

**2015/2016 New Hampshire Statewide CORE Energy Efficiency Plan  
Docket DE 14-216  
- Summary of Updates to the September 12, 2014 Filing –**

Page	Description of Change
Cover Page	Incorporated revision date.
Page 2	At the request of ISO-NE, updated second bullet: from “The Electric Programs are Cost Effective According to ISO-NE Forecast” to “The Electric Programs are Cost Effective”. Updated title on second chart: from “Based on ISO-NE’s.....” to “Source: ISO-NE’s.....”.
Page 78	Incorporated the quarterly report filing requirement (must be filed no later than 60 days after the end of a quarter) within the Plan. This reporting requirement has been included in previous years’ Settlement Agreements.
Page 80	Incorporated the annual performance incentive filing requirement (the CORE Utilities will strive to complete this filing by June 1 <sup>st</sup> of each year) within the Plan. The source is Order No. 25,189 in DE 10-188.
Page 82 and 83	Incorporated the sector budget cap requirement within the Plan. This budget cap requirement was included in the 2013/2014 Settlement Agreement.
Attachment GG (page 150)	Attachment GG Program Year 2016 page 1 of 3: Updated TRC Net Benefits of C&I Education – From \$0 to -\$13.
<b>The following revisions are associated with adjustments in projected program participation, savings and spending for EnergyNorth as described in Section II.B of the Settlement Agreement.</b>	
Page 7	Updated the natural gas program statistics for 2015 and 2016.
Page 8	Updated the estimated value of the benefits to be achieved under the two-year Plan from \$190 million to \$194 million.
Page 19	Updated Section A (1) to reflect revised MMBtu savings in the natural gas programs in 2015 and 2016.
Page 20	Updated Sections A (3) and (4) to reflect revised MMBtu savings and participation levels in the natural gas programs in 2015 and 2016.
Attachment DG – 2015 Pages 111 – 113	Reflect revised MMBtu savings, participation and spending levels.
Attachment DG – 2016 Pages 114-116	Reflect revised MMBtu savings, participation and spending levels.
Attachment H1 – 2015 Page 153	Reflect revised MMBtu savings, participation and spending levels.
Attachment H1 – 2016 Page 157	Reflect revised MMBtu savings, participation and spending levels.
Attachment H2 Pages 165, 170	Reflect revised MMBtu savings, participation and spending levels.
Attachment IG Pages 180, 182, 183, 184	Reflect revised MMBtu savings, participation and spending levels.
Attachment N – 2015 Pages 221 – 223	Reflect revised MMBtu savings, participation and spending levels.
Attachment N – 2016 Pages 224 – 226	Reflect revised MMBtu savings, participation and spending levels.

**2015-2016**

---

**New Hampshire Statewide CORE  
Energy Efficiency Plan**

---



**Jointly Submitted by New Hampshire's Electric and Natural Gas Utilities**

Granite State Electric Company d/b/a Liberty Utilities  
New Hampshire Electric Cooperative, Inc.  
Public Service Company of New Hampshire  
Unitil Energy Systems, Inc.  
EnergyNorth Natural Gas, Inc. d/b/a Liberty Utilities  
Northern Utilities, Inc.







**NHPUC Docket DE 14-216**

**September 12, 2014**

**Revised December 11, 2014**



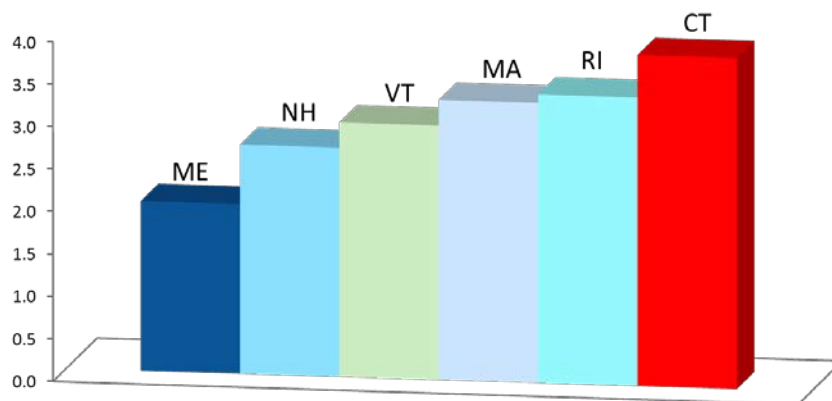
❖ **The Impacts of the Electric Programs from 2002 – 2013**

	Saved 10.2 billion lifetime kWhs, enough energy to power the city of Manchester for nearly 11 years
	Provided customers <sup>1</sup> with 990,000 efficiency products or services
	Saved customers \$1.4 billion that can be reinvested in the New Hampshire economy. These savings are more than 6 times the cost of the CORE Energy Efficiency electric programs.
	Reduced emissions equivalent to taking 1.3 million cars off the road for a year
	Saved energy at an average cost of approximately 2.26 cents per lifetime kWh – as compared to the July 2013 average electricity retail price of 13.99 cents per kWh
	Reduced New England's 2013 peak load by 8.3 MWs – the equivalent peak load of approximately 5,500 residences - all the residents in the Town of Jaffrey

❖ **The Electric Programs are Cost Effective**

Energy efficiency programs are a cost-effective solution to helping meet the region’s overall electrical energy needs. As illustrated below, all of the New England states, including New Hampshire, deliver cost-effective energy efficiency programs – attaining greater kilowatt-hour savings for every dollar spent on energy efficiency than the retail cost (13.99 ¢/kWh) to purchase the energy.

**Cost to Save a Lifetime kWh**  
Source: ISO-NE’s Energy Efficiency Forecast dated 3/31/14  
(cents/kWh)



<sup>1</sup> Hereinafter, the word “customer” will be understood to mean both customers and NHEC members.

- Working with supply chains such as lighting and appliance retailers, heating and cooling system suppliers, and others to make sure they are stocking and promoting the most efficient products.
- Continuing to report energy savings to ISO-NE to help reduce New Hampshire's peak demand and to potentially reduce electric costs for customers.
- Engaging banks and other lenders to facilitate financing for home weatherization improvements.

This Statewide CORE Energy Efficiency Plan for New Hampshire is designed to help New Hampshire customers by achieving the following energy savings:

- **Statewide Electric Program Savings:** : Approximately 57.0 million annual kWh savings in 2015, or 0.5% of 2013 electric delivery sales of 10.8 billion kWhs, at an overall cost of 3.8¢ per lifetime kWh as compared to the current statewide average retail cost of 15.3¢ per kWh<sup>1</sup>.
- **Statewide Natural Gas Program Savings:** Approximately 141,000 annual MMBtu savings in 2015, or 0.6% of 2013 natural gas delivery sales of 23.2 million MMBtus, at an overall cost of \$3.25 per lifetime MMBtu as compared to the current statewide average retail cost of \$8.00 per MMBtu<sup>1</sup>.

#### **ELECTRIC PROGRAMS**

	<b>2015</b>	<b>2016</b>
Lifetime kWh Savings	745,242,411	688,239,859
Annual kWh Savings	56,979,474	53,346,298
Annual Savings as a % of 2013 Delivery Sales	0.5%	0.5%
Program Funding	\$28.0M	\$25.6M
Program Cost per Lifetime kWh Savings	\$0.0376	\$0.0372

#### **NATURAL GAS PROGRAMS**

	<b>2015</b>	<b>2016</b>
Lifetime MMBtu Savings	2,236,530	2,292,144
Annual MMBtu Savings	140,963	143,927
Annual Savings as a % of 2013 Delivery Sales	0.6%	0.6%
Program Funding	\$7.3M	\$7.5M
Program Cost per Lifetime MMBtu Savings	\$3.25	\$3.26

The utilities are excited to be part of New Hampshire's energy future. The Plan that follows contains the strategies the utilities plan to implement as we help our customers use energy more efficiently.

<sup>1</sup> Based on NH Office of Energy and Planning's average electricity and average natural gas (Tier 2) prices effective August 4, 2014.

