STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

In Re: The Narragansett Electric Company d/b/a National Grid Energy Efficiency Program Plan for 2016	**Docket No. 4580**

ENERGY EFFICIENCY PROGRAM PLAN FOR 2016

SETTLEMENT OF THE PARTIES

October 15, 2015

LETTER

Raquel Webster
Senior Counsel

October 15, 2015

BY HAND DELIVERY AND ELECTRONIC MAIL

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

RE: Docket 4580 – The Narragansett Electric Company, d/b/a National Grid
2016 Energy Efficiency Program Plan

Dear Ms. Massaro:

I have enclosed ten copies of National Grid's[1] proposed Energy Efficiency Program Plan for 2016 (the 2016 Plan or Plan).[2] This Plan is being jointly submitted as a Stipulation and Settlement, entered into by the Rhode Island Division of Public Utilities and Carriers (Division), the Energy Efficiency Resources Management Council (EERMC), Acadia Center, People's Power & Light (PP&L), Green & Healthy Homes Initiative (GHHI), and National Grid (collectively, the Parties).

The Company is filing the Plan pursuant to the System Reliability and Least Cost Procurement statute, R.I. Gen. Laws § 39-1-27.7 and the Rhode Island Public Utilities Commission's (PUC) Standards for Energy Efficiency and Conservation Procurement, which the PUC approved in Docket 4443 (the Standards). The basis for least cost procurement in Rhode Island is the Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006, codified at R.I. Gen. Laws § 39-2-1.2, which encourages the investment in cost-effective energy efficiency. Section 1.1 of the Standards requires the Company to file annually a program plan with the implementation details by program for the following program year. The 2016 Plan is consistent with the framework and savings goals established in the Three-Year Energy Efficiency Procurement Plan (Three Year Plan) filed and approved in Docket 4522. Below is a summary of the implementation details for the 2016 program year as set forth in the Plan.

The 2016 Plan proposes total budgets of $87.5 million and $27.7 million for electric and gas, respectively. These expenditures are estimated to create substantial annual and lifetime savings for Rhode Island customers. Notably, Rhode Island customers realize $1.77 in benefits for every $1 invested in the Plan's electric programs and $1.63 in benefits for every $1 invested

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or Company).
[2] Please note that the Company is filing the 2016 Technical Reference Manual referenced in the Plan under separate cover.

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in the Plan's natural gas programs. The electric plans are expected to produce lifetime savings of 1,792,431 MWh, which translates into lifetime bill savings of approximately $320 million.[3] The gas plans are expected to produce lifetime savings of 4,935,572 MMBtu, which translates into a lifetime bill savings of approximately $76.7 million.[4] Over all, the Plan will generate economic benefits of more than $256.1 million over the life of the measures, with $200.6 million in benefits coming from the electric energy efficiency programs, and $55.6 million in benefits coming from the natural gas programs.

This year's Plan builds upon the implementation strategies set forth in the Three Year Plan: (i) promoting cost efficiency, (ii) empowering communities and markets to be energy efficient, (iii) innovating to capture untapped savings, and (iv) developing opportunities for system-level savings and integration.

In accordance with the requirements of Least Cost Procurement, R.I. Gen. Laws § 39-1-27.7, to achieve the energy efficiency goals, the Plan proposes a fully reconciling funding mechanism that would increase the current $0.00911 per kWh Energy Efficiency Program (EEP) charge by $0.00124 per kWh, resulting in a total EEP charge of $0.01077 per kWh for effect January 1, 2016. The Plan proposes to decrease the current residential $0.781 per dekatherm charge by $0.033 per dekatherm, resulting in a total $0.748 per dekatherm EEP charge for residential gas programs. The plan also proposes to decrease the current commercial and industrial $0.637 charge by $0.150 per dekatherm, resulting in a total $0.487 per dekatherm EEP charge for commercial and industrial gas programs.[5] There was a significant amount of collaboration and input from the parties regarding the funding levels for this year's Plan, and the Company believes that the Plan addresses those concerns in a balanced way while maintaining a stable delivery of energy efficiency services to its customers.

Subsection (c)(5) of the Least Cost Procurement statute provides the EERMC with the specific responsibility of reviewing and approving the cost-effectiveness of the Plan to be submitted to the PUC for review and approval of the full funding. In accordance with the Least Cost Procurement statute, the EERMC has reviewed and approved the 2016 Plan, which complies with all aspects of the Least Cost Procurement statute. In order to deliver the expected economic benefits from the 2016 Plan and to meet the 2016 goals the Plan seeks to achieve, the Company respectfully requests that the PUC approve this Plan.

[3] Lifetime bill savings are estimated by multiplying lifetime savings by the current residential rates in 2015 dollars.
[4] Lifetime bill savings are estimated by multiplying lifetime savings by current rates in 2015 dollars.
[5] These calculations are based on a January 1, 2016 effective date.

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

cc: Karen Lyons, Esq.
Jon Hagopian, Esq.
Steve Scialabba, Division

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EE PLAN 2016

I. Introduction and Summary

The Narragansett Electric Company d/b/a National Grid (National Grid or Company) is pleased to submit this Energy Efficiency Program Plan (EE Program Plan or Plan) for 2016 to the Rhode Island Public Utilities Commission (PUC). This Plan has been developed by National Grid in collaboration with the Energy Efficiency Collaborative and has been endorsed by the Energy Efficiency and Resource Management Council (EERMC).[1]

This EE Program Plan is submitted in accordance with the Least Cost Procurement law, R.I. Gen. Laws § 39-1-27.7, the basis for which is the Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006, R.I. Gen. Laws § 39-2-1.2, and the PUC's Standards for Energy Efficiency and Conservation Procurement, as revised by the EERMC and approved by the PUC in Docket 4443 (Standards). This Plan is being jointly submitted as a Stipulation and Settlement, entered into by the Rhode Island Division of Public Utilities and Carriers (Division), the EERMC, Acadia Center, People's Power & Light (PP&L), Green & Healthy Homes Initiative (GHHI) and National Grid (collectively, the Parties), and addresses all issues raised by members of the Collaborative concerning the Company's electric and natural gas energy efficiency (EE) programs for calendar year 2016.

The 2016 Plan satisfies the statutory requirements for Least Cost Procurement and is consistent with the Three-Year Energy Efficiency Procurement Plan (EE Procurement Plan) for 2015-2017.[2] The 2016 EE Program Plan is cost-effective and has a cost that is lower than the cost of acquisition of additional supply for both electricity and natural gas, satisfying the requirements prescribed in R.I. Gen. Laws § 39-1-27.7 (a)(2). It also creates significant economic benefits for Rhode Islanders.

The primary goal of the 2016 EE Program Plan is to create energy and economic cost savings for Rhode Island consumers through energy efficiency, as required by R.I. Gen. Laws § 39-1-27.7. To that end, the 2016 Plan will create annual savings of 199,760 MWh and 395,760 MMBtu and lifetime savings of 1,792,431 MWh and 4,935,572 MMBtu. The Plan will generate benefits of more than $256.1 million over the life of the measures (with $200.5 million in benefits coming from electric efficiency and $55.6 million in benefits from natural gas efficiency), which represents a large and urgently needed

[1] A collaborative group (Collaborative) has been meeting regularly since 1991 to analyze and inform the Company's electric and gas energy efficiency programs. Members of the Collaborative presently include the Company, the Division, PP& L, TEC-RI, GHHI, and Acadia Center. In addition, the Office of Energy Resources (OER) and several EERMC members and representatives from the EERMC's Consulting Team participate in the Collaborative group. The constitution of the Collaborative has varied since 1991, as some organizations have withdrawn and others have joined. Although TEC-RI participated in the negotiations regarding the 2016 Plan, it is not a party to the Stipulation and Settlement.

[2] Submitted by National Grid on September 1, 2014 in Docket 4522, and approved by the PUC at an open meeting on October 20, 2014, and with a written Order 21781 issued on December 19, 2014.

benefit for Rhode Island's residential, commercial, industrial, and low income energy customers.

In addition, the 2016 Plan provides a meaningful contribution to Rhode Island's energy future. The Rhode Island State Energy Plan identifies energy efficiency as the state's "first fuel" and the centerpiece strategy for achieving the Rhode Island Energy 2035 Vision.[3] The Plan identifies energy efficiency as the lowest-risk, lowest-cost, and arguably most sustainable energy resource available for Rhode Island. The Plan lists Least-Cost Procurement as one of Rhode Island's cornerstone energy policies, and the primary vehicle for delivering the benefits of energy efficiency to Rhode Island consumers and businesses. Moreover, the strategies defined in the 2016 Plan will contribute to greenhouse gas reductions that may fulfill the Environmental Protection Agency's (EPA) proposed near term Clean Power Plan requirements, as the plan will avoid 645,275 tons of carbon over the lifetime of the installed measures.[4]

Table 1 summarizes the 2016 Plan metrics and goals.[5]

Table 1: 2016 Energy Efficiency Program Plan Summary

Electric Programs by Sector	Implementation Spending in 2016 ($000)	Customer Contribution ($000)	Annual MWh Savings	Annual kW Savings	Lifetime MWh Savings	Total Benefits ($000)	TRC B/C Ratio	TRC ¢/lifetime kWh	Participants
Non-Income Eligible Residential	$27,873	$7,112	97,947	10,673	635,381	$ 69,378.64	1.91	5.5	556,804
Income Eligible Residential	$11,187	$90	6,891	920	66,284	$ 12,983.01	1.10	17.0	7,600
Commercial and Industrial	$41,501	$18,366	94,922	17,953	1,090,766	$ 118,201.72	1.91	5.5	4,654
Regulatory	$1,586								
RI Infrastructure Bank	$1,441								
Subtotal	**$83,589**	**$25,568**	**199,760**	**29,545**	**1,792,431**	**$200,563**	**1.77**	**6.1**	**569,058**

(1) Implementation spending does not include customer contributions, shareholder incentive, or commitments.
(2) Regulatory Includes contributions to OER and EERMC

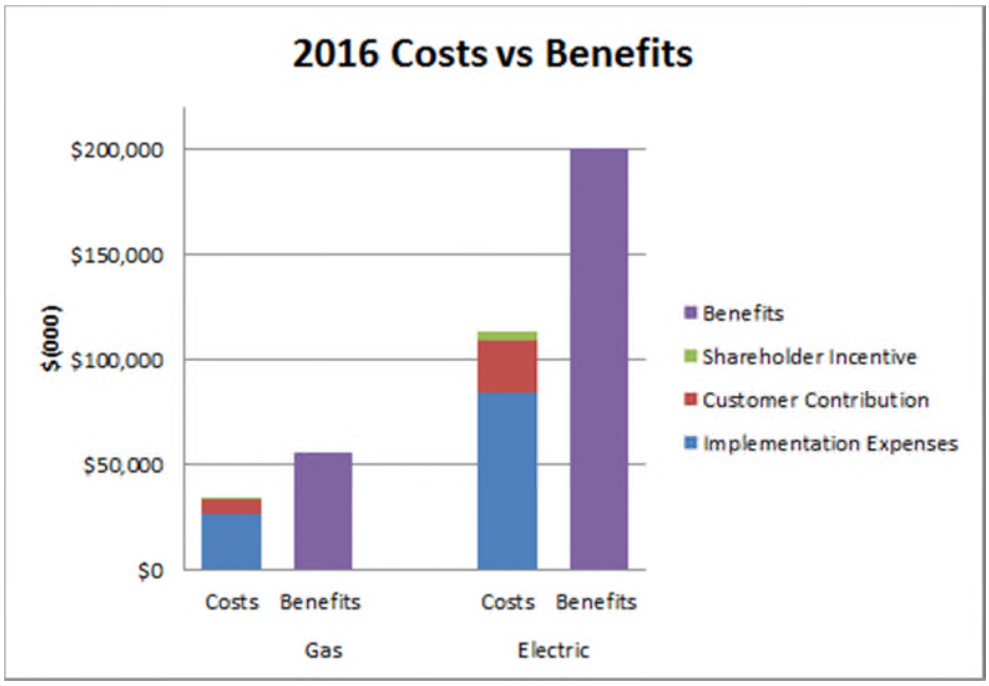
[3] Energy 2035: Rhode Island State Energy Plan. Preliminary Draft, June 2015.
[4] Carbon multiplier of 0.36 tons/MWh obtained from the 2012 ISO New England Electric Generator Air Emissions Report.
[5] Consistent with the planning process articulated in the EE Procurement Plan in Docket 4522, National Grid has examined the planning assumptions, supply costs, program enhancements, and corresponding budgets using the most robust data available for this Plan. Consequently, the TRC cent per kWh and TRC dollar per lifetime MMBtu are lower than projected in the EE Procurement Plan.

Gas Programs by Sector	Implementation Spending in 2016 ($000)	Customer Contribution ($000)	Annual MMBtu Savings		Lifetime MMBtu Savings	Total Benefits ($000)	TRC B/C Ratio	TRC $/lifetime MMBtu	Participants
Non-Income Eligible Residential	$11,978	$4,433	176,284		2,469,303	$ 30,404.63	1.79	6.65	143,498
Income Eligible Residential	$5,349	$0	29,283		542,832	$ 7,863.66	1.47	9.85	3,500
Commercial and Industrial	$8,207	$2,018	190,194		1,923,438	$ 17,295.50	1.63	5.32	2,131
Regulatory	$467								
RI Infrastructure Bank	$429								
Subtotal	**$26,429**	**$6,450**	**395,760**		**4,935,572**	**$55,564**	**1.63**	**6.66**	**149,129**
Total for Plan	**$110,018**	**$32,018**				**$256,127**	**1.74**		**718,187**

(1) Implementation spending does not include customer contributions, shareholder incentive, or commitments.
(2) Regulatory Includes contributions to OER and EERMC

As noted above, the savings meet Rhode Island law requirements for cost-effectiveness, As defined by the Standards approved by the PUC in Docket 4443, the Plan's Total Resource Cost Test ratio (TRC Test) - the ratio of Total Benefits/Total Costs – must be greater than 1.0.[6] The overall electric EE Program TRC Test ratio is 1.77, and the overall natural gas EE Program TRC Test ratio is 1.63.

Graph 1. 2016 Annual Plan Total Benefits and Total Costs

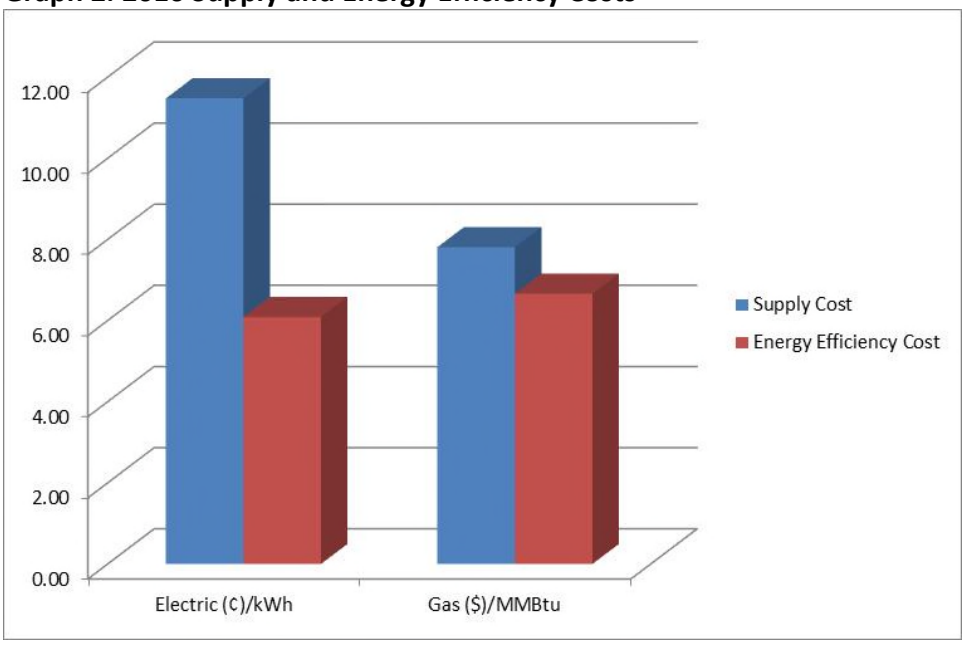


In addition to satisfying the primary statutory requirement of cost-effectiveness, the plan satisfies the additional requirement that the cost of energy efficiency procured be

[6] See *Standards for Energy Efficiency and Conservation Procurement*, Section 1.2.A.2.

less expensive than the cost of supply. The cost of electric energy efficiency programs is 6.09¢ per lifetime kWh saved, which is 5.38¢ less than the cost of supply, 11.47¢ per kWh.[7] The cost of natural gas energy efficiency is $6.66 per lifetime MMBTU saved, which is $1.15 less than the cost of supply for residential heating customers, $7.81 per MMBTU.[8]

Graph 2: 2016 Supply and Energy Efficiency Costs



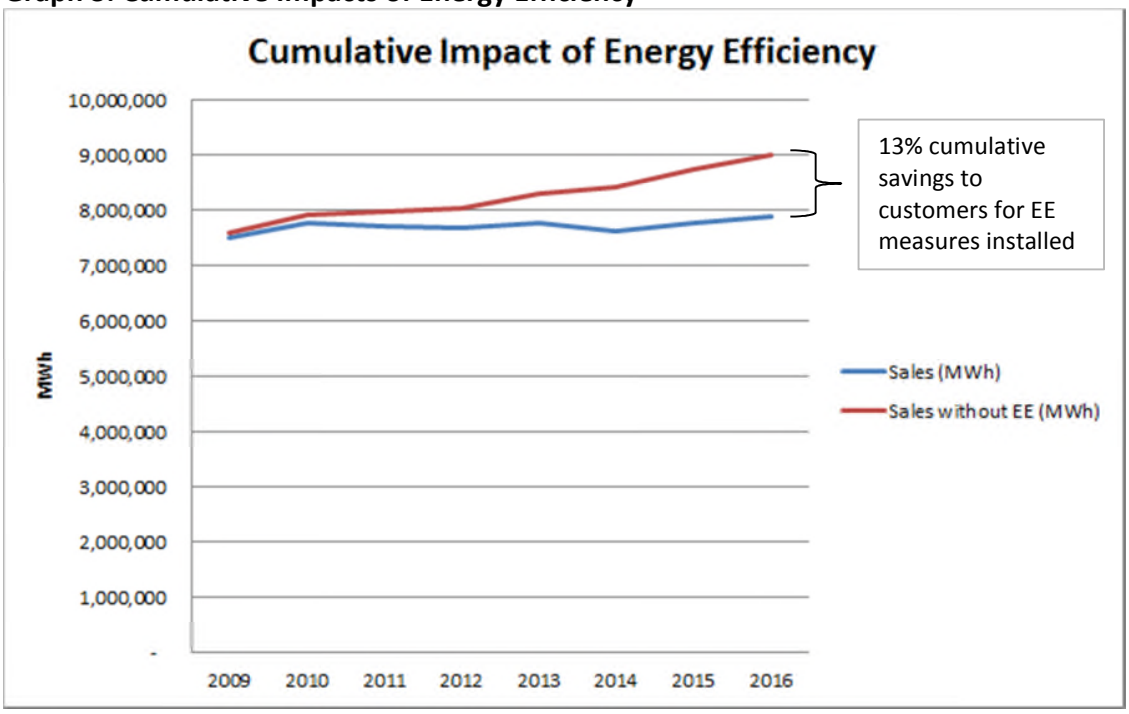
Overtime, the benefits of procuring energy efficiency at a cost less than supply accrue to customers. Graph 3 shows the cumulative energy savings for just those energy efficiency measures installed since 2009 (the first year of programs implemented under Least Cost Procurement). Due to the fact the average measure life of energy efficiency measures is 10 years, it is expected that measures installed in 2009 are still providing the same level of energy savings through 2016. This is true for those measures installed in and after 2009. The only exception is the savings from Home Energy Reports. This program only has a one-year measure life so those savings are only counted in one year. In graph 3 below, the area between the blue and red lines represents the cumulative MWh savings for measures installed since 2009. All these MWh savings were obtained at a cost lower

[7] The electric supply cost is based on the Residential Standard Offer Charge effective from April 1, 2014 until December 31, 2015, available online at: http://www.nationalgridus.com/narragansett/non_html/SOS_Rates_Table_Residential.pdf. It is levelized over the average lifetime of all measures in the plan. Additionally, the Commercial Customer Group fixed price option for July 1, 2015 until December 31, 2015 is a levelized cost of 9.86 ¢. Available online at: http://www.nationalgridus.com/narragansett/non_html/SOS_Rates_Table_Commercial.pdf

[8] The natural gas supply cost is based on the residential heating gas charge in effect since May 1, 2015 and is levelized over the average lifetime of all measures in the plan. Large Customer Low Load gas charge is also is a levelized cost of $7.80. Gas charges are available at: https://www1.nationalgridus.com/files/AddedPDF/POA/rigas_firm_rates.pdf

than the cost of supply. Without energy efficiency, Rhode Island customers would have had to purchase 13% more energy at a higher cost.

Graph 3: Cumulative Impacts of Energy Efficiency



This Plan, supported by the Collaborative and the EERMC, will cement Rhode Island's position as a recognized national leader in energy efficiency to the benefit of the State's population through cost savings and additional significant economic benefits, such as increased gross state product (GSP) and job creation. Investments made in energy efficiency under the 2016 Plan are expected to add over $386.872 million to Rhode Island's GSP and create more than 4,220 job-years of employment.[9] For each $1 invested, electric programs will create $1.77 of economic benefits over the lifetime of the investment, and natural gas efficiency investments will create $1.63 in economic benefits over the lifetime of the investments. Rhode Islanders will receive a total of $256 million in benefits from the 2016 energy efficiency plan investments.

The aggressive energy and cost savings for the 2016 program year are consistent with the objectives and requirements of Least Cost Procurement and meet the savings targets approved by the PUC at the Open Meeting on June 10, 2014 in Docket 4443. The electric savings goal proposed for 2016 is 199,760 MWh, slightly more than 2.55% of the reference 2012 load. The natural gas savings goal for 2016 is 395,760, or 1.05% of 2012

[9] Macroeconomic multipliers for the economic growth and job creation benefits of investing in cost-effective energy efficiency from "Macroeconomic Impacts of Rhode Island Energy Efficiency Investments: REMI Analysis of National Grid's Energy Efficiency Programs", National Grid Customer Department, November, 2014.

natural gas load, and is consistent with the approved targets for 2016 in the EE Procurement Plan approved in Docket 4522.

The following table compares the 2016 Annual Plan components to the 2015-2017 Least Cost Procurement Plan.

Table 2: 2016 Annual Plan compared to 2016 in 2015-2017 Three Year Plan

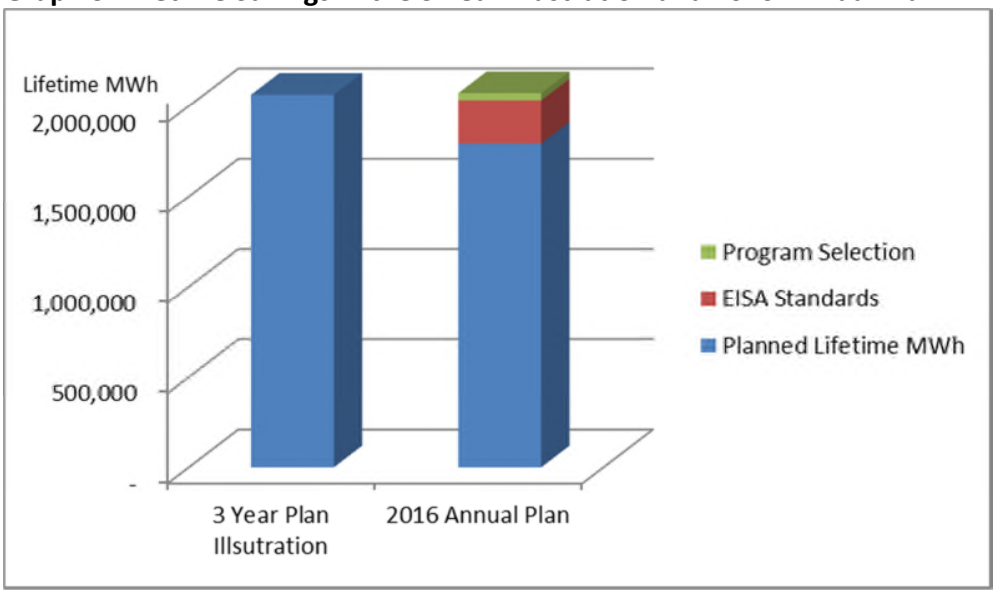
Electric Programs	2016 3 Year Plan	2016 Annual Plan
Annual MWh Savings	197,475	199,760
Lifetime MWh Savings	2,064,074	1,792,431
Annual Peak kW Savings	32,209	29,545
Total Benefits	$ 303,660,783	$ 200,563,374
Total Spending	$ 86,052,775	$ 87,467,507
Benefit Cost Ratio	2.82	1.77
TRC Dollars per lifetime kWh	$ 0.052	$ 0.061
EE Program Charge per kWh	$ 0.00997	$ 0.01077
Gas Programs	**2016 3 Year Plan**	**2016 Annual Plan**
Annual MMBtu Savings	395,760	395,760
Lifetime MMBtu Savings	4,302,219	4,935,572
TRC $/Lifetime MMBtu	$ 7.228	$ 6.662
Total Benefits	$ 64,517,962	$ 55,563,797
Total Spending*	$ 25,778,730	$ 27,680,221
Benefit Cost Ratio	2.07	1.63
C&I EE Program Charge per Dth	$ 0.595	$ 0.487
Residential EE Program Charge per Dth	$ 0.726	$ 0.748

The electric and natural gas energy efficiency program budgets proposed for 2016 are consistent with the budget illustrations presented for 2016 in the EE Procurement Plan approved in Docket 4522. The electric efficiency portfolio budget is higher than the illustration presented in the EE Procurement Plan. The gas efficiency portfolio budget is higher than the EE Procurement Plan illustration.

While the Annual MWh savings target is slightly higher than the three-year Plan illustration, the lifetime MWh savings for the electric programs are projected to be lower. The lifetime MWh is lower primarily due to improved lighting standards in the lighting market from the Energy Independence and Security Act (EISA). For example, as lighting standards increase due to EISA, fewer incandescent bulbs will be readily available. Therefore, regional energy efficiency programs will no longer claim savings

relative to those incandescent bulbs. Additionally, lifetime MWh savings are lower due National's Grid programmatic choices, whereby more savings are projected to occur in the Residential sector than predicted in the three-year Illustration. National Grid proposed the increase in the residential sector savings because of high customer demand, successful residential services, and to lower implementation costs in 2016. Notably, these costs were lower than they would have otherwise been. The following graph illustrates the differences in lifetime energy savings between the three-year Plan illustration and the 2016 Annual Plan.

Graph 3: Lifetime Savings in the 3 Year Illustration and 2016 Annual Plan



Additionally, Total Benefits for both the electric and gas programs are projected to be lower than the three-year Illustration. This is primarily due to notable changes in the 2015 Avoided Energy Supply Costs study. The study forecasted less Demand Reduction Induced Price Effects (DRIPE) than in the previous study due to the fact that the ISO-NE market has reached equilibrium. The second major change was that the study found a lower cost for gas, which affects the avoided costs of both gas and electricity. This is due to the fact that the commodity price of gas decreased due to increased supply being extracted from the Marcellus shale region. Lastly, the Company is assuming that a lower percentage of the distribution investments associated with load growth can be deferrable through energy efficiency. Due to these factors, the avoided costs benefits have decreased in 2016.

This cost-effective 2016 EE Program Plan includes an investment of $87.4 million for electric energy efficiency implementation in 2016. If approved, this will be funded by the existing energy efficiency program charge of $0.00953 per kWh, as well as other funding sources including ISO-New England's (ISO-NE) Forward Capacity Market (FCM) auction revenue and Regional Greenhouse Gas Inc. (RGGI) auction proceeds. Pursuant to R.I. Gen. Laws § 39-1-27.7(c)(5), a fully reconciling mechanism of $0.00124 per kWh is

needed to fully fund the cost-effective electric energy efficiency programs for 2016. This funding will generate economic benefits of $200 million for Rhode Island electric customers.

This Plan also includes a $27.7 million investment in cost-effective natural gas energy efficiency implementation. If approved, this investment will be funded by the existing energy efficiency program charge of $0.781 per dekatherm for residential customers and $0.617 per dekatherm for non-residential customers. Pursuant to R.I. Gen. Laws § 39-1-27.7(c)(5), fully reconciling mechanisms of $0.748 per dekatherm for residential customers and $0.487 per dekatherm for non-residential customers will be needed to fully fund the cost-effective natural gas energy efficiency programs for 2016. This represents a reduction in the gas program charge of 4% for residential customers and 24% of non-residential customers from 2015. The programs will generate economic benefits of $55.5 million.

The savings that customers will realize from participating in the energy efficiency programs will offset the energy efficiency program charge. Bill impacts analyses of both the gas and electric programs shows that the average participant will save more than they invest through the energy efficiency program charge. Non-participants benefit from power market effects and avoided investment in infrastructure due to energy efficiency that are also reflected in rates. When the impacts on both participants and non-participants are averaged, the analysis shows that the average Rhode Islander sees bill savings from energy efficiency. One of National Grid's objectives is to reach as many customers as possible to increase the participant and overall bill savings in Rhode Island.

II. Strategies to Achieve Goals

The primary goal of the 2016 EE Program Plan is to create economic value and cost savings for Rhode Islanders through energy efficiency. The Plan achieves this goal by implementing the following key strategies, introduced in Docket 4522:

- **Promoting Cost Efficiency –** the Company will continue to focus its efforts to identify strategies to deliver energy efficiency services as cost-effectively as possible, while continuing to optimize the net-benefits of energy efficiency to customers.
- **Empowering communities and markets to be energy efficient** – the Company will implement strategies to increase awareness of energy efficiency programs through the enhancement of existing programs to reach new and repeat customers, leveraging existing partnerships and forging new ones, and enhancing marketing and analytical tools to target customers more effectively.
- **Innovating to capture untapped savings** – the Company will continue to play a leading role in deploying such technologies to better drive both energy savings and customer program participation.

- **Developing opportunities for system-level savings and integration** – the Company will work with partners to research, develop, and integrate distributed energy resources into the various aspects of Least Cost Procurement. The Company's new Renewable Energy Growth Program and related initiatives will further this goal.

The application of these strategies is more fully described in the detailed program and marketing descriptions in Attachments 1 and 2.

III. Delivering 2016 Goals

National Grid will build on its more than twenty-five years of experience in order to deliver the energy and cost savings goals in this plan.[10]

A. Residential Programs

In 2016, the Parties agree to continue the residential programs offered in 2015. The Parties also agree to offer new programs and demonstrate the development of new technologies for potential inclusion in programs in future years. The programs are summarized in Attachment 1. The description of each program includes proposed changes from 2015 that are intended to help meet the savings targets for 2016.

Table 3. Proposed Residential Energy Efficiency Programs	
Residential Buildings Efficiency Programs	
EnergyWise Program (Funded by Gas and Electric)	Energy*Wise* offers single-family customers home energy assessments and information on their actual energy usage. Participants in this program receive recommendations and technical assistance as well as financial incentives to replace inefficient lighting fixtures, appliances, thermostats, and insulation levels with models that are more energy efficient. The program addresses base load electric use and heating and cooling energy loads in all residential buildings. The program recommends efficient products that are delivered through National Grid's various programs as well as solar opportunities provided through Statewide solar initiatives. The program will continue to deliver finance opportunities to customers such as the Heat Loan and support the Residential Property Assessed Clean Energy (PACE) when it begins in the latter half of 2016. The program will also continue to offer weatherization incentives to customers who heat with oil and propane.

[10] Throughout the program year, the Parties may consider additional enhancements beyond those identified in this Plan as more information becomes available to support an informed review of those potential changes. As part of this process of identifying additional enhancements, in addition to continuing to meet with the Collaborative, the Company will continue its work sessions with the EERMC's consultants.

Multifamily Programs Income Eligible, Residential and Commercial sectors (funded by Gas and Electric)	Comprehensive energy services for multifamily customers include energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting, and appliances. Coordinated services will be offered for all types of multifamily properties. An approach tailored for multifamily properties designates a primary point-of-contact to manage and coordinate services offered through the Company's existing portfolio, including EnergyWise, C&I Retrofit, Residential New Construction, Income Eligible, and the ENERGY STAR® HVAC programs.
Income Eligible Single Family (Funded by Gas and Electric)	Income Eligible Services, also known as the Single Family Low Income Services, are delivered by local Community Action Program (CAP) agencies with oversight provided by a Lead Industry Partner. Three levels of home energy assessments will be offered: (1) lighting and appliance focus, (2) heating and weatherization focus, and (3) comprehensive focus. Customers qualifying for LIHEAP are eligible and receive all services and equipment upgrades at no cost.

Residential Buildings Efficiency Programs	
Residential New Construction (Funded by Gas and Electric)	The program promotes the construction of high-performing energy efficient single family, multifamily, and low income homes, as well as the education of builders, tradesmen, designers, and code officials. RNC has been overhauled over the past few years to make it more performance oriented.
Education Programs (Funded by Electric)	The Company promotes energy education to private and public schools and youth groups through the National Energy Education Development (N.E.E.D) Program. This program provides curriculum materials and training to students and teachers in grades K-12.
Residential Home Energy Report Program (Funded by Electric and Gas)	The Company will continue to deliver Home Energy Reports that offer enhanced feedback tools to inspire customers to take actions that reduce their energy consumption and also increase their participation in the other energy efficiency programs.
Community Based Initiatives (C&I and Residential, Funded by Electric and Gas)	The initiative is designed to leverage trusted community partnerships and develop targeted marketing strategies in order to promote all energy efficiency programs, residential and commercial, in specific, targeted communities or businesses.
ENERGY STAR® Lighting (Funded by Electric Only)	This is an initiative implemented jointly with other regional utilities. It provides discounts to customers for the purchase of ENERGY STAR® lighting through instant rebates, special promotions at retail stores, mail-order catalog, pop-up retailer, and social marketing campaigns.
Residential Consumer Products (Funded by Electric Only)	The program is 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 offers refrigerator recycling, which promotes more efficient refrigerators while removing non-efficient units from the market.

ENERGY STAR® HVAC Program (Funded by Electric and Gas)	This program promotes the installation of high efficiency central air conditioners for electric customers and new energy efficient natural gas related equipment including boilers, furnaces, water heating equipment, thermostats, boiler reset controls, and furnaces equipped with high efficiency fans. The program provides training of contractors in installation, testing of the high efficiency systems, tiered rebates for new ENERGY STAR® systems, and incentives for checking new and existing systems. The program also includes the oil and propane heating equipment rebates.
Residential Demonstration and Research and Development (Funded by Electric and Gas)	The demonstrations test innovative technologies for saving both gas and electricity.

B. Residential Income Eligible Programs

The Company and the Collaborative want customers who have a high energy burden and/or difficulty paying their electric bills to participate in, and benefit from, the Company's energy efficiency programs, especially in these difficult economic times. For that reason, this segment of the customer base is designated as a unique sector, and funding for this sector will be subsidized by both non-low-income residential customers and commercial and industrial customers using 13.2% of total implementation funding for the electric programs, and 20% for natural gas programs.

In addition to the Income Eligible Single Family and Multifamily programs, the Residential New Construction Program also works with housing authorities and developers to build energy-efficient multifamily properties. Additional details about the services offered to economically disadvantaged customers are described in the residential programs in Attachment 1.

C. Commercial and Industrial Programs

The Parties agree to continue in 2016 the commercial and industrial programs offered in 2015, and pilot the development of new technologies for potential inclusion in programs in future years. The programs are summarized in Table 4 below.

Table 4. Proposed Commercial and Industrial Energy Efficiency Programs	
Small Business Direct Install (Gas and Electric)	The Small Business Direct Install Program provides direct installation of energy efficient lighting, non-lighting retrofit measures, and gas efficiency measures. Electric customers with average monthly demand of less than 200 kW are eligible to participate. There is no eligibility criterion for gas consumption. The program's lighting and non-refrigeration measures are delivered through one labor and one product vendor selected through a competitive bidding process. The customer pays 30% of the total cost of a retrofit. This amount is discounted 15% for a lump sum payment or the customer has the option of spreading the payments over a two-year period interest free.
Large Commercial Retrofit (Gas and Electric)	Large Commercial Retrofit is a comprehensive retrofit program designed to promote the installation of energy efficient equipment such as lighting, motors, and heating, ventilation and air conditioning (HVAC) systems, thermal envelope measures, and custom measures in existing buildings. All commercial, industrial, and institutional customers are eligible to participate. The Company offers technical assistance to customers to help them identify cost-effective efficiency opportunities, and pays incentives to assist in defraying part of the material and labor costs associated with the energy efficient measures.
Large Commercial New Construction (Gas and Electric)	Promotes energy efficient design and construction practices in new and renovated commercial, industrial, and institutional buildings. The program also promotes the installation of high efficiency equipment in existing facilities during building remodeling and at the time of equipment failure and replacement. 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. The program provides both technical and design assistance to help customers identify efficiency opportunities in their new building designs and to help them refine their designs to pursue these opportunities. The program also offers incentives to eliminate or significantly reduce the incremental cost of high efficiency measures over standard efficiency measures. Incentives are also offered to owner's design teams for their time and effort to meet program requirements. Operations Verification or quality assurance is also offered to ensure that the equipment and systems operate as intended.
Commercial and Industrial Demonstrations and Research and Development (Funded by Electric and Gas)	The demonstrations test innovative technologies for saving both gas and electricity.

Descriptions of these programs are provided in Attachment 2. Included in the description of each program are proposed changes from 2015 that are intended to help meet the savings targets for 2016.

D. Overcoming Financial Barriers

In most cases, with the exception of income eligible programs and services, the Company's offerings do not cover 100% of project costs. Over the past year, the State and Council have made progress researching, planning, and developing opportunities for finance mechanisms that will help customers overcome cost barriers which impede investing in energy efficiency. The Company's 2016 plan supports these activities in a variety of ways.

For large and small commercial customers, the Company will continue to offer finance for customer costs through on-bill repayment from its revolving loan funds. In 2016, the Company will transfer $1 million from the Small Business revolving loan fund to the Large Commercial revolving loan fund. As National Grid is delivering services to small business customers through less expensive channels, such as the Upstream Lighting initiative, the need for customer financing for direct install projects has decreased and the $1 million in finance can more readily be lent through the Large Commercial revolving loan fund. For municipal customers, the Company will support the Rhode Island Infrastructure Bank (RIIB) in establishing and implementing the Efficient Buildings Fund, as well as its commercial PACE efforts. Additionally, for municipal customers, the Company will continue to manage the revolving loan fund that was established as part of the RI Public Energy Partnership (RI PEP) with the OER. In order to create sustainable sources of finance for commercial customers in the future, the Company will support and facilitate ongoing research that the Council identifies on the topic. Specific details about these activities are described in the Affordability and Finance section of Attachment 2. National Grid's revolving loan fund projections for 2016 are illustrated in Attachment 5, Table E-10 and Attachment 6, Table G-10. Interest is not applied to the revolving fund balances.

For residential customers, the Company will continue to offer the Heat Loan, which buys down interest on loans from a network of local banks. The Company will also continue to offer the Heat Loan through the Capital Good Fund which is a non-profit specializing in transformative financial services for underserved families. The Company anticipates that RIIB, in collaboration with the OER, will implement Residential PACE during the second half of 2016. PACE offers customers opportunities to finance energy efficiency upgrades through special assessment payments attached to properties. The Company will promote Residential PACE opportunities during home energy assessments. The Company will also support and facilitate ongoing research that the Council identifies on the topic. Details about residential finance opportunities are further described in EnergyWise section of Attachment 1.

E. Participation

Each program described in this Plan seeks to drive customer participation in order to deliver the benefits of energy efficiency to customers throughout Rhode Island. The Plan is designed to provide equitable access to savings and programs across sectors and market segments. For 2016, the Company will continue to plan and report participation in 'net' terms, which takes into account free-ridership and spillover, which are commonly referred to as net-to-gross factors. This method of accounting for participants aligns participation numbers with energy savings numbers, which are already recorded in net terms. This approach provides a more accurate connection between energy savings and those customers who benefit efficiency programs.

The following table describes the definitions for how National Grid projects, tracks and reports participation in the efficiency programs.

Table 5: Participation Definitions

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

Fuel	Sector	Program	Participation Unit
		Residential New Construction	Housing Units
		ENERGY STAR® Lighting	Estimated Housing Units
		ENERGY STAR® Products	Number of Rebates

The Company also aims to estimate the number of unique participants for each program. For some programs such as ENERGY STAR® Lighting and ENERGY STAR® HVAC, one measure does not necessarily equal one participant. This is because a customer can purchase more than one measure. Therefore, the Company also considers the previous year's unique accounts to savings ratio in order to estimate the planned unique participants in 2016. This method allows for a better estimation of unique participants but can make it more difficult to compare planned numbers across years. To provide more detail on trends in participation, the Company will again provide a detailed analysis in its year-end report showing additive and cumulative portfolio participation.

F. Creating and Sustaining Energy Jobs

Delivery of energy efficiency savings is a large effort, involving a large number of people. One of the most evident economic benefits that energy efficiency creates in RI is the number of jobs created or sustained in the energy sector. Each year, National Grid reports on the number of jobs supported by its RI energy efficiency programs. The report is included in National Grid's Year-End Report, which is submitted to the PUC, and available on the Council's website. The 2014 report found that the energy efficiency programs supported 639 jobs across 899 different firms, more than 70% of which were located in Rhode Island.

Additionally, National Grid has conducted a number of workforce development activities throughout the State that it will continue in 2016. Examples of the Company's activities include the Codes Initiative, which offers continuing education credits related to energy codes for design and construction professionals. The Company has also conducted hands-on trainings through its Preparation for the Future Energy Professionals course at technical schools, including the Chariho Career and Technical Center, Woonsocket Career Center, and the Warwick Area Career and Tech Center. Additionally, the Company offers professional certifications for facility managers through its Building Operator Certification course, which teaches energy efficient techniques for optimizing energy management. National Grid also sponsors the Rhode Island Home Show, and in 2016, the show will promote job and workforce development.

G. System Reliability Procurement

In a contemporaneous filing, the Company is submitting its System Reliability Procurement (SRP) Annual Report for 2016 for the PUC's review and consideration. The SRP Annual Report describes the strategies, goals, and funding request for SRP in 2016 to continue an existing pilot to defer an anticipated distribution upgrade in the towns of

Tiverton and Little Compton. As detailed in that filing, some of the non-wires strategies proposed in 2016 are targeted energy efficiency programs, which will leverage existing programs. For example, a targeted energy efficiency program may include home energy assessments or small business direct installs that are already a part of the energy efficiency programs; these programs would simply be coordinated through an incremental effort to a specific town. Targeted energy efficiency was proven cost-effective and successful in the 2009-2010 Energy Action: Aquidneck & Jamestown Pilot. The cost of the existing programs that may be leveraged is part of the energy efficiency budget illustrated in Attachment 5, Table E-2. However, the estimated incremental cost of targeting and implementing energy efficiency programs in a specific area for System Reliability is provided in several tables in Attachment 5 for informational purposes only. The request for incremental funds for SRP is being made in the separate SRP filing.

IV. Funding, Budgets, Goals, and Cost-effectiveness

Funding, budgets, goals, and cost-effectiveness information is provided in Attachment 5 for the proposed electric energy efficiency programs and in Attachment 6 for the proposed natural gas energy efficiency programs.

A. 2016 EE Program Plan Funding Sources

The sources of funding and the amounts of the funding needed for the cost-effective 2016 EE Programs proposed by the Company, with the support of the Parties, are shown in Table E-1 for electric programs and Table G-1 for natural gas programs.

The sources of funding for the 2016 electric programs are shown in Attachment 5, Table E-1. To collect these funding sources for the 2016 cost-effective programs, the Company proposes: (1) one line on the customers' bill labeled "Energy Efficiency Charge" at $0.01077 per kWh, as calculated in Attachment 5, Table E-1 (composed of the existing energy efficiency program charge of $0.00953 per kWh plus a fully reconciling funding mechanism charge of $0.00124 per kWh in accordance with the requirements of R.I. Gen. Laws § 39-1-27.7); (2) projected Large C&I commitments from 2015, if any; (3) projected carryover of the year-end 2015 fund balance, as applicable, including interest at the rate in effect for customer deposits; (4) revenue generated by ISO-NE's Forward Capacity Market (FCM); and (5) anticipated revenues generated through RGGI permit auctions. Additional detail regarding Regional Greenhouse Gas Initiative (RGGI) funds is described below. Funding sources do not include revolving loan funds.

The sources of funding for the 2016 natural gas programs are shown in Attachment 6, Table G-1. The Company proposes that the 2016 budget should be funded from the following sources: (1) one line on the customers' bill labeled "Energy Efficiency Charge" at $0.748 per dekatherm for residential customers

and $0.487 per dekatherm for non-residential customers as calculated in Attachment 6, Table G-1 (composed of the existing energy efficiency program charge of $0.781 per dekatherm minus a fully reconciling funding mechanism of $0.033 per dekatherm for residential customers and the existing energy efficiency program charge of $0.637 per dekatherm minus a fully reconciling funding mechanism of $0.150 for non-residential customers in accordance with the requirements of R.I. Gen. Laws § 39-1-27.7); (2) projected carryovers or under-recoveries of the year-end 2015 fund balance, including interest at the rate in effect for customer deposits; and (3) low income weatherization funding in base rates. Funding sources do not include revolving loan funds.

The 2016 budgets for cost-effective electric and natural gas efficiency investments are dependent on a number of projections that inform the amount of funding, including projections of kWh or therm sales of electricity and natural gas, year-end 2015 large C&I program commitments, capacity payments received from ISO-NE (electric only), and year-end 2015 spending. The Company estimates that the electric projected fund balance at year end 2015 will be –$2.9 million, as shown in Attachment 5, Table E-1; the gas fund balance at year end 2015 is estimated to be $3.67 million, as shown in Attachment 6, Table G-1.

Other considerations regarding funding sources include:

1. ISO-NE Capacity Market Revenue

Consistent with the PUC's Standards, the EE Procurement Plan, and PUC decisions regarding energy efficiency program plans since 2008, the Company and the Parties recommend that kW-demand savings achieved via the electric energy efficiency programs continue to be reported by the Company to ISO-NE as Other Demand Resources; and demand savings from Combined Heat and Power facilities will be reported to ISO-NE as Distributed Generation. All revenue received from participation in the FCM will be reinvested as a funding source for energy efficiency.

The Parties fully agree that the Company should recover all prudently incurred FCM expenses from ISO-NE capacity-payment revenue generated by the demand savings from efficiency programs represented by the Company. The Company expects that capacity payments received from the ISO-NE will exceed its administrative and Measurement and Verification (M&V) compliance costs of participation in the FCM, and will result in additional funds being made available to fund efficiency programs for customers. If these participation costs exceed the capacity payments, the Parties agree that the Company may recover its prudently incurred costs from the energy efficiency program fund. The Parties reserve the right to examine the actions and expenses of the Company to ensure that only prudently incurred expenses are deducted from ISO-NE capacity payments or the energy efficiency program fund.

In addition, as part of the FCM, all qualified auction participants are required to post Financial Assurance to provide security that the promised resource will deliver the promised MW at the promised time. If, as a result of circumstances beyond the Company's control,[11] the Company is unable to provide all or a portion of the megawatts of capacity proposed in its qualification packages and capacity auction bids, some or all of the financial assurance monies would be forfeited.

2. Regional Greenhouse Gas Initiative, Inc. Funds

The Plan includes proceeds from the auction of Regional Greenhouse Gas Initiative (RGGI) allowances pursuant to R.I. Gen. Laws § 23-82.6 and consistent with the 2015 Plan for the Allocation and Distribution of RGGI Auction Proceeds.[12] The Company has included $3.59 million in Attachment 5 Table E-1. The company has also provided a table illustrating Historic and Planned RGGI Proceeds in Attachment 5 Table E-11. The parties agree that the funds will be used to support the portfolio of energy efficiency services, thereby reducing the energy efficiency charge from what it otherwise would have been.

In addition, the OER has indicated that they will propose a further allocation of $1 million in 2016 for weatherization of delivered fuel customers through the EnergyWise program. When the allocation is received, National Grid will update Attachment 5, notify the parties and the PUC, and weatherize additional homes.

3. Exceptions to the Natural Gas Energy Efficiency Program Charge

Similar to the 2014 and 2015 Plans, all natural gas used for distributed generation projects approved since 2014 will be subject to the gas energy efficiency surcharge.[13]

The 2006 Act allows the PUC to exempt natural gas used for manufacturing processes from the energy efficiency surcharge where the customer has established a self-directed program to invest in and achieve best effective energy

[11] Such circumstances may include legislative action to alter the EE charge or discontinue the Company's authority to implement the energy efficiency programs underlying the Qualifications Package or a PUC decision limiting the Company's role in bidding the demand savings acquired through program efforts into the FCM.

[12] The Plan is available at: http://www.energy.ri.gov/rggi/

[13] Natural gas used for distributed generation (excluding natural gas used by emergency generators) for distributed generation projects approved under the energy efficiency programs in 2013 and prior years - independent of the date those facilities become commercially operable – are not subject to the energy efficiency surcharge when natural gas used for that purpose can be clearly identified through uniquely metered use and when so requested in writing by the customer.

efficiency in accordance with a plan approved by the PUC and subject to periodic review and approval by the PUC. Consistent with prior PUC decisions, the Parties have developed recommendations for a process whereby a manufacturer who so chooses may submit its self-directed program and the required annual reports for approval. The Parties recognize that this process may need to be reviewed and modified after the PUC has accumulated sufficient experience with these programs. Any customer that receives this exemption from the natural gas energy efficiency program charge will not be eligible to receive energy efficiency program services.

