristol	RI
Superior Comfort Inc.	Bristol	RI
Superior Electric	Providence	RI
Superior Insulation	Narragansett	RI
Superior Plumbing and Heating	Cranston	RI
Supply New England	Pawtucket	RI
Sure Fire Heating	West Greenwich	RI
Sustainable Energy Solutions	Providence	RI
SW & Sons Plumbing & Heating	Johnston	RI
Swap Inc.	Providence	RI
Sylvania Lighting Services	Johnston	RI
Sylvester Sheet Metal Inc.	West Warwick	RI
Symmes Maini & McKee Associates	Providence	RI
T & J Heating Air Conditioning and Plumbing Inc.	Bellingham	RI
T & T Plumbing and Heating Inc.	Hope Valley	RI
T Gomes Heating and Cooling	Providence	RI
T. Murphy Electric	Cranston	RI
T.A. Gardiner Plumbing & Heating Inc.	Bristol	RI
Tebano Electric	Bristol	RI
Tebo Electric Inc.	Woonsocket	RI
Temptec Mechanical	Providence	RI
TF Electric, LLC	East Greenwich	RI
The Farm Barlow Heating LLC	Warwick	RI
The Metalworks Corporation	Tiverton	RI
The Plumber Company LP	Cranston	RI
Thermal Energy Inc.	Cranston	RI
Therrien Mechanical Systems	Lincoln	RI
Thibault Plumbing and Heating Inc.	Cranston	RI
Thielsch Engineering	Cranston	RI
Thomas McGee Plumbing and Heating	North Smithfield	RI
TJ Billington & Son	Warwick	RI
TJ Homebuilders, Inc.	Exeter	RI
Todd Wakeman	West Greenwich	RI
Tom Peters Plumbing and Heating Inc.	Portsmouth	RI
Tom Whitaker	Newport	RI
Toms Plumbing LLC	Manville	RI
Toner Electric Co	Middletown	RI
Tops Electric Supply	Providence	RI
Total Comfort Heating and Cooling Inc.	Lincoln	RI
Total Construction Services Inc.	Providence	RI
Total Control HVAC LLC	Cranston	RI

Total Home Care	Warwick	RI
TR Electric Inc.	Ashaway	RI
Travers Plumbing and Heating Incorporated	Portsmouth	RI
Tri-Town Community Action	North Providence	RI
Truth Box Inc.	Providence	RI
Tuma Insulations	Warwick	RI
Tyfas and Co. Inc.	Warren	RI
UG Nasons Inc.	Middletown	RI
United Burner Services Inc.	West Warwick	RI
United Mechanical Inc.	Cranston	RI
V. Bevilacqua & Son, Inc.	Smithfield	RI
Valcourt Heating Inc.	Tiverton	RI
Valley Heating and Cooling Inc.	Hope Valley	RI
Valmer D Montoya Air Heating and Cooling Inc.	Central Falls	RI
Van's Electric Inc.	Bristol	RI
Vaughn Oil Company Inc.	Smithfield	RI
Venancio Brothers Plumbing and Heating	Middletown	RI
Vicmir & Sons Heating and Air Conditioning Controls	Riverside	RI
Victory Heating and Air Conditioning Company Inc.	Bellingham	RI
Viking Electric Inc.	Providence	RI
Vincent Heating & Air Inc.	Cranston	RI
Vintage Plumbing	Riverside	RI
Vivona Plumbing and Heating Inc.	Portsmouth	RI
W.E. Hill Plumbing and Heating Inc.	Bristol	RI
W.W. Grainger, Inc.	Warwick	RI
Wakefield Heating Service LLC	Wakefield	RI
Wakefield Plumbing LLC	Newport	RI
Walco Electric Company	Providence	RI
Waldo Plumbing and Heating LLC	Lincoln	RI
Walsh Electric	Bristol	RI
Warroom Document Solution	Providence	RI
Waterworks Plumbing and Services LLC	Johnston	RI
Wesco Oil & Propane Inc.	Esmond	RI
West Bay Community Action Partnership	Warwick	RI
West Bay Copy LLC	Kingston	RI
Wicked Watts LLC	Providence	RI
Wickford Appliance and Lighting Inc.	Pawtucket	RI
William Calia Electric	Johnston	RI
William Carceri	Cranston	RI
William J Riley Plumbing and Heating	Warwick	RI
William Merritt Plumbing and Heating LLC	North Kingstown	RI
William S Ferrara	East Providence	RI