### III. INTRODUCTION

#### A. Overview

The New Hampshire electric and natural gas utilities are pleased to submit this 2015-2016 New Hampshire Statewide CORE Energy Efficiency Plan (the “Plan”) for approval by the New Hampshire Public Utilities Commission. This Plan is being filed jointly by Granite State Electric Company d/b/a Liberty Utilities, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire and Until Energy Systems, Inc. (referred to throughout the remainder of this document as the “NH Electric Utilities”) and EnergyNorth Natural Gas, Inc. d/b/a Liberty Utilities and Northern Utilities, Inc. (referred to as the “NH Gas Utilities”) or collectively as the “NH CORE Utilities”. We appreciate the opportunity to continue to provide energy efficiency programs in New Hampshire and look forward to working with all of the energy efficiency stakeholders to continually improve our program offerings and to increase our customers’ awareness of the significant economic and environmental benefits that energy efficiency brings to New Hampshire. The NH CORE Utilities estimate the value of the benefits to be achieved under this two-year Plan to be greater than **\$194 million**.

This Plan represents the results of a coordinated and integrated planning effort among the six New Hampshire Electric and Natural Gas Utilities with a focus on providing high quality, innovative and comprehensive energy efficiency products and services to our customers within the existing available budgets. We have made significant progress over the past two years to create a seamless delivery of products and services to our customers to ensure all New Hampshire’s residents, businesses and municipalities receive similar product and service offerings across all of New Hampshire, while taking into account the unique customer characteristics and demographics of each Utilities’ service area. This accomplishment is reflective of the solid working relationship developed among the energy efficiency teams from each Utility and is critically important to the successful delivery of energy efficiency programs and services to-date and into the future.

The NH CORE Utilities recognize changes could occur over the next year that may necessitate an update to the 2016 program plan in order to accurately reflect program goals and budgets. If necessary, the NH CORE Utilities will file a Plan update by September 30, 2015.

This Plan is separated into the following five major categories:

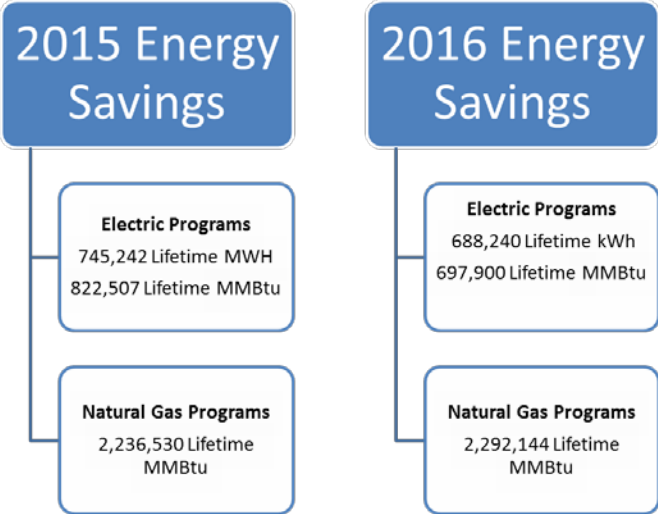
- A Prologue, which summarizes the significant benefits the NH CORE Energy Efficiency Programs have delivered since their inception in 2002 through 2013.
- An Executive Summary.
- An Introduction, which primarily summarizes the short and long-term vision of the NH CORE Utilities and recent significant achievements.
- The Two Year Plan, which summarizes the benefits and cost effectiveness of the programs and services to be offered in 2015 and 2016; overall program funding by source and program budgets, goals and program descriptions; financing options and initiatives; program monitoring, evaluation and reporting; and the performance incentive structure.
- The Attachments, which contain program budgets and detailed program planning assumptions and results.

# IV. THE TWO YEAR PLAN

## A. Overall Benefits and Cost Effectiveness

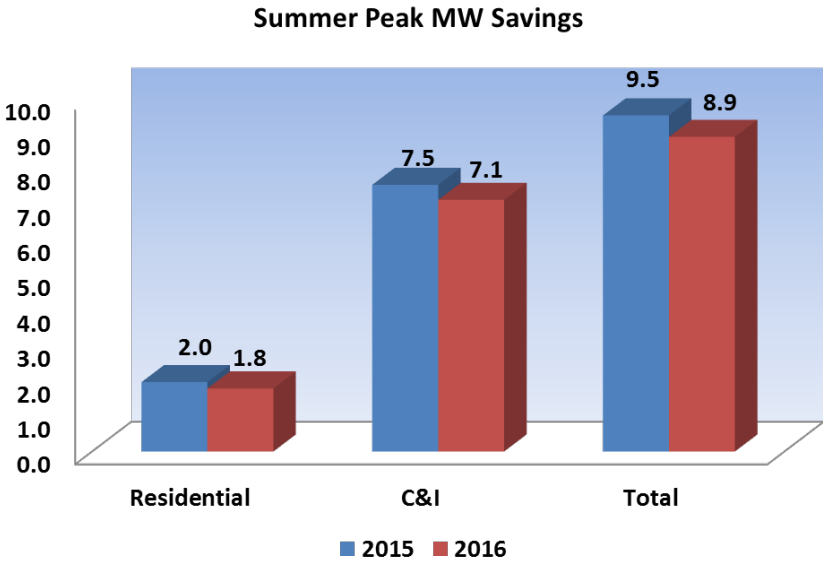
### 1) Energy Savings

The energy savings goals set by the NH CORE Utilities in 2015 and 2016 represent approximately 0.5% of the NH Electric Utilities 2013 total delivered sales 0.6% of the NH Gas Utilities 2013 total delivered sales.



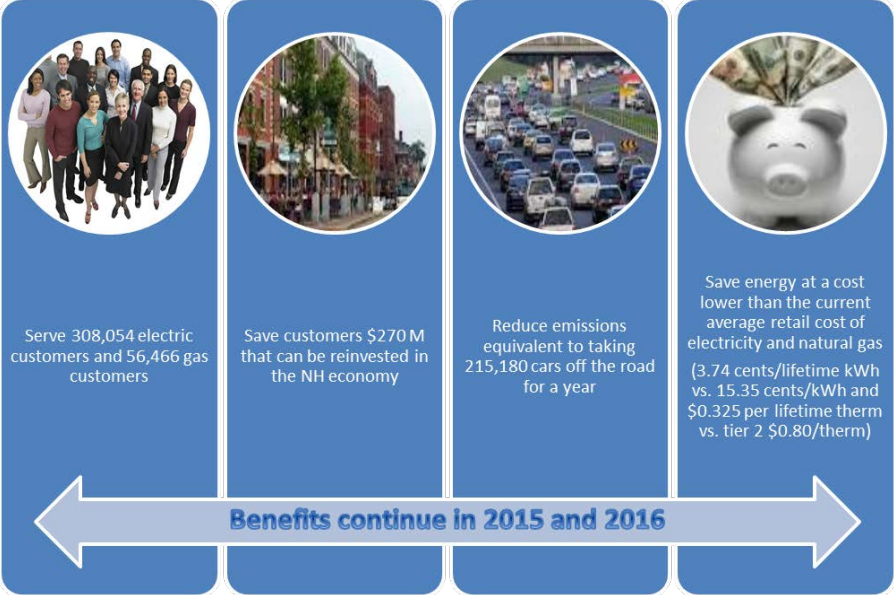
### 2) Peak Reduction

The energy savings which will result from the NH CORE Programs will lower the overall peak in New Hampshire reducing the need to invest in additional energy sources to meet peak demand, benefitting all customers.