B. Budgets

The Parties agree that the portfolio of energy efficiency programs and services for 2016 will have an overall budget of approximately $87.5 million for electric programs and $27.7 million for natural gas programs. The Parties agree to segment the budget into three sectors: residential income eligible, residential non-income eligible, and commercial and industrial (C&I). Proposed sector and program budgets are provided in Attachment 5, Table E-2 and Attachment 6, Table G-2. The derivations of the spending budget and implementation expenses are illustrated in Attachment 5, Table E-3 and Attachment 6, Table G-3. A comparison of these proposed budgets to the 2014 budget is provided in Attachment 5, Table E-4 and Attachment 6, Table G-4.

The Parties agree that the Company should make every attempt to spend or commit all the funds available for energy efficiency during the program year, including any increases in the fund balance due to increased sales or other factors. Although this Plan includes a projection of the fund balance expected at year end 2015 as a funding source (or deficit) to carry into 2016, it is likely that the actual year end 2015 fund balance will be more or less than that amount. Within 30 days after the filing of the 2015 Year End Report, the Company will calculate the difference between the actual year end fund balance and the projected year end fund balance included in this Plan, and will notify and consult with the Collaborative and Division regarding its intended use of the excess funds, if any. Such uses may include moving the excess funds into financing mechanisms for the sectors in which the excess occurs, supporting possible overspending during the year, reducing the energy efficiency program charge, or carrying the excess funds over into the next program year. After consensus approval by the Collaborative, the Company will notify the PUC and the EERMC of the actual year-end 2015 fund balance and the intended use for the disposition of the funds. If the use of the funds supports overspending of current year program budgets, then, in addition to the above requirements, the Company will follow the provisions for overspending in Section D, below. Use of excess funds for financing mechanisms will not be considered as overspending.

The Parties also agree to review the status of budgets regularly to assess whether they are likely to come to a successful completion. If not, the Parties agree to review the advisability of transferring funds to other programs where the money could be more effectively used. Fund transfer guidelines are presented in Section C, below.

The Company proposes to continue the practice of funding commitments that were established in the 2014 Plan, Docket 4451. Namely, the Company will continue to make commitments for projects with a projected incentive in excess of $3 million.[14] For all other projects, except those with incentives greater than $3 million, there would be no commitment budget and the Company will fund and pay all incentives in the year in which they are completed.

C. Transferring of Funds

The Parties will regularly review the amount of funds needed and available for each program (as well as any changes to the overall fund balance, as discussed in Section III.A above) and will transfer monies as needed. The Parties propose to use the same methodology as was used in 2015 for the transfer of funds from one program to another, or from one sector to another. Transfers during the program year may occur as follows:

1. Transfers within a Sector:
   - A. For transfers of less than 10% of the originating program's budget, the Company can transfer funds from one program to another program within the same sector without prior approval of the Division. However, the Company shall provide a summary of such transfers to the Division and EERMC quarterly.
   - B. For transfers of 10% or more of the originating program's budget, the Company can transfer funds from one program to another program within the same sector with prior approval of the Division. Upon seeking such approval from the Division, the Company shall simultaneously notify the EERMC.
   - C. For transfers in the C&I Sector between large C&I programs and small business programs of more than 5% of the originating program's budget, Division approval is required. Upon seeking such approval from the Division the Company shall simultaneously notify the EERMC. In

[14] As noted below in Section D, the Company will be required to notify the PUC of all incentive offers in excess of $3 million. Such notifications will also include a description of how the Company intends to fund the incentive. No such offers are anticipated in 2016.

addition, if a transfer reduces the originating program's budget by more than 20% in aggregate over the course of the program year, the transfer will require PUC approval as well with weight given to the EERMC's recommendation to the PUC on the issue.

D. For all transfers within a sector, the Company will reflect changes in the quarterly report(s) following the transfer and the year-end report.

2. Transfers between Sectors. The Company can transfer funds from one sector to another sector with prior approval of the Division and the EERMC (or its appointed representatives). If a transfer reduces the originating sector's budget by more than 20% in aggregate over the course of the program year, the transfer will also require PUC approval.
For all transfers between sectors, the Company will reflect changes in the quarterly report(s) following the transfer and the year-end report.

3. Transfers among residential retrofit programs. The Company can transfer among EnergyWise, EnergyWise Multifamily, Income Eligible Multifamily, and C&I Multifamily (which are in different sectors) programs in order to achieve the overall savings goals of all programs. Although these are listed as separate lines in the program tables, they are essentially one program from an implementation standpoint. For all transfers between residential retrofit programs, the Company will reflect changes in the quarterly report(s) following the transfer and the year-end report.

4. For transfers requiring Division and/or EERMC, but not PUC approval, the Parties will inform the PUC of the transfers, both between sectors and within sectors, in a timely fashion.

5. The Company will not be permitted to adjust its goals or incentive target calculations as a result of any transfers between sector budgets. However, after any budget transfers between sectors are made, the sector spending budgets will be recalculated for the purposes of the shareholder incentive calculation.

D. Budget Management

By October 15, 2016, the Company shall file an Energy Efficiency Program Plan for 2017. It is possible that there could be deviations from the planned budget for 2016 that could occur during the program year. Three scenarios are contemplated and it is agreed that they will be addressed as follows:

(1) The Company's expenditures and commitments for 2016 may exceed total budget by up to 10% so long as a written explanation is provided to the EERMC and the PUC for any deviation and the expenditures and commitments are reasonably consistent with the original 2016 plan.

(2) The Company agrees that, during 2016, if the Company anticipates that continued operation of its programs is likely to result in actual expenditures and commitments exceeding the total program budget by more than 10%, the Company will seek a vote of approval from the EERMC at its next meeting. Following EERMC action, the Company will be required to obtain approval from the PUC for expenditures in excess of 10% higher than the total program budget, which would be collected through reconciliation in the next year's Energy Efficiency Program Charge.

(3) If the Company did not anticipate during the program year that its actual expenditures and commitments would exceed the total budget by more than 10%, but actual expenditures and commitments do exceed such threshold, the Company will bear the burden of demonstrating the reasonableness of its actions, including an explanation of why the over-spending occurred and how the expenditures and commitments are reasonably consistent with the original plan. Such demonstration would be required to be part of the 2016 Year End Report, if not sooner.

In each of these three instances, the PUC retains its traditional ratemaking authority to review the prudency and reasonableness of the Company's actions.

In addition, the Company will file a written notification with the PUC of any energy efficiency incentive offer in excess of $3 million. The project, the incentive, and any other related proposals will be authorized to proceed after thirty days from the notice filing unless the PUC suspends the filing and/or issues an order within such 30-day period to extend the time for purposes of further review.

If the dollar value of a proposed incentive for a single project is such that it would cause a program to exceed the overall energy efficiency plan budget for the current program year, the Company will follow the provisions related to overspending, per the rules established above.

V. Cost-Effectiveness

The Company has projected cost-effectiveness for the proposed 2016 programs using the Total Resource Cost (TRC) Test. The use of the TRC Test was required by the Standards, as established in 2008 and revised by the EERMC, as approved by the PUC at the Open Meeting on June 10, 2014 in Docket 4443. The TRC Test requires that the

total lifetime savings from the efficiency measures will exceed the total costs of the measures (i.e., program and customers' costs).

As provided for under the Standards, benefits include primary fuel energy savings (electricity and natural gas), the value of other resource (fuel and water) benefits, price effects, and non-energy impacts (NEIs). In accordance with the revised Standards in 2015, the TRC test includes the costs associated with reasonably anticipated future federal greenhouse gas regulations. Costs include all projects costs, as well as program planning and administration, sales, technical assistance and training, and evaluation. To illustrate the detailed components of the TRC as well as the sources of the values, the Company has provided Attachment 4.

Two key supporting documents for cost effectiveness are the Technical Reference Manual and the Avoided Cost Study. For the 2016 EE Program Plan, the Company developed the 2016 Rhode Island Technical Reference Manual (TRM), which documents the savings or savings algorithms and costs for measures proposed to be offered through its programs in 2016. The TRM identifies the sources for the savings estimates: evaluation studies, engineering analyses, and/or other research. This TRM is a public document and was provided to the EERMC and its consultants to support and facilitate the determination of the Plan's cost-effectiveness. It will be available at https://www.nationalgridus.com/EnergyEfficiencyReports.asp. For 2016, the Company has adopted and on-line format called a Technical Reference Library. Access to this on-line database is allowed through the issuance of log in credentials. The TRM is reviewed and updated annually to reflect changes in technology, baselines, and evaluation results.

The cost-effectiveness analyses of the proposed programs use avoided energy supply costs that were developed by Tabors, Caramanis, and Rudkevich (TCR) as part of the Avoided Cost Study, "Avoided Energy Supply Costs in New England: 2015 Report," that was sponsored by all the electric and gas efficiency program administrators in New England and was designed to be used for cost effectiveness screening in 2016 through 2018.[15] The avoided costs reflect current and expected market conditions and are highly influenced by the cost of fossil fuels and expectations about ISO-NE's emerging forward capacity market. Company-specific transmission and distribution capacity values are also included. The avoided costs from the report used for 2016 are shown in Attachment 5, Table E-8 and Attachment 6, Table G-8. There were several noted changes to the avoided costs in the 2015 study. The study forecasted fewer Demand DRIPE costs than in the previous study due to the fact that the ISO-NE market has reached equilibrium. The second major change was the study found a lower cost for gas, which affects the avoided costs of both gas and electricity. This is due to the fact that the commodity price of gas decreased due to increased supply being extracted from the Marcellus shale region. Lastly, the Company is assuming that a lower percentage of the

[15] The report is available online at: http://ma-eeac.org/wordpress/wp-content/uploads/2015-Regional-Avoided-Cost-Study-Report1.pdf

distribution investments associated with load growth can be deferrable through energy efficiency. Due to these factors the avoided costs benefits have decreased in 2016.

Attachment 5, Table E-5 and Attachment 6, Table G-5 provide the calculations of 2016 program year cost-effectiveness. Attachment 5, Table E-6 and Attachment 6, Table G-6 show the energy savings goals based on the proposed budgets. Attachment 5, Table E-7 and Attachment 6, Table G-7 show a comparison of the goals with the approved program goals from 2015. Attachment 5, Table E-5 shows that the proposed portfolio of electric programs is expected to have a benefit/cost ratio of 1.77, which means that approximately $1.77 in benefits is expected to be created for each $1 invested in the programs. Attachment 6, Table G-5 shows that the proposed portfolio of gas programs is expected to have a benefit/cost ratio of 1.63, which means that $1.63 in benefits is expected to be created for each $1 invested in the programs. This increase in efficiency investment moves closer to acquiring all energy efficiency resources that are cost-effective and lower cost than supply.

VI. Bill Impacts

In addition to energy efficiency being a cost effective investment for Rhode Island, an analysis of bill impacts from the proposed investment in energy efficiency indicates that the average Rhode Islander who participates in the electric programs will realize a bill reduction of 2.19% to 15.53%, depending on rate class. The participant in the gas programs will see a bill reduction of 2.24% to 18.48%, depending on rate class. The average Rhode Island consumer (blending participants and non-participants) will see reduced bills of 0.36% to 2.63%, for electricity over an 11 year period, compared to no investment. For gas bills, the average Rhode Island consumer will see 0.02% to 3.28% reduction, depending on rate class. The bill impacts analysis uses models that were first used in the 2015 Plan and considers bill savings to participants compared to the incremental cost to all consumers of investing in energy efficiency in 2016. It also factors in that non-participants will benefit through avoided infrastructure investments as well as market effects. The full bill impacts analyses for electric and gas programs may be found in Attachment 7.

VII. Measurement and Verification Plan

To verify the impacts that programs are having on energy savings, the Company hires independent consulting firms to regularly conduct program evaluations as part of its measurement and verification process. These evaluations include engineering analysis, metering analysis, billing analysis, site visits, surveys, and market studies to realize the actual energy savings that particular measures are having. Every year, the results of the surveys are used to update the TRC test calculations during planning. Attachment 3 lists the evaluations that have occurred since 2007 and their influence on program

planning.[16] The executive summaries of recently completed evaluations are submitted electronically to the PUC; executive summaries of evaluations completed in prior years are available in the dockets for previous years, or upon request.

Additionally, the M&V Plan for 2016 is presented in Attachment 3, and includes brief descriptions of each of the proposed studies. The areas proposed for study in 2016 have been chosen based on a number of factors: the relative amount of savings in that program or end use, the vintage of the most recent evaluation study, the relative precision of the recent evaluation study, and the available evaluation budget. In addition, some new program areas are designated for both impact and process evaluations. This list may be added to as the year progresses and different evaluation priorities are identified. In particular, the parties will consider the value of using evaluations from other jurisdictions as well as adding Rhode Island-specific impact or process evaluations, as appropriate, that will help inform the Company's efforts towards achieving the goals of least cost procurement.

VIII. Reporting Obligations

1. During 2016, the Company will provide quarterly reports to the EERMC, the Division, the Collaborative, and the PUC on the most currently available program performance for both natural gas and electric efficiency programs. These reports will include a comparison of budgets and goals by program to actual expenses and savings on a year-to-date basis, and a status report on the C&I revolving loan funds. The reports will also include a brief summary of program progress and will highlight issues by sector for EERMC, Division, and Collaborative attention. Within the C&I sector, there will be separate highlighting of large and small customer program progress and issues. Beginning in the second quarter, the quarterly reports also include a forecast of expected results.
2. During 2016, for months for which quarterly reports are not produced, the Company will provide to the EERMC, the Division, and the Collaborative monthly summaries of year-to-date spending and savings and results by sector.
3. The Company will provide to the Parties and file with the PUC its 2016 Year-End Report no later than May 1, 2017. This report will include achieved natural gas and electric energy savings in 2016 and earned incentives for 2016.
4. The Company will provide to the Parties a summary of evaluation results obtained since October 1, 2015, including a description of the impact of

[16] The information in the Attachment is also intended to meet the specific requirement from the 2014 EE Program Plan to provide "a summary of evaluation results obtained since October 1, 2013, together with an attachment summarizing the impact of those results in planning the Company's 2015 programs."

those results in planning the Company's 2017 programs, in the 2017 Plan to be filed by October 15, 2016.

IX. Incentive

Consistent with the Three-Year Plan, the proposed shareholder incentive mechanism for 2016 will be based on the same metric applicable to the 2015 Plan. 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.

However, in order to also promote the achievement of demand savings goals, the Company proposes to set aside 30% of the current incentive rate for achieving MW savings goals. This would allow 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 gas, where there is no demand savings component, the Company proposes to maintain a target-based incentive rate equal to 5.0% of the eligible annual spending budget for achieving MMBtu savings goals. The proposed incentive structure would not increase the incentive rate; it only distributes the current rate across energy and demand savings.

The mechanism for calculating how much of the above target incentive the Company can earn will remain the same as in 2015 and will be applied to both energy and demand savings. As in 2015, the proposed incentive mechanism establishes an incentive of 1.25% of the annual spending budget for achieving 75% of the savings goals in a sector. This would increase linearly to 5% of the annual spending budget for achieving 100% and increase linearly from that point to 6.25% of the annual spending budget for achieving 125% of the savings goals.

Expressed mathematically, the shareholder incentive would be calculated as follows for both energy and demand savings, where SB is the Annual Spending Budget in the sector:

- From 75% of savings to 100% of savings:
  - Incentive = SB x (0.15 x % of savings achieved – 0.10)
    - x 0.7 for electric energy savings
    - x 0.3 for electric demand savings
    - x 1.0 for natural gas savings
- From 100% of savings to 125% of savings:
  - Incentive = SB x (0.05 x % of savings achieved)

The Company believes this structure will incent the Company to achieve savings that approach or exceed 100% of the annual goals. It does so by setting the threshold for savings required to earn an incentive at 75% of the annual savings goals, by creating a

steep slope to earn a greater incentive in the range of 75% of savings to 100% of savings, by establishing the target incentive at 5.0% of the annual spending budget, and by offering a higher incentive for exceeding 100% of the annual goals.

The threshold performance level for energy savings by sector will be set at 75% of the annual energy and demand savings goal for the sector. The Company must attain at least this threshold level of savings in the sector before it can earn an incentive. The Company will have the ability to earn an incentive for each MWh, MW or MMBtu saved, once threshold savings for the sector are achieved. The cap for the target incentive amount of energy savings will remain at 125%.

The ability to earn up to 125% of the target incentive is worthwhile because Rhode Island customers will realize additional energy and cost savings if the Company achieves a high level of energy savings performance. Given budget control requirements, this feature will provide the Company with an incentive to improve the efficiency of its program implementation efforts while providing Rhode Island customers with value in excess of the incremental incentive that may be earned by the Company. That is, the Company will have an incentive to increase customers' savings and customers will realize an overwhelming majority of the savings.

The savings goals are based on a set of assumptions of savings per measure and other impact factors in each program as well as the proposed budget. The determination of achieved savings will be based on the same set of savings and impact assumptions as is used to develop the savings goal in this EE Program Plan. These assumptions have been reviewed and accepted by the Parties.

Attachment 5, Tables E-3 and Attachment 6, Table G-3 provide the derivations of the eligible electric spending budget that are used to determine the incentive amounts that the Company may earn if it is successful in achieving its goals for energy savings. Attachment 5, Table E-9 and Attachment 6, Table G-9 provide a summary of the incentives related to annual energy-savings goals by sector. These goals by sector reflect the expected cost of savings in each sector informed by evaluation studies, and these goals have been adjusted to take into account changing rebate policies and the changing market being served. These goals have been carefully reviewed by the Collaborative and EERMC representatives to ensure that they represent reasonable and challenging goals for the year.

For electric energy efficiency programs, the proposed target base-incentive rate in 2016 is equal to 5.0% of the eligible spending budget for 2016. The projected electric eligible spending budget for 2016 is approximately $77.6 million (see Attachment 5, Table E-3). The total electric target incentive for 2016 is 5.0% of the proposed spending budget, or approximately $3.9 million (see Attachment 5, Table E-9).

For natural gas efficiency programs, the proposed target base incentive is equal to 5.0% of the eligible budget. The projected natural gas eligible spending budget for 2016 is

approximately $25.0 million (see Attachment 6, Table G-3). The total natural gas target incentive for 2016 is 5.0% of the proposed spending budget, or approximately $1.25 million (see Attachment 6, Table G-9).

In addition, in order to promote cost efficiency in spending in the achievement of the energy savings goals, an adjustment will be made under certain circumstances to MWh and MMBtu savings goals in the shareholder incentive calculation. If the actual implementation expenses in a sector at year end are less than the planned implementation expenses for that sector by more than five percent, and if achieved savings in the sector exceed 100% of the target savings goal, the savings goal for that sector will be adjusted by the ratio of actual implementation expenses to the planned implementation expenses. Conversely, if the actual implementation expenses[17] in a sector at year end are greater than the planned implementation expenses by more than five percent, and if achieved savings in the sector are less than 100% of the target savings goal, the savings goal for that sector will be adjusted by the ratio of actual implementation expenses to the planned implementation expenses.

The Company will report final program results and earned incentive in its Year-End Report regarding 2016 Energy Efficiency Program efforts.

X. Miscellaneous Provisions

A. Other than as expressly stated herein, this Settlement establishes no principles and shall not be deemed to foreclose any party from making any contention in any future proceeding or investigation before the PUC.

B. This Settlement is the product of settlement negotiations. The content of those negotiations is privileged and all offers of settlement shall be without prejudice to the position of any party.

C. Other than as expressly stated herein, the approval of this Settlement by the PUC shall not in any way constitute a determination as to the merits of any issue in any other PUC proceeding.

D. The Parties agree that the Collaborative shall meet no less than six times in 2016 to review the status and performance of the Company's 2016 energy efficiency programs and advise the Company on potential energy efficiency programs for 2016.

The Parties respectfully request that the PUC approve this Stipulation and Settlement as a final resolution of all issues in this proceeding.

[17] Expenses related to overspending for deliverable fuels will be excluded from implementation expenses in this calculation.

Respectfully submitted,
THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID

10/8/15

_____

By its Attorney, Date
Raquel J. Webster

RHODE ISLAND DIVISION OF PUBLIC UTILITIES AND CARRIERS

10/7/15

By its Attorney, Date
Jon Hagopian, Senior Legal Counsel

ACADIA CENTER

10/7/2015

Mark LeBel, Staff Attorney Date

THE RHODE ISLAND ENERGY EFFICIENCY AND RESOURCES MANAGEMENT COUNCIL

October 8, 2015

By its Attorney, Date

Marisa Desautel, RI Bar #7556
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55 Pine St.
Providence, RI 02909
401-477-0023

PEOPLE'S POWER & LIGHT

10/8/15

By its Executive Director, Date
Larry Chretien

OFFICE OF ENERGY RESOURCES

10-9-15

By its Commissioner, Date
Marion Gold

GREEN & HEALTHY HOMES INNITIATIVE

By its President and CEO, Date
Ruth Ann Norton

ATTACHMENT 1

2016 Residential Energy Efficiency Solutions

The Company's 2016 Residential portfolio includes a comprehensive set of energy efficiency solutions focused on delivering integrated RI customer offerings that are tailored to the customer's need. Rhode Island is fortunate to have engaged stakeholders that work collaboratively to present cohesive, focused offerings to the consumer rather than overwhelm the customer with offerings from different companies and agencies that could be interpreted as competing. The Company is committed to cross promoting all statewide efficiency opportunities when they make sense to the customer.

Energy efficiency solutions are delivered through two pathways, either directly in the customer's home or by partnering with retailers or supply houses that sell energy efficient products so consumers or contractors can purchase directly. Through these channels, there are energy efficiency solutions for all Rhode Island residential customers.

National Grid is proud of tying for first with Massachusetts and Vermont in Utility sector energy efficiency programs and policies in the 2014 ACEEE State Energy Efficiency Scorecard. In the second year of the 2015 – 2017 three-year energy efficiency planning cycle, the Residential offerings will build on its' successes and provide exceptional customer programs and innovation. National Grid will accomplish the 2016 goals by supporting the themes of the three-year plan. These themes are:

- Promoting cost-efficiency
- Empowering communities and markets to embrace energy efficiency
- Innovating to capture untapped savings
- Developing opportunities for system-level savings and integration

Details about 2015 successes are described below.

In 2015, the Company celebrated three RI Energy Champions – Central Falls, Newport, and North Providence through the Rhode Island Energy Challenge: Find Your Four! initiative. This initiative also ran the RI Video Challenge in 2014 that asked Rhode Islanders to submit one minute videos on how to save energy around their home. The champions were recognized at the RI Energy Expo Awards Event. There were thirty-six video submissions and 10,000 votes. In 2016, The Company will continue strategic alliances with RI partners to extend customer outreach while reducing costs. This will be exemplified in Providence where the Company is coordinating with the City of Providence, Office of Energy Resources, and numerous other stakeholders to support Providence's pursuit of the Georgetown University Energy Prize (GUEP). The GUEP currently has fifty semi-finalist cities across the nation working to win a $5 million dollar prize for progress toward measured energy efficiency savings. The City that reduces the most energy during the 2015 – 2017 competition period while achieving other categorical goals will be

the award recipient. The RI Energy Challenge will be rolled out in Providence in 2015 in support of the GUEP efforts.

The Company also worked with the State to promote Solarize Rhode Island to residential customers in North Smithfield and Tiverton and Little Compton. Customers received Energy*Wise* Home Energy Assessments in a manner that facilitated their solar installation and customers within those communities were educated about the program during an energy assessment.

Another initiative the Company launched in 2015 was the state lead Building Labeling working group. This planning and design effort will result in deployment of Home Energy Score reports in 2016. Additional details about this effort are described in the Energy*Wise* section of this text on page 3.

Beneficial light emitting diode (LED) pricing for whole house, direct install residential programs resulted in a more than doubling of LED bulbs installed through those programs during 2015. LED products have positive customer satisfaction and with costs continuing to decrease, the efficiency programs can take advantage of the pricing opportunities and increase the percentage of products installed throughout the residential portfolio.

During the 2014-2015 winter time period, higher electric prices were anticipated due to gas supply shortages. Communication by the OER and National Grid made consumers aware of this price increase. Higher electric prices are also anticipated for the 2015 -2016 winter period.

Below is a summary of how the residential text section is organized.

1. Whole House Programs
2. Behavior and Products Programs
3. Initiatives
4. Residential Demonstration and R&D
5. Marketing
6. Rhode Island Partnerships
7. Peak Load reduction Strategies

Whole House Programs

Energy*Wise* Single Family (Electric and Gas)

Overview

Energy*Wise* is the gateway in-home program for all Rhode Islanders in single family residences that are not eligible for Income Eligible services.[1] By sending energy efficiency auditors directly to the home, customers receive personalized education about making their home more energy efficient while receiving instant energy savings products that are installed during the visit. The education component is critical in connecting the customer with all available energy saving opportunities offered in the state. With more knowledge about their residence and an energy action plan in hand for additional improvements, a customer is better prepared to make energy investment decisions. Forecasts for the 2016 program year for Energy*Wise* will be that the program will serve just under 9,000 customers. Since 2009, over 45,000 households have benefitted from Energy*Wise* home energy assessments, more than 10% of all residential customers.

By embodying the themes of the three-year plan, Energy*Wise* can make a meaningful impact for Rhode Islanders and the community by reducing energy consumption while improving a resident's comfort level. The planning for **enhanced cost-efficiency** began in 2014 with Energy*Wise* and the Income Eligible Services program entering into a competitive pricing RFP with the Massachusetts Program Administrators for securing lighting products that are directly installed in customers' homes. By leveraging the volume of lighting installed between the two states, customers benefit by receiving high quality lighting at an attractive price. In late 2015, Energy*Wise* and Income Eligible Services will go out to bid for a new lead vendor. There may be economies of scale that will be explored in the RFP if the Lead Vendor oversees more than one direct install offering. The Company may also explore opportunities to seek competitive pricing on insulation in 2016.

Empowering communities and markets to embrace energy efficiency is a key result of the one-on-one communication that occurs through Energy*Wise*. In 2016, Energy*Wise* will be the gateway to partnerships with the State through the Renewable Energy Growth program (RE Growth) and Property Assessed Clean Energy (PACE) through the RI Infrastructure Bank, when the Bank is prepared to offer consumer loans. National Grid's success in coordinating with other energy partners was demonstrated in 2015 when Solarize RI worked with Energy*Wise* to identify potential solar customers within the three communities served and to ensure that work was completed on dedicated timelines.

Innovating to capture untapped savings will be demonstrated in 2016 by supporting the deployment of Wi-Fi thermostats for both personal use and as a component of a National Grid test of demand response (DR) events during periods of peak electric energy demand. Customers in the DR demonstration will receive an enhanced incentive and be enrolled to participate in all DR events. Customers that choose to install Wi-Fi thermostats without the DR component will also be able to select from a variety of Wi-Fi thermostat options. The Company is also working with OER, EERMC, NEEP (Northeast Energy Efficiency Partnerships), The Rhode Island Association of Realtors, and other stakeholders to introduce home

[1] Income eligible customers receive their assessments through Community Action Program agencies (CAPs) that specialize in combining state and federal opportunities in one visit.

labeling through Energy*Wise* by mid-2016. Home labeling, via the creation and delivery of a scorecard, would allow new and existing homeowners an understanding of the efficiency level of their home regardless of homeowner behaviors within the home. Ideally the resulting score would be included on the Realtor Multiple Listing Service (MLS) so that people interested in purchasing a home would be able to consider energy costs as a factor in decision-making. The more consumers are educated on energy efficiency and energy usage, the better prepared they will be to make decisions that impact energy consumption and will hopefully be motivated to improve their home's energy score before selling it. In preparing for this plan, the Company investigated whether there was a disparity between customers that received the 0% Heat Loan and customers that may not take advantage of the Heat Loan due to less than ideal credit scores. The initial finding, which was taken from a Massachusetts Heat Loan evaluation where there is a similar program, is that customers that do not use the Heat Loan do so because they do not need the financing. Additionally, RI also has the Capital Good Fund that provides a 0% Heat Loan to customers with credit concerns. Research topics such as this one will continue to be explored throughout 2016, and enhancements will be made when information is available to guide improvement.

Finally, **system-level savings** were realized within the Energy*Wise* program through an increased interest in electric weatherization last winter that assisted with winter peak demand concerns. Both the Office of Energy Resources and National Grid had messaging campaigns about potential winter peak shortages and a corresponding price increase and customers both heard the message and responded through requests for home energy assessments and weatherization. The Company will continue to coordinate these efforts in 2016.

Delivery

The program is delivered in three steps: home energy assessments, installation, and quality assurance/quality control. The Company currently uses a Lead Vendor energy assessment model. This model is one of many approved by the Environmental Protection Agency (EPA) and Department of Energy (DOE) for the Home Performance with ENERGY STAR® national initiative. This model minimizes administrative costs, and guarantees customer equity and consistency. The Lead Vendor will be responsible for conducting energy assessments of single family homes (1 – 4 units) and coordinating all work resulting in additional energy efficiency measures offered through the program and all the central administrative functions.

Any single family, market rate customer that requests a home energy assessment is eligible for this no-cost service if their household has not received an assessment within the past three years. Auditors will visually inspect the home's major heating and water heating systems to assess the potential for cost effective upgrades. A home's insulation level is determined by verifying current attic, wall, and basement levels. The auditors will also be installing energy efficient lighting, water saving devices, and advanced power strips. Most importantly, the home owner participates in the home energy assessment and accompanies the auditor around their home to learn more about their residence and opportunities

for even more efficiency. At the completion of the home energy assessment, customers receive an Energy*Wise* Action Plan that provides a road map for additional energy improvements, associated costs, and financing opportunities. The auditor also educates the customer about other efficiency opportunities, such as efficient heating and cooling systems, refrigerator recycling, efficient lighting, solar opportunities, demand response and wireless thermostats as well as financing options and the metrics used for the home energy score when it becomes available. Opportunities for incentives on these items are included in a folder of materials that remain with the customer. Income eligible customers receive their assessments through Community Action Program agencies (CAPs) that specialize in combining state and federal opportunities in one visit.

Energy*Wise*, through the RI HEAT Loan, provides 0% interest financing to eligible single family customers to support customer adoption of energy efficiency products and services that are recommended during the assessment, as well as efficient heating and water heating systems. The HEAT Loan has one lender that works with consumers with lower credit scores so financing opportunities are available for most consumers. The program will also promote Residential Property Assessed Clean Energy (PACE) loans, slated for operation in Q3, 2016, for consumers interested in larger scale improvements that may not be covered by the RI HEAT Loan. Other favorable financing products that may arise will also be added if they provide value to Rhode Island customers.

During the previous three years, Energy*Wise* has had a community of Independent Insulation Contractors (IICs) providing RI customers' insulation and weatherization needs. All Energy*Wise* post-assessment work is delivered by these IICs, who are all Building Performance Institute (BPI) qualified weatherization contractors. All IICs are subcontractors to the Lead Vendor. Insulation and weatherization work will be distributed via a merit based process to the approved list of qualified contractors. IICs who bring customers to the program can also "tag" a customer thereby designating themselves as the weatherization provider after the assessment. Post-assessment work can include heating and cooling system testing and tune ups, duct sealing, air sealing, and insulation. In 2014, there were fourteen Home Performance with ENERGY STAR Century Award recipients in RI. The Century Award contractors performed 100 or more whole-home improvements during 2014. In 2016, the Energy*Wise* program has available at least $600,000 for oil weatherization and oil weatherization heat loans and anticipates receiving an additional $1 million from state Regional Green House Gas Initiative (RGGI) disbursements. Additional deliverable fuel customers will be served upon receipt of the RGGI funds.

The last step in the Energy*Wise* process is the quality assurance and quality control component. All weatherization work performed by IICs is inspected by the Lead Vendor. An independent company is contracted to provide additional quality control on up to 10% of all work performed including home energy assessments and weatherization.

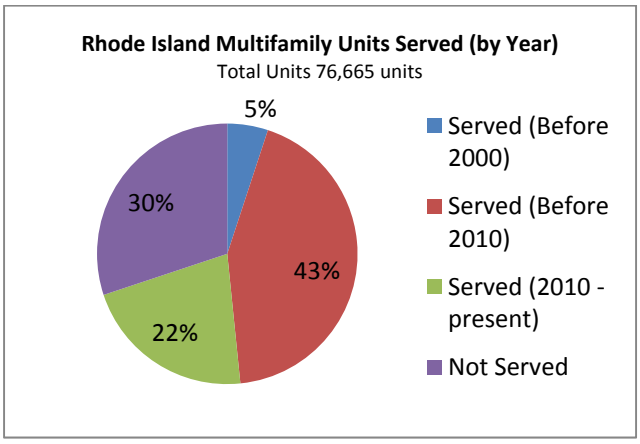
Meeting 2016 Goals

2015 was the first full year of operation where gas weatherization incentives were reduced to 50% from the 75% incentive available in the previous years. As a result of this reduction, fewer gas customers progressed to the weatherization phase as compared to the same period in 2014 when incentives remained at 75%. Strategies deployed in 2015 to encourage customer action included the "Summer Sizzler" where an added $200 in incentive was offered to gas customers that responded within a set period of time. An additional 2015 fall promotion will also be considered if additional activity is needed to meet planned goals. These pricing signals illustrate the difficult hurdle of first-cost that customers face when making weatherization decisions. To overcome the initial barrier, National Grid will use information from the 2015 summer and fall incentive enhancement models to determine if that level of increase is sufficient and whether increasing incentive levels in 2016 above 50% is the best option to balance customer demands, desired savings, cost efficiency and stable workloads for the IICs.

Multifamily (Electric and Gas)

Overview

As noted in the 2015-2017 Energy Efficiency Plan, the Company has identified the multifamily sector as a major priority and it aims to continually enrich its portfolio of energy efficiency offerings and services. Different from the Energy*Wise* single-family program, the Multifamily program serves all customers, including Income Eligible. Although the Company has historically sought to deliver comprehensive electric and gas efficiency services to a significant number of its multifamily customers, there remains potential for deep savings in the form of more projects, new technologies (i.e. demand circulators and energy misers), more streamlined program delivery services, and enhanced customer targeting through benchmarking. The chart below illustrates the historical delivery of multifamily services by the Company, while also highlighting the savings potential housed in those properties which have not received service or have not received service since 2010 (the Company allows a new assessment every 5 years for multifamily customers).



The Company is committed to allocating sufficient resources to more effectively offer a simplified, cost-effective, and all-inclusive multifamily services platform for customers, aimed not only at helping bring efficiency benefits to more Rhode Island ratepayers, but to also generate additional energy savings to help achieve portfolio goals. Cost efficiency is a major driver for multifamily services as the program has traditionally existed as a more expensive enterprise than other efficiency programs. In 2015, the multifamily program has seen growth in custom measures which indicates that customers are including broader and deeper measures in their savings portfolio beyond traditional, prescriptive measures. As these savings opportunities become more commonplace, the Company will investigate whether custom measures should be included as prescriptive offerings or if they are better aligned as custom offerings.

In 2015, four-hundred income eligible multifamily buildings were benchmarked, which contributed to identifying buildings with greater savings opportunities. Due to the success of this initial benchmarking, the Company plans to benchmark an additional 75 buildings in 2016.

Delivery

Multifamily buildings (participants) are defined as the following:[2]

- Buildings with 5 or more units
- Properties consisting of four or more 1-4 unit buildings that meet both of the following requirements:[2]
    - Are connected or neighboring to each other, or to a 5+ unit building, and
    - Are owned by the same individual or firm.

Both market-rate and income-eligible/affordable multifamily properties are subject to the above-outlined multifamily eligibility requirements for coordinated services. For the income-eligible properties, 100% of co-payments for energy efficiency services and measures are waived. The income-eligible multifamily sector is defined by properties that meet one of the following criteria:

- Owned by public housing authorities or community development corporations
- Receive affordable housing tax credits or any type of low-income funds/subsides from the state or federal government
- Consist of building units where a majority of customers qualify as income-eligible customers (receive utility service on the A-60 Low-Income rate and/or have a household income of less than 60% of the Area Median Income)

Energy efficiency in multifamily buildings is most effectively addressed through working with property owners/landlords/building management companies – the individuals or businesses that hold the

[2] Stand-alone 1-4 unit buildings that do not meet these requirements are considered "single-family" and are served traditionally through *EnergyWise* Single Family or Income Eligible Services Single Family programs, as appropriate.

authority to make decisions for the whole property. Therefore, any improved approaches discussed and implemented for the multifamily sector will work with these important decision makers. However, even if these decision makers refrain from utilizing the program offerings and services, *all* sub-metered multifamily building tenants with electric and/or gas utility accounts can still directly receive energy efficiency benefits. An example is through the Home Energy Reports program via the Web Portal, where customers can receive information about their energy usage, how it compares to other similar households, and what behavior changes they can make to help reduce consumption. And while these customers are also eligible to receive rebates for energy efficient lighting and products, the Company will investigate better ways to integrate tailored direct install practices for those who rent if the property decision maker does not elect to move forward with efficiency recommendations.

For program implementation, the Company utilizes a Lead Vendor – the entity that engages directly with the customer. Both the Lead Vendor and the Company have designated multifamily program managers that provide a single point person for multifamily customers to work with regarding clarification around services and incentives, determining project eligibility, scheduling meetings, etc.

Each multifamily property is unique, and thus services will be coordinated as appropriate based on the building's physical structure, rate code(s), and occupancy status. The existing suite of energy efficiency offerings comprehensively addresses the whole building, with improved savings and comfort for living spaces (in-unit), common areas, and exterior lighting. A challenge the Company plans to address is to maximize the number of individual condominium units that receive direct install measures when multifamily properties enter the program. It is difficult to align visits with the potentially significant number of residential units within each building, so unique strategies will need to be developed to maximize these potential savings. Entry into apartments, where a building owner has the authority to grant entry into all units, is easier than getting the approval of individual owners at a condominium complex.

Incentives are available for weatherization (air sealing, insulation), heating and domestic hot water, cooling, lighting, and appliances. Furthermore, a multifamily property may be eligible for services and incentives under both residential and commercial programs. For example, a building with 20 units that is electrically sub-metered (20 residential accounts) with a commercial electric account for common areas and one commercial gas account serving a central heating/hot water system will likely qualify for incentives through Multifamily and the Commercial & Industrial Multifamily programs. While this adds a layer of complexity for the Company, it is critical that the Company maintain accounting via these various program budgets in order to ensure equity for all customers funding energy efficiency through the energy efficiency program charge. However, the customer will not encounter this complexity, and will instead receive a consolidated incentive for all efficiency work completed at the site.

Meeting 2016 Goals

The Company will explore all of the following program enhancements in 2016.

Building Energy Benchmarking

Benchmarking is the practice of acquiring, tracking, and assessing the energy usage of a building or a portfolio of buildings over time and as it compares to similar buildings. It is used to help owners and managers better understand the breakdown of energy usage in their building(s), as well as help track the effect of building improvements. In the fall of 2014, the Company coordinated the development of a benchmarking pilot for affordable multifamily housing properties, in collaboration with Rhode Island Housing. The benchmarking pilot was completed in 2015 and has provided useful information for prioritizing buildings. In 2016 the Company will continue benchmarking and also work to gauge the customer benefits of benchmarking. The State was the recipient of multiple multifamily technical expert studies and consultations from national organizations, one of which included direct funding for affordable housing energy benchmarking. The Company, in matching those funds with 2014 program dollars, will in early 2016 assess the results of this pilot that benchmarked about 400 affordable multifamily housing properties. The pilot allowed the Company to identify customers with higher gas savings potential which was needed in 2015 where gas participation was lower than goal. Due to the benefits realized with the gas benchmarking, the Company will continue to benchmark an additional 75 income eligible, multifamily buildings. It was difficult recruiting for the initial 400 buildings, however, now that customers have experienced the benefits of benchmarking, we are hopeful that recruitment in 2016 will be streamlined.

Cost Efficiency

The Company will be releasing a RFP for a new Lead Vendor for the MF services in late 2016.

Financing Tools

In 2015, the Company opened up the 0% Heat Loan to condominium owners for heating and water heating equipment. In 2016, the Company will further explore the potential of adding financing for master metered and common area enhancements. Since multifamily has a much smaller budget than the Small Business Direct Install program or the Large Commercial and Industrial Program, financing opportunities may be limited.

Residential New Construction (Electric and Gas)

Overview

The Residential New Construction and Renovation/Rehabilitation (RNC) program provides comprehensive energy savings opportunities for single-family and multi-family projects for both the market rate and income eligible[3] markets.

The RNC Program is fuel neutral and provides participating builders with a comprehensive set of tools including trainings, assistance with technical design strategies, in-field construction procedures and marketing – tools to help to realize energy efficiency, thermal comfort and cost savings. Technical training and financial incentives are the key components of the RNC program and are offered in a tiered structure to encourage both higher energy efficient homes and greater participation (see Tier Level table under "Delivery" section below). Through this approach, in 2015 the RNC program resulted in over 75% of homes reaching the Tier 2 level which is range of efficiency between 25% – 44% above the baseline of the average home built in RI, referred to as the User Defined Reference Home (UDRH).

In an effort to streamline the customer experience in the RNC program, heating and hot water equipment incentives are "packaged" in the same incentive application as the new construction building envelope. This offering provides synergies with the building design and mechanical systems to create a more efficient home. The packaging of the incentives provides confidence for the contractor that the high efficiency equipment incentives will remain available for the RNC projects throughout the year. If the incentives are not packaged, the project may or may not be able to obtain HVAC and hot water equipment incentives due to the availability of funds in the HVAC program.

As the Rhode Island building professionals continue to advance their skills and projects to meet higher energy efficiency levels, there are new opportunities to collaborate with other organizations to further promote the program and align the program to drive even more savings. In 2016 there will be new efforts aligning the RNC program with the Rhode Island ReGrowth Program, the National Grid Zero Energy Task Force and the Rhode Island Builders Association.

Delivery

The RNC Program is administered through a Lead Vendor that manages the day-to-day operations of the Program and is the main point of entry into the Program for all participants. The Lead Vendor is responsible for the intake of projects, conducting training for building professionals, performing field verifications and reporting Program results to the Company.

The RNC program has been affective in reaching the broad contractor community as demonstrated by the program reaching more 60% of permits pulled in 2014 (911 permits, and 573 completed RNC projects. Although this is not an exact comparison because projects may get a permit but may not complete in the same year). In addition, there has been a steady increase in the total number of

[3] Customers who qualify for LIHEAP assistance or who qualify for the National Grid discount utility rates.

completed projects that are building more energy efficient homes and achieving Tier 2 and Tier 3. In 2015 this program will go out to bid for lead vendor services resulting in the incumbent or a new lead vendor administering the program starting in 2016.

In 2016, the Company will continue to offer the three tiers of high-performance energy efficient construction incentives for both new construction and renovation/rehabilitation projects, however the ranges of energy efficiency and associated incentives to support energy savings will be adjusted to better drive higher levels of performance. The percentage of energy efficiency above the baseline applies only to the energy efficiency of the envelope plus the heating, and hot water systems; it does not include any savings or offsets from photovoltaic energy.

Tier Level	2015 % More Energy Efficient Than Baseline[4]	2016 % More Energy Efficient Than Baseline[4]
Tier 1	15% - 24%	15% - 30%
Tier 2	25% - 44%	31% - 44%
Tier 3	45% or more	45% or more

The new ranges of energy savings in the Tiers is based on the success of the projects to date. Over the last three years there has been a steady increase in the number of homes that qualify for Tier 2, and in 2015, approximately 75% of the total RNC projects met the Tier 2 efficiency requirements. However, due to the large range of percentages with the Tier 2 incentive (25% - 44%), approximately 47% of the projects fell into the lower half of Tier 2 (25% - 30%). This trend demonstrates that the building professionals are becoming more proficient with building energy efficient homes, and in response the RNC needs to continue to challenge the industry to become even more efficient and needs to properly allocate incentives to drive efficiency higher. Therefore the 2016 Tier Levels for energy efficiency will be implemented to drive contractors to gain more efficiency by achieving Tier 2 and Tier 3.

No Cost Services: All tiers are offered with access to technical and code training (see Large Commercial and Industrial New Construction Program for details on the code training), advanced energy consulting and design review, a HERS (Home Energy Rating System) Index rating, third party blower door and duct blast testing, installation of high-efficiency lighting (CFLs and LEDs) and efficient showerheads. The Company will continually assess the potential for offering more LEDs to Program participants in 2016, balancing the benefits with the incremental Program costs. Historically, the extent of no-cost offerings

[4] Projects are compared against the Rhode Island 2011 Baseline Study that informed the new construction baseline home. For renovations and rehabilitations, the baseline is the existing home plus code required improvements.

has served as the initial incentive to get builders into the Program as it provides a free service that can ultimately open the door to performance-based financial incentives for their company, energy savings for their clients (new homeowners), and a marketing advantage that can be used to distinguish themselves from competition.

Codes and Standards: The 2011 Baseline Study of Single-family Residential New Construction continues to serve as the baseline for the Rhode Island User Defined Reference Home. The Study shows that some homes operate below the 2009 International Energy Conservation Code (IECC) and some are above. The average of the homes is the basis for the UDRH. Due to the fact that there remains a need to get all projects to meet the code, the RNC program continues to support Code trainings to educate contractors. See the Large Commercial and Industrial New Construction Program for details for the Codes and Standards training program.

Energy Efficiency and Solar: In 2016, the Company will continue to collaborate with the Rhode Island Office of Energy Resources to align energy efficiency incentives with the ReGrowth statute 39-26.6-19 that allows the Company to request up to half of the Small and Medium classes of solar be allocated to an energy efficiency/Solar coordinated program in a given year. The concept for energy efficiency and solar collaboration, and effort termed, "SolarWise", will use high energy efficiency as the eligibility criteria for a customer to receive an additional solar incentive on top of the standard ceiling price for solar incentives. Alignment of incentives could help to bring new customers to both the energy efficiency and solar markets and move the market closer to Zero-Energy Homes. This collaboration will not add any cost to the RNC program.

Competition/Challenge: To continue to produce the most efficient homes, the Program is committed to working with new and existing builders to offer technical and code trainings as well as technical/hands-on assistance to broaden expertise and confidence in energy efficient design and construction. To help accelerate actual implementation of energy efficient design and construction, in 2016 the Company may implement a "challenge" throughout Rhode Island to achieve Tier 3 homes or Zero Energy/Zero Energy Ready homes (Zero Energy without solar installed). Possible outcomes of a "challenge" could include an increase in energy efficient residential stock, the number of builders who gain experience with building energy efficient homes and promotional opportunities for project teams and successful projects.

Zero Energy Homes: In the past couple of years there has been a growing interest in Zero Energy (ZE) buildings in the New England region. The Company has just begun its research and development efforts on the feasibility and marketability of such buildings in Rhode Island. The overall goal of this initiative is to establish a framework for supporting ZE buildings within our energy efficiency portfolio through market accepted strategies that are implementable and will yield measurable energy and cost savings. In 2015 the Company created a task force/advisory council, of the Rhode Island Zero Energy Building (ZEB) Task Force, consisting of key stakeholders who represent many facets of the existing and future ZE market and bring experience, entrepreneurship, and a desire for Rhode Island to lead the country in the

ZE market. It is the mission of the ZEB Task Force to create a White Paper in 2016 that recommends policies, incentives, education, financing and partnerships that will help to foster the growth of the residential and commercial Zero Energy Building market in Rhode Island.

The Company will continue to lead and facilitate this taskforce through 2016. One of the deliverables of the roadmap/white paper is to determine a pathway for promoting Zero Energy Buildings through National Grid's energy efficiency programs. In addition, the Taskforce may identify one or two zero energy demonstration projects for participation in National Grid's program so as to test out new ways of supporting/promoting zero energy buildings. Services may include design and technical support and incentives.

Renovation/Rehabilitation/Additions: The renovation/rehabilitation offering is a critical piece to the growth of the Program. The Program offers very consistent services to the New Construction side of the program with trainings, and assistance with technical design strategies, in-field construction procedures and marketing. Typical renovation projects include old industrial mill buildings, many of which were converted to multifamily apartments. Bringing these projects into the program is a priority for 2016 as they hold great savings potential for the Program.

Multi-Family High Rise: The Multifamily Initiative will continue to provide joint residential and commercial energy services to condominiums or apartment complexes for energy efficiency upgrades. A new gas measure, boiler reset controls, was added to the mix of gas offerings to these customers in 2015. Due to its success this will continue to be offered in 2016, in addition to insulation and air sealing measures. The Company expects a handful of multifamily new construction high rise projects to come through the C/I programs. Since the volume of new construction applications is not expected to be too high, they will be served through our current C/I new construction programs in coordination with the residential program. In future, the Company may consider a dedicated multifamily new construction initiative.

Meeting 2016 Goals

The Program's 2016 mission is to continue to achieve deeper energy savings and broaden market penetration in an effort to move the construction market toward better building practices and Zero-Energy Homes.

New strategies, ideas, and items of exploration for the Program in 2016 include:

- Adjusting the energy efficiency percentages assigned to each Tier to drive higher efficiency projects and to align projects to participate in the RI ReGrowth Solar initiative, "SolarWise".
- Continuing the collaboration with RI Office of Energy Resources to develop an opportunity to align energy efficiency incentives and SolarWise program incentives.