WJM Property Consulting Inc.	West Warwick	RI
Woods Heating Service	East Providence	RI
Wordell Heating and Cooling LLC	Little Compton	RI
Wyman & Sons Electric Company Inc.	Warwick	RI
Zanella Plumbing and Heating Inc.	Westerly	RI
Zap's Electrical	North Scituate	RI
Zawadzki Plumbing and Heating Inc.	Warwick	RI
Zompa Plumbing and Heating	Barrington	RI
Blackhawk Engagement Solutions (Parago)	Lewisville	TX
Compressed Air Challenge	Alexandria	VA
Opower Inc.	Arlington	VA
Kelliher Samets Volk	Burlington	VT
Vermont Energy Investment Corporation	Burlington	VT
Evoworx Inc.	Seattle	WA
New Buildings Institute Inc.	White Salmon	WA
Illume Advising LLC	Verona	WI

Attachment 6
2015 RGGI Auction Proceeds

Attachment 6

2015 RGGI Auction Proceeds Report

Rhode Island
Regional Greenhouse Gas Initiative, Inc. Auction Proceeds
2015 Year End Report
Presented by National Grid
May 2, 2016

Introduction

From the beginning of the Regional Greenhouse Gas Initiative (RGGI) through June 3, 2015, Rhode Island (RI) has received approximately $40.8 million from CO2 Allowance Auctions.[1] To date, the State has created allocation plans for auction proceeds occurring through June 3, 2015. As of December 31, 2015, National Grid received $23.7 million of those funds in order to expand energy efficiency (EE) efforts throughout the state (See Table 1).

This report provides results for RGGI funds spent during National Grid EE Program Year 2015. The results from prior allocations of RGGI funds have been described in prior Year End Reports.

Lowering the System Benefit Charge

Under the OER's 2014 Plan for the Allocation and Distribution of Regional Greenhouse Gas Initiative Auction Proceeds, the Company received $3,635,495 to lower the ratepayer System Benefit Charge. Per this requirement, these funds were allocated across Residential, Income-Eligible, Commercial and Industrial electric efficiency programs managed and delivered by National grid. The Company incorporated this funding into its Energy Efficiency Program Plan for 2015 (Docket No. 4527), which is shown in Table E-1 as a reduction in total customer funding required.

The $3,635,495 in RGGI funds used to lower the 2015 System Benefit Charge provides tremendous benefits to Rhode Island. Without this funding the overall electric program budget would have been reduced by 4%. The lower funding would have resulted in a loss of 7,744 MWh savings; 81,292 MWh lifetime savings; and $11 million in benefits to ratepayers.

Community Buildings

Not for profit organizations typically do not have funds available to fund their portion of energy efficiency project costs. Recognizing this, the 2013 RGGI Plan allocated $427,713 to energy efficiency projects at community buildings (a public building that houses a not for profit organization such as, but not limited to, boys and girls clubs, community healthcare centers and are used for public/community purposes). During the second quarter of 2015 the Company received permission to transfer $5,700 from the Agriculture RGGI funds to the Community Buildings initiative to meet high customer demand.

During 2015, the remaining $137,919 in RGGI funds supported 26 energy efficiency projects at community buildings. These supplemental incentives allowed projects that would not have been

[1] Source: http://www.rggi.org/market/co2_auctions/results

otherwise completed due to lack of customer funds to have been completed and contributed 422,833 kWh of electricity savings.

Agriculture

The 2013 RGGI Plan allocated $200,000 to provide energy efficiency rebates to commercial businesses, including the agricultural sector, that use deliverable fuels (oil and propane) for heat. During the second quarter, $5,700 was transferred from this initiative to the Community Buildings initiative to support high customer demand.

Throughout 2015, National Grid worked with OER and a technical consultant to help farms and other agricultural entities with measures that will reduce their delivered fuel consumption and electricity consumption. By the end of 2015, seven out of ten farmers received their final audit reports. One farmer had roll-up shades installed in three of its seven greenhouses that will reduce or eliminate the need for operation of fans during the mid-March to early July timeframe. This is expected to achieve 3,446 kWh of electricity savings.

In total $38,854 was spent through the end of 2015 on consulting work and incentives.

Residential Delivered Fuels

During program year 2015, National Grid received $1,500,000 for Residential Delivered Fuels. The company spent $1,199,867 of these funds during 2015 that enabled the completion of 929 oil weatherization jobs, resulting in 23,325 MMBtu of oil saving and 330,960 kWh of electricity savings.