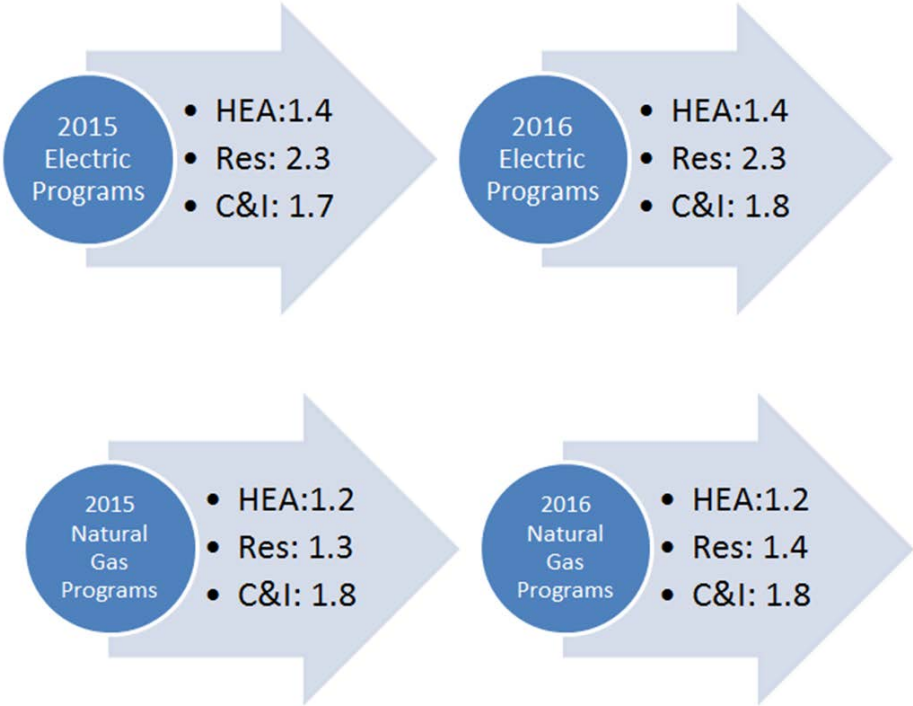
3) Benefits

Over 350,000 participating customers will receive direct benefits from lower energy bills while all customers will receive environmental benefits from reduced emissions. Lower energy bills mean more dollars available to invest in New Hampshire's economy.



4) Cost-Effectiveness

Programs undergo a rigid cost-effectiveness screening process that results in implementing cost-effective programs with benefit-cost ratios equal to or greater than 1.0.



**Reporting**

The NH CORE Utilities submit Quarterly Reports to the NH Public Utilities Commission summarizing each utility's progress towards meeting the program savings, customer participation and spending goals approved by the Commission. These reports are submitted no later than 60 days after the end of a quarter, and include the following information:

1. **NH CORE Program Highlights:** Includes comparisons of program goals to actual accomplishments-to-date (i.e. program expenses, customer participation, annual and lifetime kilowatt-hour savings and annual and lifetime MMBtu savings) by utility and in aggregate; CO2 emissions reductions resulting from the CORE programs; annual savings by fuel type, monitoring and evaluation expenses and activities, and loan program statistics.
2. **Expenses by Activity:** Summarizes actual expenses by the following tracking activities by program and utility.

Tracking Activity	Description
Administration - Internal	Used to track all internal utility costs associated with program design, development, regulatory support, and quality assurance. Costs captured in this activity include: employee labor, benefits, expenses, materials, and supplies.
Administration - External	Used to track the total cost of contractors and consultants used in support of program design, development, regulatory support, and quality assurance. Captures all of the utility's external costs associated with program administration.
Customer Rebates & Services	All rebate dollars paid directly to customers as well as "indirect" payments to customers such as discounted prices. Also includes all costs directly attributable to providing energy efficiency services to customers (e.g. technical audits, employee and contract labor for installing efficiency measures, expenses, materials, and supplies).
Internal Implementation Services	Used to track the utility's internal costs associated with delivering program services to customers. Costs captured in this activity include: employee labor, benefits, expenses, materials, and supplies.
Marketing	Used to track all costs associated with marketing, advertising, trade shows, toll free numbers, and NH Saves web site. Costs captured in this activity include: labor, benefits, expenses, consultants, contractors, materials, and supplies.
Evaluation	Used to track all costs associated with monitoring and evaluation. Costs captured in this activity include: labor, benefits, expenses, consultants, contractors, tracking systems, materials, and supplies.



## G. Performance Incentive

### Background

On September 6, 2013, the Commission issued Order No. 25,569 approving a performance incentive formula for effect beginning with the 2014 program year. In addition, as part of the Settlement Agreement reached as part of the Program Year 2014 Update Plan, the Settling Parties and Commission's Staff agreed to discuss at the CORE meetings in 2014 the performance incentive formula for the gas utilities for 2015 and beyond. As a result of the discussions that took place in 2014, both the Commission's Staff and the NH CORE Utilities informally agreed that it is premature to further discuss the performance incentive formula in light of the fact that a preliminary Energy Efficiency Resource Standard (EERS) proposal will be circulated by the Commission's Staff in 2014. The appropriate time to further discuss the performance incentive mechanism is when the details of the EERS proposal are known, since the issues surrounding an EERS are inter-related with the performance incentive mechanism. Additional performance incentive working group sessions will be planned after the EERS proposal is circulated.

The NH CORE Utilities have utilized the existing performance incentive formula to prepare this Plan. The performance incentive formula is summarized below.

The NH CORE Utilities will each prepare an annual performance incentive filing for each program year and will strive to complete this filing by June 1st of the following program year.

### Performance Incentive Formula

Four factors influence the performance incentive (PI) for the electric programs: (1) the actual dollars spent; (2) the ratio of the actual electric lifetime savings achieved to the total actual lifetime energy savings achieved (includes both electric and non-electric measures); (3) the ratio of the actual benefit-to-cost ratio achieved to the predicted benefit-to-cost ratio; and (4) the ratio of the actual lifetime kilowatt-hour savings achieved to the predicted lifetime kilowatt-hour savings achieved.

Three factors influence the performance incentive (PI) for the gas programs: (1) the actual dollars spent; (2) the ratio of the actual benefit-to-cost ratio achieved to the predicted benefit-to-cost ratio; and (3) the ratio of the actual lifetime MMBTU savings achieved to the predicted lifetime MMBTU savings achieved.

The formula is as follows:

A. For the CORE programs offered by the NH Electric Utilities:

- i. The percentage of electric lifetime savings to the total lifetime energy savings achieved by each electric utility is calculated using the following formula:

$$\text{Electric Lifetime Savings \%} = \frac{\text{Electric Lifetime Savings}}{\text{Total Lifetime Energy Savings}}$$

Where:

**Total Lifetime Energy Savings** = Electric Lifetime Savings (in kWh) + (Lifetime MMBTU Savings x 293)

**Electric Lifetime Savings** = Actual lifetime kilowatt-hour savings achieved by all CORE programs offered by each electric utility

**Lifetime MMBTU Savings** = Actual lifetime MMBTU savings achieved by all CORE programs offered by each electric utility

- C. The following threshold conditions are applicable:
- i. For the programs offered by the NH Electric Utilities and NH Gas Utilities, the combined benefit-to-cost ratio for residential sector programs must be 1.0 or greater. If not, there is no incentive associated with the program cost effectiveness performance metric. The commercial/industrial component is calculated similarly.
  - ii. For the programs offered by the NH Electric Utilities, the actual lifetime kWh savings for the residential sector programs must be 65% or greater than the predicted lifetime kWh savings. If not, there is no incentive associated with the kWh savings performance metric. The commercial/industrial component is calculated similarly.
  - iii. For the programs offered by the NH Gas Utilities, the actual lifetime MMBTU savings for the residential sector programs must be 65% or greater than the predicted lifetime MMBTU savings. If not, there is no incentive associated with the MMBTU savings performance metric. The commercial/industrial component is calculated similarly.
- D. The NH Electric Utilities and the NH Gas Utilities may exceed the approved residential and commercial/industrial sector budgets which include all sources of funding and do not include the performance incentive by up to 5% without further review or approval by the Commission. A utility may apply for permission to exceed the 5% cap demonstrating good reasons why the cap should be exceeded for the program year.

Performance Incentive Budget

A portion of each utility’s budget is set aside for the PI, as defined in the Energy Efficiency Working Group Report dated July 6, 1999 in DR 96-150 (page 21, part 3f).<sup>1</sup>

Each NH Electric Utility budgets for a 7.5% PI as follows:

Electric Utility PI Budget  
 $PI = 7.5\% \times [BUDGET_{TOT} - PI]$   
 $PI = 0.069767 \times BUDGET_{TOT}$

Each NH Gas Utility budgets for an 8.0% PI as follows:

Gas Utility PI Budget  
 $PI = 8.0\% \times [BUDGET_{TOT} - PI]$   
 $PI = 0.074074 \times BUDGET_{TOT}$

Where:

**PI** = Performance incentive in dollars

**BUDGET<sub>TOT</sub>** = Total budget in dollars, including the performance incentive

Smart Start Program Performance Incentive

PSNH’s Smart Start Program performance incentive is 6% of the loans repaid.