- Continuing the Zero Energy Task Force Working Group to develop a white paper on the existing and future markets for zero energy homes. White paper could include a definition of zero energy homes, suggested potential policies, education, and marketing to an incentive (i.e., plug load, metering, glazing, enclosure massing, etc.), and post occupancy studies.
- Assessing opportunities to develop a state-wide "challenge" for building Tier 3 homes coupled possibly with ENERGY STAR certification or Zero-Energy Homes certification..
- Collaborating with the RI Builders Association for the development of residential energy efficiency training opportunities and content for the 2016 RI Home Show and Energy Expo.
- Developing new relationships with builders, developers, and code officials of the large renovation, and new construction projects in Rhode Island.
- Assessing the applicability of engaging in the Home Labeling Project initiative in 2017.
- Expanding Program services into the mid-high rise building sector. Currently, the mechanical systems of mid-high rise buildings are served by the Company's C&I energy efficiency programs, but opportunity remains for improvement in the envelopes of mid-high rise buildings. The Company will continue to identify cross-sector integration and work to deliver the best solution for the customer.
- Considering the potential inclusion of additional Program incentives for high performance insulation, both in new construction and renovation/rehabilitation projects. For example additional insulation to create a thermal break in alignment with nationally recognized best practices (i.e., Building America Solutions Center).
- Communicating Program success stories and better building practices to provide more useful data and insightful best practices for residential builders and designers. Communication channels could include comprehensive Program marketing and publications, an energy-efficiency building challenge, and project case studies.
- The Program will continue to provide comprehensive training to exceed code requirements for energy efficiency through the Company's Energy Code Technical Support initiative (see the Commercial section of this filing).

Income Eligible Services (Electric and Gas)

Overview

National Grid's Income Eligible Services (IES) Program provides comprehensive services to assist customers to reduce their electric and heating bills, save energy, improve thermal comfort in the home and learn about energy efficiency. Income Eligible Program services are available for customers who live

in 1-4 unit residences and qualify for Low Income Heating Assistance Program (LIHEAP)[5], also known as "fuel assistance," or who qualify for the National Grid discount utility rates.[6]

Program services and offerings are at no cost to the customer and include a home energy assessment, installation of energy-saving measures including insulation, air sealing, and lighting and where applicable, replacement of heating, cooling and heat pump water heaters (electric only).

The IES Program offers services through both the ratepayer-funded Income Eligible Services (IES) and the federally-funded Weatherization Assistance Program (WAP).

Income Eligible Services (IES) Program*	**Weatherization Assistance Program (WAP)***

• Energy Assessment
  ○ Measure the energy efficiency of appliances
  ○ Review utility bills
  ○ Replace appliances if they are deemed inefficient or unsafe
  ○ Replace incandescent and halogen light bulbs with compact fluorescent or LED light bulbs
  ○ Install water efficient showerheads
• Weatherization services
• Replacement of inefficient heating equipment if deemed inefficient or unsafe
	• Conduct whole house audit/ energy efficiency evaluation
	• Install weatherization measures (insulation, air sealing, duct sealing)
	• Replace inefficient heating equipment if deemed inefficient or unsafe

*Both the IES and the WAP offer all services and products at no cost to the customer.

The IES Program is similar to the market rate Energy*Wise* program in that customers benefit from no-cost home energy assessments, installation of efficient lighting and showerheads, and quality assurance/quality control. The IES Program identifies the opportunities for energy efficiency and will complete weatherization services and provide appliance and heating system replacement (for inefficient systems) at no charge to the customer. The Energy*Wise* Program provides the customer with recommendations for improving energy efficiency and the related weatherization and equipment incentives and the customer then chooses which measures they will install.

[5] The federal government has set an income level, tied to the median income of each state, which defines the uppermost income boundary for LIHEAP participation. Individual states have some flexibility in defining income eligibility as long as it is not set above the federally defined maximum. Eligibility in this program will track the eligibility for LIHEAP set by the State of Rhode Island.

[6] These eligibility requirements are subject to change as a result of any regulatory directives, or as deemed necessary by the Company to enhance participation and/or savings. [7] Please refer to the Commercial section for more information on the Small and Medium Business (SMB) Energy Reports pilot program.

Delivery

The IES Program is administered through a Lead Vendor that manages the day-to-day operations of the Program. The Lead Vendor works directly with the seven Rhode Island territorial-based Community Action Program agencies (CAPs) which serve as the main point of entry into the Income Eligible Services Program.

The Lead Vendor establishes and maintains consistency among the CAPs by providing ongoing technical and best practices training for the CAPs' home auditors and building professionals. The Vendor also performs field verifications and testing as well as advises the Company of Program enhancement opportunities.

Each of the seven CAPs plays an important role in their communities, and National Grid supports their local presence. Each CAP maintains an intake process for the IES Program and provides the AMP and WAP services. The CAP serves as the primary interface with the customer.

The current model with the Lead Vendor overseeing the delivery of the Program has proven to be a successful management structure as seen by the Program meeting or exceeding both savings and budget goals.

Since 2012, the Company has been collaborating with Green & Healthy Homes Initiative (GHHI) and will continue to work with GHHI through the Income Eligible Services program in 2016, as well as the cross-agency Rhode Island Alliance for Healthy Homes (RIAHH). These collaborative relationships support integrated housing interventions that support health and energy efficiency improvements in all Rhode Island housing units.

Meeting 2016 Goals

Planned strategies for 2016 include:

- Utilizing collateral and video materials to build awareness about the process for the IES Program and the WAP along with the energy savings benefits.
- Conducting Quarterly Best Practices meetings with the CAPs to provide regular opportunities to learn from their peers and to promote consistent practices between CAPs.
- Conducting regular Weatherization Technical Committee meetings to provide current updates and best practices for contractors, auditors and monitors.
- Evaluating training opportunities on an as needed basis.
- Aligning with RIAHH – leverage resources and programs. The goal would be to provide coordinated housing interventions for customers to provide energy efficiency services and healthy home services.
- Collaborating with Community Development Corporations to capture data about existing income eligible properties that could benefit from energy efficiency upgrades.

- Ongoing monitoring of nationwide Income Eligible programs to gain insight on the eligibility thresholds.
- Updating guidelines/best practices for the IES and AMP services to reflect changes in national and local standards.
- Providing training on how to identify potential opportunities for cold climate heat pumps in electrically heated homes.
- Multifamily Coordination – The Lead Vendor will work with CAPs and the Company's Multifamily Program Manager to coordinate services for properties designated as multifamily that are eligible for the program. Please see the Multifamily section of this document for more information. All multifamily income eligible work will be served through the Multifamily program.
- Measures – The Company will assess, and increase where feasible, services that deliver significant energy savings including the quantity of LED lighting, heat pump water heaters, and replacement room ACs.
- Increasing the number of LEDs installed per home if pricing allows.
- Collaborating with the Rhode Island Department of Human Services (DHS) Management Team to maximize the leveraging Federal DOE and LIHEAP programs funds, match funding to capacity, and build a reliable funding stream for the CAP agencies.
- Continue offering residential brochures in Spanish to ensure the Company is reaching all eligible customers.

Behavior and Products Programs

Home Energy Reports (Electric and Gas)

The Home Energy Reports (HER) program is the Company's key program to achieve energy savings through changes in customer behavior by presenting personalized energy usage data and encouraging desired behaviors to reduce energy consumption. Since its launch in April of 2013, the HER program has delivered electric and gas savings, helping the Company to achieve portfolio-wide savings goals while also maintaining cost efficiency. While the program had existed solely for residential customers, in March 2015 the Company began a pilot to provide energy reports for its small and medium business customers.[7]

The Home Energy Reports program is a statewide energy efficiency program that provides benefits for all Rhode Island ratepayers. To date Rhode Island is the only state offering a comprehensive statewide behavior strategy program. While over 334,000 customers receive home energy reports (i.e., the

[7] Please refer to the Commercial section for more information on the Small and Medium Business (SMB) Energy Reports pilot program.

treatment group) by way of mail and/or e-mail, all ratepayers have access to the program's Web Portal to view their individual energy use and learn ways to save energy (www.nationalgridus.com/RIEnergyReports). Since the program's inception in April of 2013, Rhode Island ratepayers have saved over $12million on electric and gas utility bills.[8]

In 2016, the Company will seek to improve the Home Energy Reports program by developing new personalized "energy saving campaigns" for customers, aligning the messaging on the reports to reflect the Company's strategic statewide marketing plan, offering an updated online portal making it even easier to take control of personal energy usage, and enhancing the Rewards platform. Because the HER program continues to deliver significant electric and gas savings at a low cost per unit of energy savings, and is well-received by customers8, the Company is committed to sustaining the Program's success in 2016 and beyond.

Delivery

The program is administered by a Lead Vendor that developed and launched the first Home Energy Reports in the country. Since 2013, the Company has employed the Lead Vendor to implement the Home Energy Reports in all three of its jurisdictions (Massachusetts, New York, and Rhode Island). The Lead Vendor is responsible for maintaining HER distribution groups, crafting and delivering the HERs, tracking data, managing the Web Portal, and documenting energy savings. The Lead Vendor also works with the Company to introduce additional program enhancements throughout the year and to align with the Company's state-wide comprehensive marketing efforts.

The Home Energy Reports are an effective tool that help customers be aware of their energy use and associated costs and empower them to take steps to reduce their use and costs. The Company has capitalized on this feature by proactively leveraging the reports for cross-promotion of energy savings initiatives including the Home Energy Assessment, the refrigerator/freezer recycling program, heating and cooling equipment incentives, etc, and will continue to do so in 2016.

Program savings are derived from the sending or emailing of reports with personalized energy insights, normative messages, efficiency tips and recommendations, and promotional messages for efficiency programs. The program measures energy savings by comparing on-bill energy usage between a treatment group (customers who receive the HER) and control group (customers who do not receive the HER), using both pre and post-treatment data.

The aforementioned Web Portal, that is advertised on both the HERs and the Company's website, serves as a tool where customers can receive personalized information about their energy usage, how their

[8] Bill savings are calculated by multiplying total program savings by the average cost of energy for that year. This formula was used for 2013 savings, 2014 savings and 2015 savings through July.

usage compares to similar households, and suggested behavior changes that can make to help reduce energy consumption. The Web Portal also includes an interactive audit tool that customers can complete in about 5 minutes; and then immediately receive recommendations on ways to improve the efficiency of the home. The Web Portal also provides viewers links to the Company's energy efficiency services and offerings. For example, a customer can log-on to the Web Portal and upon discovering through the online audit tool that their home may benefit from an actual home energy assessment through the Energy*Wise* program, the customer can click through to the online sign-up page for the assessment. This creates a simplified and enjoyable customer experience that succinctly integrates all of the efficiency opportunities available to Rhode Island ratepayers. For 2016, we look to update several features of the online portal which will make it even easier for people to understand their energy consumption, search program offerings, and even pay their bill.

Meeting 2016 Goals

The Company projects that potential electric and gas savings in 2016 will be consistent or exceed savings achieved in 2015. Nationwide evaluations of the Home Energy Reports show that the realization of savings (i.e., actual savings) for customers who receive the reports increases as familiarity with the reports also increases, eventually plateauing after multiple years in market. 2016 will mark the fourth calendar year of the reports in market, and as such the Company projects an increase in realized savings. In 2016, the Company will deliver enhanced features of the program, with anticipation of higher customer engagement, thereby translating into increased energy savings. These enhanced features include:

Energy Savings Campaigns

The Company will offer to a subset of customers the experience of an energy saving campaign – a three to four month journey whereby the reports will seek to help the customer improve their neighbor rank (a representation of how efficient the home is compared to similar homes within a fixed radius). This will include targeted recommendations for the home and comparison of year over year energy use to prepare for – and drive – energy savings.

New Movers

In the fall of 2014, the Company began using the Home Energy Reports to deliver a unique experience for customers who recently moved into a new home or apartment, the "New Movers" campaign. The first of its kind in the country, the New Movers campaign is specifically designed to engage customers at one of the most opportune times for energy efficiency – the move-in. By targeting these customers with personalized and feasible efficiency recommendations, new movers become immediately aware of their home's energy usage and are introduced to the Company's efficiency programs. The Company looks forward to expanding this feature in 2016 and is hoping to garner meaningful savings from this effort.

Rewards

Another first of its kind within the Home Energy Reports program, the Rewards feature helps to drive customers to become more energy efficient and earn redeemable points for every kWh of electricity saved. Points can be redeemed for modest gift cards and/or charitable donations. Since its inception in 2013, the Rewards feature has yielded verifiable energy savings and has achieved exemplary customer engagement metrics. Metrics demonstrate that the Rewards program has the highest "open rate" for all email communications, as well as "click-through" rates on all of the links provided in the email. In fact, the "open rate" and "click-through rate' are significantly above industry averages for such communications. In 2016, we will explore additional channels for redeeming points for energy efficient products through an online marketplace.

Behavioral Demand Response

The Company will continue to explore the opportunity of merging behavioral messaging on the Home Energy Reports, with the Company's increased focus on leveraging the behavior benefits of Wi-Fi thermostats. By utilizing the HER to encourage customers to optimize the ability of their Wi-Fi thermostats there is potential to help alleviate the effects of winter peak demand for natural gas and summer peak demand for electricity.

ENERGY STAR® Lighting (Electric)

Overview

The Residential Lighting marketplace has been a dynamic environment for the past decade. Challenged by the Energy Independence and Security Act of 2007 (EISA) that increased the efficiency level for a wide range of residential lighting products, manufacturers have met the legislative requirements for more efficient lighting and commercialized newer technologies such as light emitting diode (LED) bulbs and halogen lighting. In conjunction with the new technologies widely available for consumers, the labeling of lighting products has been updated to reflect the capabilities of these new lighting products. Consumers have been challenged to learn the new metrics for purchasing a light bulb including lumens for brightness and light appearance, ranging from warm to cool, as well as energy used in watts.

The ENERGY STAR® Lighting Program has been instrumental in educating consumers on the availability of new products by supporting retailer displays showing differing lighting technologies and training retailer sales teams who work with consumers on selecting the best lighting products for their needs while education them on the benefits and savings associated with efficient lighting. Awareness and education of efficient lighting is also supported through retailer and manufacturer promotions. National Grid has secured end cap displays at retail stores that keep energy efficient lighting in a prominent location in the store.

The ENERGY STAR lighting program supports the national EPA and DOE ENERGY STAR program and campaigns and leverages the education components across the state. By requiring all lighting products to be ENERGY STAR qualified, the program also ensures that products in the marketplace are a consistent quality thereby minimizing customer dissatisfaction.

Customers are able to purchase ENERGY STAR® bulbs and fixtures through buy-downs, markdowns and discounts. The program makes it affordable for customers to purchase the most cost effective, energy efficient products, including compact fluorescent lamps (CFLs) and LED lighting. The Company will continue to pursue new technologies and cost-effective lighting products to add to the portfolio. Pricing negations with manufacturers and retailers assist in bringing the most cost effective lighting products to market.

Program resources are leveraged between ENERGY STAR® Lighting and Residential Consumer Products to provide the customer with comprehensive, holistic offerings at reduced costs. Similar marketing channels, retailers, and vendors allow the programs to provide economies of scale.

Delivery

Collaboration with vendors and regional and national stakeholders is essential in delivering a seamless program. A Lead Vendor coordinates 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. Currently the program has 125 participating stores and dozens of manufacturers.

A rebate fulfillment vendor is responsible for collecting and verifying sales data from retail partners, fulfilling midstream (retailer) or upstream (manufacturer) rebates, and providing documentation for internal tracking systems.

Online and catalog purchases are managed by a sales channel vendor. Special events may draw upon a vendor that provides retail sales expertise and a marketing vendor coordinates Rhode Island promotions with the broader National ENERGY STAR® efforts.

The Company will continue to utilize a mobile retailer to promote ENERGY STAR lighting products. This vendor will set up portable informational displays at malls, community, and corporate events. They will sell products at deep discounts while educating the customer on a one-on-one basis. In 2014, the twelve-pack of efficient lights was one of the most popular items at the RI Home Show.

The Company will also continue with the school fundraiser, which helps schools and youth non-profits raise money by selling lighting products. 100% of the sales stays with the non-profit organization and begins with an educational kickoff event that introduces saving energy in the home. The lighting program also supports the National Energy Education Development Project (NEED) by funding training of local educators in the curriculum as well as providing educational materials to teachers and students.

Meeting 2016 Goals

The 2016 Residential Lighting program continues the upward trend of supporting more LED incentives, with the 2016 portfolio made up of 57% LEDs. Increasing the percentage of LEDs receiving incentives results in fewer bulbs receiving incentives as compared to 2015, but customer satisfaction will most likely increase since consumers favor LEDs over CFLs.

Some of the recent outreach activities that will continue in 2016 include the support of the Gloria Gemma Foundation. During the month of October, pink LEDs are sold with a portion of the sales going to the Gloria Gemma Foundation. National Grid will also continue to reach non-English speaking customers by including Hispanic language signage, advertising, and Spanish speaking vendors at some events.

Residential Consumer Products (Electric)

Overview

This program supports the Environmental Protection Agency's ENERGY STAR® brand by encouraging the purchase of ENERGY STAR qualified major appliances and electronics and other efficient devices, which include, but are not limited to clothes washers, dehumidifiers, room air cleaners, clothes dryers, advanced power strips, and pool pumps. Product categories that are not currently part of the ENERGY STAR program are also considered. Recycling of refrigerators and freezers have contributed significant savings in the past and is projected to continue to do so in 2016.

This program is managed and marketed in conjunction with the ENERGY STAR® Lighting program. The Residential Consumer Products program partners with the MA Program Administrators to create economies of scale. In coordination with other program administrators, the Company provides retailer support, training, advertising, consumer education, codes and standards review and advocacy, as well as manufacturer labeling.

Delivery

Manufacturers build their products to meet or exceed energy efficiency performance specifications established by the ENERGY STAR® label. Together with manufacturers, local retailers, and the EPA, the Company works to help identify and promote the purchase of these high efficiency products to its customers. The Company uses a range of incentives depending on the type of product and amount of anticipated customer engagement. For large white goods, a mail-in rebate is frequently used. This process allows the customer to consider the value of purchasing a more energy efficient model given the potential of receiving a rebate after the purchase. For electronic items a mid-stream incentive is frequently used. This incentive is given to the retailer based on the sale of specific products. Mark

downs with manufacturers are used for some products to signal the desire for continued production of energy efficient items.

An important part of the program is educating customers about the ENERGY STAR® label. As retail stores are an integral channel for promoting the label, the Company designs, prints, and distributes a wide variety of point-of-purchase materials and signs for display in retail stores. The Company also develops media stories and public relations opportunities about ENERGY STAR®. In addition, the Company hires an outreach vendor to put up signage, train retail staff, and help label products. The company will continue to utilize a mobile retailer to educate consumers at community and corporate events, as well as at mall kiosks, on the benefit and proper usage of advanced power strips (APS).

In planning for the future, the Consumer Products program will be awaiting the results of the Residential Demonstration and Research and Development work where wireless connected appliance may be used, provided budget availability, to investigate savings and time of use of these devices.

Meeting 2016 Goals

In 2014 and 2015 the Company tested a higher incentive for refrigerator and freezer recycling during the beginning of the year, a period of time when households generally are not be interested in having vendors go through their home and remove a major appliance. The results of the enhanced incentive were positive and the Company anticipates a similar promotion for a select period in 2016.The Consumer Products program will also be using the ENERGY STAR Most Efficient categories to ensure that appliances receiving incentives are the most efficient in the market. The Company will continue to look for new items to promote and continue to educate retailers who ultimately interact with the customer.

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

Overview

Since 2004, the Company has offered the High Efficiency Heating, Cooling and Hot Water Program for both gas and electric systems. The program offers incentives to encourage customers and contractors to purchase the high efficiency heating, cooling and water heating equipment. In addition the Program offers incentives for quality installation verification (QIV) services that verify proper installation for the most efficient operation of the equipment. Participation in the program is attributed to two channels: customers' desire to reduce energy bills based on the cold winters and hot summers; and "emergency" replacement of failed systems.

In 2013 and 2014 the gas portion of the Program was significantly over-subscribed and as a result lower efficiency products were eliminated from the product offerings, and remaining product incentives were reduced by approximately 50%. As of September 2015 there was a decrease of approximately 37% in year over year volume of products which is likely attributable to the reductions made in the gas

equipment reduced incentives. Wi-Fi thermostats accounted 29% of the 37% of the decrease in products due to the elimination of the on-line instant coupon.

In 2016 the current measure offerings and incentives should remain intact and the offering of the on-line instant coupon for Wi-Fi thermostats will be reinstituted.

Delivery

The High Efficiency Heating and Cooling Programs are administered by one Lead Vendor which supports the delivery of cost-effective and efficient implementation of the Program as well seamless service offerings for Rhode Island customers.

While the Lead Vendor is the face of the Program, contractors continue to serve as the Program's primary delivery mechanism. The Lead Vendor works closely with the contractor community to provide trainings and outreach to ensure accurate and efficient delivery of Program services to customers, while also improving contractors' skills and capabilities. Topics covered during contractor outreach events will include equipment specifications, right-sizing equipment, best practices for installing, sealing, and insulating equipment to achieve optimal performance, awareness of current code requirements, and best ways to assist customers with rebate submissions.

The High Efficiency Heating and Cooling Program also utilizes an outside rebate processing vendor which streamlines the collection, processing, and issuance of customer rebate applications, all within a timely manner. The Company implemented the offering of online submissions for the Program in 2014 which provided customers and contractors an additional, and often preferable, method of rebate submission.

Meeting 2016 Goals

Planned strategies for 2016 include the following:

- Providing a unified customer experience through The High Efficiency Heating and Cooling Programs will ensure that customers and contractors can understand the benefits of each program and the ease of participating in both each program. Contractors are also encouraged to promote the Energy*Wise* Home Energy Assessments to encourage customers to reduce energy load to ensure right sizing of equipment.
- Continuing to promote opportunities to install Wi-Fi thermostats for customers to better manage energy consumption. Promotions are offered through retail, state-wide marketing initiatives, contractor education.
- Continue to assess potential opportunities to utilize Wi-Fi thermostats for demand response.
- Evaluating the savings potential of cold-climate heat pumps – heat pumps that provide savings opportunities for both cooling and heating. This technology is potentially a good fit for Rhode Islanders who heat with electric resistance or delivered fuels (i.e., oil, propane, etc.). In 2016 the Program will identify six homes in which cold-climate heat pumps will be installed to assess

savings opportunities in both heating and cooling. If the pending MassSave program evaluation report on cold-climate heat pumps provides a compelling case to offer this product on a larger scale, and if budget allows, the product will promoted within the 2016 Program.

- Implementing, if funds are available, the renewal of the Early Boiler Replacement (EBR) offering. EBR achieves tremendous energy savings by offering incentives to upgrade boilers that are both functional and 30+ years old. Better information on customers' heating system garnered from both within and outside the Program will help EBR better target potential participants.
- Use target marketing and a strong call to action to promote high efficiency heating systems and programmable thermostats to reduce winter peaks. Outreach to contractors and retailers via newsletters, emails and contractor trainings to explain the benefits of energy efficiency and to provide updates on the winter demand.
- Continued coordination with the Company's Gas Conversion team. See the *Gas Conversion* section for more details.

Gas Conversion

The Company continues to receive high demand from residential customers to convert to natural gas heating options due to real or perceived cost benefits, convenience, or home improvements. In Rhode Island, the Company is currently responding to this market shift, allocating resources to natural gas conversions, as well as piloting new implementation strategies, such as the Rhode Island Gas Expansion Pilot Program. Natural gas conversions present a strong opportunity for energy efficiency, especially with regards to the new heating equipment that is installed. In 2016, the Company will continue to prioritize the coordination between energy efficiency and gas conversion, working to ensure that high efficiency heating systems are promoted during the conversion process. Furthermore, the Company will utilize these conversions as opportunities to leverage its other energy efficiency offerings, such as the Energy*Wise* Home Energy Assessment and the HEAT Loan's 0% financing, delivering even a better and more cost-effective product for the customer. This seamless integration will provide the maximum value for the customer at the time of conversion – when energy efficiency improvements make the most sense.

Initiatives

Community Initiative

Overview

Over the last six years, the Company has placed considerable focus on energy efficiency awareness campaigns at the community level. Beginning in 2010 with a geo-targeted community initiative on Aquidneck Island and Jamestown to help provide relief in load-constrained areas, the Company

demonstrated its commitment to promoting efficiency solutions outside of traditional marketing channels (i.e., radio, email, mailings).

Since May of 2013, the Company has delivered a robust statewide community initiative called the Rhode Island Energy Challenge: Find Your Four! (the Challenge). Designed to promote the Company's energy efficiency services and solutions by asking Rhode Islanders to pledge to be more efficient through finding four ways to save at home ('Find Your Four'), the Challenge leverages existing and new community relationships with entities such as municipalities, schools, faith-based groups and businesses. The Challenge organizes and manages friendly 12-16 week competitions to spur participation from residents, congregation members, schools and employees by creating a 'call-to-action' for energy efficiency. The Challenge leverages 'Energy Champions' in each community to help increase local awareness for efficiency and to help push for greater community participation in the relevant competition, both of which result in a more exciting promotional method of energy efficiency and the Company's portfolio of energy saving solutions. As of mid-September 2015, the Challenge has over 6,000 active Rhode Islanders who have pledged to find their four, and has created direct public event interaction with over 15,000 customers.

By employing this innovative grassroots approach, customers hear the important energy efficiency message from local trusted community leaders, which supports and amplifies the Company's state-wide energy efficiency efforts. Benefits of energy efficiency programs not only help customers save money and create a more comfortable home, but also help to build awareness around efficiency and it's correlation to lower greenhouse gas (GHG) emissions and long-term benefits of lowering demand and reducing the need for additional generation and transmission

The Company will continue the Challenge in 2016 and will seek to leverage its grassroots approach to bring efficiency awareness and services to six new municipalities with a goal of engaging all 39 of Rhode Island's cities and towns by 2019. At the close of 2020 we look forward to declaring that Rhode Island – through the work of all 39 Communities – is a national "Energy Champion"!

Delivery

Since its initial launch in May of 2013, the Challenge has established several municipally-based competitions, helping Rhode Island towns and cities get 5% of their respective resident base to take the pledge to be more efficient by finding four ways to save energy at home. Winners of the Challenge have included North Smithfield, Newport, Warwick, Central Falls, and North Providence. The "Find Your Four!" Challenge in the City of Providence will be completed by the end of 2015. Each winning municipality was awarded with 'Energy Champion' street signs, as well as a $7,500 grant from for

efficiency improvements in any town building (via participation in the RI Public Energy Partnership program[9]).

Through the Find Your Four! campaign, several Rhode Island businesses and faith-based groups have achieved the goal of 10% of their employee base or congregation committing to 'find their four!'. Successful businesses have included Blue Cross & Blue Shield of RI, Banneker Industries, Arpin Van Lines, UPS, Fidelity Investments and G-TECH, while nearly half a dozen Rhode Island places of worship have achieved the 10% mark, obtained with the help of the Rhode Island chapter of Interfaith Power and Light. For these progressive faith-based groups, National Grid presented them with a prize of $500 for efficiency improvements within the respective place of worship.

In addition to the friendly competitions via 'Find Your Four!', the Challenge has also served as an effective cross-promoter of the Company's many efficiency services and offerings. By working alongside or representing the Company at various community events (PawSox games, WaterFire, town BBQ's, etc.), the Challenge is able to successfully generate awareness for energy efficiency, and more importantly, provides direction to customers on immediate ways to save at home, such as calling to schedule a no-cost home energy assessment or buying efficient light bulbs at a local retail center.

2016 Enhancements

In 2016, the Company will seek to enhance its community initiative, the Rhode Island Energy Challenge: Find Your Four!, through the following strategies:

- Focus on taking a comprehensive approach to engage six new cities and towns in the Rhode Island Energy Challenge: Find Your Four!. A comprehensive approach will direct efforts within one community at a time to drive full community support. The Challenge will continue to work through the municipality's elected officials and will then engage with the schools, faith communities, CAP agencies and businesses within each municipality. The goal of this approach is to build a wave of awareness and grass-roots momentum to touch many of the dynamic entities within each community.
- Assess the impact, and potential implementation, of an awareness campaign similar to the "Cool Science" competition that was hosted by U Mass Lowell. The competition provides an opportunity for students to create artwork around an environmental topic and the winning artwork is prominently displayed on city busses for a month.
- Build on past success with Rhode Island businesses. Since April of 2013, the Challenge has engaged with numerous Rhode Island businesses, many of which have utilized the Challenge as an employee engagement tool and a fun way to provide them with important information about energy efficiency. The Company recognizes the long-term value of this collaboration with Rhode

[9] See Commercial section for more information on the RI Public Energy Partnership program.

Island businesses, and will continue to use the Challenge as an effective program lead-generation tool for participation in its residential and commercial efficiency programs.

- Integrate with the Office of Energy Resources and CommerceRI's Solarize RI campaign to promote the importance of energy efficiency prior to solar sizing and installation. Solarize RI is seeking to utilize the grassroots community approach to help encourage solar installations in load-constrained areas across the State, and will be contracting with the same vendor as that used by the Company's community initiative. As the Company and the vendor both recognize the important connection between energy efficiency and renewable energy, as expressed by the Company's commitment via the 2015-2017 Energy Efficiency Program Plan to prioritize system integration efforts, the energy efficiency message of the Challenge will extend to the Solarize RI outreach effort such that customers understand the value of implementing energy efficiency before looking to install renewable energy systems.

Residential Demonstration and R&D

Customer Communicating Device Demonstration

Overview

The Company is proposing to offer a connected device demonstration project, through a joint effort between Energy*Wise* and Residential Demonstration and R&D, which will allow Rhode Island customers to experience the benefits of leveraging technology in a connected world while experiencing enhanced savings and possibly providing grid benefits through the load curtailment of appliances.

The Company believes that there may be substantial benefits in offering connected devices which range from providing and promoting energy savings, to allowing customers more knowledge, awareness and control of their connected devices. For this demonstration, we will pursue technologies that have an impact on energy consumption, we will not pursue technologies that have a non-electrical or gas benefit from a conservation perspective.

National Grid will initially work with selected vendors to demonstrate a user acceptance case for this type of technology deployment. If proven successful, we would encourage other market players to enter the marketplace on our platform that will encourage an open communication platform.

The demonstration will install two hundred communicating Wi-Fi thermostats and provide a platform that enables National Grid to control thermostats and run automated demand response dispatch events during times of peak load. Participants will receive a free communicating Wi-Fi thermostat and will automatically be enrolled to participate in the demand response dispatch events. We will provide a temperature control scheme that has been proven to provide reasonable levels of customer comfort and satisfaction and events will implement pre-cooling and temperature optimization to reduce demand during times of peak load.

We will also work with a manufacturer to provide incentives for communicating ENERGY STAR washers and dryers that will provide customers with the ability to provide grid facing benefits during load curtailment events. National Grid may pursue additional technologies as they become available in the market place which may include communicating electric water heaters which could demonstrate thermal demand load shifting benefits or controllable electric vehicle charging stations as another potential option.

Implementation

The Company will be the primary implementation vendor for this project to insure customer satisfaction so that we are able to learn and document best practices for future projects. The demonstration will procure a vendor that will offer a device platform that will allow customers to control and view their connected devices.

The implementation process will deploy enrollment procedures that may allow the Company to test and develop seamless enrollment procedures and to document when devices are connected. The Company will only offer incentives for devices which are connected throughout the course of this demonstration period.

The implementation success will be dependent upon National Grid successfully coordinating our device platform aggregator, retailers and selected equipment vendors. Success will be measured by how effective and seamless we can make this process, as well as the learnings that we will take away from this implementation.

Customer Incentives

Customers will be able to receive enhanced incentives for purchasing communicating devices that are also enrolled on the customer platform. Customers will be automatically enrolled to participate in Demand Response events with the ability to override events. Customers who complete the program term and have participated in all events will receive an additional incentive for participation.

Success Measures

The demonstration demand response project will provide the opportunity for a thorough examination of the costs and benefits of demand response that will inform full scale deployment of such programs in the future. After the completion of the demonstration, the Company will measure the following components to determine the success and impact that a similar program could have in the future: customer total bill savings for gas and electric as applicable, customer satisfaction of communicating appliances, customer assessment of technology benefits, customer experience of program, and how likely a customer would recommend participation in a similar program to fellow Rhode Islanders.

The expectation is that every participant will find benefits in this type of project; although by doing a demonstration of this magnitude, this will allow us to better understand how the typical Rhode Islander will respond when offered an opportunity that allows for energy savings and utility management of customer communicating devices. Understanding this will allow us to set a future course for the emerging world of the Internet of Things (IOT), and what role the energy efficiency programs can play in this space both present and into the future.

The Company will continue to develop best practices and consider new demand response opportunities going forward.

Marketing

Overview

The goals of the Company's marketing efforts are to build awareness, educate customers, and drive participation in the Company's efficiency offerings and services. The Company uses an integrated approach with general awareness tactics (i.e. print ads and radio) as well as digital and direct one-to-one tactics (such as e-mail and direct mail) at the program level to generate interest.

Delivery and 2015 Success

National Grid will build on the new approach started in 2015 of promoting its energy efficiency opportunities to all customers through a single cohesive energy efficiency campaign, based on the concept: "Energy efficiency makes the things that matter better". The marketing and customer outreach embodies a simple, understandable and streamlined messaging to build awareness and interest in the offerings and services. And it does so by evoking a positive emotional response to get customers' attention. National Grid's marketing and outreach reaches customers in the communities where they work and live and connect them to the value of energy efficiency.

The unified "Better" Campaign has driven awareness levels to their highest yet. In April and May, 72.5% and 70% of residential customers stated being familiar with National Grid energy efficiency offerings and services. These familiarity scores exceed all other National Grid jurisdictions demonstrating RI's leading position. As well, all key digital channels used for National Grid RI residential awareness and programmatic purposes exceeded national energy industry benchmarks. In total, customers have clicked through digital ads 118,285 times from January through June 2015.

2015 RI National Grid EE Residential Awareness & Programs				
Jan-July Responses				
8/21/2015				
Tactic	**Impressions (Number of times seen or heard by customers)**	**Clicks by Customers**	**Click Thru Rate (Clicks/ Impressions)**	**CTR Benchmark**
Flash Banners	17,723,933	39,944	0.23%	0.07%
Mobile Banners	6,192,685	39,369	0.64%	0.12%
Digital Radio	1,566,286	9,104	0.58%	0.07%
Facebook	5,984,718	11,045	0.18%	0.02%
Paid Search	379,039	18,823	4.97%	2.23%
Total	31,846,661	118,285		
National Energy Industry Source				

A deeper analysis of paid search results showed that 90% of ads and key words driving paid search traffic include "National Grid" demonstrating customers are connecting EE solutions with National Grid. Finally, on-line social shopping sales for Energy Star Lighting and Products have continued with strong performance. Three lighting and product online shopping promotions to date in 2015 have resulted in more than 39,000 LED bulbs, advanced power strips and low flow shower heads.

In 2016, Communications will continue to be relatable. National Grid will expand upon its knowledge and understanding of its customers. As in previous years, we will leverage customer intelligence and profiling information gained through research to deliver targeted, relevant information. Marketing will generate awareness and drive participation by communicating to customers consistently and clearly demonstrating an understanding of their unique needs.

The National Grid marketing and outreach strategy will:

- Provide a clear and easy path for contacting National Grid.
- Communicate compelling and relevant messages, clearly describing the benefits of energy efficiency with customer-focused language explaining how energy efficiency can make what matters most to our customers better.
- Deploy targeted marketing, demonstrating the understanding unique motivational differences of customer markets.
- Use diverse channels with consistent messages to reach customers and generate awareness, trust and interest.
- Ensure coordinated strategies that work together to achieve a consistent customer experience and increase knowledge and awareness of the energy efficiency offerings, ultimately leading to higher participation rates and optimized performance.

Trade allies play an important role in this work. National Grid's residential trade ally program and outreach is through a long-standing vendor who aligns homebuilders, residential contractors and other trade professionals with the Company's energy efficiency solutions, whether for new construction or HVAC. National Grid augments this vendor's reach through direct mail and digital promotion to the Company's in-house database of residential trade professionals to help increase awareness and engagement with the vendor's program. For example, in 2015 the vendor sponsored and National Grid promoted more than 15 educational seminars/webinars to RI trade allies, and those in MA who do business in RI, on changing RI energy codes for new construction/retrofit. Last year, more than 520 trade allies attended. Dates are being considered for 2016.

In addition, print/digital trade advertising builds on the "better" messaging described above in ways that are directly relevant to the Trade community. The themes are built around how National Grid's energy solutions help trade allies grow their business by helping them deliver "better value" and "better projects," and be a "better resource" for their customers.

The Company also recently introduced a Trade website to serve as an organizing marketing framework to deliver fast, easy access to National Grid information relevant to trade allies; we will continue to enhance this Trade-specific website in 2016.

Partnerships

Overview

Although the Company is the administrator of Rhode Island's energy efficiency programs, sustained success is only achieved by effectively working with other companies, organizations, and agencies. By investing in these collaborative relationships every year, the Company is able to expand outreach of its residential efficiency offerings and services. Whether it is the Office of Energy Resources regarding the integration of energy efficiency and renewable energy projects, or non-profit companies through various community initiatives, partnerships are critical in building awareness and understanding of energy efficiency, but also in helping Rhode Islanders better access and participate in the many energy efficiency programs. In 2015, National Grid was active in partnering in the following key offerings:

- Solarize RI – National Grid worked with the OER, Commerce RI, and SmartPower to ensure that Solarize towns would benefit from a streamlined process to receive Energy*Wise* Home Energy Assessments prior to the installing of Solar. The Company also updated its tracking system for Energy*Wise* so that solar siting can be indicated to help identify homes with a high potential for renewable energy.
- Georgetown University Energy Prize – The City of Providence is one of fifty semi-finalists in the $5 million Georgetown University Energy Prize. National Grid, along with numerous stakeholders, are working with Providence residents and leveraging all available resources to make a difference in Providence residents' lives as well as competing to win the grand prize.

- Northeast Home Energy Labeling Information Exchange (HELIX) – In partnership with NEEP and other Northeast states, National Grid is working to include DOE's Home Energy Score results as part of the Multiple Listing Services.
- Rhode Island Builder's Association – The Second annual RI Energy Expo.

Previous and new partnerships will be maintained or developed to optimize offerings to RI residential customers.

Several of the current residential partners include:

- Rhode Island DSM Energy Efficiency Collaborative
- Commerce RI
- Rhode Island Housing
- The RI Alliance for Healthy Homes, led by Green and Healthy Homes Initiative
- RI Interfaith Power and Light
- RI Building Code Commission
- RI Builders Association
- RI Infrastructure Bank

In 2016, the Company will continue to invest in these existing partnerships, while also seeking to identify and develop new ones.

Peak Load Reduction Strategies

The Company recognizes the financial impact on customers due to increases in winter electricity prices during periods of high demand for natural gas. Due to this rise in costs for electricity and the increased consumption of natural gas for winter heating purposes, the Company is committed to identifying and implementing a number of strategies that can help customers better manage consumption at these times of peak demand, thereby decreasing the overall financial impact. While a number of the strategies have been described in more detail in the above program descriptions, below is a summary of those proposed mitigation strategies:

1. Increase the number of efficient light bulbs (i.e. LED's) purchased and installed through enhancements in the direct install programs and in mobile lighting events.
2. Increase the volume of electric and gas-heated Rhode Island homes that implement air sealing and insulation measures.
3. Target high electricity consuming and electric resistance-heated homes with weatherization to help drive down total electric use.
4. Leverage the RI Energy Challenge: Find Your Four! initiative to spread awareness about the positive impacts of behavior change and energy efficiency during times of peak demand.

5. Develop and introduce messaging to prepare customers for high bills and how energy efficiency can alleviate potential cost pressures.
6. Leverage the wide dissemination of the Home Energy Reports to drive additional awareness and education around winter peak demand for natural gas.
7. Collaborate with the Company's billing department on appropriate bill inserts that call attention to peak demand issues and mitigation strategies.
8. Inform HVAC contractors of peak demand issues so they can appropriately explain the need for energy efficiency to customers.
9. Increase the number of Wi-Fi thermostats installed in customer homes, thereby providing a potential opportunity for demand response capabilities in future winters.
10. Develop and disseminate newsletters to help retailers understand peak demand issues and encourage them to educate customers accordingly.
11. Develop targeted messaging, outreach campaigns, and program strategies for moderate-income Rhode Island households (60-100% of the Rhode Island median household income), who may be disproportionally stressed by winter electric prices.

Residential Measures and Incentives

The following tables list the groups of measures offered in the residential programs, their planned quantities and incentives. Each group may be comprised of many measures.

	Electric Programs		
Program	**Measure**	**Units**	**Incentive**
Residential New Construction	Tier 1 Home	35	Average Incentive based on measure mix
	Tier 2 Home	20	
	Tier 3 Home	5	
	Renovation Rehab Code Plus	20	
	Renovation Rehab Tier 1 Home	35	
	Renovation Rehab Tier 2 Home	20	
	Renovation Rehab Tier 3 Home	2	
	CFL	2,500	
	Fixtures	0	
	LEDs	7,500	
	Refrigerator Rebate	0	
	Room Air Conditioner 10.8	0	
	Showerheads (Elec heat)	78	
	Dishwasher	0	
ENERGY STAR® HVAC	Central Air QIV	198	$175
	Central Air SEER 16.0 EER 13	142	$250
	Central Air SEER 18.0 EER 13	100	$500
	Central Air Digital Check-up/Tune-Up	100	$175
	Down Size 1/2 Ton	20	$250
	Duct Sealing	570	$200
	Early Retirement Central Air (Retire)	9	$850
	Early Retirement Heat Pump (Retire)	9	$850
	Circulator Pump	75	$100
	Furnace ECM	0	$100
	QI w/ Duct modifications	0	$525
	Heat Pump Quality Installation and Verification - EnergyStar	15	$175
	Heat Pump SEER 16.0 EER 12 HSPF 8.5	62	$250
	Mini Split HP SEER 18.0 HSPF 9	130	$250
	Heat Pump SEER 18.0 HSPF 9.6	10	$500
	Mini Split HP SEER 20.0 HSPF 11	130	$500
	Mini Split Heat Pump QIV	35	$175
	Central Air Digital Check-up/Tune-Up	22	$175
	Heat Pump Water Heater <55 gallon, Electric	404	$750
	WiFi Enabled Thermostat with Cooling - Oil	25	$50
	WiFi Enabled Thermostat with Cooling - Gas	180	$50

	Electric Programs		
Program	**Measure**	**Units**	**Incentive**
EnergyWise Single Family	Audits	8,890	Average Incentive based on measure mix
	DHW	53	
	Thermostat (Elec Ht)	373	
	WiFi Thermostat (Elec Ht)	1	
	Wx Elec	156	
	CFL	27,313	
	Fixtures	896	
	LED Bulbs	167,778	
	LED Fixtures	0	
	Outdoor Fixtures	700	
	Pre-Wx	0	
	Refrigerator Brush	7,207	
	Refrig rebate	179	
	Smart Strip	16,500	
	Thermostat (Oil Ht)	54	
	Torchiere	34	
	WiFi Thermostat - DR Enabled	200	
	WiFi Thermostat	256	
	Wx - GAS	1,831	
	Wx - OIL	500	
EnergyWise Multifamily	Participants	4,400	Average Incentive based on measure mix
	Vending Miser	1	
	Aerator	40	
	Air Sealing	404	
	CFL	15,000	
	DHW	40	
	Fixtures	100	
	Insulation	48	
	LED Bulbs	32,000	
	LED Fixtures	50	
	Refrig Rebate	200	
	Showerhead	150	
	Smart Strip	200	
	Thermostat	50	

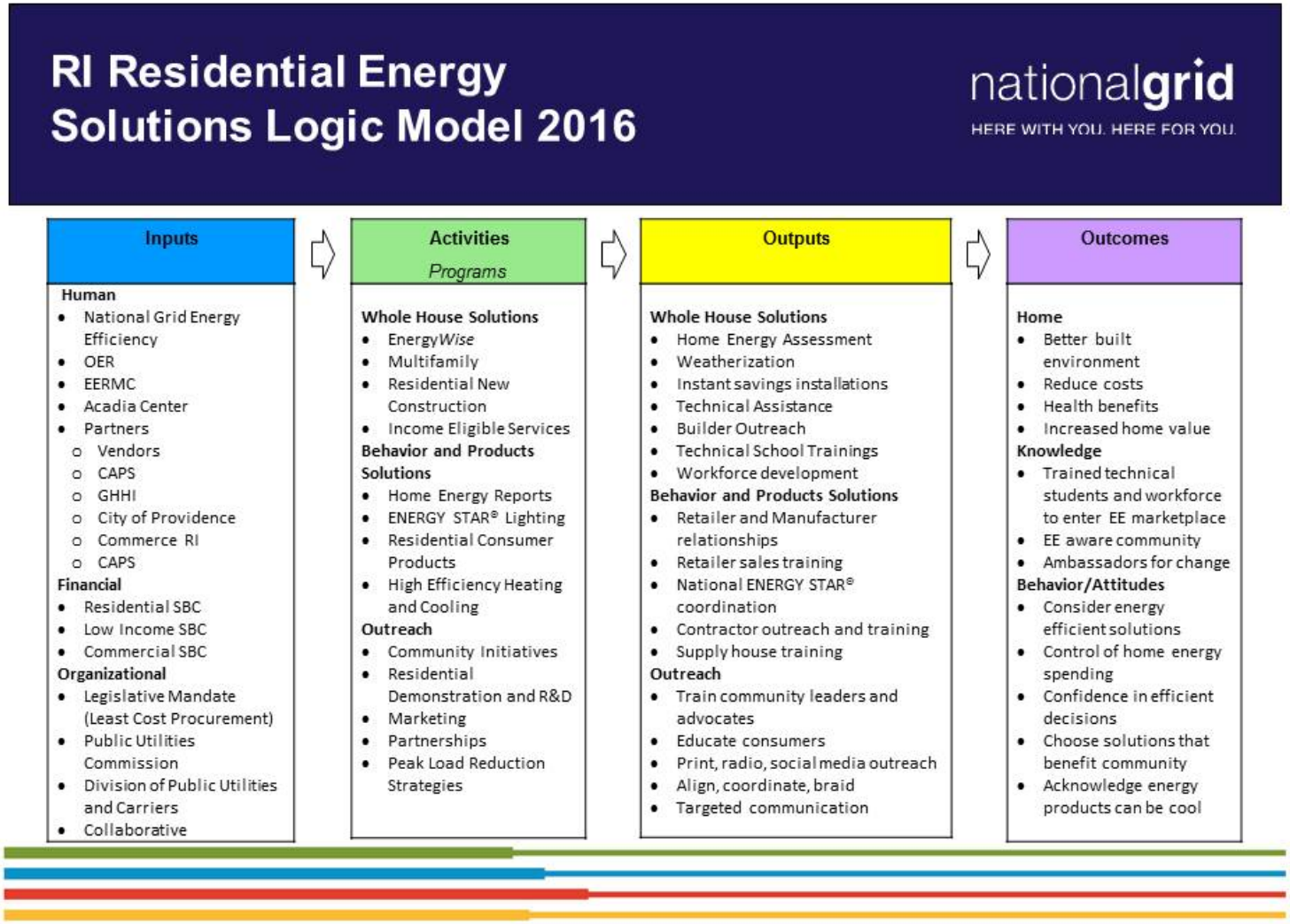
	Electric Programs		
Program	**Measure**	**Units**	**Incentive**
Residential Consumer Products	Dehumidifier (Rebate)	650	$30
	Energy Star Dryer Non-Sedi	300	$50
	Freezer Recycling	600	$75
	Freezers	0	$0
	Ladybug shower adapter electric hot water	50	$11
	Ladybug shower adapter Gas Hot Water	50	$11
	SHWRSTRT_LDYBG_Adapt_Oth	10	$11
	Pool Pumps - 2 speed	0	$250
	Pool Pumps- variable	150	$600
	Refrigerator (Most Efficient)	150	$50
	Refrigerator Recycling	5,400	$63
	Roadrunner Showerhead Gas Hot Water	50	$15
	Roadrunner shower head electric hot water	100	$15
	Roadrunner Showerhead Oil or Propane Hot Water	10	$15
	Room air cleaners	230	$40
	Super Efficient Dryer	0	$0
	Smart Strips	7,000	$20
	Advanced Power Strip	2,000	$35
	Dehumidifier Recyling	40	$30
ENERGY STAR® Lighting	CFLs	385,500	$1
	Screw-in Bulbs (EISA Exempt)	24,100	$2
	Hard To Reach CFLs	43,400	$1
	Indoor Fixture CFL	28,900	$8
	LEDs Bulbs	289,100	$7
	LED Bulbs (EISA Exempt)	36,100	$8
	LED Fixtures	57,800	$7
	LED Outdoor Fixture	100	$8
	LED School Program Bulb	10,600	$8
	Outdoor Fixture	0	$8
	School Program CFLs	9,600	$3
	Specialty Bulbs	0	$0
	Torchiere	0	$0
	LED Reflector	217,300	$10
	LED Bulb (Hard to Reach)	33,700	$13
Home Energy Reports	New Movers electric	23,420	$9
	New Movers dual fuel	16,899	$9
	OpowerOpt-out dual fuel	95,523	9
	OpowerOpt-Out electric	158,171	$9

	Electric Programs		
Program	**Measure**	**Units**	**Incentive**
Single Family - Income Eligible Services	Window AC Replacements	100	Average Incentive based on measure mix
	AC or POOL Timer	25	
	Appliance Removal	8	
	BFFM	0	
	CFLs	16,500	
	DHWater Measure (elec)	50	
	DHWater Measure (gas&other)	353	
	DHWater Measure (OIL)	24	
	Participants	2,500	
	Fixtures	0	
	Replacement Freezer	119	
	Heat System Replacement	246	
	Heat Pump Water Heaters	0	
	LED Bulbs LI	38,500	
	Mini AMP	0	
	Replacement Refrigerator	1,600	
	Smart Strips	3,017	
	Thermostats	0	
	Torchiere	0	
	Waterbed	3	
	Oil Wx	412	
	Electric Wx	33	
EnergyWise Income Eligible Multifamily Retrofit	Participant	5,100	Average Incentive based on measure mix
	Aerator	300	
	Air Sealing	200	
	CFL	4,090	
	Custom non-lighting	8	
	DHW	0	
	Fixtures	790	
	Insulation	200	
	LED Bulbs	10,000	
	LED Fixtures	600	
	Refrigerator Rebate	200	
	Showerhead	250	
	Smart Strip	1,800	
	Thermostat	250	

Gas Programs			
Program	**Measure**	**Units**	**Incentive**
EnergyStar® HVAC	Boiler95	460	700
	BOILER RESET	35	100
	COMBO CONDENSING	450	500
	COMBO CONDENSING 95	245	1,000
	COND WATER HEATER 95%MIN 75-300	15	150
	Furnace95ECM	400	300
	Furnace97ECM	0	0
	HEAT RECOVERY VENT	30	250
	HTR Boiler90	0	0
	HTR Boiler95	0	0
	HTR BOILER RESET	0	0
	HTR COMBO CONDENSING	0	0
	HTR COMBO CONDENSING 95	0	0
	HTR COND GAS WH TE 95	0	0
	HTR Furnace95ECM	0	0
	HTR Furnace97ECM	0	0
	HTR HEAT RECOVERY VENT	0	0
	HTR TANK WATER HEATER 67	0	0
	HTR WATER HEATER - ON-DEMAND 94	0	0
	TANK WATER HEATER 67	60	100
	WATER HEATER - ON-DEMAND 94	300	400
	WiFi Thermostat - cooling and htg	400	50
	WiFi Thermostat - gas ht only	370	50
EnergyWise	Single Family	1,859	Average incentive based on measure mix
EnergyWise Multifamily	Participants	2,625	Average incentive based on measure mix
	Air Sealing	3,200	
	DHW	2,053	
	Insulation	46,000	
	Thermostat	770	
	Ventilation	10	
Home Energy Reports	New movers dual fuel	16,899	4
	Opt-out dual fuel	95,523	4
	Opt-out gas only	23,267	4
Residential New Construciton	Codes - Residential New Construction	1	Average incentive based on measure mix
	CP	70	
	CP - DHW	70	
	Tier 1	98	
	Tier 1 - DHW	98	
	Tier 2	85	
	Tier 2 - DHW	85	
	Tier 3	4	
	Tier 3 - DHW	4	
	RR CP	65	
	RR CP - DHW	65	
	RR Tier 1	30	
	RR Tier 1 - DHW	30	
	RR Tier 2	20	
	RR Tier 2 - DHW	20	
	RR Tier 3	3	
	RR Tier 3 - DHW	3	

Gas Programs			
Single Family - Income Eligible Services	Heating System Replacement	80	Average incentive based on measure mix
	Total Participants (unique accounting number)	420	
	Weatherization	420	
Income Eligible Multifamily	LI MF Participants	3,000	Average incentive based on measure mix
	LI MF Air Sealing	2,000	
	Custom non-lighting	23	
	DHW	4,000	
	LI MF Insulation	4,500	
	LI MF Thermostat	414	

Appendix 1: Residential Logic Model



ATTACHMENT 2

2016 Commercial and Industrial (C&I) Energy Efficiency Programs and Initiatives

Introduction

In the Company's three year plan (2015-2017) that was approved in 2015 by the Rhode Island Public Utilities Commission (PUC), four central principles are outlined which encompass an advanced and innovative approach to serving commercial and industrial customers and the building industry at large. The Company believes that these four principles are apparent in all aspects of the 2016 Plan and incorporates the planning process which included many brainstorming sessions from internal teams to external stakeholders. The four guiding principles are as follows:

- **Promoting cost efficiency**: Through financing options that go beyond incentives, and other cost effective ways of delivering energy efficiency such as upstream products, code trainings, education and awareness for customers, coordination with the RI Infrastructure Bank.