Rhode Island Public Energy Partnership

RIPEP builds on a Department of Energy Grant and is intended to help state agencies and local governments attain high levels of energy savings and improved building operations. The primary objectives of RIPEP are to:

- Create a comprehensive inventory of energy consumption in public facilities, both state and municipally owned or managed;
- Implement energy efficiency measures in approximately 100 facilities and attain an average of 20% energy reduction; and
- Identify and mitigate barriers to efficiency improvements in the public sector. Initial priority will be given to water supply facilities, schools, and state buildings, followed by other municipal facilities.

The 2012 Allocation Plan added $1,515,851 for RIPEP, to be administered by National Grid. Of this amount $500,000 was set aside for incentives and $1,015,851 was placed into a revolving loan fund for on-bill repayment.

To date, the on-bill repayment portion of RIPEP has supported 32 applications by 12 municipal entities with $991,977 in financing. These projects have resulted in 1,722 MWh of savings.

Table 1: Spending & Reporting

Auctions	Received	EE Funding	Initiative	Budget	2011 Spend	2012 Spend	2013 Spend	2014 Spend	2015 Spend
1-5	March 2010	$ 3,950,152	Program Spending	$ 3,950,152	$ 3,950,152				
	December 2010	$ 2,633,434	Heat Loan	$ 449,463	$ 146,698	$ 302,765			
			Homes Tier III Pilot	$ 65,000	$ -	$ -			
			Deep Energy Retrofit Pilot	$ 260,000	$ 27,848	$ 297,152*			
			Small Bus. Revolving Loan Fund	$ 1,858,971	$ 1,843,371	$ 15,600			
6-10	January 2012	$ 4,034,678	Small Bus. Revolving Loan Fund	$ 2,300,000	n/a	$ 2,300,000			
			Large Bus. Revolving Loan Fund	$ 1,734,678	n/a	$ 1,734,678			
11-14	August 2013	$ 1,813,732	RI Public Energy Partnership	$ 1,515,851					
			Loan Fund	$1,015,851				$ 1,015,851	
			Incentives	$ 500,000				$ -	$ -
			Small Bus Community Bldgs	$ 372,288			$ 303,851		$ 68,437
15-18	February 2014	$ 1,427,713	Residential Delivered Fuels	$ 800,000				$ 800,000	
			Agricultural Delivered Fuels	$ 194,300				$ 1,600	$ 38,854
			Small Bus Community Bldgs	$ **433,413				$ 363,931	$ 69,482
19-22	January 2015	$ 3,635,495	Lower 2015 System Benefit Charge	$ 3,635,495					$ 3,635,495
23-28	October 2015	$ 6,118,674	Lower 2016 System Benefit Charge	$ 3,588,674					
			RI Public Energy Partnership	$ 1,000,000					
			Electric Loan Fund	$800,000					
			Gas Loan Fund	$100,000					
			Incentives	$100,000					
			Residential Delivered Fuels	$ 1,500,000					$ 1,199,867
			Agricultural Delivered Fuels	$ 100,000					
Total				**$ 23,758,285**	**$ 5,968,069**	**$ 4,650,195**	**$ 303,851**	**$ 2,181,382**	**$ 5,012,135**

*Deep Energy Retrofit Pilot includes funds from Homes Tier III Pilot as detailed in the 2012 RGGI Report to OER

**In June, $5,700 was transferred from Agricultural Delivered Fuels to Small Business Community Buildings to meet high customer demand.

Table 2: Rhode Island Public Energy Partnership (RI PEP) Electric Loan Fund

(1)	2014/2015 Loan Budget	$1,015,851
(2)	Committed	$0
(3)	Paid	$991,977
(4)	Repayments	$124,613
(5)	Participants	12
(6)	Savings (MWh)	1,722
(7)	Available	$148,487
(8)	RGGI Fund Injection	$800,000
(9)	Available Jan 1, 2016	$948,487

1 RI PEP funding is over two years

2 As of December 31, 2015

3 As of December 31, 2015

4 As of December 31, 2015

5 As of December 31, 2015 - 12 entities with 32 applications.

6 As of December 31, 2015

7 Available funds as of December 31, 2015.

8 $800K of the $1M received on 10/27/15 will go to electric loan fund; $100K will go to RI PEP electric incentives; and $100K will go to RI PEP Gas Loan Fund.