Benefit-to-Cost Ratio Avoided Costs and Assumptions

Refer to Attachment C for information on avoided costs and assumptions used to calculate the benefit-to-cost ratios.

---

<sup>1</sup> “For incentive calculation purposes only, planned energy efficiency budget is defined as the total program budget minus performance incentives...”

Performance Incentive Calculations

Attachments D, DG, E, F, G and GG present each utility's calculations for cost effectiveness, performance incentive, planned benefit-to-cost ratios and planned energy savings for each program.

# NH SAVES

*we all win*



**Total Resource Benefit Cost Analysis**  
 Summary of Benefit, Costs Program Year 2015

BCR Activity	TRC Benefit/ Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.20	\$184	\$1,106	\$921	\$921	\$0	6,651	133,013	324
Home Performance with ENERGY STAR	1.50	\$650	\$1,940	\$1,290	\$730	\$559	11,681	233,624	468
ENERGY STAR Products	1.29	\$429	\$1,908	\$1,479	\$828	\$650	14,006	238,700	1,238
ENERGY STAR Homes	3.12	\$138	\$203	\$65	\$61	\$4	990	24,742	15
Building Practices and Demo	1.38	\$111	\$405	\$294	\$294	\$0	18,440	55,320	25,000
<b>Subtotal: Residential</b>	<b>1.37</b>	<b>\$1,514</b>	<b>\$5,562</b>	<b>\$4,048</b>	<b>\$2,834</b>	<b>\$1,214</b>	<b>51,768</b>	<b>685,399</b>	<b>27,046</b>
<b>Commercial &amp; Industrial</b>									
Large Business	1.37	\$870	\$3,220	\$2,349	\$1,445	\$904	35,112	510,599	166
Small Business	1.85	\$1,282	\$2,784	\$1,502	\$1,033	\$469	19,195	389,617	380
Codes, Audit Training & Education	0.00	(\$15)	\$0	\$15	\$15	\$0	-	-	-
<b>Subtotal: Commercial &amp; Industrial</b>	<b>1.55</b>	<b>\$2,138</b>	<b>\$6,004</b>	<b>\$3,866</b>	<b>\$2,493</b>	<b>\$1,373</b>	<b>54,307</b>	<b>900,217</b>	<b>546</b>
<b>Grand Total</b>	<b>1.46</b>	<b>\$3,651</b>	<b>\$11,566</b>	<b>\$7,914</b>	<b>\$5,327</b>	<b>\$2,587</b>	<b>106,075</b>	<b>1,585,616</b>	<b>27,592</b>

**Performance Incentive Calculation  
2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Target Benefit/Cost Ratio	1.48	
2. Threshold Benefit/Cost Ratio <sup>1</sup>	1.00	
3. Target Lifetime MMBTU	900,217	
4. Threshold Lifetime MMBTU (65%) <sup>2</sup>	585,141	
5. Budget	\$2,493,010	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime MMBTU Percentage	4.00%	
<b>8. Target C/I Incentive</b>	<b>\$199,441</b>	
<b>9. Cap (12%)</b>	<b>\$299,161</b>	
<b>Residential Incentive</b>		
10. Target Benefit/Cost Ratio	1.30	
11. Threshold Benefit/Cost Ratio <sup>1</sup>	1.00	
12. Target Lifetime MMBTU (65%) <sup>2</sup>	685,399	
13. Threshold MMBTU	445,509	
14. Budget	\$2,833,800	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime MMBTU Percentage	4.00%	
<b>17. Target Residential Incentive</b>	<b>\$226,704</b>	
<b>18. Cap (12%)</b>	<b>\$340,056</b>	
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$426,145</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector  
2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$6,003,749	
2. Implementation Expenses	\$2,493,010	
3. Customer Contribution	\$1,373,033	
4. Performance Incentive	\$199,441	
5. Total Costs Including Performance Incentive	<b>\$4,065,484</b>	
6. Benefit/Cost Ratio - C&I Sector	<b>1.55</b>	
7. Benefit/Cost Ratio - C&I Sector including PI	<b>1.48</b>	
<b>Residential:</b>		
8. Benefits (Value) From Eligible Programs	\$5,561,911	
9. Implementation Expenses	\$2,833,800	
10. Customer Contribution	\$1,214,331	
11. Performance Incentive	\$226,704	
12. Total Costs Including Performance Incentive	<b>\$4,274,835</b>	
13. Benefit/Cost Ratio - Residential Sector	<b>1.37</b>	
14. Benefit/Cost Ratio - Residential Sector including	<b>1.30</b>	

**Total Resource Benefit Cost Analysis**  
Summary of Benefit, Costs Program Year 2016

BCR Activity	TRC Benefit/Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.24	\$228	\$1,177	\$949	\$949	\$0	6,852	137,036	334
Home Performance with ENERGY STAR	1.56	\$740	\$2,072	\$1,332	\$754	\$578	12,069	241,382	484
ENERGY STAR Products	1.34	\$505	\$2,011	\$1,505	\$851	\$655	14,258	242,568	1,232
ENERGY STAR Homes	3.22	\$149	\$216	\$67	\$63	\$5	1,019	25,484	16
Building Practices and Demo	1.36	\$108	\$411	\$302	\$302	\$0	18,440	55,320	25,000
<b>Subtotal: Residential</b>	<b>1.42</b>	<b>\$1,731</b>	<b>\$5,887</b>	<b>\$4,156</b>	<b>\$2,919</b>	<b>\$1,237</b>	<b>52,639</b>	<b>701,790</b>	<b>27,066</b>
<b>Commercial &amp; Industrial</b>									
Large Business	1.43	\$1,039	\$3,450	\$2,411	\$1,489	\$923	36,024	528,583	173
Small Business	1.97	\$1,518	\$3,081	\$1,562	\$1,064	\$499	20,718	416,735	417
Codes, Audit Training & Education	0.00	(\$15)	\$0	\$15	\$15	\$0	-	-	-
<b>Subtotal: Commercial &amp; Industrial</b>	<b>1.64</b>	<b>\$2,542</b>	<b>\$6,531</b>	<b>\$3,989</b>	<b>\$2,567</b>	<b>\$1,422</b>	<b>56,741</b>	<b>945,317</b>	<b>589</b>
<b>Grand Total</b>	<b>1.52</b>	<b>\$4,273</b>	<b>\$12,418</b>	<b>\$8,145</b>	<b>\$ 5,486</b>	<b>\$2,659</b>	<b>109,380</b>	<b>1,647,108</b>	<b>27,655</b>



**Performance Incentive Calculation  
2016**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Target Benefit/Cost Ratio	1.56	
2. Threshold Benefit/Cost Ratio <sup>1</sup>	1.00	
3. Target Lifetime MMBTU	945,317	
4. Threshold Lifetime MMBTU (65%) <sup>2</sup>	614,456	
5. Budget	\$2,567,350	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime MMBTU Percentage	4.00%	
<b>8. Target C/I Incentive</b>	<b>\$205,388</b>	
<b>9. Cap (12%)</b>	<b>\$308,082</b>	
<b>Residential Incentive</b>		
10. Target Benefit/Cost Ratio	1.34	
11. Threshold Benefit/Cost Ratio	1.00	
12. Target lifetime MMBTU	701,790	
13. Threshold MMBTU	456,164	
14. Budget	\$2,918,814	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime MMBTU Percentage	4.00%	
<b>17. Target Residential Incentive</b>	<b>\$233,505</b>	
<b>18. Cap (12%)</b>	<b>\$350,258</b>	
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$438,893</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$6,530,856	
2. Implementation Expenses	\$2,567,350	
3. Customer Contribution	\$1,421,508	
4. Performance Incentive	\$205,388	
5. Total Costs Including Performance Incentive	<b>\$4,194,246</b>	
6. Benefit/Cost Ratio - C&I Sector	<b>1.64</b>	
7. Benefit/Cost Ratio - C&I Sector including PI	<b>1.56</b>	
<b>Residential:</b>		
8. Benefits (Value) From Eligible Programs	\$5,886,907	
9. Implementation Expenses	\$2,918,814	
10. Customer Contribution	\$1,237,076	
11. Performance Incentive	<b>\$233,505</b>	
12. Total Costs Including Performance Incentive	<b>\$4,389,396</b>	
13. Benefit/Cost Ratio - Residential Sector	<b>1.42</b>	
14. Benefit/Cost Ratio - Residential Sector including	<b>1.34</b>	