- **Empowering communities and markets to be energy efficient**: Collective energy efficiency through cities and towns, interactions and networking with vendors, suppliers and distributers to serve all sizes of customers, provide tools to customers to manage their energy usage and develop strategies and technologies based on market sectors.

- **Innovation to capture untapped savings**: Offering solid state street lighting upgrades, laying the foundation for Zero Energy Buildings, and continuing to explore and test new technologies to provide deeper savings and peak load reductions to C&I customers

- **Developing opportunities for system level savings and integration:** These are new efforts that will consist of research and development of demand response programs for future implementation, an active outreach for Combined Heat & Power (CHP) technology, and interactions with renewable energy stakeholders to promote better integration with renewable energy.

The C&I section of the 2016 Energy Efficiency Program Plan is as follows:

The Plan begins with describing the four main distillates (titled "**Central Themes**" below) that are necessary to reach the Company's energy savings goals, and to deliver on the overarching themes of the 2015-2017 plan mentioned above. The Company believes that these broad

concepts of the 2015 program year will continue in subsequent years with many enhancements and additions to these themes:

- A better Customer Experience
- Market Sector Approach
- Affordability and Financing
- Education, Awareness and Trainings

Next, the C&I section divides the description and details of the Plan into three main parts, focusing on the three types of programs (Titled **"C&I Energy Efficiency Programs"** later in this section), and also graphically described in the appendix figures 2 and 3 of this document. In addition,

- A Large C&I New Construction program that focuses on offerings that target ground up new construction, major renovations, tenant fit-outs and end of life replacement equipment.
- A Large C&I Retrofit program that focuses on all services and technologies towards retrofits needed for existing buildings.
- A Small Business/ Direct Install (SMB/DI) program that focuses on a program that provides turn-key solutions to all small businesses.

The Appendix provides further details to the three programs mentioned above. Following figures and tables are in the appendix:

1. Sample list of custom measures for new construction and retrofit programs
2. Program logic model for retrofit program
3. Program logic model for new construction program
4. Goals and incentive description of each of the electric sub-programs
5. Goals and incentive description of gas program measures

Central Themes for Efficiency Programs

The following section describes the four broad areas mentioned previously and how they will connect with all the Commercial and Industrial (C&I) Efficiency Programs and strategies: Large Commercial New Construction, Large Commercial Retrofit and Small Business Direct Install.

Better Customer Experience & Analytics

Efficiencies in Application Processing Time

The Company is committed to provide its customers with a more efficient project enrollment and application (transactional) experience. Since the middle of 2014, the Company's internal Process Excellence Team reviewed and mapped the current energy efficiency sales processes and are currently in the process of improvising the applications process, transactions, and the building Technical Assistance (TA) review process. To date the Company has identified broad areas of improvement and determined Key Performance Indicators to meet the targets. Some of the areas we are already addressing are: reduction in turnaround time for post inspections that take place after project completion and reduction in the number of post inspections where it may be redundant. In addition, many other areas of improvement have been identified that the Company will continue to improve upon.

Data Analytics & Virtual Audit Tools

National Grid, like many other utilities and other companies around the globe, is focused on how data can improve our decisions, inform our strategic planning, and understand our customers more completely.

1. The Company's Analytics, Modeling and Forecasting group has been working over the past three years in two specific areas. Determining customer/building specific saving opportunities through modeling –

    - Through a partnership with a National Lab, the Company developed a sophisticated analytical engine that will allow the company to accurately assess the overall technical, economic and achievable energy savings potential for buildings.

    - The first batch of data and insights was delivered to Massachusetts recently. The Company expects that this capability will available for use in Rhode Island in 2016 or early 2017.

2. Optimizing marketing and sales efforts through customer targeting and prioritization: The Company's algorithms and advanced models will allow National Grid to tease out attributes that drive customer behavior in energy efficiency. The Company will use this information to better segment and target our customers, and communicate in more useful and specific ways. This is not expected to save money in a way that it makes large differences in the overall budget, but will allow our sales and marketing teams to have more focused engagements with customers. These models will be deployed for use by the sales staff in 2017.

3. Assessing overall market potential: When all of the research, modeling and analytics are combined together it can give the Company powerful insights in the nature of our business, including what we believe will be the most accurate assessment of technical, economic and achievable savings that has been produced to date. Currently, the time frame for this to be completed has not been established, but it may be available for the next three year plan.

In addition to these three core areas, the Data Analytics, Modeling and Forecasting group helps acquire and analyze data for requests throughout the year. They view each request as an opportunity to inform the analytics platform and give it greater capabilities in the future.

Tools for Customers' Management of Energy Usage

The Company intends to help customers access their energy data to allow for greater awareness of energy consumption. The Company will seek to achieve this through various methods described below:

Automated Benchmarking Systems:

National Grid has been working diligently with internal partners to develop a path towards automating data uploads into Energy Star's Portfolio Manager for more than 18 months. The Company acknowledges its importance in future building labeling schemes, supporting prior OER commitments to support state/municipal facilities improvements, and as a tool for customers to better understand their energy environment. In the Company's 2015 Plan National Grid committed to delivering a working version in 2015. However, delays in updating internal databases, technical considerations, and the high demand on the limited pool of experts that can make this solution function properly has forced us to recognize that this system will not be ready for until 2017.

The Company has received a high-level estimate of costs to provide automated benchmarking services to all customers who desire it in Rhode Island. This high-level estimate is far more than the budget can bear at this time. National Grid will be working with the funds it does have to scope the task in greater detail in 2016. This will involve dedicated IT and billing services resources, and outside software firms. Once the task is more clearly and deeply understood, we will arrive at a Not to Exceed (NTE) dollar figure. The Company will then evaluate that dollar amount and decide whether the platform provides enough benefits to justify building the platform in 2017.

Green Button: National Grid launched the Green Button towards the end of 2014 for all its customers in Rhode Island. The Green Button initiative is an industry-led effort that responds to a White House call-to-action to provide utility customers with easy and secure

access to their energy usage information in a consumer-friendly and computer-friendly format. The Green Button allows customers to securely download thirteen months of their usage data, in an XML format. Customers can then use this data to analyze their usage on their own or use third party tools to benchmark their usage. Since the activation of the Green Button on our website in late 2014, approximately 800 residential and commercial customers have downloaded their usage information. In the future, the Company may consider energy efficiency messaging for the customers who download data through Green Button.

Building Labeling: The Company will continue to work with the Office of Energy Resources (OER) and other stakeholders to identify strategies for building labeling in the commercial and multifamily real estate sectors in Rhode Island. Building labeling will provide greater transparency in the energy performance of a given building. This initiative, currently led by OER, is working to establish building labeling parameters and mechanisms for commercial and multifamily properties. This may include linking the Company's energy usage database with operational or asset based rating systems that property owners will use to benchmark their buildings. The Company will continue to work closely with OER to support property owner access to benchmarking tools, protocols, trainings and reporting systems.

Market Sector Approach

The Company restructured its energy efficiency offerings in 2013 to align them based on market sectors. Since then, the Company has made many successful enhancements every year to its energy efficiency services within these sectors. These sectors include:

- Grocery/supermarkets
- Industrial/manufacturing
- Municipal & State
- Hospitality (restaurants & lodging)
- Specialty buildings like data centers, farm/agriculture and extended care facilities like nursing homes
- Hospitals
- Colleges and universities
- Commercial Real Estate
- Multifamily

Dedicated Approach to Large and Mid-Sized Customers Based on Usage

The Company's sales and operations teams are structured to address unique needs of customers depending on their annual usage, peak demands and market segmentation.

Customers with annual average demand of 500 kW or greater and 75,000 therms or greater gas usage are classified as large and are managed by individual sales representatives. In 2014 the Company restructured this sales team to align them with the market sectors identified above.

In addition, the Company now has a specific sales team responsible to meet the needs of mid-sized customers with annual average monthly peak demand between 200 to 500 kW and less than 75,000 therms of gas. This group, referred to as Channel Sales, addresses the needs of these customers based on market sectors which includes healthcare (assisted living/nursing homes), offices, retail, industrial, real estate and hospitality. This group offers pathways to upgrade various systems within a facility including, but not limited to, lighting, HVAC, and compressed air. They can also call on our Technical Assistance (TA) Vendors to help the customer with a more comprehensive look at their entire facility where appropriate. In many cases, this more comprehensive look helps customers uncover opportunities for savings previously unknown to them or beyond common measures. The table below provides a breakdown of the three types of customers based on usage.

	Customer Breakdown		
	Small Customers	Medium Customers	Large Customers
Electric peak demand limit	Less than 200kW	200-500 kW	Greater than 500 kW
Gas usage limit	N/A	Less than 75,000 Therms	Greater than 75,000 Therms

Table 1: C&I Customer Breakdown by Energy Usage

The sections below provide details on each of the current market sectors.

Grocery Sector

The Company will continue to provide targeted energy savings opportunities to Rhode Island's grocery sector through the EnergySmart Grocer (ESG) Initiative. Since 2013, the ESG third party contractor has been working with grocers to identify retrofit and new construction measures and has gained a lot of momentum and generated a pipeline of projects for 2015 and 2016. From 2013 through Q2 2015, this initiative has delivered more than 6.5 million kWh. The Company expects that this initiative will save another 4 million total kWh in 2015 at 135% of the initiative's annual goal. The 2016 pipeline is currently projected at 3.3 million kWh. The Company is currently working with 20 independent groceries and 30 groceries that are part of national chains.

The customers served by this initiative include facilities with commercial refrigeration engaged in retail food sales. They may consist of local, regional and national retail facilities that include, but are not limited to, smaller grocery stores, supermarkets, big-box stores, and pharmacies with a peak demand of 60kW and above. ESG provides unitized incentives for the most common refrigeration measures. This gives customers an upfront and easy way to understand incentive offering which leads to easier project planning and investment decisions. In 2015, this initiative will have created ENERGY STAR® Benchmarking profiles for 73 customers. This allows these customers to make more informed decisions about their buildings.

The measure mix to date includes: Night covers, Light Emitting Diode (LED) case lighting, LED shelf or end-cap lighting, adding doors to open refrigerated cases, refrigeration controls (floating head pressure control and floating suction pressure control), appropriate LED fixtures or solutions for walk-in refrigeration/freezer areas, HVAC measures, including controls and VFDs, exterior LED parking lot lighting, and EC Motors in refrigerated walk-ins and cases. ESG continued the promotions for both adding doors and floating controls in 2015 which increased uptake on these measures. In 2014 and 2015 ESG completed both Hybrid condenser projects and Mister-on-condenser projects, a combination air and evaporative cooled system that boosts efficiency and increases capacity over traditional air cooled condensers. ESG is also looking at no-heat freezer doors as an area for targeted marketing and increasing customer uptake in 2015. Refrigeration is the highest percentage of savings in the ESG Measure mix from 2013-20 and will continue to be in 2016 as well.

In 2015 and 2016, the Company will incorporate ESG services for all small grocery customers as well (In the last couple of years the focus was on customers greater than 200 kW demand). In late 2015 and early 2016, ESG plans to launch a marketing and outreach campaign to Rhode Island grocery customers promoting the retro-commissioning (RCx) pathway to savings. RCx is the process of reviewing existing equipment and systems within a building to ensure that they achieve optimal operation to meet current needs and uses of the building.

Municipal and State Buildings

The Municipal initiative has seen tremendous success in the last two years since the DOE funded Public Energy Partnership (RIPEP) began. The OER has been successfully managing this partnership, and the Company has been coordinating all the municipal and state upgrades through our energy efficiency programs. To- date, we are close to meeting the DOE targets of achieving 20% energy savings for 100 state/municipal buildings. In addition to incentives and technical support that will continue to be offered in 2016, the Company identified the following areas of enhancements for this sector:

- **Automated Benchmarking Services (ABS**) The Company had expected to offer this service in 2015, but it turned out to be more involved than anticipated from an internal information technology perspective. This service may now be provided in 2017. Refer to section above "Tools for Customer Management Tools" for details on this topic

- **Project/Energy Management Support:** The Rhode Island Infrastructure Bank's (RIIB) Efficient Building Fund (EBF) was created to provide capital for comprehensive projects that significantly reduce energy consumption. Qualifying projects will tend, by their very nature, to be costly and technically complex. The time and expertise required to identify, develop, and oversee these projects can be beyond the resource capacity of many towns and cities. The Company proposes a financial grant to communities that are in need of seed funding to hire energy consulting services vendors to fill this gap. Services will be tailored to the needs of the community, being careful to leverage their existing capabilities and not duplicate services that the Company already provides. Energy Manager services might range from strategy and planning to 3rd party project review and installation oversight.

- **Schools:** The fiscal year 2016 State budget enacted by the Rhode Island General Assembly created the School Building Authority (SBA) within the Rhode Island Department of Education. National Grid will work with the newly formed SBA to promote high performance design and construction practices in both the new construction and retrofit markets.

- **Financing:**

    - The Company will continue to manage the separate revolving loan fund for public sector customers that began with Regional Greenhouse Gas Initiative (RGGI) funding as part of RI PEP. The fund is illustrated in Attachment 5, Table E-10. RI PEP may direct some of the funds to incentives throughout the year.
    - The Company will continue to offer On Bill Repayment for electric and gas measures.
    - Under the new Least Cost Procurement (LCP) legislation in 2015, the Company is allocating approximately $1.9 million seed funding to the RI Infrastructure Bank for use in the EBF. The Company and other partners such as OER will assist the RI Infrastructure Bank with implementation of RI Public Energy Partnership (RIPEP). The Company plans to serve on the committees in order to ensure that customers have access to finance, that the process is easy, and that the Company and RI Infrastructure Bank are working with customers in a coordinated way.

- **Behavior initiative for Schools**: Together with the OER and the Schools Building Authority (SBA), the Company will explore the possibility of a behavior initiative in schools. This may involve identifying schools that participated in the RIPEP program and made recent upgrades to their facilities. Through this behavior initiative, school students and staff may be trained to continuously look for energy efficiency opportunities within their schools and be the advocates for changing energy use behavior in their schools.

- **State buildings specific training to facilities staff:** The Company may offer Building Operations Certification (BOC) training specific to State/Municipal facilities staff. In addition, other trainings/webinars on high performance equipment and design will be explored in partnership with OER.

Manufacturing/Industrial

The Industrial Initiative that started in 2013 as a demonstration project has gained a good deal of momentum with our large industrial customers. This initiative had a slow start in 2013, but has ramped up in 2014. In 2015, we expect an increase in savings by 40% in the industrial sector. Some of the highlights of this initiative include:

- An industrial-specific technical expert team provides support to our sales team and provides technical solutions to our industrial customers. These solutions include process energy related solutions, management change recommendations, project management support, and other HVAC and lighting related options
- A scoping study of the technical and energy management opportunities for the facility, at no cost to the customer. If a detailed analysis, in addition to scoping study, is required (for example a detailed compressed air study), the study costs are shared with customers on a case by case basis.
- An incentives package that meets customer payback and financial hurdle rate criteria
- Project Management Incentive, where we provide financial incentives to customers to hire Project Management (PM) services, is currently based on 20% of each measure's annual KWh cost savings. The intent of this incentive is to overcome the lack of sufficient customer staff time to move projects forward. The PM incentive is only paid if the project is completed.

During the demo phase, the initiative surpassed its goals by enrolling seven customers, with identified estimated savings of approx. 800,000 therms and 7.5 Million kWh savings. In addition, this has assisted us in building a trusting relationship with our top industrial customers in Rhode Island. In 2015, we have expanded the program outreach to include 17 customers and have created 16 incentive applications for a total kWh savings of 1,100,000 kWh and 50,342 therms.

In 2016, the Company will continue to maintain the key features of this initiative, and continue with the same expert team vendor along with the following enhancements:

- Customer needs assessment: The sales team and the lead vendor will conduct customer needs assessments in order to provide the best approach for the customers. For example, some customers may not be ready for a scoping study initially and may need more assistance in management of their energy before they can identify the need for scoping studies. We will categorize customers based on levels of needs and develop different implementation paths depending upon their needs.
- Provide project progress tracking and support to overcome barriers to implementation.
- Identify a few large customers where we will pursue a continuous energy improvement (CEI) approach. For these customers, we will play the role of energy advisors, go deeper into their facilities, and will identify long-term energy efficiency strategies. In addition, we will form 'energy teams' with the customer's organization emphasizing staff trainings and determining Key Performance Indicators (KPIs) for the customer. These strategies can help facilitate a culture change within the organization and can ensure continued attention to energy efficiency, operations and maintenance.

For the small and medium sized industrial/manufacturing facilities, the Company now has a single internal point of contact who will be responsible for identifying opportunities in the New England region and will work closely with vendors and trade allies to support energy efficiency upgrades in these industrial facilities. This may include CHP opportunities in addition to other energy efficiency strategies.

Hospitality

The EPA defines the hospitality segment as having two components - restaurants and lodging. The Company's solutions for these two sub-segments are described below.

1. Restaurants

Through independent National Grid staff research and working closely with our vendor partner in the EnergySmart Grocer (ESG) program National Grid has determined that grocery stores and restaurants use energy in many of the same ways. Specifically, they both use commercial kitchen equipment, have cold storage, are likely to use roof top units for cooling, need to use hot water, and use grills and other cooking surfaces that may not utilize hood controls or recover heat for other purposes. While the Company readily acknowledges that the volumes of energy used and hours of use will vary from grocery stores to restaurants, we believe that it is worth exploring this area. Therefore, the Company is working with our vendor partner to define a scope of work that will allow us to serve this segment more completely. The Company and its vendor partner agree that project

management has been a key to success in the ESG program, and this component will be a critical part of the final scope of the work to serve this market. If research and contract development proceed as planned, National Grid plans to launch this program in both RI and MA in early to mid-2016.

2. Lodging

Lodging facilities in Rhode Island have participated in our programs in the area of lighting. However, there is potential for more savings. The Company is researching several areas that could help this segment reduce energy consumption even further. The Company is looking at things as simple as more efficient pool pumps to ozone or polymer bead laundry washing systems to room key controls for lighting, electronics, and HVAC that are very popular in hotels in other parts of the world.. The Company currently has offerings for some of these items and needs to further investigate other options.

Specialty Buildings

1. Extended Care Facilities such as Nursing Homes/Assisted Living

The Company spent the last two years identifying barriers to energy efficiency in nursing homes and assisted living facilities. These barriers primarily include the initial cost of implementing energy efficiency, lack of technical expertise and absence of project management to complete the projects. To overcome the barriers, the Company plans to initially offer project management and energy manager support to the top five energy users in the extended care facilities sector. This will be in addition to the TA and sales support already available through the program. These customers will have the opportunity to work with an experienced Energy Manager (either pre-selected as a vendor to the Company or an existing/new employee within the customer's organization) to identify and implement cost-effective energy efficiency projects. National Grid will pay a portion of the Energy Manager's salary depending on what portion the customer can support.. We will also determine goals, create milestones, and reporting mechanisms to help ensure a successful outcome. The expected outcome of this initiative is, among other things, to assist these customers in overcoming the cost and implementation barriers, and to identify non-lighting opportunities (such as reducing thermal and HVAC loads, focusing on kitchen measures, and promoting ozone laundry).

2. Data Centers /Computer Rooms

Data Centers, smaller computer rooms and large banks of servers remain an area of interest to the Company due to their high energy consumption, energy intensity, load shape (use remains high during both summer and winter peaks).

In past program years, the Company has focused its efforts on finding these data centers and server banks and offering technical assistance to help the customer to understand the measures that could be installed and how much they stood to save through installing these measures. National Grid also typically offered incentives to assist with installation costs.

These efforts have not been as successful as the Company expected. Specifically the partners that National Grid has worked with over the years have had strengths in and weaknesses in different key areas. Some have been excellent in finding projects and capturing customer interest but have lacked the level of technical skills the Company and the customer require and demand. In addition, although some partners' technical abilities are exceptional, they do not have the project management skills or experience to lead a customer through this trust-based alteration of a critical system.

In mid-2015, the Company began exploring a strategic partnership with a major player in the data center area that has experience in finding data centers/server banks, has engineering prowess, and has documented project management experience. National Grid considers this to be the trifecta of skills and experience needed to service this customer group well. The Company is in the procress of developing this relationship and hopes that an agreement will be in place, and customers will begin to be served in the first half of 2016.

3. Farm/Agriculture

In 2014, the Company began working with the OER to serve agricultural and farm- delivered fuel customers with Regional Greenhouse Gas Initiative (RGGI) money set aside for this purpose. Under an agreement between National Grid and the OER the initial audits, training, tool development and delivered fuel measure incentives have been/will be covered by RGGI funds. National Grid has/will cover electric (and natural gas) incentives in accordance with our planned budget and policies.

As of the third quarter of 2015, ten facilities (determined by the RI PER farm program manager) have received audits and the majority of these projects are moving towards implementation.

These audits were performed by a Technical Assistance (TA) vendor with many years of farm energy experience. In late 2015 and into 2016, this vendor will train at least one auditor from RISE Engineering, the Company's current Small Business/ Direct Install vendor, so that this auditor can identify farm-related measures. The TA vendor is also developing tools, for electric, gas, and delivered fuels, that will allow RISE to accurately quantify savings opportunities.

The Company believes it will be able to audit and encourage improvements on a minimum of 20 farms and agricultural facilities in 2016.

Multifamily Sector

The Multifamily Initiative will continue to provide joint residential and commercial energy services to condominiums or apartment complexes for energy efficiency upgrades. A new gas measure, boiler reset controls, was added to the mix of gas offerings to these customers in 2015. Due to its success, the Company will offer this again in 2016, in addition to insulation and air sealing measures. The Company expects a handful of multifamily new construction high rise projects to come through the C & I programs. Since the Company does not expect the volume of new construction applications to be too high, they will be served through our current C & I new construction programs in coordination with the residential program. In the future, the Company may consider a dedicated multifamily new construction initiative.

Approach to Other Market Sectors

Hospitals: The Company will continue to work with Rhode Island's five largest hospitals (all under one partnership) through the multiyear Strategic Energy Management Planning (SEMP) initiative (refer to the SEMP section for more details). In addition, as previously stated, the medium sized healthcare facilities will be addressed through the channel sales group.

Colleges and Universities: These are currently served through either our large commercial programs with a dedicated sales team or the Company's SEMP initiative. With a master-metered portfolio of buildings within the campus, most universities are tied to sustainability goals and climate action plans to reduce their greenhouse gas emissions. The Company's SEMP initiative allows enrolled university customers to engage in multi-year campus energy planning and assists them in identifying comprehensive and long-term energy efficiency opportunities. The Company will continue to explore opportunities for further SEMP university customers. Besides SEMP, the Company continues to provide energy services to the other colleges in RI. A dedicated sales team is assigned to this sector who works in collaboration with the colleges to identify energy efficiency opportunities appropriate for this market vertical.

Commercial Real Estate/Offices: Office spaces are part of the Commercial Real Estate (CRE) sector which has many challenges and barriers to participation in the programs, mainly due to the split incentive between owners and tenants. The Company will continue to serve office tenant fit-outs through the recently launched "Sustainable Office Design" initiative that addresses Class A type office spaces, described in detail under the "New Construction" section below. In addition, we believe that enhancements and product additions to "Upstream" (see section below under Large Retrofit program under "Upstream") will encourage companies to

stock more products that could be obtained fast enough to make the often short time lines of office fit-outs.

Trade Ally Engagement (TRAEN)

To encourage our customers and contractors to expedite/reduce time in completing application forms, in 2014, the Massachusetts Retrofit Program introduced a 48 hour pre-inspection service trial. Under this initiative, contractors call the vendor (assigned just for this service) to schedule a pre-inspection of their commercial prescriptive electric lighting and variable speed drive (VSD) projects. The vendor provides the pre-inspection within 48 hours and the pre-approval of the project within the following 48 hours. The vendor handles the application process and hands off the project to National Grid after sending a pre-approval letter to the customer and contractor. In 2015, the service was expanded to include Rhode Island. The vendor had experience working directly with National Grid in Massachusetts. This experience has translated to an efficient process for Rhode Island contractors and customers. The Company works closely with the vendor and meets regularly to review any process issues or enhancements.

Education and Training

National Grid is committed to promoting leadership in the community, the various market sectors, and trade organizations and associations by providing and sponsoring initiatives and outreach efforts for education and training.

The Company, as in previous program years, will continue to support opportunities to inform customers and trade allies/vendors/contractors that serve the various market sectors, about existing and new or emerging energy efficient technologies, building systems and design, building energy codes and standards, improved installation practices, and up-to-date operation and maintenance (O&M) procedures. By integrating local, regional and national educational and training initiatives throughout National Grid's various C&I programs, the Company hopes to build awareness about the benefits of energy efficient technologies, market National Grid's energy efficiency programs, as well providing expertise and experience on the need for integrated design, and improved construction and installation practices for an existing or new construction building project. Deeper energy savings, as well as other non-energy benefits, can be achieved for any given customer project when the customer, designer/engineer, or contractor/installer is able to express or share knowledge about an energy efficient technology, the associated costs, and energy savings potential.

Affordability and Financing

Over the past year, the State and Council have made progress researching, planning and developing opportunities for finance mechanisms that will help customers overcome cost barriers which prohibit investing in energy efficiency. The Company's 2016 plans support these activities in a variety of ways.

For large C&I customers the Company will continue to offer finance for customer costs through on-bill repayment from the revolving loan funds. National Grid finances the customer portion of electric or gas efficiency projects, on bill, for up to five years. Over the years, the Large C&I electric revolving loan fund has grown to approximately $14 million and the Company plans to add $3.0 million from the Finance Cost budget item into the fund in 2016 and $1.0 million from a Small Business Revolving Loan Fund transfer for a total of $4.0 million. The Company began committing finance for gas efficiency projects in 2015. These funds are in various stages of the finance process and a fraction of the funds are available to commit to customers each year. National Grid's revolving loan fund projections for 2016 are illustrated in Attachment 5, Table E-10 and Attachment 6, Table G-10.

For small business customers, the Company continues to offer on bill repayment for the customer portion of the project over 12 or 24 months. The Small Business Revolving Loan Fund totals $4.1 million. Due to changing ways in which energy savings are delivered to small business customers, the Company does not project lending all available funds to customers as part of the Direct Install offering. Therefore, the Company plans to transfer $1.0 million from the fund to the Large C&I Revolving Loan Fund.

For municipal and public sector customers, the Company will support the new RI Infrastructure Bank ("RIIB") in establishing and implementing the Efficient Buildings Fund ("EBF"). RIIB has several objectives, including the establishment of the EBF, which will provide financial assistance for upgrading public buildings' energy efficiency. In 2015, the OER and the RIIB began coordinating efforts to administer the fund and the work is ongoing. The Company will work with RIIB and OER to support coordination and administration efforts. The Company will focus on ensuring that our programs and RIIB's offerings leverage one another in order to maximize participation and energy efficiency savings. The Company will also focus on integrating the customer finance process with the efficiency application process so that it is seamless and quick for customers. In accordance with R.I. Gen. Laws 39-2-1.2 (l), the Company will remit 2% of the 2014 electric demand side charge collections to the RIIB in accordance with 46-12.2-14.1. This amount is equal to $1,441,475 and is included in the electric budget as RIIB; please see Attachment 5 Table E-2. Additionally, in accordance with 39-2-1.2 (m), the Company will remit 2% of the 2014 gas demand side charge collections to the RI Infrastructure Bank in accordance

with 46-12.2-14.1. This amount is equal to $428,972 and is included in the gas budget as RI Infrastructure Bank; Attachment 6, Table G-2.

RIIB will also support the creation of Property Assessed Clean Energy ("PACE") for commercial properties. PACE offers customers opportunities to finance energy efficiency upgrades through special assessment payments attached to properties. According to revisions in R.I. Gen Laws §39-26.5-2, PACE municipalities must be created in order to collect the payment associated with the tax bill. National Grid will work with OER and RIIB on the implementation of PACE.

Additionally, for municipal customers, the Company will continue to manage the revolving loan fund that was established as part of the RI PEP with OER. The loan fund has been renamed the Public Sector Revolving Loan Fund. It currently has more than $1 million in total available to public sector customers for electric and gas efficiency projects. Most of the funding is currently committed or lent to customers. Additionally, RI PEP may reallocate funds to incentives throughout the year in order to meet the initiative's objectives. Funds may be injected to this revolving loan fund from RGGI proceeds in 2016. The RGGI Allocation Plan that created this revolving loan fund also allows for repurposing of funds in the future. In the meantime, as funds become available, the Company will work with OER to commit funds to public sector customers to improve energy efficiency. The loan fund projections for 2016 are illustrated in Attachment 5, Table E-10.

Together, the various finance mechanism available in 2016 offer an immense opportunity to customers. However, each of the mechanisms is limited in the number of or types of customers it can serve. Therefore, the Company is interested in creating a long-term vision for finance that will 1) create finance opportunities for all large and industrial customers and 2) create a sustainable source of funding for efficiency such that it will decrease the energy efficiency program charge from what it would be otherwise. This vision will require the State, Council and Company to work together to offer a variety of finance mechanisms with enough capital to support a significant portion of C&I customer costs each and every year. National Grid envisions that among EBF, PACE and revolving loan funds, potentially up to half of all C&I electric customer costs can be financed by 2020.

This vision would entail tripling the revolving loan fund by incrementally increasing it each year from 2016-2020. The Company would like to dedicate C&I customer FCM funds to the loan funds in order to increase them. The Company expects that FCM funds will increase between 2017-2019, which creates an opportunity for the Company to increase the loan funds each year while maintaining or lowering the energy efficiency program charge from what it would have been otherwise during this time period. In 2020, the total loan fund could reach approximately $45 million, lending up to approximately $20 million annually. The Company will continue

increasing the revolving loan fund in 2016 with this vision in mind, unless other, more effective application of these funds is identified to better serve customers.

Lastly, in order to create sustainable sources of finance for commercial customers in the future, the Company will support and facilitate ongoing research that the Council identifies on the topic.

C&I Energy Efficiency Programs

The C&I Energy Efficiency programs are organized in the same way as the built environment – customers are making decisions around their investment in higher performing new construction and existing buildings. Depending on the needs and size of the customer within each of the segments, customers can participate in one of three energy efficiency programs:

- The Large Commercial and Industrial New Construction Program
- The Large Commercial Retrofit Program
- The Small Business Direct Install (SMB/DI) Program

Although there are three programs in the C&I sector for 2016, all C&I customers are eligible to participate in the Large Commercial and Industrial New Construction Program and the Large Commercial Retrofit Program. However, the Small Business Direct Install (SMB/DI) Program is restricted to customers with 200 kW or less average monthly peak demand. L larger and more complicated measures not offered by the SMB/DI vendor may need to go through the New Construction or Retrofit Programs. The following sections describe the various offerings under these three programs. In addition, a logic model describing the C&I programs and how they relate to short and long-term outcomes is provided in the Appendix of this Attachment 2.

Large Commercial and Industrial New Construction Program

The new construction program is divided into two main categories:

1. End of life equipment replacement: This is applicable for those projects where equipment has to be replaced because it has reached the end of its life. The baseline energy is considered to be the energy code and savings are calculated from the baseline code. This works the same way as the "systems approach" described below, whether through prescriptive or custom pathways.

2. Ground up new construction: This is specifically for those projects that are ground up new construction or major renovations. The section below describes this in detail.

In 2014, the Company incorporated several enhancements for ground up new construction and major renovation projects. In the second quarter of 2014, a participant handbook was created that provides details for all aspects of these services. The services offered are designed to promote and support high performance building design, equipment selection, and building operation. This program offers both technical assistance and financial incentives based on projected energy savings performance to incentivize building beyond the current energy code baselines. Technical assistance ranges from simple plan review and efficiency upgrade

recommendations to complete technical reviews of energy models. The program offers two approaches for ground up new construction or major renovation projects:

- **Systems Approach**: The System Approach is designed for individual measures and for those projects applying later in the design process and which are generally focused on one or two energy systems to increase efficiency. The graph below describes the various paths available to the projects.

- **Whole Building Approach**: The Whole Building Approach takes into account a comprehensive analysis of all building measures together and requires collaboration between National Grid and the Design Team from the conceptual design phase through project completion. It encompasses consideration of all energy saving opportunities, including shell, fenestration, equipment and system interactions.

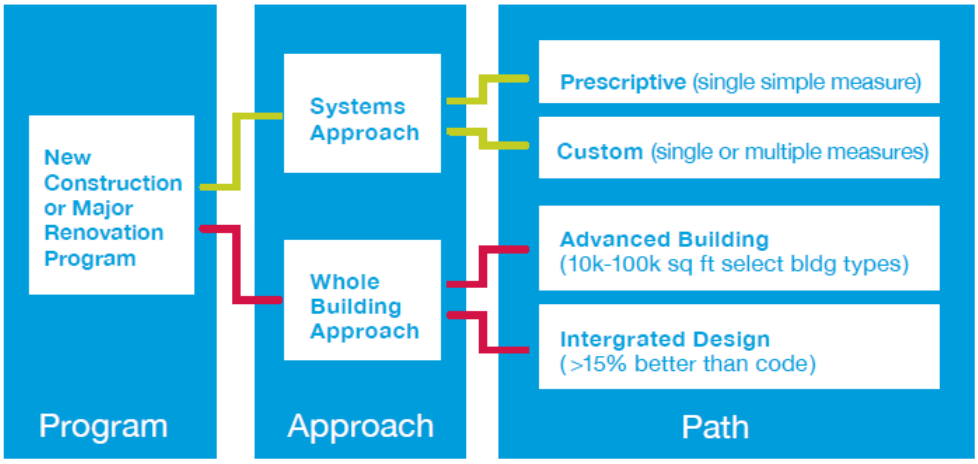


Table 2: Description of Ground up NC/Major Renovation Program

The program enhancements address most of the barriers that were highlighted during a series of stakeholder engagement forums in late 2012 and early 2013. These enhancements specifically include: a single point of contact to work with, a clearer definition of all offerings, a participant handbook, an incentive structure that is based on cost per savings instead of percent of project incremental costs, and the addition of a design team incentive to enable the design teams to be actively engaged in the energy efficiency process.

In 2016, the Company will continue to take the new and improved approach to the marketplace for deeper efficiency in the new construction market.

Pathways to Meet Program Requirements

1. Under the **"Systems Approach",** there are two main pathways in the new construction program that customers can use to access high performance equipment and systems to integrate into their building practices.

1a. Prescriptive Path: The prescriptive path is a standard approach for energy efficiency incentive delivery. There are specific requirements for equipment available under National Grid's prescriptive offerings, and each specific prescriptive application clearly identifies the qualification requirements and the incentive dollars associated with each specific measure.

In 2016, the Company will continue to offer prescriptive gas space and water heating equipment and numerous electric measures (for more details on measure descriptions refer to the 2016 Technical Reference Manual).

1b. Custom Express Path: There are a few new Custom Express tools that are now available for gas measures. A Custom Express tool can be used for certain projects on a case by case basis. The Custom Express tool is used when more analysis is required than using an average saving amount as is done with prescriptive deemed savings measures. This results in the customer receiving a custom incentive on a timely basis without the need to go through the rigor of a custom project. This happens more often under large Retrofit projects but can be used for New Construction projects as well.

1c. Custom Path: In addition to the Prescriptive pathway, the Company provides customers the opportunity to achieve deeper and broader savings with the Custom pathway - this path is often accessed by customers that wish to investigate more complex HVAC equipment and systems with enhanced engineering investigations. Through this pathway, the use of a cost-effective screening tool determines the value of the energy savings and costs associated with these systems.

Custom incentives are offered to support these investigations and purchases for any qualifying cost-effective efficiency opportunity, based on the unique energy savings and cost criteria of a project. These incentives fall outside the scope of standard prescriptive measures. Custom incentives for new construction projects are designed to cover up to 75% of the incremental cost between standard and premium efficiency equipment.

Since 2014, the sales team has flexibility in offering incentives that can be negotiated with the customers based on their financial criteria. The Company has determined an internal lower and upper range of incentives per savings unit. Depending upon the customer's financial needs, the internal sales team determines an incentive that will

work best for the customer to move forward. This method of determining incentives assists the Company to maintain cost control within the program budgets.

In 2016, the Company will continue to offer custom gas and electric measure options. (for more details on a sample of measures, refer to appendix at the end of this attachment)

2. Under the "**Whole Building Approach**"**,** there are two main pathways for customers who choose to do comprehensive and integrated designs for their projects. The company will continue offering the incentive structure amounts for both these pathways in 2016.

2a. Advanced Buildings® (AB) is the name given to a comprehensive set of prescriptive criteria for commercial new construction built around delivering the New Building Institute's national Advanced Buildings program. This is designed for a range of building types, including offices, schools, retail, and public assembly in the 10,000 to 100,000 square foot range. An AB Guide Book lists a set of criteria that needs to be met in order to participate in this path. Project teams can choose between three tiers, depending on how deep they want to go in terms of energy efficiency, which is based upon a percentage requirement above IECC code. Fixed incentives based on square foot are provided to project team for support of incremental costs. A fixed incentive is also provided to the design team for attending a design charrette/workshop.

2b. Integrated Design Approach is most applicable for buildings that are greater than 100,000 square feet or buildings smaller than this size that are not a good fit for the Advanced Buildings path. Both owners and design teams are eligible for incentives or projects that perform 15% better than the energy code. Based on feedback from owner and design teams, the Company has moved away from providing incentives based on the 75% of incremental costs for these types of projects. Instead, the Company has now structured the incentives to better align with the language of which the project teams are familiar. As a result, incentives are now based on a cost per savings unit: $0.35/kWh and $1.70/therm. In addition, because this path requires a significant amount of effort from the design teams, incentives based on costs/savings are also provided to design teams: $0.07/kWh and $0.34/therm. In addition, a fixed incentive is offered to design teams for attending a design charrette/workshop that will enable them to incorporate energy efficiency early on within the project stages.

Operational Verification

To ensure that energy savings projects are installed and operated as designed, the Company will continue to provide operational verification service in 2016 as in previous program years. This service will continue to be served by independent third-party vendors for verification of complex

building systems, including HVAC projects involving energy management systems or other controls, are properly installed and operating as designed. National Grid requires all projects which receive an incentive over $100,000 to undergo operational verification. This service (also termed as 'commissioning' in building industry terms) is also promoted for any projects where the savings are dependent on control measures or operational improvements. Typically National Grid provides these services at no cost.

Initiatives specific to New Construction

Specific initiatives are listed below within the new construction portfolio that address unique needs of the new construction market sector:

1. Solid State Street Lighting

The intent of offering energy efficiency incentives for solid state street lighting and controls is to be able to provide municipal customers with options which are described below:

Customer Owned

In July 2013, a Rhode Island law was enacted that allows any city or town receiving street lighting service from an electric distribution company to purchase the street lighting system with notice to the utility and the Rhode Island Division of Public Utilities and Carriers. As of August 1, 2014, municipal customers in Rhode Island are now able to purchase their own street lights. Under the S-05 rate, there are four thresholds for hours of operation for street lights or area lighting. These thresholds are labeled as follows: continuous, dusk-to-dawn, dimming 70% and part night. For those municipalities that express an interest in purchasing the existing National Grid owned street lights and converting the existing lighting to energy efficient solid state street lighting, the Company will provide support.

Since the beginning of 2015, the Company has offered incentives to municipal customers of $0.15 per kWh of savings for qualifying LEDs and $0.25 per kWh of savings for qualifying controls associated with either the dimming or part-night run hours as set forth in the street lighting tariff. These incentive levels will continue in 2016.

Company Owned

In 2016, the Company plans to file a Company owned LED street lighting tariff for municipal customers. Once this filing is approved by the RIPUC, if the municipal customer prefers to continue leasing their street lights from National Grid, the energy efficiency incentive will be the same amount as is offered for the customer-owned option. Similar to a multifamily building or leased commercial space where the tenant pays the electric bill, as long as the landlord (in this

case, National Grid) approves the retrofit, the customer leasing the street lights will receive the energy efficiency incentive directly.

2. Compressed Air

The Company intends to continue pursuing two general paths for compressed air savings in 2016. One group of solutions, described below, can be applied to customers of all sizes. However, customers with monthly demand larger than 500kW will be encouraged to proceed our industrial initiative (described above).

Path One (Customers below 500kW)

1. The Company will continue to offer prescriptive compressed air measures such as energy efficient compressors, dryers, zero loss condensate drains, storage and low pressure drop filters.
2. National Grid will continue to offer a leak detection and correction initiative.
3. Energy efficiency sales group will continue to offer Technical Assistance (TA) studies to customers who could benefit from a more comprehensive look at their compressed air systems.

Path Two

1. As described in other parts of this Plan, the Company has engaged seven industrial companies as part of our Industrial Initiative in 2014. Each of these companies received, in their Technical Assistance (TA) studies recommendations to improve their compressed air system(s), if appropriate.
2. National Grid is actively recruiting up to ten more customers for Industrial Initiative in the 2015 program year. Based on what we seen in 2014, it is likely that these companies will also have compressed air savings opportunities and choose to pursue them in 2015/2016.

3. Building Energy Code and Appliance Standards

Codes:

The Codes and Standards initiative (C&S) is an innovative efficiency offering that saves energy on behalf of customers by creating: 1) an environment that achieves greater compliance with the state building energy codes, and 2) strengthens and promotes energy efficient appliance standards and accompanying consumer purchasing incentives.

The “Energy Code Technical Support”, the ‘on-the-ground’ name for National Grid’s “Code Compliance Enhancement Initiative” (CCEI), is a focal point of the C&S initiative and will be

entering its third full year in 2016. CCEI includes in-person classroom and hands-on trainings, webinar presentations, project-specific technical assistance circuit riding, and dissemination of documentation/compliance tools such as a residential field guide, residential and commercial FAQs, technical bulletins, and case studies. There are, and will continue to be, associated energy savings attributable to the Company for its efforts in helping to improve Rhode Island's energy code compliance rates. This support will continue to focus on both ground up new construction/major renovation and alterations/additions for residential and commercial buildings with the desired end goal of reaching 90%+ code compliance in both sectors.

Energy Code Technical Support will continue to move forward in 2016, building upon the successes of previous years. In 2015 alone, the Company delivered 8 commercial (74 attendees) and 7 residential classroom trainings (135 attendees). This initiative has also fostered partnerships with several entities throughout the state to assist with training session space, networking, etc. These entities include Rhode Island Builders Association, U.S. Green Building Council, and American Institute of Architects. We have also collaborated with the Aperion Institute for assistance in helping to deliver the hands-on training sessions.

The company will continue to deliver commercial and residential energy code trainings throughout 2016. The Company is planning to deliver 12 residential and 12 commercial classroom trainings and 8 location-based trainings in 2016. The Company will also offer several live webinars. These trainings will be geographically dispersed around the State and will be marketed to local code officials, design professionals, builders, contractors, energy specialists, etc.

The Company will conduct topic-specific training sessions in 2016, and these sessions will focus on the building envelope, HVAC, and electrical sections of the code. We will also deliver in-field/on-site demonstration trainings as a means to complement classroom trainings and will visually relate topics discussed directly to real-world situations. Webinars will be conducted on specific residential and commercial sub-topics covered in the classroom sessions.

Technical assistance pertaining to energy codes and related matters will be provided via energy code circuit riders. In 2016, circuit riders will be available to answer questions either by phone or in-person. Greater emphasis will be made to market and promote the service in hopes of increasing the number of in-field/on-site visits. The Company hopes that these types of visits will be useful in clarifying any confusion or misunderstandings that building design and construction professionals may have about energy codes, and to ultimately support their efforts to better understand and execute code compliant building designs. In addition, the circuit riders and the trainings will educate the attendees about our incentive programs that go beyond the code, thereby cross promoting our programs.

The Company will continue to work with the RI Building Code Commission to accommodate third party energy code specialists as optional energy related building inspectors for applicable projects undergoing the permitting process. Third party energy code specialists will be encouraged to attend the technical energy code trainings delivered through this initiative. There will also be trainings that incorporate material specifically for these individuals and will focus on how to use their technical expertise in a code compliance environment, on administrative matters, and on procedural matters, rather than on technical aspects of the code and its enforcement mechanisms. In 2016, the Company will work with the Code Commission to identify the best pathway for a stretch code package that could be offered by cities and towns to commercial projects on a voluntary basis (in place of the state adopted building energy code). The Company is yet to establish its role in the development of this stretch code, which may include technical assistance to the code commission.

In 2016, this initiative will also continue to refine documentation/compliance tools created between 2013-2015, such as energy code checklists, technical bulletins, and FAQ's.

Appliance Standards:

In 2016, National Grid will continue to work with State officials to increase and strengthen overall appliance efficiency standards in the State through advocacy and support for both residential and commercial appliances. The goal of this initiative is to accelerate the development and adoption of selected new appliances as State level standards (better energy performance than federal standards), thereby increasing the efficiency of appliances sold and used in the State of Rhode Island. The Company will work with associated stakeholders to identify a target list of potential appliances. Some of these include battery chargers, commercial dishwashers, portable electric spas, pool pumps etc. The Company will continue to advocate for proposed State appliance legislation as well as to provide technical support regarding such parameters as market potential, energy savings, and life-cycle cost analysis. The Company will also work with associated stakeholders to develop a methodology to claim savings for this effort.

4. Sustainable Office Design (SOD)

The Sustainable Office Design (SOD) initiative promotes high-performance office lighting and controls for quick turnaround tenant fit-outs. This is an easy to use, performance-based design approach that benefits owners or tenants with energy cost savings depending upon the lease arrangements. A fixed incentive per square foot along with a pre-set design criteria and lighting designer incentives will provide easy participation for the tenant fit-out projects. To-date one tenant fit-out has been identified in 2015. The Company hopes to increase customer

participation for this initiative in 2016. In the future years, the SOD plans to incorporate HVAC and plug loads as part of the measure mix.

5. Zero Energy Buildings (ZEB)

In the past couple of years there has been a growing interest in Zero Energy Buildings (ZEB) in the New England region. The Company has just begun its research and development efforts on the feasibility and marketability of such buildings in Rhode Island. The overall goal of this initiative is to establish a framework for supporting ZEB within our energy efficiency portfolio through market accepted strategies that are implementable and will yield measurable energy and cost savings.

In 2015 the Company created a task force/advisory council that included key stakeholders in Rhode Island, These stakeholders represent many facets of the existing and future ZEB market and bring experience, entrepreneurship, and a desire for Rhode Island to lead the country in the ZEB market. It is the mission of the Rhode Island Zero Energy Building (ZEB) Task Force to create a White Paper in 2016 that recommends policies, incentives, education, financing and partnerships that will help to foster the growth of the residential and commercial ZEB market in Rhode Island.