**Total Resource Benefit Cost Analysis**  
Summary of Benefit, Costs Program Year 2016

BCR Activity	TRC Benefit/Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.24	\$52	\$273	\$221	\$221	\$0	1,298	28,218	45
EnergyStar® Homes	1.39	\$34	\$123	\$89	\$80	\$9	529	12,408	13
HP w/EnergyStar®	1.01	\$2	\$172	\$171	\$118	\$53	944	20,204	25
EnergyStar® Products	1.08	\$55	\$765	\$710	\$430	\$280	4,917	93,174	431
Res Education	0.00	(\$17)	\$0	\$17	\$17	\$0	-	-	
<b>Subtotal: Residential</b>	<b>1.10</b>	<b>\$126</b>	<b>\$1,333</b>	<b>\$1,207</b>	<b>\$866</b>	<b>\$342</b>	<b>7,688</b>	<b>154,004</b>	<b>514</b>
<b>Commercial &amp; Industrial</b>									
Large Business Energy Solutions	2.64	\$1,564	\$2,514	\$951	\$313	\$637	21,825	381,065	12
Small Business Energy Solutions	2.10	\$390	\$744	\$354	\$232	\$122	5,034	109,967	93
Education (Gas)	0.00	(\$13)	\$0	\$13	\$13	\$0	-	-	
<b>Subtotal: Commercial &amp; Industrial</b>	<b>2.47</b>	<b>\$1,940</b>	<b>\$3,258</b>	<b>\$1,318</b>	<b>\$558</b>	<b>\$760</b>	<b>26,859</b>	<b>491,032</b>	<b>105</b>
<b>Grand Total</b>	<b>1.82</b>	<b>\$2,067</b>	<b>\$4,591</b>	<b>\$2,525</b>	<b>\$1,424</b>	<b>\$1,101</b>	<b>34,547</b>	<b>645,036</b>	<b>619</b>

**NH CORE ENERGY EFFICIENCY PROGRAM - 2015 UTILITY BUDGETS BY ACTIVITY**  
 Residential Programs

Description	Electric Utilities					Gas Utilities			Grand Total
	Liberty Utilities	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
Home Energy Assistance									
Internal Admin	\$ 13,966	\$ 7,238	\$ 56,878	\$ 55,089	\$ 133,172	\$ 25,500	\$ 23,989	\$ 49,489	\$ 182,661
External Admin	0	3,085	0	25,000	28,085	0	17,007	17,007	45,093
Rebate/Services	367,783	216,989	2,345,017	279,914	3,209,703	742,850	131,069	873,919	4,083,622
Implementation Services	60,521	15,433	121,496	68,389	265,839	110,400	32,196	142,596	408,435
Marketing	0	1,313	5,000	4,557	10,870	0	2,173	2,173	13,043
EM&V	23,277	10,799	133,073	26,675	193,824	42,500	10,865	53,365	247,189
Total	\$ 465,549	\$ 254,856	\$ 2,661,464	\$ 459,624	\$ 3,841,493	\$ 921,250	\$ 217,299	\$ 1,138,549	\$ 4,980,042
HP w/EnergyStar®									
Internal Admin	\$ 8,034	\$ 21,713	\$ 41,109	\$ 33,329	\$ 104,185	\$ 19,681	\$ 12,620	\$ 32,301	\$ 136,486
External Admin	0	9,256	0	26,321	35,577	0	6,034	6,034	41,611
Rebate/Services	195,505	182,853	1,537,496	192,622	2,108,477	559,450	69,910	629,360	2,737,837
Implementation Services	34,816	46,299	223,798	45,721	350,633	83,362	14,187	97,549	448,182
Marketing	16,069	1,313	25,000	9,847	52,229	34,863	1,000	35,863	88,092
EM&V	13,391	10,799	96,179	15,149	135,518	32,801	6,250	39,051	174,569
Total	\$ 267,816	\$ 272,233	\$ 1,923,582	\$ 322,990	\$ 2,786,620	\$ 730,157	\$ 110,000	\$ 840,157	\$ 3,626,777
EnergyStar® Homes									
Internal Admin	\$ 3,896	\$ 23,787	\$ 21,512	\$ 22,820	\$ 72,015	\$ 1,650	\$ 10,847	\$ 12,497	\$ 84,512
External Admin	0	10,140	0	2,503	12,643	0	6,000	6,000	18,643
Rebate/Services	94,791	89,284	799,730	112,858	1,096,662	40,500	46,133	86,633	1,183,295
Implementation Services	16,881	50,719	112,546	26,320	206,466	7,150	11,820	18,970	225,436
Marketing	7,791	1,313	22,500	1,750	33,354	8,500	800	9,300	42,654
EM&V	6,493	10,799	50,331	8,750	76,372	3,000	4,400	7,400	83,772
Total	\$ 129,850	\$ 186,042	\$ 1,006,619	\$ 175,000	\$ 1,497,511	\$ 60,800	\$ 80,000	\$ 140,800	\$ 1,638,311
Energy Star® Products									
Internal Admin	\$ 12,417	\$ 39,726	\$ 51,235	\$ 45,679	\$ 149,057	\$ 22,319	\$ 46,196	\$ 68,515	\$ 217,572
External Admin	0	16,935	0	56,409	73,344	0	25,885	25,885	99,229
Rebate/Services	302,145	174,284	2,020,384	167,934	2,664,748	634,450	272,795	907,245	3,571,992
Implementation Services	53,807	84,707	65,946	58,367	262,826	94,538	47,862	142,400	405,225
Marketing	24,834	25,000	140,000	19,562	209,395	39,537	7,873	47,410	256,805
EM&V	20,695	21,598	119,872	17,050	179,214	37,199	21,085	58,284	237,498
Total	\$ 413,897	\$ 362,251	\$ 2,397,437	\$ 365,000	\$ 3,538,585	\$ 828,043	\$ 421,695	\$ 1,249,738	\$ 4,788,323

**NH CORE ENERGY EFFICIENCY PROGRAM - 2016 UTILITY BUDGETS BY ACTIVITY**  
Residential Programs

Description	Electric Utilities						Gas Utilities			Grand Total
	LU Electric	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Sub-total Gas			
							Unitil Gas	Gas		
Home Energy Assistance	\$ 9,189	\$ 7,238	\$ 61,922	\$ 53,981	\$ 132,329	\$ 26,265	\$ 24,358	\$ 50,623	\$ 182,952	
Internal Admin	0	3,083	0	25,000	28,083	0	17,269	17,269	45,352	
External Admin	241,986	206,120	2,369,982	273,778	3,091,865	765,136	133,086	898,221	3,990,086	
Rebate/Services	39,820	15,433	125,141	67,013	247,406	113,712	32,692	146,404	393,810	
Implementation Services	0	1,063	5,000	4,466	10,529	0	2,206	2,206	12,736	
Marketing	15,316	10,300	134,844	26,216	186,677	43,775	11,032	54,807	241,484	
EM&V	\$ 306,311	\$ 243,237	\$ 2,696,888	\$ 450,453	\$ 3,696,889	\$ 948,888	\$ 220,643	\$ 1,169,530	\$ 4,866,420	
Total	\$ 5,253	\$ 21,713	\$ 39,362	\$ 33,329	\$ 99,657	\$ 20,332	\$ 13,630	\$ 33,962	\$ 133,619	
HP w/EnergyStar®	0	9,250	0	26,321	35,570	0	6,516	6,516	42,087	
Internal Admin	127,818	161,433	1,333,763	192,622	1,815,636	577,967	74,782	652,749	2,468,386	
External Admin	22,762	46,299	230,512	45,721	345,293	86,121	15,242	101,363	446,656	
Rebate/Services	10,506	1,063	25,000	9,847	46,416	36,017	1,080	37,097	83,513	
Implementation Services	8,755	10,300	85,718	15,149	119,922	33,887	6,750	40,637	160,559	
Marketing	\$ 175,093	\$ 250,059	\$ 1,714,355	\$ 322,990	\$ 2,462,496	\$ 754,325	\$ 118,000	\$ 872,325	\$ 3,334,821	
EM&V	\$ 2,547	\$ 23,787	\$ 20,598	\$ 22,820	\$ 69,752	\$ 1,700	\$ 10,847	\$ 12,547	\$ 82,299	
Total	0	10,133	0	2,503	12,635	0	6,000	6,000	18,635	
EnergyStar® Homes	61,972	82,144	693,252	112,858	950,226	41,715	46,133	87,848	1,038,074	
Internal Admin	11,036	50,719	115,922	26,320	203,998	7,365	11,820	19,184	223,182	
External Admin	5,094	1,063	22,500	1,750	30,407	8,755	800	9,555	39,962	
Rebate/Services	4,245	10,300	44,856	8,750	68,152	3,090	4,400	7,490	75,642	
Implementation Services	\$ 84,894	\$ 178,147	\$ 897,129	\$ 175,000	\$ 1,335,170	\$ 62,624	\$ 80,000	\$ 142,624	\$ 1,477,794	
Marketing	\$ 8,118	\$ 39,726	\$ 49,059	\$ 45,679	\$ 142,582	\$ 22,928	\$ 47,097	\$ 70,025	\$ 212,607	
EM&V	0	16,923	0	56,409	73,332	0	26,390	26,390	99,722	
Total	197,537	167,144	1,772,853	167,934	2,305,468	651,750	278,117	929,867	3,235,335	
Energy Star® Products	35,178	84,707	67,924	58,367	246,175	97,116	48,796	145,911	392,086	
Internal Admin	16,236	25,000	140,000	19,562	200,797	40,615	8,027	48,642	249,439	
External Admin	13,530	20,601	106,833	17,050	158,014	38,213	21,496	59,709	217,723	
Rebate/Services	\$ 270,599	\$ 354,101	\$ 2,136,669	\$ 365,000	\$ 3,126,368	\$ 850,621	\$ 429,923	\$ 1,280,544	\$ 4,406,913	
Implementation Services										
Marketing										
EM&V										
Total										

**NH CORE GAS PROGRAMS - 2015 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets and Lifetime MMBtu Savings**

	LU Gas		Unitil Gas		Total	
<b>Home Energy Assistance</b>						
Number of Units / Lifetime MMBtu Savings	324	133,013	45	28,135	369	161,148
B/C Ratio / Planned Budget	1.20	\$921,250	1.21	\$217,299		\$1,138,549
<b>Home Performance w/ENERGY STAR</b>						
Number of Participants / Lifetime MMBtu Savings	468	233,624	25	20,825	493	254,449
B/C Ratio / Planned Budget	1.50	\$730,157	1.05	\$110,000		\$840,157
<b>ENERGY STAR Homes</b>						
Number of Homes / Lifetime MMBtu Savings	15	24,742	13	12,589	28	37,330
B/C Ratio / Planned Budget	3.12	\$60,800	1.36	\$80,000		\$140,800
<b>ENERGY STAR Products</b>						
Number of Participants / Lifetime kWh Savings	1,238	238,700	407	97,573	1,645	336,273
B/C Ratio / Planned Budget / Lifetime MMBtu Savings	1.29	\$828,043	1.10	\$421,695		\$1,249,738
<b>Large Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	166	510,599	12	381,065	179	891,665
B/C Ratio / Planned Budget	1.37	\$1,445,300	2.55	\$313,214		\$1,758,514
<b>Small Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	380	389,617	99	110,728	478	500,345
B/C Ratio / Planned Budget	1.85	\$1,032,710	2.06	\$231,722		\$1,264,432
<b>Education</b>						
B/C Ratio / Planned Budget		\$15,000		\$28,000		\$43,000
<b>Company Specific Programs</b>						
B/C Ratio / Planned Budget		\$293,550		\$0	0	\$293,550
<b>Utility Performance Incentive</b>						
Planned Budget		\$426,145		\$112,154		\$538,299
<b>Total Program Expenses</b>		<b>\$5,752,955</b>		<b>\$1,514,086</b>		<b>\$7,267,040</b>

**NH CORE GAS PROGRAMS - 2016 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets and Lifetime MMBtu Savings**

	LU Gas		Unitil Gas		Total	
<b>Home Energy Assistance</b>						
Number of Units / Lifetime MMBtu Savings	334	137,036	45	28,218	379	165,254
B/C Ratio / Planned Budget	1.24	\$948,888	1.24	\$220,643		\$1,169,530
<b>Home Performance w/ENERGY STAR</b>						
Number of Participants / Lifetime MMBtu Savings	484	241,382	25	20,204	509	261,586
B/C Ratio / Planned Budget	1.56	\$754,325	1.01	\$118,000		\$872,325
<b>ENERGY STAR Homes</b>						
Number of Homes / Lifetime MMBtu Savings	16	25,484	13	12,408	28	37,892
B/C Ratio / Planned Budget	3.22	\$62,624	1.39	\$80,000		\$142,624
<b>ENERGY STAR Products</b>						
Number of Participants / Lifetime kWh Savings	1,232	242,568	431	93,174	1,663	335,742
B/C Ratio / Planned Budget / Lifetime MMBtu Savings	1.34	\$850,621	1.08	\$429,923		\$1,280,544
<b>Large Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	173	528,583	12	381,065	185	909,648
B/C Ratio / Planned Budget	1.43	\$1,488,659	2.64	\$313,214		\$1,801,873
<b>Small Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	417	416,735	93	109,967	509	526,702
B/C Ratio / Planned Budget	1.97	\$1,063,691	2.10	\$231,722		\$1,295,414
<b>Education</b>						
B/C Ratio / Planned Budget		\$0		\$30,000		\$30,000
<b>Company Specific Programs</b>						
B/C Ratio / Planned Budget		\$317,357		\$0	0	\$317,357
<b>Utility Performance Incentive</b>						
Planned Budget		\$438,893		\$113,880		\$552,773
<b>Total Program Expenses</b>		<b>\$5,925,057</b>		<b>\$1,537,383</b>		<b>\$7,462,440</b>

Liberty Utilities Gas  
NHPUC Docket No. DE 14-216  
Attachment IG (2015-2016 Plan)  
Home Performance with ENERGY STAR®

Liberty Utilities Gas Home Performance with ENERGY STAR®

Measure	Quantity				Annual Savings per Unit (mmbtu)						Measure Life			Installation or Realization Rate			Total Lifetime Savings (mmbtu)										
	2013 Plan		2015 Plan		2013 Plan		2015 Plan		2016 Plan		2013 Actual		2015 Plan		2016 Plan		2013 Actual		2015 Plan		2016 Plan						
	24.0	544.0	100.0	571.0	92	376	33.6	18.5	32.9	32.9	20.0	20.0	16.7	20.0	20.0	100%	100%	100%	100%	16,120	358,060	30,842	60,536.0	173,087.8	62,510.0	1,78,872.0	
Single Family (1-4 Units)																											
Multi-Family (5+ Units)																											



Liberty Utilities Gas  
NHPUC Docket No. DE 14-216  
Attachment G (2015-2016 Plan)  
ENERGY STAR® Products and Building Practices & Demonstration Programs