The Company will continue to lead and facilitate this taskforce until the end of 2016. One of the deliverables of the roadmap/white paper is to determine a pathway for promoting ZEB through National Grid's energy efficiency programs. In addition, the Taskforce will seek to identify one or two zero energy demonstration projects for participation in National Grid's program to test out new ways of supporting/promoting zero energy buildings. Services may include design, technical support and incentives.

6. Energy Efficiency Integration with Solar

Similar to the residential program, the C & I program will collaborate with OER to align energy efficiency incentives to drive more solar installations within the ReGrowth statute 39-26.6-19 that allows the Company to request up to half of the Small and Medium classes of solar be allocated to an energy efficiency/Solar coordinated program in a given year. The concept for energy efficiency and solar collaboration, and effort termed, "SolarWise", will use high energy efficiency as the eligibility criteria for a customer to receive an additional solar incentive on top of the standard ceiling price for solar incentives. Alignment of financial incentives can help to bring new customers to both the energy efficiency and solar markets and move the market closer to Zero-Energy buildings in the future. A tiered approach for solar incentives may be developed for new construction projects based on energy savings as a percentage better than code and retrofit projects based on percent increase over existing performance. This collaboration will not add any cost to the C & I portfolio.

Large Commercial Retrofit Program

The Large Commercial Retrofit Program serves the needs of existing buildings in their pursuit to lower energy consumption This program includes three distinct components (similar to new construction program) each aimed to address specific market barriers and to advance efficiency: Prescriptive incentives are intended to support trade allies in advancing energy efficiency sales and to provide signals to customers who are making direct purchases that will encourage them to adopt the more efficient and more expensive option; custom which provides services to investigate opportunities to increase efficiency and supports the steps needed to implement the upgrades; upstream delivery that provides a more efficient way for customers to receive reduced pricing at the point of sale for energy efficient equipment purchased.

Pathways to Meet Program Requirements

Prescriptive Path

Prescriptive incentives are available in this program for some of the more commonly installed applications that offer standard incentive levels per equipment. Manual application forms have always been available on the Company's website for projects to use when applying for incentives. Beginning in January 2014, prescriptive gas incentives were offered online. In 2016 National Grid plans to roll out an electronic application for customers to apply for prescriptive electric incentives.

In 2016, the Company will continue to offer prescriptive gas and electric measure options. (for more details on measure descriptions refer to Attachment 2016 Technical Reference Manual)

Custom Express Path

Similar to the New Construction Program above, the retrofit program also offers a custom express path to select retrofit measures.

Custom Path

A customized approach that assesses the operations of the building through a technical assessment report (TA study) is usually the first step a customer experiences before applying for a custom incentive. The Company offers custom incentives to drive the purchase of high performance equipment and systems that are outside the scope of standard prescriptive equipment. These incentives are designed to cover up to 50% of the total project cost to move to premium efficiency projects including labor and equipment.

The ability to negotiate custom incentive levels and TA costs for some of the largest customers will also be available for this program. See more details on this in the Large New Construction section above.

In 2016, the Company will continue to offer custom gas and electric measures options. Refer to the appendix at the end of this attachment for a sample of custom measures and new technologies. In addition, the following technologies will be tested through building projects:

EcoThermal Grease Filters for Commercial Kitchen Hoods: This is an emerging technology that incorporates an air to water heat exchanger into grease filters which fit into commercial kitchen exhaust hoods. The manufacturer has partnered with our vendors to perform demonstration projects in Massachusetts, Rhode Island and New York. The savings is based on preheating domestic water in kitchens used for dishwashing and other purposes. The result has been excellent and most projects have screened very well.

Commercial Wi-Fi Demonstration Project for Gas/Electric Savings: We have partnered with a vendor to demonstrate the installation of commercial Wi-Fi thermostats for small to medium commercial customers and chain franchise retail locations. The vendor will perform metering and verification of savings from typical scheduling and setback algorithms and optimize performance of HVAC, lighting and some process equipment. We are currently determining cost per installation and determining savings levels.

Venturi Nozzle Steam Traps: This technology is currently not approved in our current steam trap offering. We will conduct some demonstration projects to determine savings and validity of calculations.

Advanced Lighting Controls Demonstration Project: This project will incorporate Demand Response (DR). DR is the shifting or shedding of demand for electricity resources during times of electrical grid stress or when the price of electricity is high. Open Automated Demand Response (OpenADR) will consistently convey the DR signals to customers from the system operator, facilitating a timely and predictable response, while allowing the customer to choose where the lighting should be affected, and by how much. This will target up to three large lighting and controls projects in RI.

Lighting Designer Incentives (LDI): Most lighting projects involve replacing old lighting fixtures with new more EE fixtures. This yields savings but leaves more savings untouched due to the lack of redesign. The LDI incentive goes directly to the lighting design team to fund their design and modeling efforts to achieve lighting energy savings while maintaining quality lighting design. The goal of this incentive is to have an early and deep impact on lighting projects, ensuring that energy efficiency is considered from the beginning and supported until the end of a project. The lighting designer becomes an EE champion, fighting for the best EE lighting for incentives. These

lighting design solutions will have greater persistence because they are designed by professionals who have balanced the human needs of the project with the performance requirements of the lighting system, creating quality lighting designs that are "right-sized" for the project by being energy efficient. This initiative has already been tested in two projects in RI in 2015 and we plan to roll this out to more customers. An enhanced LDI demonstration will incorporate the following: qualified list of lighting designers and greater code based program offerings. Eighty-four (84) designers are already qualified to participate in LDI.

Upstream Path: This is described in more details in section 6 below.

Initiatives specific to Retrofit Program

Specific initiatives are listed below within the retrofit portfolio that address specific and unique needs of the existing buildings upgrades:

1. Commissioning

The Company currently offers technical support and incentives for retro-commissioning and continuous commissioning. The Company identified some barriers regarding why customers are not pursuing these services as much as the Company had expected. Some barriers include high cost for commissioning studies, specialized engineering expertise, and high labor costs for implementation are high. In order to best serve the market, the Company will work to address first cost barriers and implement quality control protocols to ensure projects meet program expectations. While a valuable part of the overall portfolio, retro-commissioning is not a near-term savings opportunity since projects can have a two to three year development cycle from inception to verified installation.

The building tune-up initiative which started in late 2014 and ran into 2015 was designed to achieve cost effective electricity and natural gas savings in commercial and industrial facilities through retro-commissioning (RCx). This initiative will provide incentives for low-cost no cost operations and maintenance related energy efficiency strategies. These opportunities are often found in small and medium offices and schools. Savings are realized through the systematic evaluation of facility systems and implementation of low or no cost measures targeted to improve facility operation.

In 2014, the Company pursued this initiative as a demonstration project and enrolled colleges, schools and court houses in RI. However due to a harsh winter, much of the implementation of measures moved to the latter part of 2015. The Company will assess the results of this initiative and then offer this to more customers in RI during 2016.

2. Boiler Tune-Up Initiative

In 2015, a natural gas boiler tune- up demonstration project began in Rhode Island. Three vendors were selected and asked to work with six customers. Eligible boilers include fire tube and water tube boilers with a minimum input rating of 5,000 MBH with no parallel positioning controls or oxygen trim controls. In 2016, the Company will work with vendors to review other potential measures on site at the time of the boiler tune- up assessment. The Company is currently reviewing the results of the demo project, and based on the results, this will be extended to an initiative in 2016 and 2017. In 2016, the Company expects to increase participants to twenty such boiler tune-ups with the focus on very large customers.

3. Building Operator Certification Training

In 2016, the Company plans to support Building Operator Certification (BOC) training by holding at least three Level I BOC classes in Rhode Island and Massachusetts. The classes will be in Providence, Worcester and Waltham. Classes will be held in the Spring and the Fall. There will be a Level II class with a venue in either Rhode Island or Massachusetts.

The course provides a core foundation across the various building systems and maintenance practices of a typical commercial building – class instructors encourage class participation. In addition to the knowledge gained by listening to the instructors and completing both in classroom as well as out of classroom projects, the participants benefit from networking and learning from each other's experiences with building maintenance and energy efficiency. At each new course, an overview of the Company's commercial energy efficiency programs is given.

In 2016, the Company plans to invite alumni of BOC Levels I & II to meetings where they can compare their energy efficiency experiences and have the opportunity to interact with our Sales team. This gives us another opportunity to promote our energy efficiency programs and to provide updates since participants may have completed the course.

We will continue offering a webinar series on energy efficient building operation practice. Students are able to earn continuing education hours by attending the webinars. Both electric and gas energy savings will be claimed by the Company for each eligible Rhode Island National Grid customer that participates in the program. These savings are based on documented studies.

4. Strategic Energy Management Planning (SEMP)

The Strategic Energy Management Planning (SEMP) Initiative is available to our largest C&I customers who have the potential to go deeper with energy efficiency, and who have a level of in-house sophistication to make organizational changes to plan for multi-year energy planning. A Memorandum of Understanding (MOU) offers a way to document a commitment between the

customer and the Company to work together to achieve mutually stated goals through specific actions that are tailored to the customer's facilities over a multi-year planning horizon. As such, an MOU (though non-binding in this case) can set the stage for achieving deeper and more comprehensive energy efficiency savings, and is more likely to succeed than a "one measure" or "one year" approach. Typically, MOUs include participation and a commitment by upper management, the establishment of specific, very aggressive energy efficiency saving targets, and measurement and verification strategies to document savings throughout the target facilities along with an incentive structure that meets the customer's financial criteria. This offering goes much beyond energy efficiency and into sustainability and branding support to the customer.

The Company currently has two SEMP MOUs in 2015 and these agreements run into 2016. One is a large university campus and the other is a hospital group comprising of RI's five largest hospitals. The Company will continue to work with these customers to help achieve their MOU goals. In 2016 the Company will explore the opportunity for two additional SEMP partnerships with our large C&I customers.

The SEMP has the following features:

- Lays out specific multi-year energy savings goals, based on a blend of the customer's financial criteria (like life-cycle cost, hurdle rate, net present value, return on investment etc.)
- Offers a pre-determined financial incentives package for signed customers
- Provides additional assistance based on customer needs like O&M trainings, marketing/case studies, coordination with other building labeling program etc.
- Establishes a road map with the customer that has a robust financial model and guidelines for technical and operational aspects of facilities related to energy so as to guide the customer towards a long-term strategic planning of their portfolio of projects

Commercial Metering Demonstration Project:

National Grid may select about 10 small business customers with the ability to view device usage profiles for their site demonstrating a technology that will use meter information to evaluate appliance level loads. The technology will be used for small commercial sites which may have refrigeration, HVAC and lighting loads. The application will allow alerts to be sent to business owners when a higher than normal energy use is detected. The Company will also investigate the amount of energy efficiency savings that may be achieved on a site level by installing this technology to screen for equipment that may not be energy efficient and make more efficient suggestions after an analysis has been performed. The business type will determine which type of existing meter is in place. If the existing meter provides Over The Air (OTA) data feeds to National Grid we would use that data. If the customer has a traditional

Automatic Meter Reading (AMR) meter, we would install CT's (Current Transformers) on the meter and/or sub meters only on the main feeds. We would then be able to obtain granular meter data that will have the ability to determine individual loads without the time intensive and more expensive approach of installing hardware on each circuit.

5. Peak Load Reduction Strategies

The Company plans to pursue electric and gas savings with our customers that will result in peak load reductions in addition to annual kWh/therm energy savings. In addition to seeking peak demand strategies with our SEMP and industrial customers where there are large pockets of savings, the Company will pursue strategies below (some of which were implemented in 2015 as well):

- Wireless temperature controls: These controls provide the benefits of large commercial HVAC equipment, especially roof-top units for small businesses. The Company will create messaging around the benefits of these controls for electric and gas and how it has a direct response to the expectation of higher energy costs this winter. Selectable settings and the ability to send system information directly to a computer or mobile device enables users to remotely manage multiple rooms and properties thereby improving energy efficiency and occupant comfort.

- Marketing campaign for best practices tips: This campaign, consisting of a list of best practices for reduction in electric and gas usage during winter months, will be distributed to all C&I customers as early as November of 2015, which can be replicated again during the winter of 2016.

- Pipe Insulation and steam trap surveys are already part of our mix of measures that are offered to our customers. As part of the winter campaign both of these measures will be marketed through our sales and marketing teams to reinforce the importance of these measures on the winter usage.

- Building (O&M) tune up: This initiative will be focusing on low-cost no cost measures this winter directly impacting both electric and gas use reduction during the winter months. (More details provided within this document under Building Tune-up Initiative).

- Boiler Tune-Up: The boiler tune up initiative described above will increase the number of participants from 6 in 2015 to about 20 customers in 2016.

- Wi-Fi Thermostats: The Wi-Fi thermostat demonstration project which is currently under planning stages in 2015 for our small and medium customers will be a dual fuel

measure during winter peak though savings in a commercial setting may likely yield more electric savings than gas.

- The advanced lighting control demonstration project (mentioned previously) will test Open Automated Demand Response (OpenADR) capabilities for lighting for up to three customer facilities.

Demand Response

Demand savings through demand response (peak shaving and load shifting efforts) can contribute benefits such as reducing prices and price volatility for consumers, avoiding or deferring future generation, transmission and distribution investments, and reducing environmental impacts from electric generation. Demand response is a flexible, low-carbon resource that can also be used to help integrate renewable resources as more renewables come onto the electric system.

In order to advance the objective of demand reductions, the Company will prioritize energy efficiency measures that contribute both energy and demand savings, while also exploring peak shaving and load shifting opportunities. The Company will seek ways to understand both the costs and benefits of demand response in a way that will inform full scale deployment where benefits are expected to exceed costs.

The Company will coordinate with our Massachusetts energy efficiency program managers. Our Massachusetts team's effort includes demonstration projects beginning in 2016, along with research and analysis in 2016 to guide the deployment of full scale demand response initiatives in 2017 and 2018. The Massachusetts team will share the results of their demonstration projects with the RI team. In 2017 or beyond, and in collaboration with our Massachusetts counterparts, the Company may develop best practices, and utilize demand response strategies going forward. The Company will to be engaged in this effort to some level in 2016 through the advanced lighting controls demo project (highlighted in earlier sections) that will test Open Automated Demand Response (OpenADR) capabilities for lighting that could potentially be used for demand response in 2017.

6. Products Offered Through "Upstream"

When the Company refers to an "Upstream" initiative it is referring to the practice of offering an incentive directly to a manufacturer or distributor (mainly distributors in our initiatives) of efficient equipment instead of offering an incentive to the customer through an application form. This allows them to sell the product for less and make it more appealing to a potential customer. It also allows the customer to acquire this more efficient equipment without the burden of paperwork and waiting for reimbursement.

Upstream Lighting

Nationals Grid's first, and flagship, Upstream initiative is formally known as "Bright Opportunities Rhode Island". This initiative was launched in February of 2012 with four types of LED and four types of fluorescent lamps. Today, the program includes a wide variety of LED lamps and small LED luminaires. To date it has achieved more than 60,000 net MWh in savings.

In 2016, National Grid plans a seismic change to this program. In the first quarter of 2016, National Grid plans to include, most, if not all, of the current luminaires listed on the Company's current downstream applications through the Upstream initiative. The Company believes that this is the next logical extension of our successful current offering. There are several major advantages in taking this route.

- Moving products from downstream to Upstream removes customer-facing paperwork that our customers have routinely told the Company are a barrier to participation.

- Moving products from downstream to Upstream has shown major increases in volume and savings in the past. This volume and increased competition between many manufacturers and distributors drives the prices of luminaires down quickly and has given the Company opportunities to reduce incentives and make the initiative an even more cost efficient way to deliver lighting savings.

- Moving products from downstream to Upstream, especially in concert with Mass Save Program Administrators (PAs), tends to change the stocking pattern of distributors across the region which facilitates the transition from fluorescent or HID sources to more efficient and more easily controlled LEDs.

- Although the Company is constantly striving to deliver savings "deeper" than lighting, a rapid expansion to savings in lighting will have a positive effect (decreasing kW demand) in both winter and summer peak times due to the fact that commercial lighting is generally on during these times

Upstream HVAC

The success of the Upstream Lighting initiative encouraged National Grid to explore other areas where the Upstream model could be used successfully. After some research, the Company decided to issue a joint RFP with the Massachusetts Program Administrators (under the "Mass Save" umbrella) for a company to run an initiative that will encourage distributers to change stocking patterns and advocate for energy efficient Upstream Unitary HVAC and Heat Pumps up to 25 tons.

This initiative has slowly increased savings delivered to the Programs since its inception. This initiative is less dynamic than the Upstream lighting initiative, described above, as there are fewer manufacturers and less transparent pricing structures. As of Q3 of 2015, the Company and its partners EFI/CSG have enrolled all major manufacturers and have made inroads in understanding how this market works.

*It is important to note that savings from this particular product will be calculated from new construction not retrofit baselines.

Upstream Gas Equipment

In Q4 2015 National Grid launched the first product in the new Gas Upstream Program. By partnering with local water heating distributors, the Company can collaboratively promote the sale of high-efficiency water heating equipment. The program goal is to leverage the commercial water heater distribution network by upselling and stocking high efficiency equipment to influence as many qualifying commercial water heater sales as possible.

Upselling

In the price-driven commercial water heater market, incentives play a key role in subsidizing the additional time and effort required to upsell to a high efficiency unit and reducing the total equipment cost.

Stocking

In an emergency or replace on burnout (ROB) scenario, distributors are limited to selling equipment in stock. By providing the incentive to the distributors, they are incentivized to maintain stock of high efficiency units to sell in ROB situations. The program incentive is designed to help offset the increased carrying costs of maintaining stock of high efficiency units.

The Company may also bring out other measures during the course of 2016. The gas budget and success of the hot water heater portion will determine how quickly and in which order they will be deployed.

*It is important to note that savings from this particular product will be calculated from new construction not retrofit baselines.

7. Combined Heat and Power Initiative

A combined heat and power (CHP) facility is "equipment used to produce electric energy and forms of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes, through the sequential use of energy."[1]

Since 2012, the CHP provisions of the Least Cost Procurement law in R.I.G.L. §39-1-27.7[2] have required the Company to document the support for the installation and investment in clean and efficient CHP annually in its energy efficiency program plan by including a plan for identifying and recruiting qualified CHP projects, incentive levels, contract terms and guidelines, and achievable megawatt targets.[3]

For 2016, the Company will continue to offer a Combined Heat and Power (CHP) incentive. In 2016, the Company's emphasis will be on increasing the support for qualifying efficient CHP projects through the energy efficiency programs, as intended by the legislation. Because of the high capital cost and technical requirements of installing CHP, there is a very long lead time for a successful installation. With small numbers of projects and wide ranges of possible project sizes, the Company anticipates substantial variability in MW realized in any given year. The Company believes that a project target may be more appropriate than an annual kW target, as the capacity of the systems will depend on project viability and customer interest in any given year. For 2016, the Company has set a goal of two installations in Rhode Island and commitment to the initiation of at least two additional projects for future years.

To qualify for a CHP energy efficiency incentive, a proposed project must meet the following conditions:

- Host customers must be in the franchise service area of the Company.
- Proposed systems must either be (i) thermal leading and sized so the recoverable heat can be used to offset other facility thermal loads and generate electricity as a by-product, or (ii) using waste energy or waste heat to generate electricity.
- Both new construction and retrofit installations are eligible; in either case, the baseline system must be carefully documented

[1] CFR Title 18, Part 292, Sub-Part A, 292.101 – Definitions
[2] See R.I.G.L. § 39-1-27.7(c) (6) (ii) through (iv); For the legislative history, see P.L. 2012, Ch. 363, S2792 Sub A (Enacted June 21, 2012).
[3] See R.I.G.L. § 39-1-27.7(c) (6) (iii).

- The overall minimum total system efficiency of the proposed CHP units must be 55% or greater[4]. System efficiency is calculated as Annual Useful Energy/Annual Natural Gas Input where
    - Annual useful energy = Net Annual kWh*3,413/100,000 + utilized thermal output (therms)
    - Annual natural gas input = CHP gas input in therms (HHV)
- The equipment to generate electricity may be an internal combustion engine, gas turbine engine, steam turbine, back pressure turbine, or fuel cell and the facility will capture waste heat for use in the facility

Wasted energy systems and back pressure or extraction turbines can qualify. For these facilities to qualify the following conditions must be met; because these systems are designed to take advantage of existing on site wasted energy or inefficient processes, there is no minimum total system efficiency requirement.

- Host customers must be in the franchise service area of the Company
- All thermal and electric output of the CHP facility should be used on site,
- While it is expected that most of these applications will be retrofit, both new construction and retrofit installations are eligible; in either case, baseline system must be carefully documented, and
- The project must pass cost effectiveness screening.

The Company will undertake the following steps to support qualified CHP projects.

Identification and Recruitment of Qualified CHP Projects

The Company currently works with vendors and customers to identify CHP opportunities at customer locations. The Company promotes CHP systems and outlines the process for qualification and implementation of CHP facilities through the Company's energy efficiency programs. The Company has sales and technical staff who are primary points of contact for customers and vendors with potential CHP projects. The Company will continue to communicate criteria for CHP assessment and communicate it to vendors so that their

[4] The RI DEM's Air Quality Regulations (http://www.dem.ri.gov/pubs/regs/regs/air/air43_12.pdf; Page 11) set a minimum system design efficiency of 55% for CHP to be eligible to apply for Emission Credits. As noted in the Incentive Levels section below, a higher energy efficiency incentive is available for systems with efficiencies of 60% or greater.

presentations to customers will be more consistent with Company technical assistance requirements.

Scoping Study/Qualification

The Company will offer technical assistance on CHP projects beginning with a preliminary scoping of a potential site. This scoping will be based on an evaluation of:

- Monthly (or hourly, where available) electric, gas, and other fuel usage
- All site-specific forms of thermal energy end uses
- Coincidence of electric and thermal loads
- Proposed project cost

This scoping will determine if further study of the site appears favorable, i.e., provides CHP operating hours and load factors that would be an appropriate application of CHP.

Technical Assistance Study

Assuming a favorable screening, National Grid will co-fund a TA study of CHP with the customer. The TA study will be performed by an independent, qualified engineering firm. This study is to measure thermal loads, appropriate CHP size, compile a budget cost estimate, and identify potential barriers to the technology, etc. National Grid will fund 50% of the cost of any TA study conducted by a preferred vendor selected by the Company, and up to 50% of the TA for other qualifying independent engineering firms. Any TA study by a CHP vendor or its representative which fulfills the CHP TA requirements may be accepted, though no co-funding will be provided. The TA study must be completed, submitted, and approved by the Company prior to implementation.

The TA study must include an assessment of the likely on-peak kW reduction from the facility given its nameplate rating, the net facility output, projected availability based on anticipated site-specific operating characteristics, and performance data on other similar units. (On-peak kW reduction = Net Output x Availability x % Loaded.) This kW load reduction should be used in the benefit-cost screening.

All TA studies should include not just an analysis of the CHP system, but also an analysis of load optimization and thermal and electric energy efficiency opportunities. These opportunities themselves will be eligible for energy efficiency incentives and will help make sure that the CHP facility is correctly sized for the facility's needs and avoid creating a disincentive for future load reduction at the site. As indicated below, a larger incentive is available for CHP projects that include the implementation of energy efficiency measures at the host facility.

Cost Effectiveness

The screening for cost effectiveness specific to CHP is included in the Total Resource Cost Test Description included as Attachment 4.

Incentive Levels

If a project has been shown to be cost effective, it will be eligible for an incentive. Incentives will be determined following cost effectiveness screening in consultation with National Grid personnel. The following rules will apply to all CHP projects (regardless of size) in the determination of the incentive. However, the amount of incentive the Company is willing to offer and commit to the customer could depend upon the amount of funds that are budgeted or remaining in the budget of the energy efficiency program.

- For cost effective CHP projects, the target energy efficiency installation incentive ("installation incentive") in 2016 is $900 per net kW, where net is nameplate kW output minus CHP auxiliary kW. For CHP projects with efficiencies of 60% or greater, the target installation incentive in 2016 is $1,000 per net kW. Wasted energy, back pressure turbines, and extraction turbines are eligible for incentives of $900/kW.

- For cost effective CHP projects where the host customer also commits to implementing energy efficiency measures representing at least 5% of site energy use or the maximum load reduction identified by a TA Study, whichever is less,[5] the maximum installation incentive in 2016 is up to $1,125 per net kW, and the CHP sizing must incorporate the load reduction. For CHP projects with efficiencies of 60% or greater and that have similar energy efficiency participation, the maximum installation incentive in 2016 is up to $1,250 per net kW. A customer may be treated as having made this commitment to energy efficiency if it has made investments to achieve similar load reductions through energy efficiency within the previous five years.

- All CHP projects are also eligible to receive other incentives, such as the Advanced Gas Technology (AGT) incentive, subject to the incentive package cap described below.

- CHP facilities greater than 1 net MW may be offered an additional performance incentive, as further provided in the section entitled "Special Considerations for Large CHP Systems," below.

[5] If CHP facility sizing is determined by electric load (or not constrained by either electric or thermal load), the requirement will be 5% of electric usage; if the facility sizing is determined by thermal load, the requirement will be 5% of thermal energy usage. The energy efficiency measures will themselves be eligible for incentives, and are not part of the CHP incentive package cap described below.

- The CHP system costs must include: the cost of all system, auxiliary, and interconnection costs; and CHP maintenance. If the system is receiving a tax credit, it will be treated as a credit against the cost of the CHP project.

- The CHP incentive package cap from the Company will be 70% of the total project cost inclusive of the installation incentive, incentives related to gas service, present value of any performance incentive, system reliability procurement incentive, and any other incentives related to the transaction. For new construction installations, the incentive cap will be 70% of the incremental cost difference between the cost of what would have been done absent the CHP project and the cost of the CHP project.

- Retainage of 20% of the energy efficiency incentive payment will be held until commissioning is completed.

Other Contract Terms and Guidelines

In order to ensure proper operation of the CHP facility and persistence of energy savings, the following terms and guidelines will be required:

- Minimum requirements document. As part of the TA study, a minimum requirements document ("MRD") will be developed. This MRD will contain engineering hardware and operational specifications that directly affect the savings estimates developed in the TA study. Compliance with the MRD will be necessary to receive rebate payments.

- All systems will require electric, thermal and gas metering for commissioning and monitoring of system efficiencies. Metering hardware and data collection services may be provided at little or no cost to the customer.

- The project must be commissioned. Commissioning is a process following installation whereby a third party verifies that the project is installed and operating as detailed in the TA study and MRD.

- The customer must sign and produce a contract for O&M services for a period of years through the first planned major overhaul of the CHP unit. On-going O&M contracts for a minimum of ten (10) years from project commissioning are recommended.

- The customer must apply for interconnection service as soon as practical and not operate the unit until they receive the authorization to interconnect from the Company. While there may be site-specific interconnection considerations for particular projects, please see the attached link for information on interconnection: http://www.nationalgridus.com/narragansett/business/energyeff/4_interconnect.aspht

tp://www.nationalgridus.com/narragansett/business/energyeff/4_interconnect.asphttp://www.nationalgridus.com/narragansett/business/energyeff/4_interconnect.asp.

- As noted in the EE Program Plan, kW-demand savings achieved via the electric energy efficiency programs, including CHP, will continue to be reported by the Company to ISO-NE as Other Demand Resources ("ODR") and the revenue generated will be used to fund future energy efficiency projects through the Company's programs.

Delivery Service Tariffs Applicable to CHP Installations

Customers receiving an incentive payment for installation of CHP will be billed for delivery service charges on the appropriate general service tariff. The Company's general service tariffs, Rates G-02, G-32 and G-62[6], include a CHP Minimum Demand Provision for those CHP installations that receive an energy efficiency incentive pursuant to this Plan. For Customers subject to this CHP Minimum Demand Provision, the monthly Demand will be the greater of a) the Demand as normally defined under the tariff provisions; or b) the Minimum Demand, which shall be 50% of the greatest fifteen-minute reading from the Customer's generation meter(s) as measured in kilowatts during the month. The Customer Charge, Transmission Demand Charge, all per kWh charges and any other applicable charges and credits will be in addition to the Minimum Demand Charge. This rate treatment is designed to mitigate the cross-subsidies from other customers in the same rate class. The Company believes it is very important to assure that a customer who is receiving incentives through the energy efficiency program continues to pay a fair share of the costs of the distribution system upon which the customer will continue to rely when the CHP unit is off-line.

Special Considerations for Large CHP Projects: A project that is greater than 1 MW of net nameplate capacity shall be defined as a "Large CHP Project" and may be eligible for special considerations that support the development of CHP, while accounting for its unique characteristics.

Qualification:

The cost of the project will be reviewed by a design/build or general contractor experienced with CHP projects and revised as necessary.

Incentive and additional terms and conditions:

[6] In Docket 4568, the Company has proposed to consolidate the G-32 and G-62 rate classes. This proposal will have no impact on the operation of the Minimum Demand Provision for CHP.

If a Large CHP Project passes the benefit cost test described in Attachment 5, the appropriate incentive will be determined, based on the guidelines for all CHP projects set forth in the section entitled "Incentive Levels," above.

An additional performance-based energy efficiency incentive, capped at $20/kW-year ($1.66/kW-month) for a period of up to ten years, will be offered as part of the incentive package for any project greater than 1 net MW. No payments will be made until the unit is in operation and provides demonstrated load reduction, and will be made semi-annually based on actual metered load reduction. Load reduction performance will be based on the net daily metered kW output of the system during ISO-New England's on-peak periods averaged over each six month period.

Performance incentives will be subject to budget limitations and, in all cases, will be subject to the 70% total project cost cap applicable to all CHP projects set forth in the section entitled "Incentive Levels," above. The total incentive package will include any incentives related to gas service, and the present value of the above-described performance incentive.

The customer will have to repay a portion of the incentive to the Company if the project is abandoned, removed from the premises, sold, or otherwise no longer utilized as the primary source of heat and electricity by the customer, within 10 years from the date of final incentive payment authorization. The repayment will be the energy efficiency installation incentive times the number of years remaining until the required ten years of service divided by ten. Other incentives, such as any AGT incentives, may also have similar reclaim provisions.

Options for CHP proposal that fails cost effectiveness testing

If a CHP project does not pass the benefit-cost test, the Company will work with the customer to develop other solutions that may still support the CHP facility. Such other solutions may include one or all of the following:

- Re-analyzing the optimal size of the CHP unit, or the number of generators. A different sized CHP unit might provide better efficiencies and pass the benefit cost test

- Identifying other load reduction opportunities at the facility. Benefits can be garnered from load reduction in lieu of achieving that load reduction through CHP.

Targeted Outreach and Support for Potential CHP Customers: The Company believes that significant savings can be generated with this technology in the coming years. The Company is focused on developing a pipeline of projects for small, medium and large customers. In addition to having a specific sales point person for CHP projects, the Company has a CHP program manager who helps customers navigate the technical and procedural aspects of bringing a CHP

unit online, The Company also works with a TA vendor that assists us in identifying and executing CHP projects. In addition, the Company works with CHP vendors to offer RI customers smaller CHP units where installation and operations are turn-key. Furthermore, in 2016, the Company will introduce a CHP manual to assist customers who are deciding if CHP is an option for their facilities. Other strategies that will enhance CHP acceptance will also be considered, such as: preparing and distributing case studies, providing plant operator training, and providing easier customer access to CHP unit performance data.

Small Business Direct Install Program

Overview

The Small Business Direct Install Program (SMB/DI Program) provides turnkey services to commercial and industrial customers with an average monthly demand of less than or equal to 200kW.

There is no upper limit of gas consumption that disqualifies a customer from receiving the gas measures offered by the SMB/DI program.

The Company has delivered this program for more than two decades through a local vendor, RISE Engineering, who is known as the "Regional Program Administrator" or "RPA". The RPA is responsible for program management, data entry, and quality control. The RPA is located in Rhode Island, employing local staff, local electricians and energy efficiency lighting materials procured through a competitive bid process. As of 2011, customers served by natural gas are also eligible for direct installation of natural gas energy efficiency measures.

Customers are provided turnkey services consisting of:

- An Energy Audit
- Direct Installation of Measures
- Company incentive contribution of 70% of total project cost
- On-bill repayment (OBR) for customers' 30% share of the project costs, either over 12 or 24, months at zero (0) percent interest or a lump sum payment with a 15% discount, resulting in most customers' projects having a positive cash flow when they choose the OBR repayment option.

Since its inception when the SMB/DI Program focused primarily on lighting and refrigeration direct install measures, it has broadened its scope to include identifying:

- Cost-effective "custom" electric and gas measures, such as Energy Management Systems (EMS)
- Time dependent opportunities such as replacing roof top HVAC units and heating systems
- Participation in residential programs where the building may have both commercial and residential properties in the same building.

As noted previously, the Company is continuously working with our engineers and technical assistance experts to try and move as many measures from the custom category to prescriptive or "custom express" to streamline the process for customers as much as possible. This should

encourage the vendor and the customer to install these measures more frequently and reduce the technical costs of the program.

In addition to cost-effective custom and time dependent measures mentioned above, the SMB/DI Program offers incentives on the following measures:

- LED lamps and luminaires
- Occupancy sensors and controls
- Energy Management Systems (EMS)
- Thermostats
- Insulation
- Hot water reset
- Low flow pre-rinse spray valves
- Refrigeration measures such as evaporator fan controls, efficient evaporator fan motors, automatic door closers and door heater control devices for walk in coolers
- Boiler reset control
- Pipe Insulation

Offering Changes

Overall, the Company has a strong foundation of experience delivering this program enabling it to meet program goals and to continue to develop and implement new products and services.

As a result of the Company's increased move to vertical market segments to serve customers better the following segments are no longer included in the small business segment:

- K-12 Schools
- National Chain Retail Locations and Restaurants
- Restaurants (possible in 2016)
- Small Grocery Stores (not including convenience)

The Company fully acknowledges that this will affect the ability of the SMB/DI vendor to reach goals on par with previous years and has adjusted their goals accordingly for 2016. The movement to vertical markets from the SMB/DI program will also impact the level of participation in 2016. As seen in table E-7 and G-7, there are fewer participants in the SMB/DI program in 2016 compared to 2015. The Company is actually planning to serve more SMB/DI customers in 2016 compared to 2015, particularly through the upstream lighting program, but these participants will be reflected in the other C&I programs.

OPower Small Business Behavior Demonstration Project

In the 2015 Plan National Grid detailed our plans for working with OPower, the residential behavior change experts, to start a similar effort for the SMB/DI arena. Unfortunately, despite both companies' best efforts, OPower could not find large enough treatment and control groups to demonstrate statistically significant savings and thusly prevented the Company from claiming savings from this effort. Since a major portion of the costs were incurred in the beginning stages of this effort the Company has decided to continue to use OPower's messaging into 2016. The Company feels that messages of conservation fit into a company's total energy environment and awareness of energy issues. In addition, this initiative has provided leads into our SMB/DI program. EnergySavvy

In the summer of 2015 the National Grid commercial team from both MA and RI began working with EnergySavvy on a system to generate leads for smaller size businesses. EnergySavvy is known for their highly graphical and user friendly surveys that act as both an introduction to our services and a way to steer customers into the proper service path. EnergySavvy is currently used, quite successfully, in the National Grid MA residential programs. There are three things that Energy Savvy can provide to National Grid that we feel are very valuable.

- A simple presentation of our services with contact information- Once a customer has finished a survey they are presented with a list of energy efficiency improvements along with potential savings per year. This system is accurate because measures and savings are drawn from our Technical Reference Manual or TRM. The list of options always includes a small business audit and contact information for our small business vendor.

- A point of contact that moves at the customer's pace – Many customers don't want to commit to anything, including an audit, without mulling it over for a bit. However, many small business owners have family and work obligations that may prevent them from finishing the survey. EnergySavvy's system allows users to be reminded that a survey is not complete after a period of time set by the utility.

- An advanced way of telling us exactly where and when a customer stops work on a survey – This allows us to improve the survey for future users and to have the small business RPA to make contact with a customer if they haven't checked back into the survey after a utility determined period of time.

Due to the fact that that National Grid has already received leads in 2015, with no marketing in addition to a hyperlink on our website, the Company is confident that this partnership will drive additional informed leads into the SMB/DI in 2016. Currently, the platform is available in English only.

Commercial & Industrial Marketing

In 2015, the Company continued to have an integrated marketing strategy to build awareness of, and amplify the individual program marketing efforts for, Rhode Island's business customers to aid in driving participation. Radio, print and digital mediums were key channels in 2014 and 2015 for this audience. The awareness and program marketing campaigns were fully integrated in National Grid's brand to provide a holistic approach and make the most effective use of our marketing dollars to deliver the Company's energy efficiency message. As well, various direct marketing efforts were also conducted for business customers.

During 2015, a sales training was conducted for the Company's marketing, program management and sales staff. This training provided awareness to utility employees that their customers care most about what matters most to them, which may be outside the realm of energy efficiency, per se.

Additionally, in 2015, the Company continued to demonstrate the importance of listening to our customers to deliver a marketing strategy that will breakthrough with customers. Based on focus groups from 2014, surveys that were conducted with Company EE staff who deal directly with customers, a survey of large business customers was conducted to develop benchmarks for awareness, customer satisfaction and National Grid as a trusted advisor as well as have customers evaluate different value propositions (small and large business customers). The top value propositions for large C&I customers includes savings on the cost of energy and equipment, improving safety in the workplace, and improved productivity. For large C&I customers, these were followed by ease of implementation of Energy Efficiency Solutions.

The top value propositions for large C&I customers include savings on the cost of energy and equipment, improving safety in the workplace, and improved productivity. For large C&I customers, these were followed by ease of implementation of Energy Efficiency Solutions.

For the Small Business customers, the most important aspects of energy efficiency were cost savings and short payback periods. These benefits were followed by ease of implementation of Energy Efficiency Solutions, work ambiance, the use of the latest technology, and providing a green image. Top value propositions for all businesses were used to drive messaging.

Communications in 2016 will be focused on targeted efforts, and top value propositions, for all businesses in general as well as key verticals, will be used to drive the messaging going forward.

Furthermore, we are looking to develop decision-maker profiles to help determine the most appropriate messaging based on who is being targeted (facilities manager, chief financial officer, etc.). We want to make sure to deliver the right message to the right contact at the right time for business customers. Related to this overall strategy, for large and medium business

customers, we fully launched a content-based marketing platform. The content arms our customer's decision makers with the knowledge and understanding of why they should make energy efficiency investments. Viewing National Grid as a trusted advisor is trending upward, based on this content-based marketing platform.

To enhance customer marketing, the Company's trade ally marketing aligns professionals who either influence or implement energy decisions for our mutual customers who are potential participants in our energy savings programs and solutions. These professionals include distributors, architects, builders, construction managers, contractors (HVAC, mechanical, electrical) and installers (electricians, plumbers). Marketing for new construction targets design professionals such as architects, engineers, construction managers (i.e. design build firms) and real estate developers (i.e. REIT). For lighting professionals (i.e. designers, distributors, manufacturer representatives and installation contractors) we target commercial office space rehab fitouts (i.e. commercial leased space upgrades) to the design professional and lighting upgrades to the lighting supply chain (distributors and manufacturer representatives) and installation contractor audience. HVAC contractors and professionals are targeted for equipment replacement, upgrade and maintenance opportunity. All of these contractors and professionals have an advisory role to the ultimate customer depending on the scope and scale of the project.

We also have monthly newsletters serving architects and engineers (the design community), electrical and energy professionals (contractors, consulting energy professionals and engineers who primarily focus on retrofit construction) and HVAC professionals and contractors.

National Grid's goals are to increase trade awareness, engagement and satisfaction with Rhode Island energy efficiency opportunities and to promote innovation to capture untapped savings for commercial, industrial, institutional and residential market segments. The types of projects include new construction and retrofit; but we also look for ways to develop opportunities for system level savings and integration. Ultimately, National Grid's trade ally program promotes cost and operating efficiency for our electric and gas customers throughout Rhode Island.

For example, National Grid continues to partner with an external vendor to offer educational seminars to trade professionals on changing RI energy codes for new construction/retrofit; additional dates are being considered for 2016. We recently updated our New Construction Serviced participation guide to National Grid incentives, assistance, and training support for energy-efficient, high-performance commercial, industrial, and institutional buildings. We recently introduced a trade ally website to serve as an organizing marketing framework to deliver fast, easy access to National Grid information relevant to trade professionals; we will continue to enhance this Trade-specific website in 2016. In addition to a print/digital trade advertising schedule to create Trade awareness and qualify interest in National Grid Trade

energy efficiency (EE) programs and services, we also regularly offer a range of technical webinars. These increase Trade EE awareness, engagement and penetration. They also create a platform that helps extend EE conversations post-webinar.

Finally, the Company provides the internal sales staff with marketing support, including case studies, program collateral and technical marketing pieces to enable discussions with customers on energy efficiency solutions.

Appendix 1

Sample list of custom measures in the energy efficiency program

Building envelope measures

- Fenestration
- Insulation

Laundry systems

- Polymer bead systems
- Ozone systems

Commercial kitchen measures

- Large dishwashing systems
- Heat recovery for water heating from
    - Cooking surface exhaust
    - Large refrigeration

Manufacturing

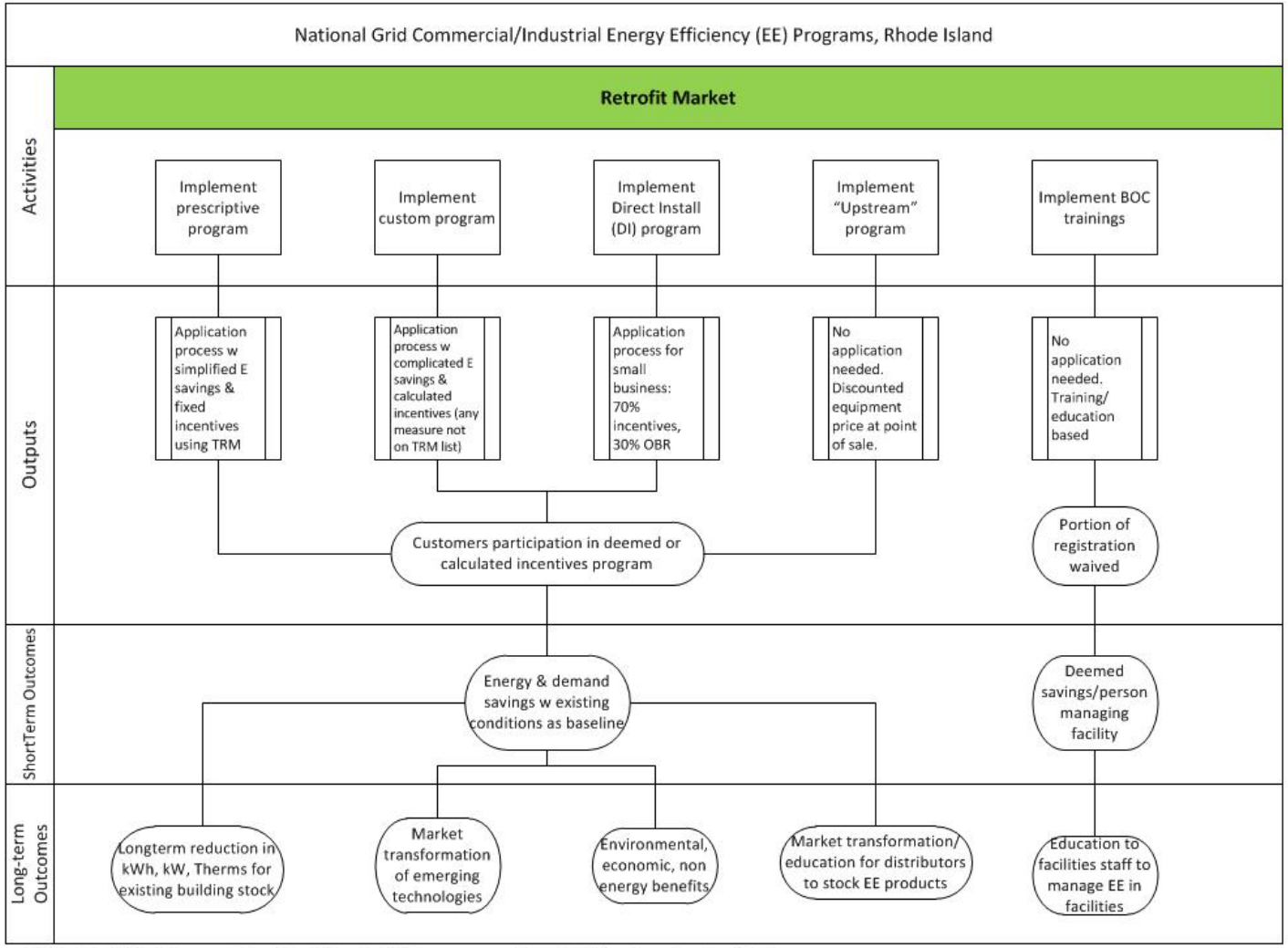
- Process improvements
- Energy efficient production equipment
- Specialized lighting
- Compressed air

HVAC

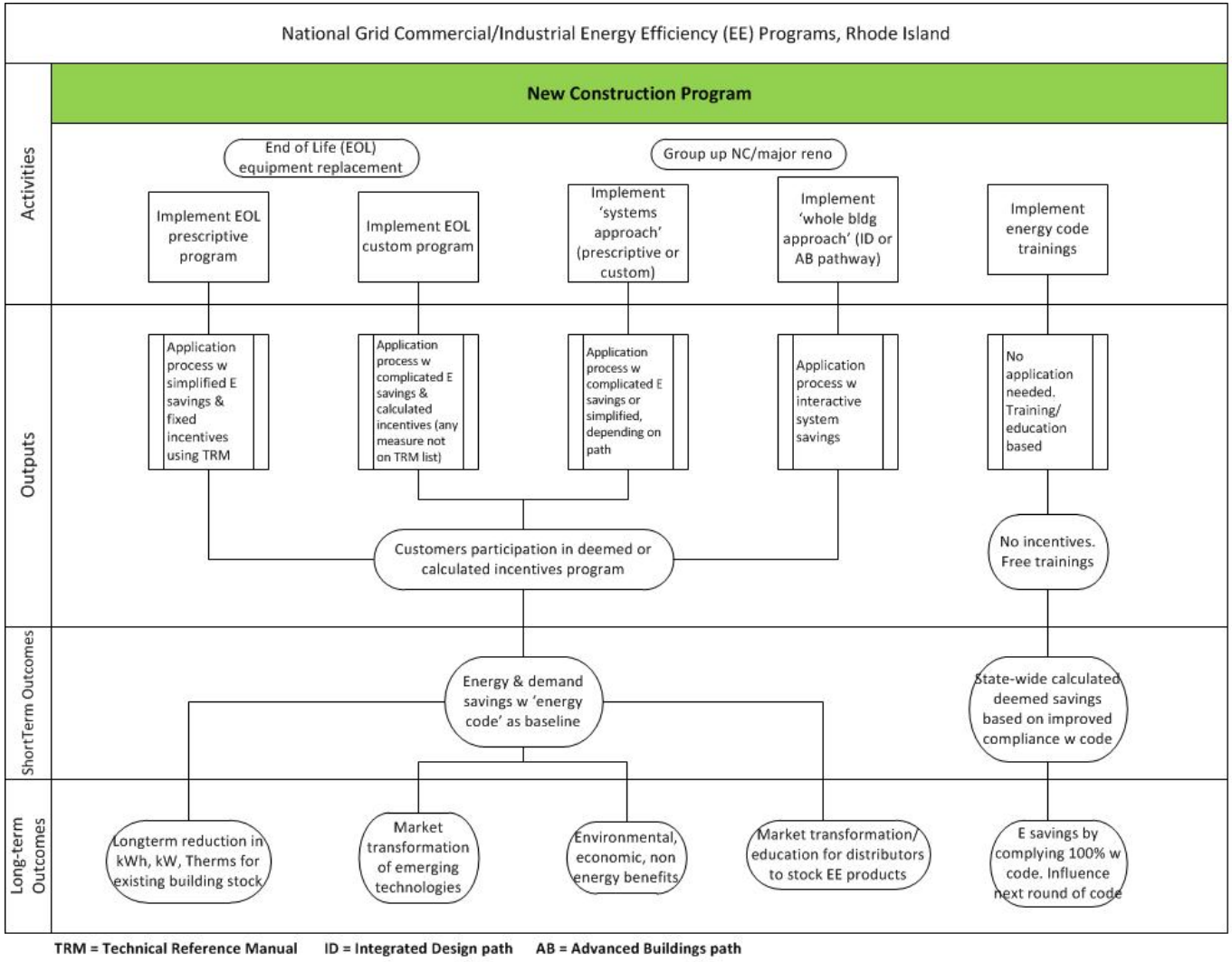
- Variable refrigerant flow systems
- Energy recovery ventilation (ERV)
- Air source and water source gas engine driven heat pumps
- Smart HVAC monitoring and control systems

Dry Smart gas dryers

Appendix 2: Retrofit Logic Model



Appendix 3: New Construction Logic Model



Appendix 4: Subprogram and Measure Savings Goals and Incentives

Electric Subprogram Net Savings Goals and Incentive Descriptions

Electric Programs			
Program	**Subprogram**	**Annual kWh Goal**	**Incentive**
Large Commercial New Construction	CAIR	790,900	Typically up to 75% of Incremental Cost
	Cool Choice	109,261	
	Custom	5,264,859	
	Lighting	320,725	
	VSD	337,930	
	C&I Codes	3,154,000	
	Street Lighting	5,750,000	
Large Commercial Retrofit	Custom	18,728,981	Typically up to 50% of Project Cost
	HVAC	1,228,208	
	Lighting	1,467,993	
	VSD	2,590,085	
	CHP	7,501,200	
	Upstream Lighting	35,513,142	
Small Business Direct Install	SCI	12,165,078	70% of Project Cost 30% Financed

Gas Program Measure Group Description with Quantity and Rebate Levels

Gas Programs			
Program	**Measure**	**MMBtus**	**Rebate Level**
Large Commercial New Construction	Boiler95	0	$ 1,500
	Boiler96	0	$ 1,500
	COMBO COND BOIL/WTR HTR 90+	340	$ 1,272
	Condensing boiler 1000-1700 mbh	743	$ 7,500
	Condensing boiler 1701+ mbh	1,517	$ 10,000
	Condensing boiler 300-499 mbh	477	$ 2,000
	Condensing boiler <= 300 mbh	192	$ 1,000
	Condensing boiler 500-999 mbh	1,819	$ 4,000
	COND UNIT HEATER 151-400 MBH	128	$ 750
	COND WATER HEATER 95%MIN 75-300	942	$ 500
	COOKING-COMBO OVEN 1	0	$ 1,000
	COOKING-CONVECTION OVEN 1	0	$ 1,000
	COOKING-FRYER-1000	0	$ 1,000
	Furnace95ECM	102	$ 300
	Furnace96ECM	6	$ 800
	Furnace97ECM	0	$ -
	Hydronic boiler 500-999 mbh	0	$ -
	INFRARED HEATER - LOW INT	60	$ 750
	WATER HEATER - INDIRECT	5,035	$ 400
	WATER HEATER - ON-DEMAND 82	357	$ 500
	WATER HEATER - ON-DEMAND 95	783	$ 800
	Custom	25,923	Up to 75% of Total Resource Cost
Large Commercial Retrofit	Boiler95	0	$ -
	Boiler Reset One-Stage	234	$ 225
	Boiler Reset Multi-Stage	0	$ -
	Builder Operator Certification	3,305	$ 900
	Spray Nozzle	5,466	$ 25
	Faucet Aerator	0	$ -
	Low Flow Shower Head	4,987	$ 200
	LCI Pre Rinse Spray Valve	0	$ -
	Roof Insulation	0	$ -
	Steam Traps	3,414	$ 75
	LCI Thermostat	1,523	$ 25
	Custom Retrofit	114,685	Up to 50% of Total Resource Cost

Gas Programs			
Program	**Measure**	**MMBtus**	**Rebate Level**
Small Business Direct Install	Boiler Reset One-stage	69	$ 420
	Cooling CP	0	$ -
	Demand Circulator	0	$ -
	Faucet Aerator	329	$ 11
	Duct	31	$ 8
	Pipe Insulation 1.5 Water	76	$ 6
	Pipe Insulation 1.5 Steam	0	$ -
	Pipe Insulation 2 Water	3	$ 8
	Pipe Insulation 2 Steam	0	$ -
	Pre Rinse Spray Valve	937	$ 100
	Low Flow Shower Head	754	$ 25
	Nozzle	276	$ 100
	Steam Traps	0	$ -
	Thermostat	1,191	$ 126
C&I Multifamily	MFAir Sealing	3,726	Average Incentive based on measure mix
	DHW	866	
	MF Insulation	27	
	Thermostat	3,480	
	Ventilation	0	
	Custom	1,391	

ATTACHMENT 3

2016 Measurement and Verification Plan

In 2016, National Grid's Measurement and Verification Plan (M&V) will focus on evaluating Rhode Island-specific sites and markets while leveraging as many resources as possible from studies in additional National Grid territories in order to keep costs low. Evaluation budgets are included in Attachment 4, Table E-2 and Attachment 5, Table G-2. The planned studies briefly described below focus on areas of interest to the Rhode Island programs, and build on the deep history of evaluation studies performed by the Company over many years. In order to optimize the use of evaluation resources, where programs are considered to be generally homogeneous with those offered in Massachusetts, the studies will be done in conjunction with the Company's Massachusetts retail affiliate.