Liberty Utilities Gas ENERGY STAR® Products Program

Measure	Quantity			Annual Savings per Unit (mmbtu)						Measure Life			In-Service / Realization Rate			Total Lifetime Savings (mmbtu)		
	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	
Water Heater - Tankless, On-Demand >= 82	90.0	71.0	60	61	8.0	8.0	10.2	10.2	20.0	20.0	19	19	100%	100%	14,400	11,360	11,622	
Water Heater - Tankless, On-Demand >= 94	30.0	51.0	47	48	10.1	10.3	10.5	10.5	20.0	20.0	19	19	100%	100%	6,060	10,506	9,377	
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >= 85% (EF= .82)	175.0	68.0	65	66	3.7	3.7	8	8	20.0	20.0	20	20	100%	100%	12,960	5,032	10,400	
Water Heater - Condensing (EF 0.95)			2	2			8.5	8.5			15	15	100%	100%			255	
Water Heater - Stand Alone Storage Tank (EF 0.67)	62.0	4.0	25	-	3.7	3.7	4.2	4.2	13.0	13.0	13	13	100%	100%	2,982	192	1,365	
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	40.0	152.0	155	156	17.8	17.8	23.8	23.8	20.0	20.0	17	17	100%	100%	14,240	54,112	62,713	
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE			19	20			23.8	23.8			20	20	100%	100%			9,044	
Furnace 95+ AFUE (<150) w/ECM Motor	192.0	148.0	155	156	4.5	4.5	15.9	15.9	18.0	18.0	17	17	100%	100%	15,552	11,988	41,887	
Furnace 97+ AFUE (<150) w/ECM Motor	17.0	100.0	88	89	5.9	5.9	17.3	17.3	18.0	18.0	17	17	100%	100%	-1,865	10,620	25,881	
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	99.0	63.0	69	70	10.4	10.4	12	12	20.0	20.0	18	18	100%	100%	20,600	13,104	14,818	
Condensing Boiler >= 95% AFUE (Up to 300 MBH)	12.0	104.0	63	64	13.1	13.1	13.9	13.9	20.0	20.0	19	19	100%	100%	3,344	27,248	16,638	
Boiler Reset Controls	18.0	5.0	4	4	4.5	4.5	4.5	4.5	15.0	15.0	15	15	100%	100%	1,215	338	270	
Thermostat - Standard, 7-Day Programmable	1,410.0	303.0	380	380	3.2	3.2	3.2	3.2	15.0	15.0	15	15	100%	100%	67,680	14,544	18,240	
Thermostat - WFI (Cooling & Heating)	81.0	0.0	65	67	6.6	6.6	6.9	6.9	15.0	15.0	15	15	100%	100%	8,025	-	6,728	
Thermostat - WFI (Heating Only)	322.0	0.0	-	-	6.6	6.6	6.9	6.9	15.0	15.0	15	15	100%	100%	31,875	-	-	
Heat Recovery Ventilator (-133 kWh penalty)	0.0	1.0	2	2	7.7	7.7	7.7	7.7	20.0	20.0	20	20	100%	100%	-	154	308	
Boiler - Early Replacement, Steam - Retirement: 82%+ AFUE			4	6			43.9	43.9			10	10	100%	100%			1,756	
Boiler - Early Replacement, Steam - EE: 82%+ AFUE			4	6			3.5	3.5			20	20	100%	100%			280	
Boiler - Early Replacement, FHW - Retirement: 90 AFUE (65%-90%)			16	19			23.6	23.6			10	10	100%	100%			3,776	
Boiler - Early Replacement, FHW - EE 90 AFUE (80%-90%)			16	19			10.4	10.4			20	20	100%	100%			3,328	

Liberty Utilities Gas Building Practices & Demonstration Program

Measure	Quantity			Annual Savings per Unit (mmbtu)						Measure Life			In-Service / Realization Rate			Total Lifetime Savings (mmbtu)		
	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	
Home Energy Reports			25,000	25,000			0.7	0.7			3	3	100%	100%			55,320	

Measure	Quantity						Annual Savings per Unit (mmbtu)						Measure Life						Installation or Realization Rate			Total Lifetime Savings (mmbtu)					
	2013		2015		2016 Plan		2013		2015		2016 Plan		2013		2015		2016 Plan		2013	2015	2016	2013 Plan	2015 Actual	2016 Plan	2013 Plan	2015 Plan	2016 Plan
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan
Large Retrofit Custom	25	20	6	6	6	6	414.4	258.3	2,338.7	777.0	777.0	15	15	9	9	100%	100%	100%	155,400	63,211	131,904	155,400	63,211	131,904	155,400	63,211	131,904
Large New Equipment Custom	4	35	21	22	22	22	634.3	1,171.4	777.0	777.0	777.0	18	18	21	21	100%	100%	100%	45,666	440,374	341,084	45,666	440,374	341,084	45,666	440,374	341,084
Furnace 95+ AFUE (<150) w/ECM Motor	9	0	0	0	0	0	16.1	-	9.0	9.0	9.0	18	18	18	18	100%	100%	100%	2,610	-	-	2,610	-	-	2,610	-	-
Furnace 97+ AFUE (<150) w/ECM Motor	1	0	0	0	0	0	21.0	-	9.9	9.9	9.9	18	18	18	18	100%	100%	100%	378	-	-	378	-	-	378	-	-
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	0	1	0	1	2	2	-	-	30.6	30.6	30.6	25	25	25	25	100%	100%	100%	-	-	765	-	-	765	-	-	765
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	7	2	2	2	3	3	56.1	42.5	27.8	27.8	27.8	25	25	25	25	100%	100%	100%	9,825	2,115	2,920	9,825	2,115	2,920	9,825	2,115	2,920
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	2	0	0	0	0	0	103.0	-	107.3	107.3	107.3	25	25	25	25	100%	100%	100%	5,150	-	-	5,150	-	-	5,150	-	-
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	2	0	0	0	0	0	189.3	-	197.2	197.2	197.2	25	25	25	25	100%	100%	100%	13,525	-	-	13,525	-	-	13,525	-	-
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	3	2	2	2	3	3	331.3	249.0	345.1	345.1	345.1	25	25	25	25	100%	100%	100%	24,850	12,450	17,255	24,850	12,450	17,255	24,850	12,450	17,255
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	12	0	0	0	0	0	48.3	-	12.0	12.0	12.0	17	17	17	17	100%	100%	100%	9,860	-	-	9,860	-	-	9,860	-	-
Infrared Heater, Low Intensity (all sizes)	12	0	0	0	0	0	20.7	-	19.0	19.0	19.0	15	15	15	15	100%	100%	100%	3,720	-	-	3,720	-	-	3,720	-	-
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	6	0	0	0	0	0	41.0	-	3.0	3.0	3.0	13	13	13	13	100%	100%	100%	4,428	-	117	4,428	-	117	4,428	-	117
Water Heater - Stand Alone Storage Tank (EF 0.67)	2	0	0	0	0	0	58.5	-	58.6	58.6	12	12	12	12	100%	100%	100%	1,404	-	-	1,404	-	-	1,404	-	-	
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)	1	0	0	0	0	0	107.0	-	106.6	106.6	12	12	12	12	100%	100%	100%	1,284	-	-	1,284	-	-	1,284	-	-	
Kitchen - Fryer	1	0	0	0	0	0	31.0	-	30.6	30.6	12	12	12	12	100%	100%	100%	372	-	-	372	-	-	372	-	-	
Kitchen - Convection Oven (>= 44% efficiency)	1	0	0	0	0	0	110.0	-	110.3	110.3	12	12	12	12	100%	100%	100%	1,320	-	-	1,320	-	-	1,320	-	-	
Kitchen - Combination Oven (>= 44% efficiency)	1	0	0	0	0	0	85.0	-	84.5	84.5	12	12	12	12	100%	100%	100%	1,020	-	-	1,020	-	-	1,020	-	-	
Kitchen - Conveyor Oven (>= 44% efficiency)	1	0	0	0	0	0	211.0	-	211.3	211.3	12	12	12	12	100%	100%	100%	2,532	-	-	2,532	-	-	2,532	-	-	
Kitchen - Rack Oven (>= 50% efficiency)	1	0	0	0	0	0	19.0	-	18.5	18.5	12	12	12	12	100%	100%	100%	228	-	-	228	-	-	228	-	-	
Kitchen - Griddle	30	0	0	0	0	0	32.6	-	12.6	12.6	5	5	5	5	100%	100%	100%	4,888	-	-	4,888	-	-	4,888	-	-	
Kitchen - Pre Rinse Sprayers	8	2	2	2	2	2	35.5	838.0	35.5	35.5	15	15	15	15	100%	100%	100%	4,260	25,146	1,065	4,260	25,146	1,065	4,260	25,146	1,065	
Boiler Reset Controls	33	129	129	135	135	135	23.6	20.6	25.7	25.7	3	3	3	3	100%	100%	100%	2,332	7,973	9,946	2,332	7,973	9,946	2,332	7,973	9,946	
Steam Trap	15	48	48	48	48	48	2.4	7.6	7.7	7.7	15	15	15	15	100%	100%	100%	534	5,454	5,544	534	5,454	5,544	534	5,454	5,544	
Thermostat - Standard; 7-Day Programmable	15	48	48	48	48	48	2.4	7.6	7.7	7.7	15	15	15	15	100%	100%	100%	534	5,454	5,544	534	5,454	5,544	534	5,454	5,544	