A. New Studies Underway or Planned

Residential:

HVAC – Ductless MiniSplit Impact Evaluation - ongoing

Massachusetts is conducting an evaluation of cold climate mini split heat pumps that have already been installed in customers' homes. The Rhode Island Office of Energy Resources (OER) and the Company have joined this study to include 15 to 20 Rhode Island sites in order to determine the savings from this technology.

HVAC – Cold Climate HP market assessment – new

As cold climate heat pumps become more prevalent, this study will assess the marketplace to review the savings baseline and opportunities for program improvements.

Energy Wise Single Family Impact Evaluation – new

This study, planned jointly with a similar study in Massachusetts, is designed to look at the savings impacts from installations in this sector. This study is a follow-up to the multi-family work of previous years. This study will be an update to the 2012 study in RI, and will evaluate both gas and electric measures.

Appliances – new

With continuously changing appliance standards and the ever-growing number of plug loads and electrical uses within homes, evaluation work on assessing the savings for

appliances is ongoing. This year, the Company expects to conduct studies of plug loads and appliance recycling.

Low Income Single Family (LISF) – Demographic Survey – new

This includes a review of the population of participants in the LI SF program to assess demographic characteristics of participants, and the potential for more targeted campaigns or new measures based on the demographics.

Multi Family Impact Evaluation Follow up Study – new

An impact evaluation of the newly aggregated multifamily offering was completed in 2015. Based on the study, several areas have been identified for follow up analysis. These areas include metering facilities, analyzing gas custom measures, analyzing lighting hours of use, and process questions.

Commercial and Industrial:

Custom Electric & Gas – Impact evaluation(s) – ongoing and new

Custom HVAC and Gas studies kicked off in the second half of 2015; these studies will continue into 2016. New custom studies for 2016 may include the Comprehensive Design Assessment (CDA) measure category. CDA savings are typically estimated for both electric and gas measures based on modeling, where evaluation efforts are likely to also focus. Custom HVAC measures can include air and waterside improvements to electric and gas equipment, and are expected to involve field monitoring as well as engineering analysis.

Depending on available resources and coordination timing with MA, steam traps may also be studied.

Prescriptive Non-Lighting/Compressed Air - ongoing

The impact evaluation of prescriptive compressed air installations kicked off in the second half of 2015 and will continue into 2016. The studies involve on-site engineering and end-use metering, and potentially building simulation, of a statistically drawn random sample of participants.

Cross-Sector Studies:

MultiFamily Non-Energy Impacts (NEIs) – ongoing

This study is co-sponsored with the Natural Resources Defense Council, which approached National Grid about conducting research on NEIs in a sector that has not been subject to much NEI research. This study will include both a review of the literature as well as primary research and customer surveys. It is expected to be completed in late 2015 or early 2016 and the findings will inform future program design and cost effectiveness.

Community Based Initiatives –ongoing

These initiatives include continued work on the residential SmartPower Incremental Lift study as part of behavioral savings programs, as well as maintaining efforts on the commercial and industrial (C&I) programs.

Residential and Commercial - Code Compliance Studies - ongoing

These studies will update the 2012 studies to gauge compliance levels with respect to the 2012 code revisions that took effect in 2013. The purpose of the studies is to compare compliance levels to the 2012 baseline compliance studies. In addition, the residential study will include a review of the User Defined Reference Home (UDRH) used in the Residential New Construction (RNC) program, as it relates to changes to code and building practices seen in the field.

Job Impacts Analysis Study

The Rhode Island Job Impacts study will determine the business and jobs impact due to energy efficiency programs in 2015, similar to the study of 2014. The study will survey the Company, vendors, distributors, partners, and market players to quantify the number of jobs and associated business impacts.

Dunsky Report Follow-up

The report by Dunsky Energy Consulting, which was prepared for the OER in 2015, provided several recommendations' for follow up investigations about the effectiveness of National Grid's finance offerings. Finance enables the participation of customers who otherwise would not have been able to participate; it also enables the installation of energy savings projects beyond what the customer might have done with a rebate alone. The Company plans to commission a study of the effectiveness of financing to drive increased savings in both of these dimensions.

Pilots-Process and Impact Evaluations - ongoing Studies will continue to evaluate the process and impacts from residential pilots currently in the field, including residential behavior and product pilots. The studies involve a combination of billing analysis, on-site measurement, and customer surveys. The Company plans to begin evaluations as new products or pilots are launched. These studies will include both gas and electric impacts.

Regional Studies

Through the Company's membership in the Northeast Energy Efficiency Partnerships (NEEP) Evaluation, Measurement and Verification Forum, the Company will be participating in a number of regional evaluation studies. The Forum is currently developing its list of studies for 2016, and has not yet been approved by the Forum's steering committee. The studies listed below are currently underway; other studies are likely to be added once they are approved.

- Incremental Cost Research. The purpose of this project is to develop incremental cost estimates for prescriptive or emerging measures. The deliverable will likely be measure-specific incremental cost estimates.

- Early Replacement Study, Phase II. Phase I was a scoping study. Phase II drills down and seeks information relating to specific measures as well as some recommendations regarding methodology.

B. Recently Completed Evaluation Studies

Recently completed studies that have informed 2016 planning are identified in the chart below, along with a brief summary of the impact of those results in planning the Company's 2016 programs. (Prior year studies that have been superseded by studies completed since the filing of the 2015 EEPP have been deleted from the list.) The results of these studies were incorporated into the benefit-cost modeling of the 2016 plan. Some of these studies may be regional, or may have included other National Grid jurisdictions. The 2016 EEPP is adopting the results of these studies because the Rhode Island programs are judged to be similar, either in the measures offered, or in terms of structure or program delivery. In these instances, the impact evaluations have been judged by the Company to be applicable to its Rhode Island energy efficiency programs.

2015	
Study	**Impact Descriptions**
DNV-GL, Rhode Island Small Business Energy Efficiency Program Prescriptive Lighting Study: Final Report, July 2015	This study is RI-specific and yielded an energy realization rate prescriptive lighting measures. For coincidence factors, the Company will continue to use values from the NEEP Evaluation, Measurement and Verification Forum.
TetraTech, 2013-2014 Rhode Island C&I Natural Gas Free Ridership and Spillover Study (Memorandum), August 2015	Free ridership and spillover rates for the RI Gas Large Commercial New Construction; Large Commercial retrofit, and Small Business Direct Install Programs, combined with results from the study conducted in 2014.
Cadmus, Inc., High Efficiency Heating Equipment Impact Evaluation: Final Report, March 2015	The study determined revised deemed savings values for each furnace and boiler measure, including condensing boilers and early replacement of heating equipment. The study also reflected the increasing baseline for standard efficiency heating equipment.
DNV-GL, Retrofit Lighting Controls Measure Summary of Findings: Final Report (MA), October 2014	The study examined trends in lighting control savings and noted a decrease in savings over previous program years. It recommended updated coincidence factors as well as potential program and technology areas that may yield higher savings. Finally, the study recommended a change in the savings calculation algorithm for lighting controls.
Tabors Caramanis Rudkevich, Avoided Energy Supply Costs in New England: 2015 Report, April 2015	This study developed new estimates of avoided costs for application in 2016 through 2018 energy efficiency programs throughout the six New England states. Avoided costs were developed for natural gas, electric energy, electric capacity, demand reduction induced price effects (DRIPE), other fuels (oil, propane and wood), and carbon.
DNV-GL, Massachusetts 2013 Prescriptive Gas Impact Evaluation; Steam Trap Evaluation Phase 1, March 2015	The study concluded that there should continue to be both prescriptive an custom pathways for steam trap retrofit incentives, and further recommended that a group convene to review and revise the deemed savings estimate for steam traps. The study also recommended the use of a six year lifetime for steam traps.
Cadmus, Inc., LED Incremental Cost Study – Modeling LightTracker LED and Halogen Pricing Data, June 2015	This memo summarizes selected findings from the LightTracker LED, CFL, and halogen pricing data modeling effort and the resulting state-level price forecast through 2020 for LED, CFL, and halogen bulbs. These results are based on light bulb price data from 25 states that lacked LED programs from 2009 to 2014.

Cadmus, Inc, Cool Smart Incremental Cost Study: Final Report, July 2015	This incremental cost study estimates how manufacturing production costs (MPCs) and purchase prices of residential air conditioning (AC) and heat pump (HP) equipment change as equipment efficiency increases. The results support Cool Smart program enhancements and cost-effectiveness analysis, as well as potential upstream residential upstream heating, ventilation and air conditioning (HVAC) incentive programs.
Cadmus, Inc., Lighting Interactive Effects Study Preliminary Results – Draft, April 2015	This memo details the preliminary findings of the Lighting Interactive Effects study evaluated for the Massachusetts (MA) Program Administrators to better understand and report the true impact of energy efficient lighting retrofits. It recommended factors for electric and gas energy to be applied to residential program savings.
Peregrine Energy Group, Analysis of Job Creation from 2014 Expenditures for Energy Efficiency in Rhode Island by National Grid, April 2015	A study of the job impacts of National Grid's energy efficiency programs delivered to Rhode Island electricity and natural gas customers in 2014. The study determined that 639 FTE employees, across 899 companies and agencies had work in 2014 as a result of EE Program investments energy efficiency programs in Rhode Island.
2014	
Study	**Impact Descriptions**
DNV GL, 2014 , Impact Evaluation of National Grid Rhode Island C&I Prescriptive Gas Pre-Rinse Spray Valve Measure	The evaluation examined the gas and water savings associated with the installation of reduced-flow pre-rinse spray valves. The results are based on site measurements from MA and RI facilities. The final gross gas and water savings are 11.4 MMBtu and 6.410 gallons per spray valve respectively.
DNV GL, 2014 Impact Evaluation of National Grid Rhode Island Custom Refrigerator, Motor and Other Installations	Three custom electric end-uses, Refrigerator, Motor, and Other, were evaluated to provide updated realization rates. The RI results were combined with MA results from a parallel study in order to increase the statistically significance of the final results. The final energy realization rate is 84.8%
DNV GL, 2014 Impact Evaluation of Rhode Island Commercial and Industrial Upstream Lighting Program	This study examined the performance of lighting systems that were discounted at the distribution level. The evaluation included metering at Rhode Island project sites that was combined with the results of metering done in MA to yield more accurate impacts for lighting offered in this upstream initiative. The final energy realization rate is 80.3% for LEDs and 109.5% for fluorescents.
NMR Group, Inc., Northeast Residential Lighting Hours-of-Use Study	This multi-State study provided updated hours-of-use assumptions for residential lighting programs in various room types.

The Cadmus Group, Impact Evaluation: Rhode Island Income Eligible Services, Volume II The Cadmus Group, National Grid Income Eligible Services Process Evaluation	This RI-specific impact evaluation focused on the electric and gas savings resulting from the participation of these dwellings in in-home retrofit of electrical components and weatherization of electric, gas, and fossil fuel heated homes. It used billing analysis, engineering reviews, and interviews for the process components.
TetraTech. 2013 Commercial and Industrial Programs Free-ridership and Spillover Study	Free ridership and spillover rates for the RI Energy Initiative, Design2000plus, and Small Business Services Programs.
Illume Advising and Navigant Consulting, Rhode Island Behavioral Program and Pilots Impact and Process Evaluation	Impact results for the statewide Rhode Island Home Energy Reports (HER) Program and the associate rewards and thermostat pilots. There are multiple program components as well as two pilot efforts, including the following: (1) HERs offered to multiple population segments, (2) an online web portal, (3) a rewards pilot offered to HER participants, (4) a programmable communicating thermostat (PCT) pilot offered to HER participants, and (5) mass media promotional and public relations activities. This evaluation focuses on the first four listed program components. The evaluation effort covers the first year of the program and pilot efforts implemented from April 2013-May 2014.
National Grid, Macroeconomic Impacts of Rhode Island Energy Efficiency Investments REMI Analysis of National Grid's Energy Efficiency Programs	This study quantifies the macroeconomic impacts of National Grid's 2014 EE Program Plan for Rhode Island and provides updated economic impact multipliers to quantify the benefits of future EE programs in the Rhode Island economy. This updates the multipliers from an economic impact study conducted by Environment Northeast (ENE) in 2009.
2013	
Study	**Impact Descriptions**
KEMA, Inc., Impact Evaluation of 2011 Rhode Island Prescriptive Lighting Installations KEMA, Inc., Impact Evaluation of 2011 Rhode Island Custom Lighting Installations	The Custom and Prescriptive Lighting studies involved the impact evaluation of components of the Large Commercial and Industrial electric efficiency programs. The studies included on-site engineering and end-use metering of a statistically drawn random sample of participants. The custom portion of the study was coupled with the results of the 2013 Massachusetts Custom Lighting study.

Energy Efficiency Messaging, Residential Energy Efficiency Program Communications Focus Groups	The study analyzed customers' perceptions of energy efficiency programs and messaging materials via focus group testing.
KEMA, Inc., Impact Evaluation of 2011 Prescriptive Gas Measures	On-site monitoring and verification of installation provided updated impacts for four major prescriptive gas measures. Programs and measures are similar between National Grid affiliates in MA and RI, and results are applied to RI. The overall realization rate for the four measures was approximately 102% and the relative precision was about ±15%.
KEMA, Inc, and DMI, Inc., Impact Evaluation of 2011-2012 Prescriptive VSDs	This evaluation provided a new estimate of the impacts of prescriptive variable speed drives, based on pre-post metering of measures installed in 2011 and 2012. Programs and measures are similar between National Grid affiliates in MA and RI, and results are applied to RI. Key findings include an annual kWh realization rate was 94% with a relative precision of +/- 23%, and identification of factors that influenced the realization rate.
The Cadmus Group, Inc., 2012 Residential Heating, Water Heating, and Cooling Equipment Evaluation: Net-to-Gross, Market Effects, and Equipment Replacement Timing	The results of this study yielded updated net-to-gross factors and estimates of the timing of equipment replacement for residential heating and cooling measures. Programs and measures are similar between National Grid affiliates in MA and RI, and results are applied to RI.
KEMA, Inc., Process Evaluation of the 2012 Bright Opportunities Program	This study provided net-to-gross ratios for the Commercial Upstream Lighting initiative offered in MA and RI, as well as a process assessment of this generally successful initiative.
KEMA, Inc., Impact Evaluation of 2010 Prescriptive Lighting Installations	The RI Prescriptive lighting study listed above did not examine case lighting separately from other lighting systems. To complement the RI-specific results, this MA study provided impact updates on case lighting.
Opinion Dynamics (2013). Massachusetts Cross-Cutting Behavioral Program Evaluation Integrated Report.	This study provided an updated realization rate for savings from gas customers who participate in the Opt-out channel of the Home Energy Reports program.

2012	
Study	**Impact Descriptions**
NMR Group, Inc., Rhode Island 2011 Baseline Study of Single-family Residential New Construction	Provides a baseline study of the characteristics of single-family homes recently completed in Rhode Island and permitted under the 2009 International Energy Conservation Code (IECC) that did not participate in the Rhode Island Residential New Construction Program (Program). These can be used to update User Defined Reference Home (UDRH) assumptions used in calculating Program savings.
DNV-KEMA, ERS, and APPRISE, Rhode Island Energy Code Compliance Baseline Study	Provides a baseline estimate of statewide energy code compliance for commercial buildings, provides feedback on patterns of compliance and non-compliance, and identifies opportunities for RI in the quest to achieve greater compliance with state energy codes.
KEMA, Inc., Impact Evaluation of the 2010 Custom –Industrial Process and Compressed Air impact evaluation, September, 2012	Study produced realization rates for energy, seasonal demand, and percent energy on peak for both programs. The RI results were combined with MA results from a parallel study in order to increase the statistical significance of the final results. The final energy realization rate is 92.7%.
ERS, Rhode Island Large Commercial and Industrial Retrofit and New Construction Program Custom Gas Evaluation, September 2012	The Custom Gas study updated study-based realization rates for the Large Commercial and Industrial Retrofit and New Construction programs. The final therms realization rate for the custom gas program was found to be 75.5%.
TetraTech, Final Report – Commercial and Industrial Non-Energy Impacts Study, (prepared for Massachusetts Program Administrators), June 29, 2012	This report provides a comprehensive set of statistically reliable Non-energy impact (NEI) estimates across the range of C&I prescriptive and custom retrofit programs offered by the MA electric and gas Program Administrators (Pas). The analytical methods used allow this report's findings to be applicable to RI.
Cadmus, EnergyWise Single Family Impact Evaluation, October 2012	The study provides impacts specific to the RI program for single family households. It includes electric, gas, and oil savings. The study uses billing analysis and engineering analysis.

2011	
Study	**Impact Descriptions**
NMR Group, Inc., Massachusetts Program Administrators Massachusetts Special and Cross-Sector Studies Area, Residential and Low-Income Non-Energy Impacts (NEI) Evaluation, August, 15, 2011.	Identification and quantification of non-energy impacts for residential and low-income programs.
NMR Group, Inc., The Rhode Island Appliance Turn-In Program Process Evaluation, March 4, 2011.	Combined, these two studies assessed free-ridership rates and savings for the Rhode Island Refrigerator and Freezer Recycling program. In addition, the evaluation found that there were three distinct groups of refrigerators being recycled through the program – primary, secondary – replaced, and secondary – not replaced. The study produced updated free-ridership rates and savings for the three categories of refrigerators and freezers.
NMR Group, Inc., The Rhode Island Appliance Turn-In Program Impact Evaluation, October 2011.	
NMR Group, Inc., Results of the Multistate CFL Modeling Effort, April 15, 2011.	This study examined the 2010 Energy Star® Lighting program. The research effort included participation in a multistate modeling effort which resulted in a revised free-ridership estimate for screw-in CFLs.
The Cadmus Group, Impact Evaluation for Rhode Island Multifamily Gas Program EnergyWise Program, July 12, 2011	A billing analysis was conducted for 2010 Multifamily gas participants. Results showed a realization rate of 121% indicating ex post verified savings as 21% greater than the engineering savings estimate.
Opinion Dynamics Corporation, Evaluation of National Grid's Community Pilot Program Energy Action: Aquidneck and Jamestown, September, 2011.	The evaluation examined participation in all energy efficiency programs through the 2009-2010 Community Initiative, known as Energy Action: Aquidneck and Jamestown. The evaluation found that the initiative was cost-effective with a benefit-cost ratio of 2.25. The evaluation also examined processes and made recommendations for increasing participation in future initiatives.

KEMA, Inc., Impact Evaluation of the 2009 Custom HVAC and 2008-2009 Custom CDA Installations, September 1, 2011	Study produced realization rates for energy, seasonal demand, and percent energy on peak for both programs. The RI results were combined with MA results from a parallel study in order to increase the statistic significance of the final results. The final energy realization rate for Custom HVAC is higher than the PY 2011 realization rate by about 10% (increased from 100.5% to 110.4%). The final energy realization rate for Custom CDA is higher than the PY 2011 realization rate by about 20% (increased from 97.2% to 119.6%).
KEMA, Inc., C&I Lighting Loadshape Project, Prepared for the Regional Evaluation, Measurement, and Verification Forum, June 2011.	A compilation of lighting loadshape data from the Northeast. The study provided updated coincidence factors for the Energy Initiative and Small Business Lighting programs. The Small Business program summer coincidence factor went from 0.80 to 0.79, while the Energy Initiative summer coincidence went from 0.88 to 0.89
KEMA, Inc., C&I Unitary HVAC Loadshape Project Final Report, Prepared for the Regional Evaluation, Measurement, and Verification Forum, June 2011.	From end use metering, the study produced updated diversity and equivalent full load hours for unitary HVAC measures
2010	
Study	**Impact Descriptions**
ADM Associates, Inc., Residential Central AC Regional Evaluation, Final Report, October 2009	KWh and kW savings figures for the installation of efficient residential CAC systems
2009	
Study	**Impact Descriptions**
Nexus Market Research, Residential Lighting Markdown Impact Evaluation, January 20, 2009	Energy and demand savings from the use of lighting markdown products
KEMA, Inc., Design 2000plus Lighting Hours of Use & Load shapes Measurement Study, July 2, 2009	Hours of use, hours of use realization rate, on-peak kWh percentage, load profile, connected demand adjustment factor, summer and winter peak combined coincidence and interactive factors for the prescriptive lighting measures installed by participants of the 2007 National Grid Design2000plus program

2008	
Study	**Impact Descriptions**
Nexus Market Research, Inc., RLW Analytics, Inc., Residential Lighting Measure Life Study, June 4, 2008	Estimation of measure life for lighting products distributed throughout New England
Michael Ozog, Summit Blue, Joint Small Business Services Program Billing Analysis, 2007	Realization rates for lighting measures installed through the Small Business Services program
2007	
Study	**Impact Descriptions**
RLW Analytics, Small Business Services Custom Measure Impact Evaluation, March 23, 2007	Verification of energy savings from custom lighting projects in the Small Business Services program.
RLW Analytics, Impact Evaluation Analysis of the 2005 Custom SBS Program, May 29, 2007	Realization rates for the Small Business Services program

Study name: Analysis of Job Creation from 2014 Expenditures for Energy Efficiency in Rhode Island by National Grid

Type of Study: Economic Impact
Evaluation Conducted by: Peregrine Energy Group
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
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 2014.

Peregrine determined that 639.4 full-time equivalent (FTE) employees had work in 2014 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 899 companies and agencies involved in National Grid's 2013 energy efficiency programs, 77% of which were located in Rhode Island.

The study is designed to be conducted annually.

Programs to which the Results of the Study Apply: This is an overall indicator of economic impact, not applied to a specific program.

Evaluation Recommendations and Program Administrator Response: The evaluation study does not include recommendations.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study:
N/A

Savings Impact: N/A

Study name: 2013-2014 Rhode Island C&I Natural Gas Free Ridership and Spillover Study

Type of Study: Impact
Evaluation Conducted by: Tetra Tech
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
The purpose of this study was to update the program free-ridership and spillover for the natural gas programs. These programs include Custom and Prescriptive programs for new construction, retrofit projects, and Small Business programs. The results from this update are combined with the gas results from 2013 to provide more robust net-to-gross figures.

The final report presents several different slices of survey results. Based on consultation with the evaluation contractor, the following tables present what is recommended for application.

2013 and 2014 Combined Results at the Program Level

Program	Surveyed	Population	Percent of Total Savings Surveyed	Free-ridership Rate	Participant "Like" Spillover Rate	Nonparticipant "Like" Spillover Rate	Net-to-Gross Rate
New Construction	64	240	43.5%	15.1%	1.0%	0.3%	86.1%
Retrofit	74	580	37.2%	21.0%	0.0%	0.1%	79.1%
Small Business	97	379	36.3%	4.7%	1.3%	0.1%	96.7%
Total	**235**	**1,199**	**38.7%**	**19.1%**	**0.3%**	**0.1%**	**81.2%**

Programs to which the Results of the Study Apply: Natural gas commercial and industrial programs

Evaluation Recommendations and Program Administrator Response: See tables above. There were no other specific recommendations

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study:
National Grid will use the study results in program planning and reporting in 2016 for the natural gas programs.

Savings Impact: The application of new free-ridership and spillover results for the electric programs impact the savings.

Study name: Avoided Energy Supply Costs in New England: 2015 Report

Type of Study: Economic Value
Evaluation Conducted by: Tabor Caramanis Rudkevich (TCR)
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
The 2015 Avoided-Energy-Supply-Component Study (AESC 2015) provides projections of marginal energy supply costs that will be avoided due to reductions in the use of electricity, natural gas, and other fuels resulting from energy efficiency programs offered to customers throughout New England for 2016-2018. AESC 2015 provides estimates of avoided costs for program administrators throughout New England to support their internal decision-making and regulatory filings for energy efficiency program cost-effectiveness analyses.

TCR found that, overall, avoided costs are lower because of the abundance of natural gas from the Marcellus Shale.

- In the short term, gas prices are higher due to transportation constraints. In the long term, gas prices continue to be lower than in the 2013 study because of abundant supply.
- Electric energy avoided costs are lower as they track gas prices, since gas is the marginal fuel.
- Electric capacity prices are higher as indicated in FCM results.
- Demand reduction induced price effects are lower and of shorter duration because the markets are more in equilibrium than previously modeled. Cross fuel DRIPE impacts are higher because the basis component is assumed to last longer.
- Avoided non-embedded environmental costs are the same as determined in AESC 2013.
- Avoided costs for other fuels are lower because of lower prices for oil, due to increased production.

Programs to which the Results of the Study Apply: These results are used for all programs in 2016 program cost-effectiveness screening.

Evaluation Recommendations and Program Administrator Response: The evaluation study recommends the application of the results, which National Grid is doing.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study:
N/A

Savings Impact: N/A

Study name: High Efficiency Heating Equipment Impact Evaluation: Final Report

Type of Study: Impact
Evaluation Conducted by: Cadmus, Inc.
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
The evaluation sought to answer the following researchable questions:

- How much energy is being saved for the average installation of efficient space heating equipment through the Massachusetts HEHE program?
- How does the in situ efficiency of standard efficiency furnaces and boilers that are installed outside of the program compare to their rated efficiency?
- How does the in situ efficiency of existing equipment that is retired early compare to its rated efficiency?
- How are condensing boilers being installed and controlled, as it relates to their potential savings?

Overall Savings Results
The following tables present the evaluation team's recommended revised deemed savings values for each furnace and boiler measure. The team used the percentages of early retirement and replace on failure installations found in the 2012 HEHE and Cool Smart net-to-gross evaluation6 to weight savings from each group into a single value for each measure. Furnace savings are calculated assuming 11.7 percent early retirement, boiler savings are calculated assuming 13.2 percent early retirement, and combination boiler savings assume 32.2 percent early retirement.

Table 5. Furnace Results, 85 Percent AFUE Baseline

Measure	Verified ROF Therm Savings	Verified ER Therm Savings	Verified Average Savings	2013 Report TRM Therm Savings
95% AFUE Furnace	75	127	81	159
97% AFUE Furnace	86	139	92	173

Table 6. Boiler Results

Measure	Verified ROF Therm Savings	Verified ER Therm Savings	Verified Average Savings	2013 Report TRM Therm Savings
90% AFUE Boiler	110	140	114	120
95% AFUE Boiler	137	167	141	139
96% AFUE Boiler	148	178	152	147

Table 7. Combination Boiler Results

Measure	Baseline	Verified ROF Therm Savings	Verified ER Therm Savings	Verified Average Therm Savings	Weighted Average Verified Therm Savings	2013 Report TRM Therm Savings
90% AFUE Combination Boiler	Standalone Water Heater	130	159	139	104	238
	Indirect Water Heater	88	111	95		
95% AFUE Combination Boiler	Standalone Water Heater	155	184	164	129	-
	Indirect Water Heater	113	136	120		

Programs to which the Results of the Study Apply: Energy Star HVAC program

Evaluation Recommendations and Program Administrator Response:

- Consider standby and cycling losses in addition to combustion efficiency when evaluating gravity-drafted equipment such as standard and early retirement boilers and furnaces.
- PAs should consider ways to improve boiler operating efficiency through quality installation, and contractor and homeowner education.
- The PAs should use the revised early retirement baselines and broader research on early retirement units less than thirty years old may be needed if early retirement participation increases.
- PAs should consider conducting additional baseline research and/or requiring application information on what combination systems are replacing. The evaluation study does not include recommendations.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study: As this was a Massachusetts study, the Company will monitor how its Massachusetts affiliate responds to these recommendations.

Savings Impact: The updated savings values will impact savings.

Study name: LED Incremental Cost Study – Modeling LightTracker LED and Halogen Pricing Data

Type of Study: Cost data
Evaluation Conducted by: Cadmus, Inc.
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
The study summarized selected findings from the LightTracker LED, CFL, and halogen pricing data modeling effort and the resulting state-level price forecast through 2020 for LED, CFL, and halogen bulbs. These results are based on point-of-sale light bulb price data from 25 states that lacked LED programs from 2009 to 2014.

The final set of forecasted prices is based on a non-program state 2009-2014 model and is the model and forecast the Team recommends. The model under-predicts the price per Watt of LEDs by eight cents while predicting the 2014 price per Watt for CFLs and halogens exactly (Table 10). The forecasted price per Watt for LED decreases by 52% from 2014 to 2020 meaning that the average price of a 10 Watt LED in 2020 would be about $6.17 (Table 11). Predicted CFL price per Watt stays stagnant throughout the prediction period. Halogens continue to decrease in price per Watt through 2020 and the average price per 43 Watt halogen bulb by 2020 should be around $0.64.

Table 10. Predicted Wattage Prices for 2014 based on 2009-2014 model

LED	$1.35	$1.27, +(0.05)	-$0.08
CFL	$0.14	$0.14, +(0.01)	$0.00
Halogen	$0.03	$0.03, +(0.0013)	$0.00

Table 11. Price per Watt Forecast through 2020 based on 2009-2014 model

2014	$1.27, +(0.05)	$0.14, +(0.01)	$0.03, +(0.001)
2015	$1.13, +(0.06)	$0.14, +(0.01)	$0.03, +(0.001)
2016	$1.00, +(0.07)	$0.14, +(0.02)	$0.03, +(0.001)
2017	$0.89, +(0.08)	$0.14, +(0.02)	$0.02, +(0.001)
2018	$0.79, +(0.08)	$0.14, +(0.02)	$0.02, +(0.001)
2019	$0.70, +(0.08)	$0.14, +(0.02)	$0.02, +(0.001)
2020	$0.62, +(0.08)	$0.14, +(0.02)	$0.01, +(0.001)

Programs to which the Results of the Study Apply: This cost data is used for lighting programs.

Evaluation Recommendations and Program Administrator Response: N/A

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study: N/A

Savings Impact: N/A

Study name: Cool Smart Incremental Cost Study: Final Report

Type of Study: Cost
Evaluation Conducted by: Cadmus, Inc.
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
This incremental cost study estimates how manufacturing production costs (MPCs) and purchase prices of residential air conditioning (AC) and heat pump (HP) equipment change as equipment efficiency increases. The results of this study will support Cool Smart program enhancements and cost-effectiveness analysis, as well as potential upstream residential upstream heating, ventilation and air conditioning (HVAC) incentive programs.

The Residential Evaluation Team ("the team") began by examining Cool Smart tracking data provided by the Massachusetts Program Administrators (the PAs). The team analyzed the data to determine the characteristics (manufacturer, equipment class, capacity, and efficiency rating) of units that are most frequently rebated through the Cool Smart program. The team observed that the AC and HP units most frequently rebated by Cool Smart from 2012-2014 had cooling capacity of 2 tons (24,000 BTU/h) and were manufactured by Carrier, Trane, or Lennox. Based on these observations, the team selected a set of twelve units (six indoor air handler units and six outdoor HP units) for teardown and cost modeling.

The team created separate price vs. SEER plots for each of the four categories of paired indoor and outdoor products considered in this analysis: On each of these charts, the team mapped the "efficiency frontier," which is defined here as the minimum incremental price (above a baseline of 13.0 SEER for ACs and 14.0 SEER & 8.2 HSPF for HPs) required to achieve a given efficiency for the systems that were modeled.

- Air-conditioning outdoor units with an indoor air handler (AC-AH);
- Air-conditioning outdoor units with an indoor coil only (AC-CO);
- Heat pump outdoor units with an indoor air handler (HP-AH); and
- Heat pump outdoor units with an indoor coil only (HP-CO).

Programs to which the Results of the Study Apply: The cost data is used for Residential HVAC programs.

Evaluation Recommendations and Program Administrator Response: The evaluation study does not include recommendations.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study: N/A

Savings Impact: N/A

Study name: Lighting Interactive Effects Study Preliminary Results - Draft

Type of Study: Impact
Evaluation Conducted by: Cadmus, Inc
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
The memo details the preliminary findings of the Lighting Interactive Effects study evaluated for the Massachusetts Program Administrators (PAs) and Energy Efficiency Advisory Council (EEAC) consultants to better understand and report the true impact of energy efficient lighting retrofits.

The goal of this study is to determine a statewide average for the heating, ventilation, and air conditioning (HVAC) impacts, quantified using interactive effects (IE) factors, to account for energy efficient lighting retrofits. To accomplish this, the study developed simulation models based on a combination of Home Energy Services (HES) and High-Efficiency Heating Equipment (HEHE) program data. The models were calibrated to actual customer billing data from the HES Realization Rate analysis in 2013[1] for an electric and non-electrically heated home. Table 1 details the preliminary findings from the analysis.

Table 1: Average IE Factor in Massachusetts

Electric Energy IE Factor 1.02
Electric Demand IE Factor - Winter 0.93
Electric Demand IE Factor - Summer 1.28
Heating Fuel IE Factor (Btu/kWh) 2,237

Programs to which the Results of the Study Apply: Residential Lighting.

Evaluation Recommendations and Program Administrator Response: The evaluation study does not include recommendations beyond the results.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study:
N/A

Savings Impact: The study will affect the savings with the seasonal interactive effects factors

Study name: Retrofit Lighting Controls Measures Summary of Findings: Final Report

Type of Study: impact
Evaluation Conducted by: DNV-GL
Date Evaluation Conducted: 2014

Evaluation Objective and High Level Findings:
The results of this research include the following core objectives:

- Discover why program savings for the retrofit lighting controls market dropped off to about half its size between 2010 and 2011, and whether the program can reverse this decline
- Determine what kind of impact evaluation to conduct for Large C&I Retrofit Lighting Controls installations under MA-Large Commercial and Industrial Evaluation Contract (LCIEC) -study 22. The previous plan of an innovative pre-post metering study may prove either appropriate or overly ambitious, depending on the expected future growth or decline of the measure savings;
- Make recommendations for changes to future lighting controls measures to account for new market conditions, including how to track savings consistently. These recommendations may include new technologies and market segments to target, old technologies and market segments to leave behind, and existing technologies and market segments to reallocate resources to, and;
- Make recommendations for adjustments to savings estimation methods currently in use in the Massachusetts Technical Resource Manual (TRM).

The Study found that lighting control savings have declined over time, but could not conclude whether this trend reflects a market shift, a slowdown in the large C&I sector, changes in program planning, or other factors. However, the study did make some recommendations regarding program expansion, contraction and future marketing and rebate opportunities, involving high potential technologies and sectors.

The study also recommended updated coincidence factors for occupancy sensors and changing the savings calculation algorithm in the TRM to a percent savings method.

Programs to which the Results of the Study Apply: Commercial Retrofit.

Evaluation Recommendations and Program Administrator Response: National Grid has adopted the change to the savings algorithm and the updated coincidence factors. We continue to monitor and respond to the evolving lighting controls market and note the other recommendations with interest.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study: N/A

Savings Impact: The coincidence factors will impact the demand savings calculation from occupancy sensors.

Study name: Rhode Island Small Business Energy Efficiency Program Prescriptive Lighitng Study: Final Report

Type of Study: Impact
Evaluation Conducted by: DNV-GL
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings;
National Grid Rhode Island commissioned a study to evaluate the prescriptive lighting (without controls) installed through their 2013 Small Business Energy Efficiency (SBS) Program. The main objectives of this study were to provide summer and winter coincidence factors, connected demand (kW), energy (kWh), annual hours of use (HOU) realization rates, percent on-peak energy savings, and summer and winter demand and energy HVAC interactive effects factors. These results are based on on-site measurement and verification (M&V) performed at a statistically selected sample of 30 sites.

Table 4 summarizes the savings factors resulting from our analysis. All relative precisions were calculated at the 80% confidence level. The connected kW realization rate was 97.8%, with a relative precision of ±1.6%. The on-peak summer coincidence factor was 29.9%, with a relative precision of ±27.0%. The on-peak winter coincidence factor was 64.9%, with a relative precision of ±13.8%. The table also provides savings factors for on-peak summer and winter kW HVAC interactive effects, connected kWh realization rate, kWh HVAC interactive effect, hours of use realization rate and percent on-peak kWh. The heating HVAC interactive effect is lower than we typically see in small business evaluations due to the relatively large proportion of exterior lighting installations. Installations of this nature impact both the electric and non-electric interaction; as well as the summer coincidence factor.

Savings Factors and Realization Rates at 80% Confidence	Value	Precision
kW Factors		
Connected kW Realization Rate	97.8%	±1.6%
Summer Coincidence Factor	29.9%	±27.0%
Winter Coincidence Factor	64.9%	±13.8%
Summer kW HVAC Interactive Effect	111.5%	±5.4%
Winter kW HVAC Interactive Effect	99.4%	±0.8%
kWh Factors		
Connected kWh Realization Rate	98.7%	±0.9%
kWh HVAC Interactive Effect	102.0%	±8.5%
Hours of Use Realization Rate	96.3%	±10.7%
% On-Peak KWh	44.0%	[3]
Non-Electric		
Heating HVAC Interactive Effect (MMBtu/kWh)	-0.000526	

In addition to these results, DNV-GL recommend that National Grid consider including HVAC interaction in their tracking system savings estimates. While it was a relatively minor adjustment in this evaluation, interaction may become more influential on program savings should future program installations shift away from exterior fixtures and toward interior fixtures. The study

did not make any recommendations to its tracking methods to match supporting project documentation or project information.

Programs to which the Results of the Study Apply: Small Business Direct Install

Evaluation Recommendations and Program Administrator Response: National Grid will consider the recommendation about interactive effects.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study: N/A

Savings Impact: The updated impact factors will impact savings.

Study name: Massachusetts 2013 Prescriptive Gas Impact Evaluation Steam Trap Evaluation Phase 1: DRAFT

Type of Study: Impact
Evaluation Conducted by: DNV-GL
Date Evaluation Conducted: 2015

Evaluation Objective and High Level Findings:
Savings associated with the steam trap measure, which exists in both the custom and prescriptive gas programs in Massachusetts, has been steadily increasing for three years, and the overall gas savings potential for customers is significant.

The primary focus of the research was to identify the best available deemed savings calculation methods and measure lifetime assumptions; however, the study also used the opportunity to solicit general feedback on program delivery and other factors. Since steam trap lifetime references are not well established in the literature, we supplemented our literature review with information solicited directly from steam trap vendors/manufacturers, and investigated the existence of Massachusetts gas customer facility records that could: 1) provide historical documentation of steam trap replacement, and 2) directly support steam trap measure lifetime conclusions.

The study recommended continuing providing two steam trap programs: prescriptive and custom and to Increase measure lifetime from three to six years

The study also recommended

- Convene a steam trap stakeholder group to coordinate adoption of a standardized savings algorithm
- Develop a new prescriptive steam trap deemed savings value
- Leverage the steam trap stakeholder group to identify approaches to increase program participation and savings

Programs to which the Results of the Study Apply: Commercial gas programs

Evaluation Recommendations and Program Administrator Response: The Company will adopt the measure life recommendation. As this was a Massachusetts study, the Company will monitor how its Massachusetts affiliate responds to these recommendations.

Explain Whether or Not National Grid Decided to Adopt Recommendations from the Study:
N/A

Savings Impact: The updated measure life will affect lifetime savings and benefits, but not annual savings.

ATTACHMENT 4

Total Resource Cost Test Description

Introduction

This section has been prepared pursuant to Section 1.2(A)(ii) of the Least Cost Procurement Standards (Standards) for the procurement of energy efficiency resources, approved by the Rhode Island PUC in Docket 4443. Much of the material in this section was presented during the Technical Session on May 8, 2014.

Although this Attachment is being included in the 2016 EEPP, it is the intent of National Grid that the Total Resource Cost (TRC) test as described here will be in place until the next review of the Standards in advance of the 2018-2020 Least Cost Procurement Plan. The component values may be updated over the course of the three year period based on the availability of new study results. The source for many of the avoided cost value components is "Avoided Energy Supply Costs in New England: 2015 Report," (2015 AESC Study) prepared by Tabors Caramanis and Rudkevich (TCR) for the Avoided Energy Supply Component Study Group, April 2015.[1] This report was sponsored by all the electric and gas efficiency program administrators in New England and is designed to be used for cost effectiveness screening in 2016 through 2018.

As specified in the Standards,

a. The Utility shall assess measure, program and portfolio cost-effectiveness according to the TRC test. The Utility shall, after consultation with the Council, propose the specific benefits and costs to be reported and factors to be included in the Rhode Island TRC test and include them in the EE Procurement Plan. These benefits may include resource impacts and non-energy impacts. The accrual of non-energy impacts to only specific programs or technologies, such as income-eligible programs or combined heat and power, may be considered.
b. That test shall include the costs of CO2 mitigation as they are imposed and are projected to be imposed by the Regional Greenhouse Gas Initiative. The test shall also include any other utility system costs associated with reasonably anticipated future greenhouse gas reduction requirements at the state, regional, or federal level for both electric and gas programs. A comparable benefit for greenhouse gas reduction resulting from natural gas or delivered fuel energy efficiency or displacement may be considered.
c. Benefits and costs that are projected to occur over the term of each EE Program Plan shall be stated in present value terms in the TRC test calculation, using a

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discount rate that appropriately reflects the risks of the investment of customer funds in energy efficiency; in other words, a low-risk discount rate which would indicate that energy efficiency is a low-risk resource in terms of cost of capital risk, project risk, and portfolio risk. The discount rate shall be reviewed and updated for each EE Program Plan, as appropriate, to ensure that the applied discount rate is based on the most recent information available.

The Total Resource Cost Test Overview

The TRC Test compares the present value of a stream of **net benefits** associated with the **net savings** of an energy efficiency measure or program **over the life** of that measure or program to the total costs necessary to implement the measure or program. The term "resource" focuses this test on the benefits and costs associated with the procurement, or acquisition, of a resource, in this case, energy efficiency. The TRC Test may be applied to any energy efficiency program independent of the primary fuel or resource the effort focuses on.

The TRC test captures the value created by efficiency measures installed in a particular program year over the useful life of the measure. The measure life is based on the technical life of the measure modified to reflect expected measure persistence. Because the TRC test captures the value associated with a stream of benefits over a period of time, the benefits from a measure are present valued so that costs and benefits may be compared.

The benefits calculated in the TRC Test are the avoided resource supply and delivery costs, valued at marginal cost for the periods when there is a load reduction, as well as the monetized value of non-resource savings.

The program costs are those paid by both the utility and by participants plus the increase in supply costs for any period when load is increased. All equipment, installation, O&M, removal, evaluation and administration costs are included.

All savings included in the value calculations are net savings. The expected net savings are typically an engineering estimate of savings modified to reflect the actual realization of savings based on evaluation studies. The expected net savings also reflect market effects due to the program. The TRC test captures the combined effects of a program on both the participating customers and those not participating in a program. From a resource acquisition perspective, if the program induces participants or non-participants to acquire energy efficiency devices without program expenditures, these effects—known as spillover—should be attributed as program benefits in the TRC Test. The costs

incurred by customers to acquire equipment on their own are also counted as costs in the TRC Test.

On the other hand, if a customer accepts program funds to implement an energy efficiency measure they would have done anyway, the savings associated with this practice is known as "free ridership." From the perspective of resource acquisition through utility programs, it is important to distinguish whether the customer would have implemented the efficiency measure without the program. Therefore, savings associated with free-ridership are deducted from program savings.[2]
The benefits and costs considered in Rhode Island are detailed in the next section.

Description of Program Benefits and Costs

The following benefits and costs are included in the TRC test. They are listed here with details after.

1) Electric Energy Benefits
2) Electric Generation Capacity Benefits
3) Electric Transmission Capacity and Distribution Capacity Benefits
4) Natural Gas Benefits
5) Fuel Benefits (including the value of delivered fuel savings from programs that influence delivered fuel consumption)
6) Water and Sewer Benefits
7) Non-Energy impacts
8) Price Effects
9) Combined Heat and Power Benefits
10) Utility Costs
11) Participant Costs

All of the benefits are monetized benefits directly associated with the installation of electricity or natural gas efficiency projects. There are additional effects of energy efficiency felt outside the actual project itself, and not included in the valuation of the project. These are called externalities, or non-embedded values. Per the standards, externalities are not included in the calculation of benefits in the TRC test.

1) Electric Energy Benefits.

[2] Both free-ridership and spillover have been determined from surveys of program participants, non-participants, and other market actors

Avoided electric energy costs are appropriate benefits for inclusion in the TRC Test. When consumers do not have to purchase electric energy because of their investment in energy efficiency, an avoided resource benefit is created.

Electric energy savings are valued using the avoided electric energy costs developed in the 2015 AESC Study, Appendix B[3]. The values in the AESC Study represent wholesale electric energy commodity costs that are avoided when generators produce less electricity because of energy efficiency.[4] They include pool transmission losses incurred from the generator to the point of delivery to the distribution companies, the costs of renewable energy credits borne by generators, and a wholesale risk premium that captures market risk factors typically recovered by generators in their pricing. The avoided energy costs also internalize the expected cost of complying with current or reasonably anticipated future regional or federal greenhouse gas reduction requirements which are borne by generators and passed through in wholesale costs.

The avoided energy costs in the 2015 AESC Study are provided in four different costing periods consistent with ISO-NE definitions. Net energy savings are split up into these periods in the value calculation. The time periods are defined as follows:

- Winter Peak: October – May, 7:00 a.m. – 11:00 p.m., weekdays excluding holidays.
- Winter Off-Peak: October – May; 11:00 p.m. – 7:00 a.m., weekdays. Also including all weekends and ISO defined holidays.
- Summer Peak: June – September, 7:00 a.m. – 11:00 p.m., weekdays excluding holidays.
- Summer Off-Peak: June – September; 11:00 p.m. – 7:00 a.m., weekdays. Also including all weekends and ISO defined holidays.

In the benefits calculation, energy savings are grossed up using factors that represent transmission and distribution losses because a reduction in energy use at the customer means that amount of energy does not have to be generated, plus the extra generation that is needed to cover the losses that occur in the delivery of that energy is not needed.

Net energy savings for a program (or measures aggregated within a program) are allocated to each one of these time periods and multiplied by the appropriate avoided

[3] The values for Rhode Island have also been included as Table E-9 in Appendix 5

[4] Avoided costs may be viewed as a proxy for market costs. However, avoided costs may be different from wholesale market spot costs because avoided costs are based on simulation of market conditions, as opposed to real-time conditions. They may be different from standard offer commodity costs because of time lags and differing opinions on certain key assumptions, such as short term fuel costs.

energy value.[5] The dollar benefits are then grossed up using the appropriate loss factors representing losses from the ISO delivery point to the end use customer.

- Summer Peak Energy Benefit ($) = kWh * $Energy\%_{SummerPk}$ * $SummerPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{SumPk\text{-}kWh}$)
- Summer OffPeak Energy Benefit ($) = kWh * $Energy\%_{SummerOffPk}$ * $SummerOffPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{SummerOffPk\text{-}kWh}$)
- Winter Peak Energy Benefit ($) = kWh * $Energy\%_{WinterPk}$ * $WinterPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{WinterPk\text{-}kWh}$)
- Winter OffPeak Energy Benefit ($) = kWh * $Energy\%_{WinterOffPk}$ * $WinterOffPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{WinterOffPk\text{-}kWh}$)

2) Electric Generation Capacity Benefits.

Avoided electric generation capacity values are appropriate for inclusion in the TRC Test. When generators do not have to build new generation facilities or when construction can be deferred because of consumers' investments in energy efficiency, an avoided resource benefit is created. In the New England capacity market, capacity benefits accrue because demand reduction reduces ISO-NE's installed capacity requirement. The capacity requirement is based on load's contribution to the system peak, which, for ISO-NE, is the summer peak. Therefore, capacity benefits accrue only from summer peak demand reduction; there is currently no winter generation capacity benefit.

Demand savings created through program efforts are valued using the avoided capacity values from the 2015 AESC Study, Appendix B[6]. The values contained in the study reflect the avoided cost of peaking capacity, and incorporate a reserve margin and losses incurred from the generator to the point of delivery to the distribution companies. ISO-New England reserve margins are incorporated into the capacity values, since energy efficiency avoids the back-up reserves for that generation as well as the generation itself. A loss factor representing losses from the ISO delivery point to the end-use customer is used as a multiplier, since those losses are not included in the avoided costs. Demand savings are calculated to be coincident with the ISO-NE definition of peak.

[5] The notation "@Life" in the equation for value for this and other value components is an indication that the avoided value component for each benefit (e.g., electric energy, capacity, natural gas, etc.) is the cumulative net present value (in 2016 dollars) of avoided costs for each year of the planning horizon from the base year over the life of the measure. For example, the avoided value component for a measure with an expected life of ten years for any given benefit component is the sum of the net present value of the annual avoided costs for that component in Year 1, Year 2, Year 3, etc., through Year 10.

[6] The values for Rhode Island have also been included as Table E-9 in Appendix 5

The dollar value of benefits are therefore calculated as

- Generation Capacity Benefit($) = kW_{Summer}*GenerationCapValue$/$kW_{(@Life)}$ * (1 + $\%Losses_{SummerkW}$)

3) Electric Transmission Capacity and Distribution Capacity Benefits.

Avoided transmission and distribution capacity values are appropriate for inclusion in the TRC test. When transmission and distribution facilities do not have to be built or can be deferred because of lower loads as a result of consumers' investments in energy efficiency, an avoided resource benefit is created.

Electric transmission capacity and distribution capacity benefits are valued in the TRC test using avoided transmission and distribution capacity values calculated in a spreadsheet tool that was developed in 2005 by ICF International, Inc., the consultant that performed the biennial avoided cost study for New England's energy efficiency program administrators in that year. The tool calculates an annualized value of statewide avoided transmission and distribution capacity values from company-specific inputs of historic and projected capital expenditures and loads, as well as a carrying charge calculated from applicable tax rates and Federal Energy Regulatory Commission (FERC) Form 1 accounting data.

Capacity loss factors are applied to the avoided T&D capacity costs to account for local transmission and distribution losses from the point of delivery to the distribution company's system to the ultimate customer's facility. Thus, losses will be accounted for from the generator to the end use customer.

T&D benefits could be allocated to summer and winter periods, depending on the relation between summer and winter peaks on the local system. However, the Company's system is summer peaking. Therefore, the T&D benefits will be exclusively associated with summer demand reduction and the dollar value will be calculated as follows:

- Transmission Benefit ($) = ($kW_{Summer}$ * Trans$/$kW_{(@Life)}$ * [1 + ($Losses_{SumkWTrans}$)]
- Distribution Benefit ($) = ($kW_{Summer}$ * Dist$/kWLife_{(@Life)}$ * [1 + ($Losses_{SumkWDist}$)]

4) Natural Gas Benefits

Avoided natural gas consumption is appropriate for inclusion in the TRC Test. When a project in which consumers have invested saves natural gas, an avoided resource benefit is created.

Natural gas benefits in the TRC Test will be valued using avoided natural gas values from the 2015 AESC Study, Appendix C[7]. These costs include commodity, transportation, and retail delivery charges that would be avoided by fuels not consumed by end users. In addition, the costs associated with future anticipated federal CO2 regulations may be avoided by natural gas energy efficiency. Estimates of this value, in $/MMbtu, were obtained from Exhibit 4-14 in the 2015 AESC Study In consultation with the Collaborative, the Company developed a methodology to add the greenhouse gas reduction benefit from reductions in natural gas usage resulting from the Company's energy efficiency programs.

The AESC Study Report presents avoided natural gas value components into end-use categories to match with individual program characteristics. The natural gas categories are:

- Commercial and industrial, non-heating. This assumes savings are constant throughout the year and averages monthly natural gas values over 12 months.
- Commercial and industrial, heating. Averages the monthly values for the months of November through March.
- Residential heating. Averages the monthly values for the months of November through March. As these months have the highest natural gas values, by averaging over a fewer number of months, natural gas savings in this category typically have the highest value.
- Domestic hot water. This assumes savings are constant throughout the year and averages monthly natural gas values over 12 months.

Using each of these end-use value components, the dollar value of fuel benefits is calculated as:

- Natural Gas Benefits ($) = MMBtu Gas Savings * (Gas$/MMBTU$_{(EndUseCategory,@Life)}$ +Greenhouse Gas $/MMBTU$_{(@Life)}$)

5) Delivered Fuel Benefits

Avoided delivered fuel costs (natural gas, propane, or fuel oil) are appropriate for inclusion in the TRC Test. When a project in which consumers have invested saves fuel an avoided resource benefit is created.

Fuel benefits in the TRC Test are valued using avoided fuel values from the 2015 AESC Study, Appendix D. The fuel oil categories are Residential #2, Commercial #2, Commercial #4, and Commercial and Industrial #6.

[7] The values for Rhode Island have also been included as Table G-9 in Appendix 5

Using each of these end-use value components, the dollar value of fuel benefits is calculated as:

- Fuel Benefits ($) = MMBTU_Fuel Savings * Fuel$/MMBTU$_{(EndUseCategory,@Life)}$

6) Water and Sewer Benefits

Water savings created from program efforts should be valued and included in the TRC Test. Water savings can be valued using avoided water and sewer values that are based on average water and sewer rates in Rhode Island. While there are no specific water efficiency measures, when a project in which consumers have invested to save electricity or fuel also affects water consumption—for example, a cooling tower project that reduces makeup water needed—a resource benefit is created. Depending on the project and metering configuration, changes in water consumption may also affect sewerage billings.

Water and sewerage rates were determined from an August 2014 internet survey of rates posted by the City of Providence[8] and the Narragansett Bay Commission[9].

Water and sewer benefits are counted for all projects, where appropriate, and calculated as follows:

- Water and Sewerage Benefits ($) = Water and/or Sewerage Savings * Water and/or Sewer $/Gal$_{(@Life)}$

7) Non-Energy Impacts

Other quantifiable non-resource or non-energy impacts may be created as a direct result of Least Cost Procurement efforts and, are therefore appropriate for inclusion in the TRC Test. Non-energy impacts are typically associated with the number of measures installed, rather than the energy consumption of the equipment. They may be positive or negative. They may be one time benefits or recur annually. These effects will be included when they are a direct result of the measure and when they are quantifiable and avoidable.

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[8] Water Rates." Providence Water Supply Board. 2014.

<http://www.provwater.com/depts/cs/billrates.htm>

[9] "Rates." Narragansett Bay Commission. 2014.

<http://www.narrabay.com/en/Customer%20Service/Rates.aspx>

The specific values of non-energy impacts used in the 2016 EEPP for prescriptive measures are documented in the 2016 RI Technical Reference Manual. Non-energy impacts may include – but are not limited to – labor, material, facility use, health and safety, materials handling, property values, and transportation. For low income measures, non-energy impacts also include the impacts of having lower energy bills to pay, such as reduced arrearages or avoided utility shut off costs. Non-energy impacts for Commercial and Industrial custom measures are counted when supported by site specific engineering calculations or other analyses.

The dollar value of non-resource benefits will be calculated as follows

- One-time Non-energy impacts ($) = Non-energy impact ($)/unit * Number of units
- Annual Non-energy impacts ($) = Non-energy impact ($)/unit * Number of units * Present Worth Factor$_{(@Life)}$

8) Price Effects

The Demand-Reduction-Induced Price Effect (DRIPE) is the reduction in prices in energy and capacity markets resulting from the reduction in need for energy and/or capacity due to efficiency and/or demand response programs. Consumers' investments in energy efficiency avoid both marginal energy production and capital investments, but also lead to structural changes in the market due to lower demand. Over a period of time, the market adjusts to lower demand, but until that time the reduced demand leads to a reduction in the market price of electricity. This is the observed in the New England market when ISO-New England activates its price response programs. When this price effect is a result of consumers' investments in energy efficiency, it is appropriate to include it in the TRC Test.

DRIPE effects are very small when expressed in terms of an impact on market prices, i.e., reductions of a fraction of a percent. However, the DRIPE impacts are significant when expressed in absolute dollar terms over all the kWh transacted in the market. Very small impacts on market prices, when applied to all energy and capacity being purchased in the market, translate into large absolute dollar amounts.

DRIPE values developed for energy efficiency installations in 2016 from the 2015 AESC Study are used in the TRC test. The price effects are expressed as $/kWh for each of the four energy costing periods, $/kW for capacity, and $/MMBtu for natural gas. In addition, there are cross fuel effects that are counted for when natural gas energy efficiency affects the price of electricity. For example, homes and generators compete for natural gas in winter. Scarcity of natural gas for generation may drive up the cost of electricity. Therefore, reduction in natural gas consumption due to energy efficiency

may cause a price effect for electricity. (Even though the price effect is in electricity, that DRIPE benefit is converted to $/MMBtu so that it can be attributed to the gas savings that create the effect.) The DRIPE benefit is calculated as

- Summer Peak Energy DRIPE Benefit ($) = kWh * $Energy\%_{SumPk}$ * ($SummerPkDRIPE\$/kWh_{(@Life}$+$ElectricGasDRIPE\$/kWh_{)}$ * (1 + $\%Losses_{SummerPk\text{-}kWh}$)
- Summer OffPeak Energy DRIPE Benefit ($) = kWh * $Energy\%_{SumOffPk}$ * ($SumOffPkDRIPE\$/kWh_{(@Life}$ +$ElectricGasDRIPE\$/kWh_{)}$ * (1 + $\%Losses_{SummerOffPk\text{-}kWh}$)
- Winter Peak Energy DRIPE Benefit ($) = kWh * $Energy\%_{WinterPk}$ * ($WinterPkDRIPE\$/kWh_{(@Life}$+$ElectricGasDRIPE\$/kWh_{)}$ * (1 + $\%Losses_{WinterPk\text{-}kWh}$)
- Winter OffPeak Energy DRIPE Benefit ($) = kWh * $Energy\%_{WinOffPk}$ * ($WinterOffPkDRIPE\$/kWh_{(@Life}$+$ElectricGasDRIPE\$/kWh_{)}$ * (1 + $\%Losses_{WinterOffPk\text{-}kWh}$)
- Generation Capacity DRIPE Benefit($) = kW_{Summer} * $CapDRIPEValue\$/kW_{(@Life)}$ * (1 + $\%Losses_{SummerkW}$)
- Natural Gas DRIPE Benefit ($) = MMBTU_Fuel Savings * ($GasDRIPEValue\$/MMBTU_{(@Life)}$ +GasElectricDRIPE$/MMBtu)

9) CHP Benefits

R.I.Gen.Laws §39-1-27.7(c) (6) (iii) directs the Company to support the development of combined heat and power (CHP). In addition, the law requires that the following criteria be factored into the Company's CHP plan: (i) economic development benefits in Rhode Island; (ii) energy and cost savings for customers; (iii) energy supply costs; (iv) greenhouse gas emissions standards and air quality benefits; and (v) system reliability benefits. [10] Of these, energy and cost savings and energy supply costs are captured in the energy benefits described above. The other three benefits – economic development, greenhouse gas, and system reliability benefits – are described here.

Economic Development

For all CHP projects, net economic development benefits will be counted as benefits. The rate of economic development benefit will be $2.73 of lifetime gross state product increase per dollar of program investment, based on the report, "Macroeconomic Impacts of Rhode Island Energy Efficiency Investments: REMI Analysis of National Grid's Energy Efficiency Programs, prepare by National Grid in August 2014, as an update to the 2009 study "Energy Efficiency in Rhode Island: Engine of Economic Growth,"

[10] See R.I. Gen.Laws § 39-1-27.7(c) (6) (iii).

prepared by Environment Northeast[11]. The $2.73 multiplier reflects the present value of lifetime gross state product effects. Therefore, the CHP Economic Development benefits will be calculated as

- Incentive payment($) x $2.73

Greenhouse gas reduction benefits

For all CHP projects, greenhouse gas mitigation and air quality benefits will be counted as benefits to the extent they are not already captured in the BCR screening values and to the extent that usable emissions data is available. The emissions profile of the CHP site facility prior to the installation of the retrofit (most likely a combination of grid supplied generation for electricity and an on-site boiler for thermal needs) will be compared to the emissions post-retrofit (most likely the CHP unit alone). The change in emissions in tons will be multiplied by a value of $/ton for each pollutant and the values will be summed over all pollutants and counted as a benefit in the benefit/cost calculation. This method is contingent on having emissions data for all pollutants. This information is often difficult to come by; for example, ISO-New England annually publishes emissions per kWh for only SOx, NOx, and CO2. Similarly, the amount of emissions for all pollutants associated with a particular CHP unit is not always provided.

When the change in the mount of pollutants has been identified, the environmental/emissions related health costs and benefits will be estimated using methods that connects emissions to monetary damages and are accepted nationally, such as the Co-benefits Risk Assessment (COBRA) Screening Model presented by the U.S. EPA or AP2[12]. The following table, updated for this plan, illustrates the benefits on a per ton basis resulting from the mitigation of several pollutants in Rhode Island from an analysis[13] using a predecessor to the AP2 model, which is an integrated analysis through six modules: emissions, air quality modeling, concentrations, exposures, physical effects, and valuation.

Statewide Health Benefits from One Ton

[11] The report does not differentiate between job creation and job retention benefits. The Company will attempt to assess whether these benefits can be disaggregated for the purposes of inclusion in the benefit cost test.

[12] Muller, N.Z. 2011. Linking Policy to Statistical Uncertainty in Air Pollution Damages. The B.E. Press Journal of Economic Analysis and Policy. Vol. 11(1), Contributions, Article 32.

[13] "Weighing the Value of a Ton of Pollution," Nicholas Z. Muller and Robert Mendelsohn, Cato Institute, http://object.cato.org/sites/cato.org/files/serials/files/regulation/2010/6/regv33n2-5.pdf, accessed 8/20/2015. This article presents national median values for the listed pollutants as a result of an analysis of 60,000 simulation runs. Graphical presentation allows for the identification of values for RI for fine particulate matter and SOx. For the other pollutants, the median value is used, although the value for Rhode Island is higher than the median for FPM and SOx.

Reduction of Each Pollutant in Indicated

Pollutant	VOC	NH3	NOx	SO2	Fine PM	Coarse PM
$Value/ ton	$204	$1,019	$283	$1,981	$7,076	$192

Value from mitigation of CO2 under enacted legislation in Rhode Island is already embedded in avoided energy costs in benefit-cost analysis.

System Reliability

If a CHP project is proposed in a system reliability target area, the system reliability benefits from deferring a distribution system upgrade would be captured in the System Reliability Procurement report. In the context of CHP located elsewhere in the state, system reliability benefits are the local distribution benefits created by the introduction of the CHP unit in the local area. Notably, CHP projects do not produce the same level of deferred distribution investment savings described in Section (3) above as traditional energy efficiency.[14] Accordingly, the distribution benefits are modified as follows

- For CHP systems of less than 1 MW net capacity, the distribution deferral benefit value estimated by the Company based on system wide averages will be multiplied by 0.75 to incorporate an estimate of the reliability experience of discrete deployment of CHP units compared with end-use reduction efficiency measures which are spread across the state;[15]
- For CHP systems equal to or greater than 1 MW net capacity, the distribution benefit will consider location-specific distribution benefits, as opposed to average system-wide benefits. The results of this analysis will replace the adjusted 0.75 of average system-wide distribution benefit described for CHP

[14] With traditional energy efficiency projects, the installed measures permanently reduce load on the electric distribution system and, therefore, reduce the need to make distribution investments. CHP projects may not result in similar deferred distribution investment savings. A CHP unit may not be available at all peak times, and, absent any contractual or mechanical modification to ensure that the load does not reappear, the Company will still need to design and maintain the distribution system for when that unit goes off line during a peak hour on a peak day. This is particularly significant with larger CHP projects, in which a single host customer represents a significant percentage of the total load on a feeder. With multiple smaller units, some level of savings is possible, but these units are still not likely to produce distribution benefits in the same manner as traditional energy efficiency.

[15] As explained in footnote 12, *supra*, while multiple small CHP units may produce some level of savings, these units are still not likely to produce distribution benefits in the same manner as traditional energy efficiency. Therefore, the 0.75 factor is adopted as a planning assumption to represent the contingency that, when a single CHP unit on a feeder fails to perform, the load reappears on the system. As more CHP units, particularly smaller units, are deployed in the state, the diversity of operation may allow the adjustment factor to be increased. The Company intends to review this planning assumption based on actual experience for future EE Program Plan filings.

projects of less than 1 MW. This may entail a detailed engineering analysis performed by the Company, and additional costs. This consideration will have two parts: 1) identification of foreseeable investments that the CHP installation could potentially help defer, and their value; and 2) whether the unit will be sufficiently reliable, or firmed through the provision of physical assurance by the customer, to enable such savings to be realized

- For CHP projects greater of 1 net MW or greater, gas system benefits not paid out as incentives to the Customer via the AGT incentive or gas service contract terms will be counted as benefits.[16]

11) Utility Costs

Utility costs incurred to achieve implementation of energy efficiency measures and programs are appropriate for inclusion in the TRC Test. These costs have been categorized as follows:

- Program Planning and Administration (PP&A): These costs are the administrative costs associated with the utility role in program delivery, including payroll, information technology, contract administration, and overhead expenses.
- Sales, training of program delivery personnel and technical assistance.
- Marketing: These are the costs of marketing and advertising to promote a program. The costs also include the payroll and expenses to manage marketing.
- Rebates and Other Customer Incentives: These are the incentives from the programs to customers to move them to install energy efficient equipment. Incentives include, but are not limited to, rebates to customers, copayments to vendors for direct installation of measures, payments to distributors to buy down the cost of their products for sale in retail stores, payments to vendors to create and deliver information, the cost of an education course, or payments to lenders to buy down the interest in a loan. Customer incentives typically cover a portion of the equipment and installation costs directly associated with the energy efficient equipment being installed.[17] For a retrofit project, the customer incentives cover a portion of the full cost of the efficiency project, as it is assumed that the alternative to the project is no

[16] For example, a 3 MW installation with an additional sales volume of approximately 150,000 Dth per year would generate approximately $130,000 of marginal revenue per year under current rates. Assuming $100,000 of capital costs, the project could qualify for up to $573,000 in AGT funding, subject to budget limitations.

[17] The full cost of the efficiency project is not necessarily the same thing as the full cost of the project being undertaken by the customer. For example, a customer may be renovating an HVAC system including installation of a new chiller and chilled water distribution. While the new distribution system may be part of the construction project, if it does not contribute to energy savings, it will not be included in the efficiency project cost; only the incremental cost of the new efficient chiller will be considered.

customer action. For a failed equipment replacement/renovation/new construction project, these customer incentives cover a portion of the incremental additional costs associated with moving to a higher efficiency item or practice compared to what the customer would have done otherwise.

- Sales, Technical Assistance and Training (STAT): These costs include the training and education of the trade ally community regarding the company's current energy efficiency programs. Examples of trade allies include but are not limited to: equipment vendors, heating contractors, lead vendors, project expediters, weatherization contractors, and equipment installers. These costs also include the tasks associated with internal and contractual delivery of programs. Tasks associated with this budget category include but are not limited to: lead intake, customer service, rebate application, quality assurance, technical assessments, engineering studies, plan reviews, payroll and expenses.
- Evaluation. These are the costs of evaluation or market research studies to support program direction and post-installation studies to study program effectiveness or verification of savings estimates. These costs also include the payroll and expenses to manage the research.
- Shareholder Incentive. This is the incentive received by the Company for meeting specified savings goals and/or performance targets; because the Company would not implement energy efficiency programs to the extent it does without the incentive, the shareholder incentive is included in the cost of energy efficiency.

13) Customer Costs

The customer's costs include their contribution to the installation cost of the efficient measure. Typically, this is the portion of the equipment and installation cost not covered by the customer incentive. As noted above, it excludes the cost of equipment that might be part of the customer's construction project, but that is not related to the energy efficiency portion of the project.

Benefit/Cost Calculations

The cost effectiveness of a measure, program, or portfolio is simply the ratio of the net present value of the benefits to the net present value of the costs.

For the 2016 EE Program Plan, all costs and benefits will be expressed in constant 2016 dollars. Where escalation of avoided costs or costs is needed to produce values in 2016 dollars, appropriate inflation rates are used.

The avoided value component for each benefit (e.g., electric energy, capacity, natural gas, etc.) is the cumulative net present value (in 2016 dollars) of lifetime avoided costs for each year of the planning horizon from the base year up to the measure life of the equipment. Since all of the future year values are in constant 2016 dollars, lifetime benefits thus calculated are discounted back to mid-2016 using a real discount rate equal to [(1 + Nominal Discount Rate) / (1 + Inflation)] - 1.

As prescribed by the Standards, all values in the Plan and the benefit-cost model are stated in present value terms, "using a discount rate that appropriately reflects the risks of the investment of customer funds in energy efficiency; in other words, a low-risk discount rate which would indicate that energy efficiency is a low-risk resource in terms of cost of capital risk, project risk, and portfolio risk". Specifically for the 2016 Plan, the Company used a real discount rate of 0.44% equal to the twelve-month average of the historic yields from a twenty-year United States Treasury note, using the 2014 calendar year to determine the twelve-month average.

The total benefits will equal the sum of the NPV of each benefit component:

[Energy Benefits + Generation Capacity Benefits + Avoided T&D Benefits + Natural Gas Benefits + Fuel Benefits + Water & Sewer Benefits + Non-Resource Benefits + Price Effects Benefits]

The total costs will equal the sum of the NPV of each cost component:

[Program Planning and Administration + Sales, Training, Technical assistance + Marketing + Rebates and Other Customer Incentives + Evaluation + Shareholder incentive]

The TRC benefit/cost will then equal:

Total NPV Benefits/Total NPV Costs

Per the Standards, on a program level, all benefit categories are included in the benefit/cost calculation. All cost categories, except the shareholder incentive, are included at the program level because they are tracked at that level.[18]

On a sector level, the cost of pilots and educational/outreach programs which are not focused on producing savings and the projected shareholder incentive, are included with the other costs in the determination of cost effectiveness. The shareholder

[18] Commitments, if any, of customer incentives made from one year to the next are excluded from the program costs used in the benefit/cost calculation. The costs are only counted in the year in which the incentive is paid and the savings are counted.

incentive is included at this level because it is designed to achieve savings targets by sector. At a portfolio level, the allocations to the Office of Energy Resources and EERMC are also included in the cost effectiveness calculation.

Separate calculations of benefits and cost-effectiveness are provided for the electric energy efficiency programs and natural gas energy efficiency programs. Some electric energy efficiency programs are expected to produce natural gas savings in addition to electricity savings while some natural gas energy efficiency programs are expected to produce electricity savings in addition to natural gas savings. All of the resource benefits produced by a program are shown with that program. For example, an HVAC project that improves air distribution incented through the electric Large C&I Retrofit Program will produce natural gas savings when natural gas is used by the participant for heating.

ATTACHMENT 5

Table E-1
National Grid
Electric DSM Funding Sources in 2016 by Sector
$(000)

		Projections by Sector			
		Income Eligible Residential	Non-Income Eligible Residential	Commercial & Industrial	Total
(1)	**Projected Budget (from E-2):**	**$11,814.62**	**$29,845.98**	**$45,806.91**	**$87,467.51**
	Sources of Other Funding:				
(2)	Projected DSM Commitments at Year-End 2015:	$0.00	$0.00	$456.00	$456.00
(3)	Projected Year-End 2015 Fund Balance and Interest:	$0.00	($8,483.68)	$5,615.44	($2,868.24)
(4)	Projected FCM Payments from ISO-NE:	$228.30	$1,948.60	$3,159.70	$5,336.47
(5)	Projected RGGI Payments:	$153.50	$1,310.40	$2,124.80	$3,588.67
(6)	**Total Other Funding:**	**$381.80**	**($5,224.68)**	**$11,355.94**	**$6,512.90**
(7)	**Customer Funding Required:**	**$11,432.82**	**$35,070.65**	**$34,450.97**	**$80,954.60**
(8)	**Forecasted kWh Sales:**	**326,267,987**	**2,785,292,512**	**4,516,433,755**	**7,627,994,254**
(9)	Energy Efficiency Program charge per kWh, excluding uncollectible recovery:				**$0.01061**
(10)	Proposed System Reliability Factor per kWh, excluding uncollectible recovery:				$0.00003
(11)	Total Proposed Energy Efficiency Charge per kWh, excluding uncollectible recovery:				$0.01064
(12)	Currently Effective Uncollectible Rate				1.25%
(13)	**Energy Efficiency Program charge per kWh, including uncollectible recovery:**				$0.01077
(14)	Currently Effective EE Charge				$0.00953
(15)	Proposed Adjustment to Reflect Fully Reconciling Funding Mechanism				$0.00124

Notes:

(1) Projected Budget from E-2 includes OER and EERMC costs allocated to each sector based on forecasted sales and RIIB costs allocated to C&I sector.

(2) DSM Commitments are projects that are under construction with anticipated completion in 2016.

(3) Fund balance projections include projected revenue and spend through year end with Low Income sector set to $0 through projected subsidization from other sectors, minus commitments which are illustrated separately on line (3). The Non Income Eligible Fund Balance projection includes an assumption that the 2015 RGGI allocation of $1.5 million for 2015 deliverable fuel weatherizations will be paid to the Company by year end.

(4) & (5) The total projection of FCM and RGGI revenues are allocated by kWh sales to each sector.

(5) The Projected RGGI Payments are consistent with the state's 2015 allocation plan. OER has committed an additional $1.0 million for 2016 deliverable fuels weatherizations that is not included in this projection. When the allocation is received, this attachment will be updated and the parties and PUC notified. Please see the Main text and Attachment 1 for more details on deliverable fuel weatherizations in 2016.

(8) Projected street lighting and sales for resale kWh have been allocated to each sector based on the forecasted of sales in each sector excluding expected street lighting sales.

(10) Proposed System Reliability Factor is from the 2016 System Reliability Procurement Plan.

(14) Currently Effective EE Charge includes System Reliability Factor and uncollectible recovery.

Table E-2
National Grid
2016 Electric Energy Efficiency Program Budget ($000)

	Program Planning & Administration	Marketing	Rebates and Other Customer Incentives	Sales, Technical Assistance & Training	Evaluation & Market Research	Shareholder Incentive	Grand Total
Non-Income Eligible Residential							
Residential New Construction	$115.0	$23.4	$232.3	$323.8	$42.5		$736.9
ENERGY STAR® HVAC	$80.4	$100.4	$723.3	$271.4	$43.4		$1,219.0
Energy*Wise*	$355.0	$345.4	$7,727.5	$467.8	$112.0		$9,007.7
Energy*Wise* Multifamily	$106.0	$54.8	$2,398.0	$730.5	$29.8		$3,319.1
ENERGY STAR® Lighting	$303.5	$479.0	$6,233.8	$319.6	$26.1		$7,362.1
Residential Consumer Products	$103.7	$512.9	$738.5	$705.9	$24.1		$2,085.0
Home Energy Reports	$83.5	$13.8	$2,667.0	$22.1	$10.3		$2,796.7
Energy Efficiency Education Programs	$0.0	$0.0	$0.0	$40.1	$0.0		$40.1
Residential Demonstration and R&D	$14.4	$23.4	$268.9	$121.0	$60.4		$488.1
Community Based Initiatives - Residential	$10.6	$41.3	$44.2	$148.0	$40.2		$284.4
Comprehensive Marketing - Residential	$14.6	$518.0	$0.0	$1.0	$0.4		$534.0
Residential Shareholder Incentive	$0.0	$0.0	$0.0	$0.0	$0.0	$1,393.7	$1,393.7
Subtotal - Non-Income Eligible Residential	**$1,186.7**	**$2,112.5**	**$21,033.5**	**$3,151.0**	**$389.4**	**$1,393.7**	**$29,266.8**
Income Eligible Residential							
Single Family - Income Eligible Services	$328.6	$111.0	$6,489.1	$1,680.1	$47.3		$8,656.1
Income Eligible Multifamily	$99.4	$12.0	$1,938.0	$453.6	$28.4		$2,531.3
Income Eligible Shareholder Incentive	$0.0	$0.0	$0.0	$0.0	$0.0	$559.4	$559.4
Subtotal - Income Eligible Residential	**$428.0**	**$123.0**	**$8,427.1**	**$2,133.7**	**$75.6**	**$559.4**	**$11,746.8**
Commercial & Industrial							
Large Commercial New Construction	$471.1	$323.1	$3,787.0	$2,032.7	$250.2		$6,864.1
Large Commercial Retrofit	$978.6	$308.7	$16,822.5	$4,182.6	$253.1		$22,545.5
Small Business Direct Install	$502.4	$350.6	$6,625.0	$1,238.5	$29.4		$8,745.9
Community Based Initiatives - C&I	$1.7	$0.2	$10.2	$37.4	$0.0		$49.6
Commercial Demonstration and R&D	$19.0	$16.2	$156.0	$104.8	$0.2		$296.2
Finance Costs	$0.0	$0.0	$3,000.0	$0.0	$0.0		$3,000.0
Commercial & Industrial Shareholder Incentive	$0.0	$0.0	$0.0	$0.0	$0.0	$1,925.06	$1,925.1
Subtotal - Commercial & Industrial	**$1,972.6**	**$998.9**	**$30,400.7**	**$7,596.0**	**$533.1**	**$1,925.1**	**$43,426.3**
Regulatory							
OER	$793.1	$0.0	$0.0	$0.0	$0.0		$793.1
EERMC	$793.1	$0.0	$0.0	$0.0	$0.0		$793.1
RI Infrastructure Bank	$0.0	$0.0	$1,441.5	$0.0	$0.0		$1,441.5
Subtotal - Regulatory	**$1,586.2**	**$0.0**	**$1,441.5**	**$0.0**	**$0.0**	**$0.0**	**$3,027.7**
Grand Total	**$5,173.5**	**$3,234.4**	**$61,302.8**	**$12,880.7**	**$998.1**	**$3,878.1**	**$87,467.5**
Incremental System Reliability	$50.0	$90.0	$76.2	$94.9	$130.0	$0.0	$441.1

Notes:

(1) 2016 Commitments are anticipated to be $0.

(2) For more information on Finance Costs, please refer to the 2016 C&I Program Description, Attachment 2.

(3) The Small Business Revolving loan fund supports the on-bill repayment of projects. The loan fund does not require additional funds for copays in 2016. Please see table E-10.

(4) OER and EERMC total 2.0% of customers' EE Program Charge collected on Table E-1, minus 2%.

(5) Incremental System Reliability funds are included for illustrative purposes. They are part of the 2016 System Reliability Procurement Report, filed as a separate docket.

Table E-3
National Grid
Derivation of the 2016 Spending and Implementation Budgets ($000)

	Proposed 2015 Budget From E-2	Commitments, Copays and Finance Costs	Regulatory Costs	Shareholder Incentive	Eligible Sector Spending Budget for Shareholder Incentive on E-9	Implementation Expenses for Cost-Effectiveness on E-5
Non-Income Eligible Residential						
Residential New Construction	$736.9					$736.9
ENERGY STAR® HVAC	$1,219.0					$1,219.0
EnergyWise	$9,007.7					$9,007.7
EnergyWise Multifamily	$3,319.1					$3,319.1
ENERGY STAR® Lighting	$7,362.1					$7,362.1
Residential Consumer Products	$2,085.0					$2,085.0
Home Energy Reports	$2,796.7					$2,796.7
Energy Efficiency Education Programs	$40.1					$40.1
Residential Demonstration and R&D	$488.1					$488.1
Community Based Initiatives - Residential	$284.4					$284.4
Comprehensive Marketing - Residential	$534.0					$534.0
Residential Shareholder Incentive	$1,393.7			$1,393.7		$0.0
Subtotal - Non-Income Eligible Residential	**$29,266.8**	**$0.0**	**$0.0**	**$1,393.7**	**$27,873.1**	**$27,873.1**
Income Eligible Residential						
Single Family - Income Eligible Services	$8,656.1					$8,656.1
Income Eligible Multifamily	$2,531.3					$2,531.3
Income Eligible Shareholder Incentive	$559.4			$559.4		$0.0
Subtotal - Income Eligible Residential	**$11,746.8**	**$0.0**	**$0.0**	**$559.4**	**$11,187.4**	**$11,187.4**
Commercial & Industrial						
Large Commercial New Construction	$6,864.1	$0.0				$6,864.1
Large Commercial Retrofit	$22,545.5	$0.0				$22,545.5
Small Business Direct Install	$8,745.9	$0.0				$8,745.9
Community Based Initiatives - C&I	$49.6					$49.6
Commercial Demonstration and R&D	$296.2					$296.2
Finance Costs	$3,000.0	$3,000.0				$3,000.0
Commercial & Industrial Shareholder Incentive	$1,925.1			$1,925.1		$0.0
Subtotal - Commercial & Industrial	**$43,426.3**	**$3,000.0**	**$0.0**	**$1,925.1**	**$38,501.2**	**$41,501.2**
Regulatory						
OER	$793.1		$793.1			$793.1
EERMC	$793.1		$793.1			$793.1
RI Infrastructure Bank	$1,441.5		$1,441.5			$1,441.5
Subtotal - Regulatory	**$3,027.7**	**$0.0**	**$3,027.7**	**$0.0**	**$0.0**	**$3,027.7**
Grand Total	**$87,467.5**	**$3,000.0**	**$3,027.7**	**$3,878.1**	**$77,561.7**	**$83,589.4**

Notes:

(1) Finance Costs are capital costs to secure outside financing funds. Like the historical treatment of copays, outside finance costs do not directly lead to savings, therefore they are excluded from the eligible spending budget and a shareholder incentive is not collected on these funds. They are counted as an implementation expense.

(2) Spending budget = Total Budget from E-2 minus Commitments, Copays, Outside Finance Costs, Regulatory costs, and shareholder incentive.

(3) Implementation Expenses = Total Budget from E-2 minus Commitments, Copays, and shareholder incentive.

(4) System Reliability Procurement funds represent additional funds not included in the calculation of shareholder incentive and are not included in this table. They are shown on Table E-2 and E-5

Table E-4
National Grid
Proposed 2016 Budget Compared to Approved 2015 Budget ($000)

	Proposed Implementation Budget 2016	Approved Implementation Budget 2015	Difference
Non-Income Eligible Residential			
Residential New Construction	$736.9	$962.0	-$225.1
ENERGY STAR® HVAC	$1,219.0	$1,345.6	-$126.6
Energy*Wise*	$9,007.7	$8,883.7	$124.0
Energy*Wise* Multifamily	$3,319.1	$3,193.9	$125.2
ENERGY STAR® Lighting	$7,362.1	$8,660.9	-$1,298.8
Residential Consumer Products	$2,085.0	$2,297.4	-$212.4
Home Energy Reports	$2,796.7	$2,594.2	$202.6
Energy Efficiency Education Programs	$40.1	$50.0	-$9.9
Residential Demonstration and R&D	$488.1	$523.7	-$35.6
Community Based Initiatives - Residential	$284.4	$333.8	-$49.4
Comprehensive Marketing - Residential	$534.0	$635.7	-$101.7
Subtotal - Non-Income Eligible Residential	**$27,873.1**	**$29,480.7**	**-$1,607.6**
Income Eligible Residential			
Single Family - Income Eligible Services	$8,656.1	$7,820.2	$835.9
Income Eligible Multifamily	$2,531.3	$2,300.1	$231.2
Subtotal - Income Eligible Residential	**$11,187.4**	**$10,120.3**	**$1,067.1**
Commercial & Industrial			
Large Commercial New Construction	$6,864.1	$9,740.3	-$2,876.2
Large Commercial Retrofit	$22,545.5	$15,506.5	$7,039.0
Small Business Direct Install	$8,745.9	$12,000.3	-$3,254.4
Community Based Initiatives - C&I	$49.6	$76.6	-$27.0
Commercial Demonstration and R&D	$296.2	$230.3	$65.9
Comprehensive Marketing - C&I	$0.0	$192.0	-$192.0
Finance Costs	$3,000.0	$4,000.0	-$1,000.0
Subtotal Commercial & Industrial	**$41,501.2**	**$41,746.0**	**-$244.8**
Regulatory			
EERMC	$793.1	$846.1	-$53.0
OER	$793.1	$564.1	$229.0
RI Infrastructure Bank	$1,441.5	$0.0	$1,441.5
Subtotal Regulatory	**$3,027.7**	**$1,410.2**	**$1,617.5**
TOTAL IMPLEMENTATION BUDGET	**$83,589.4**	**$82,757.2**	**$832.2**
OTHER EXPENSE ITEMS			
Commitments	$0.0	$0.0	$0.0
Small Business Revolving Loan Fund	$0.0	$0.0	$0.0
Company Incentive	$3,878.1	$3,867.4	$10.7
Subtotal - Other Expense Items	**$3,878.1**	**$3,867.4**	**$10.7**
TOTAL BUDGET	**$87,467.5**	**$86,624.6**	**$842.9**
TOTAL BUDGET excluding RIIB	$86,026.0	$86,624.6	-$598.6

Notes:

(1) Program Implementation Budget excludes Commitments, Company Incentive; derived on Table E-3

(2) Total Budget includes Implementation, Commitments; illustrated on Table E-3

Table E-5
National Grid
Calculation of 2016 Program Year Cost-Effectiveness
All Dollar Values in ($000)

	TRC Benefit/ Cost[1]	Total Benefit	Program Implementation Expenses[2]	Customer Contribution	Shareholder Incentive	¢/Lifetime kWh
Non-Income Eligible Residential						
Residential New Construction	1.83	$ 2,113.3	$ 736.9	$ 414.9	NA	7.1
ENERGY STAR® HVAC	1.05	$ 1,790.6	$ 1,219.0	$ 482.2	NA	13.8
Energy*Wise*	1.85	$ 18,658.7	$ 9,007.7	$ 1,066.6	NA	9.5
Energy*Wise* Multifamily	1.15	$ 3,851.5	$ 3,319.1	$ 38.0	NA	9.5
Home Energy Reports	1.02	$ 2,849.3	$ 2,796.7	$ -	NA	8.7
ENERGY STAR® Lighting	3.10	$ 36,645.0	$ 7,362.1	$ 4,458.4	NA	3.0
Residential Consumer Products	1.27	$ 3,470.2	$ 2,085.0	$ 651.5	NA	8.0
Energy Efficiency Education Programs		$ -	$ 40.1	$ -	NA	
Residential Demonstration and R&D		$ -	$ 488.1	$ -	NA	
Community Based Initiatives - Residential		$ -	$ 284.4	$ -	NA	
Comprehensive Marketing - Residential		$ -	$ 534.0	$ -	NA	
n-Income Eligible Residential SUBTOTAL	**1.91**	**$ 69,378.6**	**$ 27,873.1**	**$ 7,111.6**	**$ 1,393.7**	**5.5**
Income Eligible Residential						
Single Family - Income Eligible Services	1.10	$ 9,498.9	$ 8,656.1	$ -	NA	21.3
Income Eligible Multifamily	1.33	$ 3,484.2	$ 2,531.3	$ 90.3	NA	10.2
Income Eligible Residential SUBTOTAL	**1.10**	**$ 12,983.0**	**$ 11,187.4**	**$ 90.3**	**$ 559.4**	**17.0**
Commercial & Industrial						
Large Commercial New Construction	3.41	$ 24,038.8	$ 6,864.1	$ 195.7	NA	3.0
Large Commercial Retrofit	2.08	$ 79,502.2	$ 22,545.5	$ 15,605.1	NA	5.3
Small Business Direct Install	1.30	$ 14,660.7	$ 8,745.9	$ 2,564.8	NA	8.5
Community Based Initiatives - C&I		$ -	$ 49.6	$ -	NA	
Commercial Demonstration and R&D		$ -	$ 296.2	$ -	NA	
Finance Costs		$ -	$ 3,000.0	$ -	NA	
C&I SUBTOTAL	**1.91**	**$ 118,201.7**	**$ 41,501.2**	**$ 18,365.6**	**$ 1,925.1**	**5.5**
Regulatory						
OER			$ 793.1			
EERMC			$ 793.1			
RI Infrastructure Bank			$ 1,441.5			
Regulatory SUBTOTAL			**$ 3,027.7**			
TOTAL	**1.77**	**$ 200,563.4**	**$ 83,589.4**	**$ 25,567.5**	**$ 3,878.1**	**6.1**

Notes:
(1) TRC B/C Test = (Energy + Capacity + Resource Benefits) / (Program Implementation + Customer Contribution + Shareholder Incentive)
Also includes effects of free-ridership and spillover.
(2) For Implementation Expenses derivation, see Table E-3.
(3) System Reliability may leverage some of the energy efficiency savings and benefits. Energy efficiency savings and benefits are attributed to the program in which they occur. The incremental costs and benefits of System Reliability appear below along with the resulting Total in order to illustrate that the existing Energy Efficiency programs are cost effective with the additional expenses. For more information please see the 2016 System Reliability Procurement Report for a full benefit cost analysis.

System Reliability Procurement		$ 367.2	$ 441.1	$ 1.3	$ -	
Total with System Reliability	1.77	$ 200,930.6	$ 84,030.5	$ 25,568.8	$ 3,878.1	6.3

Table E-6
National Grid
Summary of 2016 Benefits and Savings by Program

	Benefits (000's)													Load Reduction in kW			MWh Saved	
		Capacity					Energy					Non Electric						
		Generation					Winter		Summer								Maximum	
	Total	Summer	Winter	Trans	MDC	DRIPE	Peak	Off Peak	Peak	Off Peak	DRIPE	Resource	Non Resource	Summer	Winter	Lifetime	Annual	Lifetime
Non-Income Eligible Residential																		
Residential New Construction	$2,113	$208	$0	$15	$110	$0	$458	$553	$124	$73	$5	$514	$53	83	196	1,322	1,213	16,165
ENERGY STAR® HVAC	$1,791	$524	$0	$39	$284	$0	$239	$219	$278	$127	$6	$0	$76	235	247	3,358	1,011	12,304
Energy*Wise*	$18,659	$2,278	$0	$186	$1,366	$0	$3,101	$2,014	$1,405	$807	$57	$5,281	$2,164	1,701	2,259	16,007	11,729	106,364
Energy*Wise* Multifamily	$3,851	$614	$0	$53	$392	$0	$966	$866	$292	$262	$16	$21	$369	579	3,384	4,562	4,061	35,496
Home Energy Reports	$2,849	$132	$0	$45	$328	$0	$976	$786	$314	$207	$63	$0	$0	3,759	5,150	3,759	32,186	32,186
ENERGY STAR® Lighting	$36,645	$2,985	$0	$277	$2,032	$0	$13,310	$6,654	$5,962	$2,612	$218	$0	$2,596	3,620	4,654	23,661	43,098	398,769
Residential Consumer Products	$3,470	$696	$0	$61	$450	$0	$765	$715	$399	$341	$21	$22	$0	696	663	5,244	4,647	34,097
Non-Income Eligible Residential SUBTOTAL	**$69,379**	**$7,436**	**$0**	**$676**	**$4,963**	**$0**	**$19,814**	**$11,806**	**$8,774**	**$4,429**	**$385**	**$5,839**	**$5,257**	**10,673**	**16,554**	**57,914**	**97,947**	**635,381**
Income Eligible Residential																		
Single Family - Income Eligible Services	$9,499	$733	$0	$60	$440	$0	$1,197	$924	$476	$296	$19	$1,862	$3,491	554	760	5,162	4,061	40,679
Income Eligible Multifamily	$3,484	$388	$0	$34	$248	$0	$737	$658	$194	$175	$11	$45	$994	366	2,071	2,884	2,830	25,605
Income Eligible Residential SUBTOTAL	**$12,983**	**$1,122**	**$0**	**$94**	**$687**	**$0**	**$1,935**	**$1,582**	**$670**	**$471**	**$30**	**$1,907**	**$4,485**	**920**	**2,832**	**8,047**	**6,891**	**66,284**
Commercial & Industrial																		
Large Commercial New Construction	$24,039	$4,082	$0	$294	$2,153	$0	$5,691	$4,750	$3,263	$2,979	$70	$757	$0	1,540	6,814	25,565	15,728	234,981
Large Commercial Retrofit	$79,502	$20,679	$0	$1,657	$12,158	$0	$20,610	$14,610	$9,262	$5,744	$317	-$9,546	$4,011	13,906	11,269	142,530	67,030	721,969
Small Business Direct Install	$14,661	$4,068	$0	$321	$2,353	$0	$4,661	$1,825	$2,113	$718	$65	-$1,464	$0	2,507	1,793	27,574	12,165	133,816
C&I SUBTOTAL	**$118,202**	**$28,830**	**$0**	**$2,272**	**$16,664**	**$0**	**$30,962**	**$21,185**	**$14,638**	**$9,441**	**$452**	**-$10,253**	**$4,011**	**17,953**	**19,875**	**195,669**	**94,922**	**1,090,766**
TOTAL	**$200,563**	**$37,388**	**$0**	**$3,042**	**$22,314**	**$0**	**$52,711**	**$34,573**	**$24,082**	**$14,341**	**$867**	**-$2,507**	**$13,753**	**29,545**	**39,261**	**261,629**	**199,760**	**1,792,431**

Table E-7
National Grid
Comparison of 2015 and 2016 Goals

	Proposed 2016			Approved 2015			Difference		
	Annual Demand Savings (kW)	Annual Energy Savings (MWh)	Planned Unique Participants	Annual Demand Savings (kW)	Annual Energy Savings (MWh)	Planned Unique Participants	Annual Demand Savings (kW)	Annual Energy Savings (MWh)	Planned Unique Participants
Non-Income Eligible Residential									
Residential New Construction	83	1,213	512	169	559	430	-87	654	82
ENERGY STAR® HVAC	235	1,011	902	197	1,020	1,322	39	-9	-420
Energy*Wise*	1,701	11,729	8,890	1,383	11,157	9,000	318	573	-110
Energy*Wise* Multifamily	579	4,061	4,400	178	3,898	5,000	401	163	-600
Home Energy Reports	3,759	32,186	294,013	4,161	25,634	268,733	-402	6,552	25,280
ENERGY STAR® Lighting	3,620	43,098	233,992	5,125	38,859	104,825	-1,505	4,239	129,167
Residential Consumer Products	696	4,647	14,095	652	4,605	13,438	44	42	658
Non-Income Eligible Residential SUBTOTAL	**10,673**	**97,947**	**556,804**	**11,865**	**85,733**	**402,748**	**-1,192**	**12,214**	**154,056**
Income Eligible Residential									
Single Family - Income Eligible Services	554	4,061	2,500	479	3,680	2,500	75	381	0
Income Eligible Multifamily	366	2,830	5,100	120	2,907	8,000	246	-76	-2,900
Income Eligible Residential SUBTOTAL	**920**	**6,891**	**7,600**	**599**	**6,587**	**10,500**	**321**	**304**	**-2,900**
Commercial & Industrial									
Large Commercial New Construction	1,540	15,728	209	6,846	33,702	3,698	-5,306	-17,974	-3,489
Large Commercial Retrofit	13,906	67,030	3,540	6,262	48,041	574	7,644	18,989	2,966
Small Business Direct Install	2,507	12,165	905	4,143	19,539	1,407	-1,636	-7,374	-503
C&I SUBTOTAL	**17,953**	**94,922**	**4,654**	**17,252**	**101,282**	**5,680**	**701**	**-6,359**	**-1,026**
TOTAL	**29,545**	**199,760**	**569,058**	**29,715**	**193,602**	**418,928**	**-170**	**6,158**	**150,130**

Notes:

(1) Planned 2016 particpation takes into account net-to-gross and estimates unique participation by taking into account 2014 unique customer accounts to savings ratios. Therefore the number of planned measures may be more than the estimated participants shown. For measure counts please view the widget tables in Attachments 1 and 2.

(2) There are additional Low Income participants in Residential New Construction.

(3) Income Eligible Multi-Family Participation was entered into the table incorrectly last year. The 2015 Participants should have been 5,800.

(4) A customer can participate in more than one program, for example, ENERGY STAR® Lighting and Home Energy Reports, therefore the population reached can be more than 100%.

Table E-8
National Grid
Avoided Costs Used in 2016 Benefit-Cost Model

	Rhode Island					DRIPE for Installations in 2016				
	Winter Peak Energy	Winter Off-Peak Energy	Summer Peak Energy	Summer Off-Peak Energy	Annual Market Capacity Value	Winter Peak Energy	Winter Off-Peak Energy	Summer Peak Energy	Summer Off-Peak Energy	Annual Market Capacity Value
Units:	$/kWh	$/kWh	$/kWh	$/kWh	$/kW-yr	$/kWh	$/kWh	$/kWh	$/kWh	$/kW-yr
Period:										
2016	0.08	0.07	0.06	0.04	41.21	0.00	0.00	0.00	0.00	
2017	0.07	0.07	0.06	0.04	123.69	0.00	0.00	0.00	0.00	
2018	0.06	0.06	0.06	0.05	143.56	0.00	0.00	0.00	0.00	
2019	0.06	0.06	0.06	0.05	133.16					
2020	0.06	0.06	0.06	0.05	146.61					
2021	0.07	0.06	0.06	0.05	149.69					
2022	0.07	0.06	0.06	0.05	151.10					
2023	0.07	0.06	0.07	0.06	148.75					
2024	0.07	0.07	0.07	0.06	151.82					
2025	0.08	0.07	0.07	0.06	154.98					
2026	0.08	0.07	0.08	0.06	155.61					
2027	0.08	0.07	0.07	0.06	154.17					
2028	0.08	0.07	0.08	0.07	157.87					
2029	0.08	0.08	0.08	0.07	164.01					
2030	0.09	0.08	0.10	0.07	165.82					
2031	0.09	0.09	0.10	0.08	158.74					
2032	0.10	0.09	0.11	0.08	158.74					
2033	0.10	0.09	0.11	0.08	158.74					
2034	0.10	0.10	0.12	0.09	158.74					
2035	0.11	0.10	0.12	0.09	158.74					
2036	0.11	0.10	0.13	0.09	158.74					
2037	0.12	0.11	0.14	0.10	158.74					
2038	0.12	0.11	0.14	0.10	158.74					
2039	0.12	0.12	0.15	0.11	158.74					
2040	0.13	0.12	0.16	0.11	158.74					
2041	0.13	0.12	0.16	0.11	158.74					
2042	0.14	0.13	0.17	0.12	158.74					
2043	0.14	0.13	0.18	0.12	158.74					
2044	0.15	0.14	0.19	0.13	158.74					
2045	0.15	0.14	0.19	0.14	158.74					

Table E-9
National Grid
2016 Targeted Shareholder Incentive

Energy Incentive Rate: 3.50%

Sector	(1) Spending Budget $(000)	(2) Target Incentive $(000)	(3) Annual kWh Savings Goal	(4) Threshold kWh Savings	(5) Target Incentive Per kWh
Income Eligible Residential	$11,187	$392	6,891,430	5,168,572	$0.057
Non-Income Eligible Residential	$27,873	$976	97,946,654	73,459,991	$0.010
Commercial & Industrial	$38,501	$1,348	94,922,361	71,191,771	$0.014
Total	$77,562	$2,715	199,760,445	149,820,333	$0.014

Demand Incentive Rate: 1.50%

Sector	(6) Spending Budget $(000)	(7) Target Incentive $(000)	(8) Annual kW Savings Goal	(9) Threshold kW Savings	(10) Target Incentive Per kW
Income Eligible Residential	$11,187	$168	920	690	$182.409
Non-Income Eligible Residential	$27,873	$418	10,673	8,004	$39.175
Commercial & Industrial	$38,501	$578	17,953	13,465	$32.168
Total	$77,562	$1,163	29,545	22,159	$39.377

Notes:

(1) and (6) Eligible Spending Budget excludes Regulatory Costs, Finance Costs, and Shareholder Incentive. See Table E-3 for details.

(2) Equal to the incentive rate (3.5%) x Column (1).

(3) and (8) See Table E-7

(4) and (9) 75% of Column (3). No incentive is earned on annual kWh savings in the sector unless the Company achieves at least this threshold level of performance.

(5) Column (2)*1000/Column (3). This illustration is for achieved savings equal to the savings target. The incentive earned per kWh will vary with the percent of the savings target achieved

(7) Equal to the incentive rate (1.5%) x Column (1).

(10) Column (7)*1000/Column (8). This illustration is for achieved savings equal to the savings target. The incentive earned per kW will vary with the percent of the savings target achieved

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)
- x 0.7 for electric energy savings
- x 0.3 for electric demand savings
- x 1.0 for natural gas savings
- From 100% of savings to 125% of savings: Shareholder Incentive = SB x (0.05 x % of savings achieved)

Table E- 10
National Grid
Revolving Loan Fund Projections

Large C&I Revolving Loan Fund

(1)	**Total Loan Fund Deposits Through 2015**	**$ 14,979,678**
(2)	Current Loan Fund Balance	$ 11,005,873
(3)	Projected Loans by Year End	$ 4,300,000
(4)	Projected Repayments by Year End	$ 1,768,353
(5)	**Projected Year End Loan Fund Balance**	**$ 8,474,227**
(6)	Fund Injection	$ 4,000,000
(7)	**Projected Loan Fund Balance, January 2016**	**$ 12,474,227**
(8)	Projected Repayments throughout 2016	$ 3,034,177

Small Business Revolving Loan Fund

(1)	**Total Loan Fund Deposits Through 2014**	**$ 4,158,971**
(2)	Current Loan Fund Balance	$ 2,571,501
(3)	Projected Loans by Year End	$ 1,028,407
(4)	Projected Repayments by Year End	$ 1,029,071
(5)	**Projected Year End Loan Fund Balance**	**$ 2,572,165**
(6)	Fund Injection	$ (1,000,000)
(7)	**Projected Loan Fund Balance, January 2015**	**$ 1,572,165**
(8)	Projected Repayments throughout 2015	$ 1,028,739

Public Sector Revolving Loan Fund

(1)	**Total Loan Fund Deposits Through 2015**	**$ 1,015,851**
(2)	Current Loan Fund Balance	$ 726,016
(3)	Projected Loans by Year End	$ 640,000
(4)	Projected Repayments by Year End	$ 35,822
(5)	**Projected Year End Loan Fund Balance**	**$ 121,838**
(6)	Fund Injection	$ -
(7)	**Projected Loan Fund Balance, January 2016**	**$ 121,838**
(8)	Projected Repayments throughout 2016	$ 245,974

Notes

1 The Public Sector Revolving Loan Fund was previously named Municipal Revolving Loan Fund. It began with $1.5 million from RGGI, $500k reallocated to RI PEP incentives in May 2015. RI PEP may reallocate funds to incentives throughout 2015 and 2016. The RGGI allocation plan allows for repurpose of funds in the future.

2 Current Loan Fund Balance is through July 2015

3 Projected Loans by Year End 2015 is estimated based on current commitments

4 Projected Repayments by Year End 2015 is estimated based on the monthly average amount of repayments in 2015

5 Equal to (2) - (3) + (4)

6 LC&I Fund Injection is $3 million from Finance Costs as budgeted on E-2 and $1 million from transfer from Small Business Revolving Loan fund; RI PEP may inject funds into the Public Sector Revolving Loan Fund in 2016.

7 Equal to (5) + (6)

8 Assumption equal to ((3) + (4))/2; repayments accumulate over time and may vary widely.

Table E- 11
National Grid
Historic and Planned RGGI Proceeds

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 (1)	$ 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		$ 2,300,000			
			Large Bus. Revolving Loan Fund	$ 1,734,678		$ 1,734,678			
11-14	August 2013	$ 1,813,732	RI Public Energy Partnership **	$ 1,487,948			$ -	$1,487,948	
			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	$ 18,813
			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	TBD	$ 6,188,674	Lower 2016 System Benefit Charge	$ 3,588,674					
			Residential Delivered Fuels	$ 1,500,000					
			Agricultural Delivered Fuels	$ 100,000					
			RI Public Energy Partnership	$ 1,000,000					
Total				**$ 23,730,382**	**$ 5,968,069**	**$ 4,650,195**	**$ 303,851**	**$ 2,653,479**	**$ 3,792,227**

2015 Spend is through June, 2015.

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

** In 2014, National Grid comitted all RI PEP funding to the Public Sector Revolving Loan Fund, incentivizing and financing of projects continues through 2016.

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

ATTACHMENT 6

Table G-1
National Grid
Gas DSM Funding Sources in 2016 by Sector
$(000)

		Projections by Sector			
		Income Eligible Residential	Non-Income Eligible Residential	Commercial & Industrial	Total
(1)	**Projected Budget (from G-2):**	**$5,635.6**	**$12,785.1**	**$9,259.5**	**$27,680.2**
	Sources of Other Funding:				
(2)	Estimated Year-End 2015 Fund Balance and Interest:	$0.00	$810.3	$2,864.1	$3,674.4
(3)	Low Income Weatherization in Base Rates:	$200.00			$200.00
(4)	**Total Other Funding:**	**$200.0**	**$810.3**	**$2,864.1**	**$3,874.4**
(5)	**Customer Funding Required:**	**$5,435.6**	**$11,974.8**	**$6,395.4**	**$23,805.8**
(6)	Forecasted Firm Dth Sales	1,656,629	17,849,353	20,521,241	40,027,223
(7)	Forecasted Non Firm Dth Sales			1,378,103	1,378,103
(8)	Less: Exempt DG Customers			(1,470,335)	(1,470,335)
(9)	**Forecasted Dth Sales:**	**1,656,629**	**17,849,353**	**20,429,009**	**39,934,992**
(10)	Average Energy Efficiency Program Charge per Dth excluding Uncollectible Recovery:				$0.596
(11)	Proposed Energy Efficiency Program Charge per Dth excluding Uncollectible Recovery	$0.725	$0.725	$0.472	
(12)	Currently Effective Uncollectible Rate	3.18%	3.18%	3.18%	
(13)	**Proposed Energy Efficiency Program Charge per Dth including Uncollectible Recovery:**	**$0.748**	**$0.748**	**$0.487**	
(14)	Currently Effective Energy Efficiency Program Charge per Dth	$0.781	$0.781	$0.637	
(15)	Adjustment to Reflect Fully Reconciling Funding Mechanism	($0.033)	($0.033)	($0.150)	

Notes

(1) Projected Budget from G-2 includes OER and EERMC costs allocated to each sector based on forecasted sales, and RIIB costs allocated to C&I.

(2) Fund Balance projetions include projected revenue and spend through year end with Income Eligible sector set to $0 through projected subsidization from other sectors.

(11) As agreed to by the settling parties, the proposed EE program charges allow for the use of collections from one sector to fund energy efficiency services in other sectors that would otherwise not be supported with the proposed collection rates. Fund balance projections include projected revenue and spend through year end with Income Eligible sector set to $0 through projected subsidization from other sectors. Specifically, the C&I charge includes collections of $3,261,341 and the Residential charge includes $2,174,227 to fund the Income Eligible sector programs.

Table G-2
National Grid
2016 Gas Energy Efficiency Program Budget ($000)

	Program Planning and Administration	Marketing	Rebates and Other Customer Incentives	Sales, Technical Assistance and Training	Evaluation & Market Research	Shareholder Incentive	Grand Total
Non-Income Eligible Residential:							
ENERGY STAR® HVAC	$54.4	$110.1	$1,174.3	$235.8	$44.5	$0.0	$1,619.2
Energy*Wise*	$225.6	$81.3	$6,029.8	$552.3	$40.6	$0.0	$6,929.5
EnergyWise Multifamily	$71.3	$39.2	$1,470.0	$382.2	$15.8	$0.0	$1,978.6
Home Energy Reports	$16.7	$2.2	$403.2	$13.1	$1.5	$0.0	$436.6
Residential Demonstration and R&D	$11.6	$19.6	$20.0	$5.1	$25.0	$0.0	$81.3
Residential New Construction	$25.7	$3.1	$461.6	$344.9	$1.7	$0.0	$836.9
Comprehensive Marketing - Residential	$1.4	$68.2	$0.0	$0.1	$0.1	$0.0	$69.8
Community Based Initiatives - Residential	$0.5	$6.7	$4.3	$14.3	$0.0	$0.0	$25.8
Residential Shareholder Incentive	$0.0	$0.0	$0.0	$0.0	$0.0	$598.9	$598.9
Subtotal - Non-Income Eligible Residential	**$407.2**	**$330.3**	**$9,563.1**	**$1,548.0**	**$129.2**	**$598.9**	**$12,576.6**
Income Eligible Residential:							
Single Family - Income Eligible Services	$121.3	$13.7	$2,290.0	$851.0	$9.5	$0.0	$3,285.5
Income Eligible Multifamily	$72.0	$8.9	$1,560.0	$406.4	$16.0	$0.0	$2,063.3
Income Eligible Shareholder Incentive	$0.0	$0.0	$0.0	$0.0	$0.0	$267.4	$267.4
Subtotal - Income Eligible Residential	**$193.4**	**$22.6**	**$3,850.0**	**$1,257.4**	**$25.4**	**$267.4**	**$5,616.2**
Commercial & Industrial							
Large Commercial New Construction	$107.5	$150.1	$735.7	$567.1	$134.2	$0.0	$1,694.7
Large Commercial Retrofit	$249.5	$276.8	$3,011.2	$1,196.1	$137.5	$0.0	$4,871.1
Small Business Direct Install	$44.6	$25.0	$70.0	$142.3	$0.4	$0.0	$282.4
Commercial & Industrial Multifamily	$33.6	$23.4	$524.1	$171.5	$2.0	$0.0	$754.7
Commercial Demonstration and R&D	$36.7	$0.8	$0.0	$44.7	$15.1	$0.0	$97.3
Finance Costs	$0.0	$0.0	$500.0	$0.0	$0.0	$0.0	$500.0
Community Based Initiatives - C&I	$0.2	$0.0	$4.4	$1.8	$0.0	$0.0	$6.4
Commercial & Industrial Shareholder Incentive	$0.0	$0.0	$0.0	$0.0	$0.0	$385.3	$385.3
Subtotal - Commercial & Industrial	**$472.1**	**$476.2**	**$4,845.4**	**$2,123.6**	**$289.3**	**$385.33**	**$8,591.9**
Regulatory							
EERMC	$233.3	$0.0	$0.0	$0.0	$0.0	$0.0	$233.3
OER	$233.3	$0.0	$0.0	$0.0	$0.0	$0.0	$233.3
RI Infrastructure Bank	$0.0	$0.0	$429.0	$0.0	$0.0	$0.0	$429.0
Subtotal - Regulatory	**$466.5**	**$0.0**	**$429.0**	**$0.0**	**$0.0**	**$0.0**	**$895.5**
Grand Total	**$1,539.1**	**$829.2**	**$18,687.5**	**$4,928.9**	**$443.9**	**$1,251.7**	**$27,680.2**

Notes:

(1) OER and EERMC is equal to 2% of total collections from customers' Energy Efficiency Program Charge, reduced by 2%.

(2) RIIB incentive fulfills requirement of Article 14, Relating to Infrastructure Bank §39-2-1.2 (m).

Table G-3
National Grid
Derivation of the 2016 Spending & Implementation Budgets ($000)

	Proposed 2016 Budget From G-2 ($000)	Outside Finance and Stakeholder Oversight Costs ($000)	Shareholder Incentive ($000)	Eligible Sector Spending Budget for Shareholder Incentive on G-9 ($000)[1]	Implementation Expenses for Cost-Effectiveness on G-5 ($000)[2]
Non-Income Eligible Residential					
ENERGY STAR® HVAC	$ 1,619.2		$ -		$ 1,619.2
Energy*Wise*	$ 6,929.5		$ -		$ 6,929.5
EnergyWise Multifamily	$ 1,978.6		$ -		$ 1,978.6
Home Energy Reports	$ 436.6		$ -		$ 436.6
Residential Demonstration and R&D	$ 81.3		$ -		$ 81.3
Residential New Construction	$ 836.9				$ 836.9
Comprehensive Marketing - Residential	$ 69.8		$ -		$ 69.8
Community Based Initiatives - Residential	$ 25.8		$ -		$ 25.8
Residential Shareholder Incentive	$ 598.9		$ 598.9		$ -
Subtotal - Non-Income Eligible Residential	**$ 12,576.6**	**$ -**	**$ 598.9**	**$ 11,977.7**	**$ 11,977.7**
Income Eligible Residential					
Single Family - Income Eligible Services	$ 3,285.5		$ -		$ 3,285.5
Income Eligible Multifamily	$ 2,063.3		$ -		$ 2,063.3
Income Eligible Shareholder Incentive	$ 267.4		$ 267.4		$ -
Subtotal - Income Eligible Residential	**$ 5,616.2**	**$ -**	**$ 267.4**	**$ 5,348.8**	**$ 5,348.8**
Commercial & Industrial					
Large Commercial New Construction	$ 1,694.7		$ -		$ 1,694.7
Large Commercial Retrofit	$ 4,871.1		$ -		$ 4,871.1
Small Business Direct Install	$ 282.4		$ -		$ 282.4
Commercial & Industrial Multifamily	$ 754.7		$ -		$ 754.7
Commercial Demonstration and R&D	$ 97.3		$ -		$ 97.3
Finance Costs	$ 500.0	$ 500.0	$ -		$ 500.0
Community Based Initiatives - C&I	$ 6.4		$ -		$ 6.4
Commercial & Industrial Shareholder Incentive	$ 385.3		$ 385.3		$ -
Subtotal - Commercial & Industrial	**$ 8,591.9**	**$ 500.0**	**$ 385.3**	**$ 7,706.6**	**$ 8,206.6**
Regulatory					
EERMC	$ 233.3	$ 233.3			$ 233.3
OER	$ 233.3	$ 233.3			$ 233.3
RI Infrastructure Bank	$ 429.0	$ 429.0			$ 429.0
Subtotal - Regulatory	**$ 895.5**	**$ 895.5**	$ -		**$ 895.5**
Grand Total	**$ 27,680.2**	**$ 1,395.5**	**$ 1,251.7**	**$ 25,033.1**	**$ 26,428.6**

Notes:
(1) Eligbile Sector Spending Budget = Budget from G-2 minus Regulatory Costs, Finance Costs, and Shareholder Incentive
(2) Implementation Expenses = Budget from G-2 minus Shareholder Incentive

Table G-4
National Grid
Proposed 2016 Budget Compared to Approved 2014 Budget ($000)

	Proposed Budget 2016 from G-2	2015 Approved Gas Budget	Difference
Non-Income Eligible Residential			
ENERGY STAR® HVAC	$ 1,619.2	$ 1,490.2	$ 128.9
EnergyWise	$ 6,929.5	$ 6,285.2	$ 644.4
EnergyWise Multifamily	$ 1,978.6	$ 1,657.8	$ 320.8
Home Energy Reports	$ 436.6	$ 470.5	$ (33.9)
Residential Demonstration and R&D	$ 81.3	$ 93.4	$ (12.1)
Residential New Construction	$ 836.9	$ 328.7	$ 508.2
Comprehensive Marketing - Residential	$ 69.8	$ 90.5	$ (20.7)
Community Based Initiatives - Residential	$ 25.8	$ 32.3	$ (6.5)
Residential Shareholder Incentive	$ 598.9	$ 522.4	$ 76.5
Subtotal - Non-Income Eligible Residential	**$ 12,576.6**	**$ 10,971.0**	**$ 1,605.6**
Income Eligible Residential			
Single Family - Income Eligible Services	$ 3,285.5	$ 3,123.5	$ 162.0
Income Eligible Multifamily	$ 2,063.3	$ 1,901.5	$ 161.7
Income Eligible Shareholder Incentive	$ 267.4	$ 251.3	$ 16.2
Subtotal - Income Eligible Residential	**$ 5,616.2**	**$ 5,276.3**	**$ 339.9**
Commercial & Industrial			
Large Commercial New Construction	$ 1,694.7	$ 1,517.8	$ 176.9
Large Commercial Retrofit	$ 4,871.1	$ 4,208.4	$ 662.7
Small Business Direct Install	$ 282.4	$ 318.9	$ (36.6)
Commercial & Industrial Multifamily	$ 754.7	$ 692.2	$ 62.5
Commercial Demonstration and R&D	$ 97.3	$ 73.5	$ 23.9
Finance Costs	$ 500.0	$ 500.0	$ -
Community Based Initiatives - C&I	$ 6.4	$ 10.0	$ (3.6)
Commercial & Industrial Shareholder Incentive	$ 385.3	$ 346.2	$ 39.2
Subtotal Commercial & Industrial	**$ 8,591.9**	**$ 7,769.3**	**$ 822.6**
Regulatory			
EERMC	$ 233.3	$ 318.8	$ (85.5)
OER	$ 233.3	$ 212.5	$ 20.7
RI Infrastructure Bank	$ 429.0	$ -	$ 429.0
Subtotal Regulatory	**$ 895.5**	**$ 531.3**	**$ 364.2**
TOTAL BUDGET	**$ 27,680.2**	**$ 24,547.9**	**$ 3,132.3**
TOTAL BUDGET excluding RIIB	$ 27,251.2	$ 24,547.9	$ 2,703.4

Table G-5
National Grid
Calculation of 2016 Program Year Cost-Effectiveness
All Dollar Values in ($000)

	Rhode Island Benefit/ Cost	Total Benefit	Program Implementation Expenses	Customer Contribution	Shareholder Incentive	TRC $/Lifetime MMBtu
Non-Income Eligible Residential						
Energy Star® HVAC	1.36	$ 6,100.6	$ 1,619.2	$ 2,855.4		$ 10.19
EnergyWise	2.33	$ 19,480.9	$ 6,929.5	$ 1,430.0		$ 5.45
EnergyWise MultiFamily	1.18	$ 2,478.2	$ 1,978.6	$ 125.8		$ 8.24
Home Energy Reports	1.03	$ 449.2	$ 436.6	$ -		$ 8.09
Residential New Construction	2.21	$ 1,895.8	$ 836.9	$ 21.6		$ 4.61
Comprehensive Marketing - Residential			$ 69.8			
Community Based Initiatives - Residential			$ 25.8			
Residential Demonstration and R&D			$ 81.3			
Non-Income Eligible Residential Subtotal	**1.79**	**$ 30,404.6**	**$ 11,977.7**	**$ 4,432.7**	**$ 598.9**	**$ 6.65**
Income Eligible Residential						
Single Family - Income Eligible Services	1.09	$ 3,581.9	$ 3,285.5	$ -		$ 17.54
Income Eligible Multifamily	2.08	$ 4,281.8	$ 2,063.3	$ -		$ 5.80
Income Eligible Residential Subtotal	**1.47**	**$ 7,863.7**	**$ 5,348.8**	**$ -**	**$ 267.4**	**$ 9.85**
Large Commercial & Industrial						
Large Commercial New Construction	3.14	$ 7,617.1	$ 1,694.7	$ 727.8		$ 2.99
Large Commercial Retrofit	1.35	$ 8,159.8	$ 4,871.1	$ 1,194.0		$ 6.39
Small Business Direct Install	1.26	$ 370.3	$ 282.4	$ 10.8		$ 8.29
Commercial & Industrial Multifamily	1.37	$ 1,148.4	$ 754.7	$ 85.2		$ 6.52
Commercial Demonstration and R&D			$ 97.3			
Community Based Initiatives - C&I			$ 6.4			
Finance Costs			$ 500.0			
Commercial & Industrial Subtotal	**1.63**	**$ 17,295.5**	**$ 8,206.6**	**$ 2,017.7**	**$ 385.3**	**$ 5.32**
Regulatory						
EERMC			$ 233.3			
OER			$ 233.3			
RI Infrastructure Bank			$ 429.0			
Regulatory Subtotal			**$ 895.5**			
Grand Total	**1.63**	**$ 55,563.8**	**$ 26,428.6**	**$ 6,450.4**	**$ 1,251.7**	**$ 6.66**

Table G-6
National Grid
Summary of 2016 Benefits and Savings by Program

	Benefits ($000)			MMBTU Gas Saved	
	Total(1)	Natural Gas(2)	Non-Gas Benefit (3)	Annual	Lifetime(4)
Non-Income Eligible Residential					
Energy*Wise*	$19,480.9	$16,226.9	$3,254.0	68,117	1,534,307
Energy Star® HVAC	$6,100.6	$4,341.2	$1,759.4	26,064	439,180
EnergyWise Multifamily	$2,478.2	$2,478.2	$0.0	17,208	255,467
Home Energy Reports	$449.2	$449.2	$0.0	53,989	53,989
Residential New Construction	$1,895.8	$1,895.8	$0.0	10,907	186,360
Non-Income Eligible Residential SUBTOTAL	**$30,404.6**	**$25,391.2**	**$5,013.4**	**176,284**	**2,469,303**
Income Eligible Residential					
Single Family - Income Eligible Services	$3,581.9	$1,921.8	$1,660.1	9,368	187,360
Income Eligible Multifamily	$4,281.8	$4,258.7	$23.0	19,915	355,472
Income Eligible Residential SUBTOTAL	**$7,863.7**	**$6,180.5**	**$1,683.2**	**29,283**	**542,832**
Commercial & Industrial					
Large Commercial New Construction	$7,617.1	$7,614.3	$2.8	43,424	809,841
Large Commercial Retrofit	$8,159.8	$8,155.6	$4.2	133,613	949,512
Small Business Direct Install	$370.3	$367.2	$3.0	3,667	35,357
Commercial & Industrial Multifamily	$1,148.4	$1,148.4	$0.0	9,490	128,728
Commercial & Industrial SUBTOTAL	**$17,295.5**	**$17,285.5**	**$10.0**	**190,194**	**1,923,438**
TOTAL	**$55,563.8**	**$48,857.2**	**$6,706.6**	**395,760**	**4,935,572**

Table G-7
National Grid
Comparison of 2015 and 2016 Goals

	Proposed 2016		Approved 2015		Difference	
	Annual Energy Savings (MMBTU Natural Gas)	**Planned Unique Participants**	**Annual Energy Savings (MMBTU Natural Gas)**	**Planned Unique Participants**	**Annual Energy Savings (MMBTU Natural Gas)**	**Planned Unique Participants**
Non-Income Eligible Residential						
Energy*Wise*	68,117	2,710	68,141	2,400	-24	310
Energy Star® HVAC	26,064	2,099	29,081	1,327	-3,017	772
EnergyWise Multifamily	17,208	2,625	15,863	2,500	1,344	125
Home Energy Reports	53,989	135,689	50,806	142,220	3,183	-6,531
Residential New Construction	10,907	375	4,796	386	6,111	-11
Non-Income Eligible Residential SUBTOTAL	**176,284**	**143,498**	**168,687**	**148,833**	**7,597**	**-5,335**
Income Eligible Residential						
Single Family - Income Eligible Services	9,368	500	8,780	400	588	100
Income Eligible Multifamily	19,915	3,000	19,098	2,900	816	100
Income Eligible Residential SUBTOTAL	**29,283**	**3,500**	**27,878**	**3,300**	**1,404**	**200**
Commercial & Industrial						
Large Commercial New Construction	43,424	152	41,802	227	1,622	-74
Large Commercial Retrofit	133,613	234	125,711	600	7,902	-366
Small Business Direct Install	3,667	133	3,489	83	179	50
Commercial & Industrial Multifamily	9,490	1,611	9,396	1,968	94	-356
Commercial & Industrial SUBTOTAL	**190,194**	**2,131**	**180,397**	**2,878**	**9,797**	**-747**
TOTAL	**395,760**	**149,129**	**376,963**	**155,012**	**18,797**	**-5,883**

Note:

(1) Participants can participate in more than one program, for example Home Energy Reports and EnergyWise.

(2) Planned 2016 participation takes into account net-to-gross and estimates unique participation by taking into account 2014 unique customer accounts to savings ratios. Therefore the number of planned measures may be more than the planned participants. For measure counts please view the widgets tables at the end of the Residential and C&I text sections.

Table G-8
National Grid
Avoided Costs Used in 2016 Benefit-Cost Model

	RESIDENTIAL				COMMERCIAL & INDUSTRIAL			ALL
Year	Non Heating	Hot Water	Heating	All	Non Heating	Heating	All	RETAIL END USES
2016	5.28	6.53	6.95	6.76	5.46	6.31	6.01	6.62
2017	5.98	7.38	7.85	7.64	6.21	7.17	6.82	6.62
2018	6.45	7.84	8.30	8.08	6.68	7.62	7.28	6.72
2019	6.50	7.77	8.19	8.01	6.69	7.56	7.25	6.96
2020	6.14	7.39	7.81	7.63	6.33	7.17	6.87	7.25
2021	6.45	7.71	8.13	7.94	6.63	7.49	7.18	7.59
2022	6.53	7.78	8.20	8.02	6.71	7.56	7.26	7.84
2023	6.62	7.87	8.28	8.10	6.80	7.65	7.35	7.99
2024	6.81	8.07	8.49	8.31	6.99	7.85	7.54	8.19
2025	6.92	8.17	8.59	8.41	7.11	7.96	7.66	8.31
2026	7.03	8.28	8.70	8.52	7.21	8.07	7.76	8.45
2027	7.11	8.36	8.78	8.60	7.29	8.15	7.84	8.63
2028	7.22	8.47	8.89	8.72	7.41	8.25	7.95	8.76
2029	7.41	8.67	9.08	8.91	7.60	8.45	8.15	8.88
2030	7.69	8.94	9.36	9.19	7.88	8.73	8.43	8.98
2031	7.83	9.08	9.49	9.32	8.02	8.86	8.56	9.13
2032	7.97	9.21	9.63	9.46	8.15	9.00	8.70	9.28
2033	8.11	9.35	9.77	9.60	8.30	9.13	8.84	9.44
2034	8.26	9.49	9.91	9.74	8.44	9.28	8.98	9.60
2035	8.40	9.63	10.05	9.88	8.59	9.42	9.13	9.76
2036	8.55	9.78	10.19	10.03	8.74	9.56	9.27	9.93
2037	8.71	9.93	10.33	10.17	8.89	9.71	9.42	10.10
2038	8.86	10.08	10.48	10.32	9.04	9.86	9.58	10.27
2039	9.02	10.23	10.63	10.47	9.20	10.01	9.73	10.44
2040	9.18	10.38	10.78	10.63	9.36	10.16	9.89	10.62
2041	9.34	10.54	10.94	10.78	9.52	10.32	10.05	10.80
2042	9.51	10.69	11.09	10.94	9.69	10.48	10.21	10.99
2043	9.68	10.85	11.25	11.10	9.85	10.64	10.37	11.17
2044	9.85	11.02	11.41	11.27	10.02	10.80	10.54	11.36

From 2015 Avoided Cost Study
Appendix C for Southern New England

Table G-9
National Grid
2016 Targeted Shareholder Incentive

Incentive Rate: 5.00%

Sector	(1) Eligible Spending Budget $(000)	(2) Target Incentive $(000)	(3) Target Savings Goal (MMBTU)	(4) Threshold Savings (MMBTU)	(5) Target Incentive Per Annual MMBTU
Income Eligible Residential	$5,349	$267.4	29,283	21,962	$9.133
Non-Income Eligible Residential	$11,978	$598.9	176,284	132,213	$3.397
Commercial & Industrial	$7,707	$385.3	190,194	142,646	$2.026
Total	$25,033	$1,251.7	395,760	296,820	$3.163

Notes:

(1) Eligible Spending Budget excludes EERMC, OER, RIIB, Finance Costs, and Shareholder Incentive. See Table G-3 for details.

(2) Equal to the incentive rate (5.0%) x Column (1).

(3) See Table G-7

(4) 75% of Column (3). No incentive is earned on annual MMBTU savings in the sector unless the Company achieves at least this threshold level of performance.

(5) Column (2)*1000/Column (3). This illustration is for achieved savings equal to the savings target. The incentive earned per MMBtu will vary with the percent of the savings target achieved

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)

Table G- 10
National Grid
Revolving Loan Fund Projections

Large C&I Revolving Loan Fund

(1)	**Total Loan Fund Deposits Through 2015**	**$**	**1,000,000**
(2)	Current Loan Fund Balance	$	1,000,000
(3)	Projected Loans by Year End	$	400,000
(4)	Projected Repayments by Year End	$	20,000
(5)	**Projected Year End Loan Fund Balance**	**$**	**620,000**
(6)	2016 Fund Injection	$	500,000
(7)	**Projected Loan Fund Balance, January 2016**	**$**	**1,120,000**
(8)	Projected Repayments throughout 2016	$	210,000

Notes

2 Current Loan Fund Balance is through August 2015

3 Projected Loans by Year End 2015 is estimated based on current commitments

4 Projected Repayments by Year End 2015 is estimated based on the monthly average amount of repayments in 2015

5 Equal to (2) - (3) + (4)

6 Fund Injection, as budgeted on E-2

7 Equal to (5) + (6)

8 Assumption equal to ((3) + (4))/2; repayments accumulate over time and may vary widely.

ATTACHMENT 7

Bill Impacts

Summary

National Grid has performed an analysis of the electric and gas bill impacts resulting from the proposed 2016 Energy Efficiency Program Plan. Bill impacts are distinct from rate impacts because they model the long term effects of efficiency programs on customer bills by aggregating rate and consumption changes. In the electric bill impact analysis, rate impacts are modeled by mapping EE programs to rate classes and estimating changes in both delivery service rates and supply costs due to energy efficiency (EE) program charge proposed in the Plan. Consumption impacts are predicted from proposed participation and energy efficiency savings. Where possible, other effects of energy efficiency beyond direct energy savings – such as price suppression and avoided infrastructure investments – are also included. In the gas bill impact analysis, rate impacts for different sectors account for the EE charge, while consumption impacts are modeled based on predicted participation and energy savings in the 2016 plan.

The key finding of the bill impact analyses is that, over the lifetimes of the programs proposed for 2016, the average Rhode Island customer's (participants and non-participants combined) energy bill will be less than if there were no programs. Overall, rates may increase, but participation in EE programs balances out the costs of the EE program charge and revenue recovery.

Electric Bill Impacts

The electric bill impact models used to generate the electric results were adapted from models originally built by Synapse Energy Economics on behalf of the Division of Public Utilities and Carriers in 2013. These models are distinct from the traditional electric bill impacts models the Company presents in Rates proceedings before the PUC. The new models analyze two cases, the fulfillment of the 2016 Plan and the absence of an efficiency plan in 2016. This comparison isolates the effects of the proposed 2016 EE program charge and Fully Reconciling Funding Mechanism. It assumes efficiency plans have not been implemented before 2016 nor will be offered after 2016. The analysis also incorporates how system-wide reduction in energy consumption affects the different elements of rates such as transmission, distribution, and commodity charges.

Four separate electric models were developed, one for each of the main customer segments: Residential, Income Eligible, Small Commercial, and Large Commercial and Industrial. For all of the electric models, the key inputs are the net planned participation and savings numbers from Table E-7 in Attachment 5. The models combine these data with rate class information to determine the benefits to customer bills from program participation. Table 1 below shows the mapping of efficiency programs to rate classes for the four models.[1] The diversity of the commercial customer profile means that customers from multiple

[1] Delivery service rate docket used in the analysis are R.I.P.U.C No. 2100 for basic residential rate, R.I.P.U.C No. 2101 for low-income residential rate, R.I.P.U.C No. 2104 for small C&I rate, R.I.P.U.C No. 2147 for large C&I rate. Standard Offer Service rates used in the analysis are A-06 & A-16 4/1/15-12/31/15 total commodity charge for standard and low income residential rate group, C-06 7/1/15-12/31/15 total commodity charge for small C&I rate group, and G-32 01/15-06/15 total commodity charge for large C&I rate group.

rate classes can participate in any commercial program. Assumptions on these rate-class blends were made based on historical program participation data.

Table 1: Electric Rate and Program Mapping

Bill Impact Model	Rate Class(es)	Efficiency Programs
Residential Electric	A-16	Home Energy Reports
		ENERGY STAR® HVAC
		EnergyWise
		EnergyWise Multifamily
		ENERGY STAR® Lighting
		Residential Consumer Products
Income Eligible Electric	A-60	Income Eligible Single Family
		Income Eligible Multifamily
		Home Energy Reports
		ENERGY STAR® Lighting
Small Commercial Electric	C-06 and G-02	Small Business Direct Install
Large Commercial Electric	G-02 and G-32	Large Commercial New Construction
		Large Commercial Retrofit

The results of the models are shown in Tables 2 through 5 and Figure 1 and 2, and some highlights of the results are presented after the Tables and Figures. Long-term rate impacts are defined as the average rate increase percentage from 2016 to 2036 (positive numbers indicate rate increase). Typical energy savings refer to the average percentage of energy savings to total annual consumption from 2016 to 2036 (positive numbers indicate electricity consumption reduction). Typical bill savings are defined as average percentage of bill decrease to total customer bill from 2016 to 2036 (positive numbers indicate electricity bill reduction).

On the residential side, rates and non-participant bills increase slightly, mostly from lost revenue recovery, while participant and average customer bills go down. The decreased average customer bills demonstrate that the scale of program participation balances non-participant costs. On the commercial side, long-term rates increase slightly for small C&I customers and stay roughly constant for large C&I customers, while bills decrease for participants and average customers in both rate groups.

Table 2: Residential- Standard Income Bill Impact Analysis (2016 EE vs. No EE)

	Long-Term Rate Impacts	Typical Energy Savings	Typical Bill Savings
	(% of Total Rate)	(% per Participant)	(% of Total Bill)
Home Energy Reports - Standard Income	1.10%	0.22%	-0.87%
HVAC	1.10%	15.41%	14.48%
EnergyWise	1.10%	18.14%	17.24%
Residential Lighting - Standard Income	1.10%	2.57%	1.50%
Non-Participant	1.10%	0.00%	-1.10%
Average Customer	1.10%	3.11%	2.05%

Table 3: Residential –Income Eligible Bill Impact Analysis (2016 EE Plan vs. No EE)[2]

	Long-Term Rate Impacts	Typical Energy Savings	Typical Bill Savings
	(% of Total Rate)	(% per Participant)	(% of Total Bill)
Income Eligible Single Family	1.15%	19.54%	18.64%
Income Eligible Multifamily	1.15%	6.68%	5.61%
Home Energy Reports - Low Income	1.15%	0.19%	-0.95%
Residential Lighting - Low Income	1.15%	2.25%	1.13%
Non-Participant	1.15%	0.00%	-1.15%
Average Customer	1.15%	3.73%	2.63%

Table 4: Small C&I Bill Impact Analysis (2016 EE Plan vs. No EE)[3]

	Long-Term Rate Impacts	Typical Energy Savings	Typical Bill Savings
	(% of Total Rate)	(% per Participant)	(% of Total Bill)
Small C&I Participant	0.63%	16.06%	15.53%
Non-Participant	0.63%	0.00%	-0.63%
Average Customer	0.63%	0.99%	0.36%

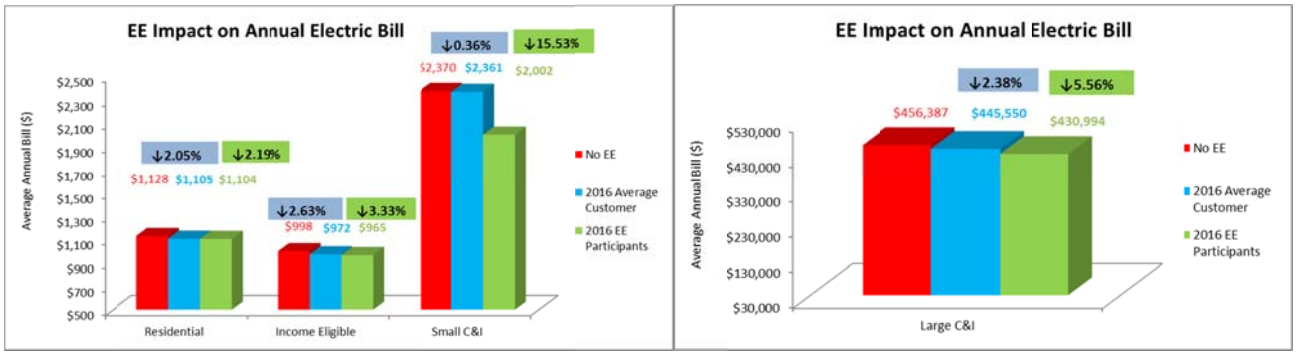
Table 5: Large C&I Bill Impact Analysis (2016 EE Plan vs. No EE)

	Long-Term Rate Impacts	Typical Energy Savings	Typical Bill Savings
	(% of Total Rate)	(% per Participant)	(% of Total Bill)
New Construction Participant	0.02%	17.93%	17.91%
Retrofit Participant	0.02%	4.14%	4.12%
Non-Participant	0.02%	0.00%	-0.02%
Average Customer	0.02%	2.40%	2.38%

[2] Home Energy Reports and Energy Star HVAC participation and savings are split between standard residential and income-eligible customers, since these measures reach all residential customers. For analysis purposes, it is assumed that income-eligible customers account for 10% of participation and 10% of savings in the two programs.

[3] Based on changes in historical participation data, the rate class blend for small C&I and large C&I participants is adjusted from 2015 Bill Impact Analysis. G-02 rate class is proportioned between small and large C&I. The goal is to accurately represent participation for each rate class.

Figure 1: Example of Typical Participant and Customer Annual Electric Bill Impact (2016 EE Plan v. No EE)[4]



Explanation of Electric Bill Impact Results

- Residential long-term rate impacts: EE programs bring system benefits in terms of avoided infrastructure investment in generation, transmission, and distribution in the long-run. These avoided investments will ultimately flow through rates and offset the short-term contribution of the EE program charge to 2016 rates (4.83%) and bring the long-term rate increase down to 1.1% for standard residential customers and 1.15% for income-eligible residential customers.
- Small and Large C&I long-term rate impact: avoided infrastructure costs flow through rates and partially offset the EE program charge for 2016 and beyond, leading to only 0.63% increase in rates for small C&I customers and roughly constant large C&I rates in the long-run.
- Home Energy Reports bill savings: consumption reduction from participation in home energy report will not fully offset impact of EE program charge on bills. The main reason is that home energy reports bring relatively low direct energy savings compared to the cost of all energy efficiency programs reflected in the program charge and added to rates. However, the Home Energy Reports program creates more indirect energy savings attributed to other programs. For example, the reports might not induce reduction in consumption right away, but instead persuade customers to participate in other EE programs. These savings are reflected in the bill impacts results of the other programs.
- Average participant bill savings: the proposed EE programs will bring bill savings to participants in all rate groups. Specifically, typical bill savings is 2.19% for standard residential participants, 3.33% for income-eligible residential participants, 15.53% for small C&I participants, and 5.56% for large C&I participants (figure 1).
- Average customer typical bill savings: among all participants and non-participants, typical bill savings is 2.05% for standard residential customers, 2.63% for income-eligible residential customers, 0.36% for small C&I customers, and 2.38% for large C&I customers, suggesting that the proposed EE programs will bring net benefits to all types of electric customers in Rhode Island (figure 1).

[4] Example of electric bill impact on typical participant and typical customer in Rhode Island. Bills are calculated based on average annual consumption of a typical customer in Rhode Island (residential and low-income: 6000 kwh; small C&I in C-06 rate group: 18000 kwh, large C&I in G32 rate group: 2.4 million kwh). Rates used in this example are same as rates used in the analysis, except G-32 standard offer service rate was based on 01/2015-09/2015 total commodity charge. This bill example is different from traditional incremental bill impact because it shows long-term bill impact of the proposed EE programs.

Gas Bill Impacts

The natural gas bill impacts were analyzed by adapting an existing gas bill impact model used by the Company in dockets 4573 and 4576.[5] The updated model analyzes the effects of the 2016 Plan by looking at a change in average consumption due to energy efficiency. The adapted gas models do not account for efficiency's effects on future gas rates. They only look at direct energy savings for the rate classes that best map to the four efficiency customer segments: Residential, Income Eligible, Small Business, and Large Commercial and Industrial. The table below shows the mapping of rates to customer segments.[6]

Table 6: Gas Rate Mapping

Bill Impact Model	Rate Class(es)
Residential Gas	Residential Heating
Income Eligible Gas	Residential Heating – Low Income
Small Commercial Gas	C&I Small
Large Commercial Gas	C&I Medium, Large Low Load, Large High Load, Extra Large Low Load, Extra Large High Load

The proposed EE programs lead to reduction in participant bills. Moreover, the annual bills for average customer (participants and non-participants combined) are also projected to decrease for all four rate groups (residential heating, low-income heating, small commercial and large commercial). The detailed bill reduction percentages are shown in table 7.

The rate impact is calculated as percent increase in rates due to EE (positive numbers indicate rate increase). The participant bill impact is defined as percent change in participant bill over the lifetime of the EE programs (negative numbers indicate participant bill decrease). The average customer bill impact is expressed as the percent change in total bill for average customers (participants and non-participants combined and negative numbers indicate average customer bill decrease).

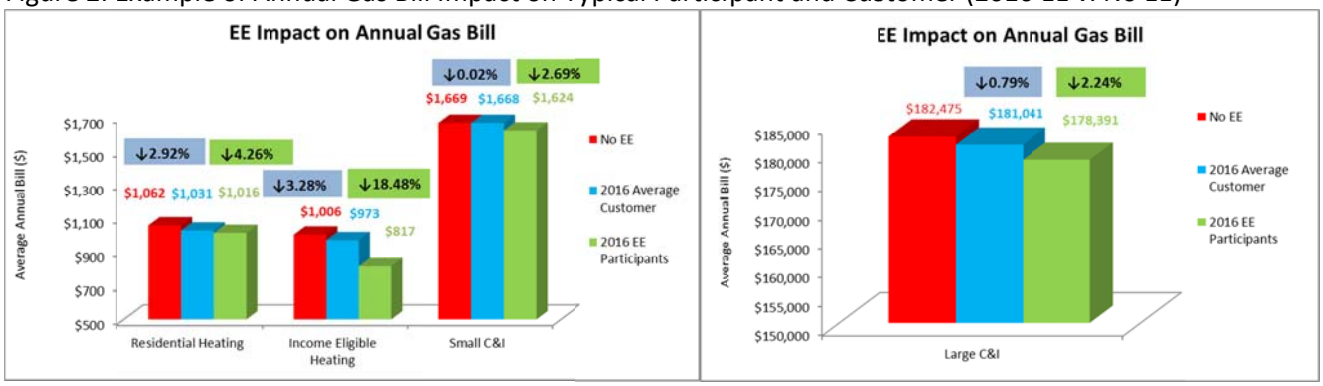
Table 7: RI Gas Bill Impact Analysis (2016 EE Plan v No EE)

Rate Group	Rate Impact (% of 2016 Total Rate)	Participant Bill Impact (% Change in 2016 Bill)	Average Customer Bill Impact (% Change in 2016 Bill)
Residential Heating	5.43%	-4.26%	-2.92%
Low Income Heating	5.43%	-18.84%	-3.28%
Small Commercial	3.62%	-2.69%	-0.02%
Large Commercial	3.65%	-2.24%	-0.79%

[5] Proposed DAC rates are in the DAC supplemental filing in Docket 4573 and proposed GCR rate are in Docket 4576.

[6] The analysis uses residential and income eligible heating to represent the two groups. As of August 2015, residential heating represents 90% of standard residential customers and income eligible heating represents 98% of income eligible customers.

Figure 2. Example of Annual Gas Bill Impact on Typical Participant and Customer (2016 EE v. No EE)[7][8]



Explanation of Gas Bill Impact Results:

- The EE contribution to 2016 gas rate is 5.43% for residential rates and around 3.6% for C&I rates. However, compared to 2015 rates, EE program charge will decrease 4.23% for residential and low-income customers and 23.55% for small and large C&I customers in 2016.
- In the long-run energy savings from EE programs will offset rates increase and lead to bills reduction for participants in all rate groups. Specifically, typical bill savings is 4.26% for standard residential participants, 18.84% for income-eligible residential participants, 2.69% for small C&I participants, and 2.24% for large C&I participants (figure 2). [9]
- The average customer in all rate groups will experience bill decrease (2.92% for standard residential customers, 3.28% for income-eligible residential customers, 0.02% for small C&I customers, and 0.79% for large C&I customers), suggesting that the proposed EE programs will bring net benefits to all types of gas customers in Rhode Island (figure 2).

Overall Energy Bill Impact

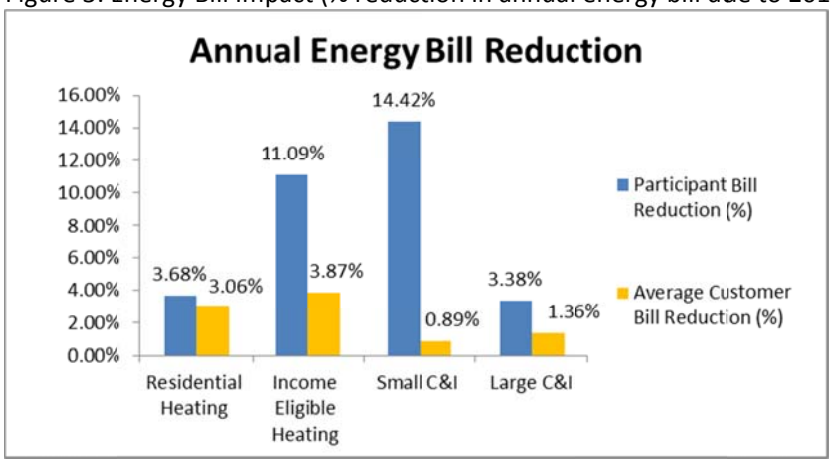
The bill impact analyses also show the combined effect of EE programs on customer energy (electric and gas) bills. This is calculated by totaling up the dollar value of the expected bill savings from gas and electric energy efficiency and dividing by the total typical combined cost of gas and electricity. The proposed EE programs result in energy bill reduction for participants in all customer groups. The programs also reduce average customer energy bills (shown in Figure 3).

[7] Example of gas bill impact on typical participant in Rhode Island. Bills are calculated based on average annual consumption of a typical customer in Rhode Island (standard residential: 840 therms, low-income residential: 843 therms, small C&I: 1352 therms, large C&I: 268801 therms).

[8] Example of gas bill impact on typical customers in Rhode Island. Refer to footnote 7 for assumptions on typical annual consumption for different rate groups.

[9] The difference in bill reduction percentage between standard residential and income-eligible participants is mainly driven by home energy report for standard residential customers. As explained earlier, home energy report brings less direct energy savings to participants. This analysis assumes home energy report is offered to standard residential customers.

Figure 3: Energy Bill Impact (% reduction in annual energy bill due to 2016 EE)[10]



[10] Income-eligible participant energy bill reduction is mainly driven by high gas bill reduction while small C&I participant energy bill reduction is mainly driven by high electric bill reduction.