Liberty Utilities Gas Small Business Energy Solutions Program

Measure	Quantity				Annual Savings per Unit (mmbtu)				Measure Life				In-Service & Realization Rate				Total Lifetime Savings (mmbtu)			
	2013		2015		2013		2015		2013		2015		2013		2015		2013		2015	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Small Retrofit Custom	25.0	92.0	5.0	24.0	6.0	324.3	115.4	230.3	230.3	230.3	15	12	19	100%	100%	121,620	131,011	21,532	25,838	
Furnace 95+ AFUE (<150) w/ECM Motor	-	10.0	3.0	4.0	4.0	-	24.8	9.0	9.0	9.0	15	12	18	100%	100%	79,902	900	148,098	160,440	
Furnace 97+ AFUE (<150) w/ECM Motor	-	3.0	9.0	10.0	10.0	-	4.5	9.9	9.9	9.9	15	18	18	100%	100%	-	2,976	486	648	
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	55.0	67.0	60.0	61.0	22.1	22.1	22.8	30.6	30.6	30.6	25	25	25	100%	100%	30,388	38,190	45,900	46,665	
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	5.0	2.0	3.0	4.0	4.0	22.1	27.8	27.8	27.8	27.8	25	25	25	100%	100%	2,763	1,105	2,085	2,780	
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	21.0	5.0	5.0	5.0	42.3	56.1	58.4	58.4	58.4	58.4	25	25	25	100%	100%	22,208	7,013	7,300	7,300	
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	11.0	52.0	42.8	44.7	77.1	103.0	107.3	107.3	107.3	107.3	25	25	25	100%	100%	21,203	133,900	114,737	119,849	
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	-	1.0	2.0	2.0	2.0	-	189.2	197.2	197.2	197.2	25	25	25	100%	100%	-	4,730	9,860	9,860	
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	-	1.0	1.0	1.0	1.0	-	249.0	345.1	345.1	345.1	25	25	25	100%	100%	-	6,225	8,628	8,628	
Infrared Heater, Low Intensity (all sizes)	22.0	10.0	5.0	5.0	74.4	48.3	12.0	12.0	12.0	12.0	17	17	17	100%	100%	27,826	8,211	1,020	1,020	
Water Heater - Tankless, On-Demand >= 82	12.0	1.0	1.0	1.0	7.1	7.1	7.1	7.1	7.1	7.1	20	20	20	100%	100%	1,704	142	142	142	
Water Heater - Tankless, On-Demand >= 94	-	-	2.0	2.0	2.0	-	9.4	9.4	9.4	9.4	20	20	20	100%	100%	-	-	376	376	
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >= 85% (EF= .82)	45.0	-	16.0	16.0	30.4	-	19.0	19.0	19.0	19.0	15	25	15	100%	100%	20,520	-	4,560	4,560	
Water Heater - Stand Alone Storage Tank (EF 0.67)	-	-	3.0	3.0	3.0	-	3.0	3.0	3.0	3.0	13	13	13	100%	100%	-	-	117	117	
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kitchen - Fryer	5.0	2.0	2.0	2.0	40.9	40.9	40.9	40.9	40.9	40.9	18	18	18	100%	100%	3,683	1,472	1,472	1,472	
Kitchen - Steamer (ES >= 38% efficiency)	9.0	5.0	5.0	5.0	58.6	58.6	58.6	58.6	58.6	58.6	12	12	12	100%	100%	6,329	3,516	3,516	3,516	
Kitchen - Convection Oven (>= 44% efficiency)	2.0	-	-	-	153.6	-	106.6	106.6	106.6	106.6	12	12	12	100%	100%	3,686	-	-	-	
Kitchen - Combination Oven (>= 44% efficiency)	2.0	-	-	-	40.3	-	30.6	30.6	30.6	30.6	12	12	12	100%	100%	595	-	-	-	
Kitchen - Conveyor Oven (>= 44% efficiency)	3.0	-	-	-	40.3	-	110.3	110.3	110.3	110.3	12	12	12	100%	100%	1,451	-	-	-	
Kitchen - Rack Oven (>= 50% efficiency)	2.0	-	-	-	84.5	-	84.5	84.5	84.5	84.5	12	12	12	100%	100%	2,028	-	-	-	
Kitchen - Griddle	1.0	-	-	-	211.3	-	211.3	211.3	211.3	211.3	12	25	12	100%	100%	2,536	-	-	-	
Kitchen - Pre Rinse Sprayers	1.0	-	-	-	18.5	-	18.5	18.5	18.5	18.5	12	12	12	100%	100%	222	-	-	-	
Boiler Reset Controls	52.0	141.0	141.0	155.0	33.6	33.6	12.6	12.6	12.6	12.6	5	5	5	100%	100%	8,736	23,688	8,883	9,765	
Steam Trap	3.0	5.0	5.0	8.0	35.5	35.5	35.5	35.5	35.5	35.5	15	15	15	100%	100%	1,598	2,663	2,663	4,260	
Thermostat - Standard, 7-Day Programmable	8.0	15.0	25.0	30.0	25.7	7.9	25.7	25.7	25.7	25.7	3	3	3	100%	100%	617	356	1,928	2,313	
Hydronic boiler <= 300 mbh	9.0	8.0	9.0	15.0	2.5	2.5	7.7	7.7	7.7	7.7	15	15	15	100%	100%	338	300	1,040	1,733	
Hydronic boiler 1000-1700 mbh	-	-	-	-	-	-	-	-	-	-	25	18	-	-	-	-	-	2,997	-	
Hydronic boiler 1701+ mbh	-	-	-	-	-	-	-	-	-	-	25	20	-	-	-	-	-	3,200	-	
Integrated water heater/condensing boiler (0.9 EF, 0.9 AFUE)	8.0	-	-	-	24.6	-	30.4	-	-	-	25	15	-	-	-	-	-	1,368	-	
Condensing Stand Alone >95% TE, >75000 btu	5.0	-	-	-	25.0	-	8.0	-	-	-	20	20	-	-	-	-	-	3,930	-	

**NH CORE PROGRAMS**  
**2015 Statewide Goals**  
**CORE & Company-Specific Programs**

Description	Program Budget <sup>(1)</sup>	kWh Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
CORE Programs						
Municipal Program	\$ 2,000,000	3,905,171	51,500,073	1,617	38,257	261
All Other CORE Programs	\$ 22,015,739	48,588,540	652,555,107	38,760	784,251	137,015
Sub-total	\$ 24,015,739	52,493,710	704,055,180	40,377	822,507	137,276
Company Specific Programs <sup>(2)</sup>	\$ 2,025,154	4,485,764	41,187,231	-	-	25,012
<b>Total Electric</b>	<b>\$ 26,040,893</b>	<b>56,979,474</b>	<b>745,242,411</b>	<b>40,377</b>	<b>822,507</b>	<b>162,288</b>
<b><u>Gas Utilities</u></b>						
CORE Programs	\$ 6,392,191	283,486	5,592,539	122,523	2,181,210	3,192
Company Specific Programs <sup>(2)</sup>	\$ 336,550	-	-	18,440	55,320	25,000
<b>Total Gas</b>	<b>\$ 6,728,741</b>	<b>283,486</b>	<b>5,592,539</b>	<b>140,963</b>	<b>2,236,530</b>	<b>28,192</b>
<b>Grand Total</b>	<b>\$ 32,769,634</b>	<b>57,262,961</b>	<b>750,834,951</b>	<b>181,340</b>	<b>3,059,038</b>	<b>190,480</b>

**Notes:**

- (1) Program budgets shown in this report exclude the performance incentive (PI).
- (2) Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.

New Hampshire CORE Energy Efficiency Programs  
NHPUC Docket No. DE 14-216  
Attachment N (2015)  
Page 2 of 3

**NH CORE PROGRAMS**  
**2015 Statewide Goals**  
**CORE Programs <sup>(1)</sup>**

Description	Program Budget	kWh Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 3,841,493	515,881	7,052,057	10,835	224,051	394
NH Home Performance w/Energy Star	\$ 2,786,620	317,829	5,656,971	16,396	322,917	711
EnergyStar® Homes	\$ 1,497,511	1,387,058	33,355,649	8,034	198,850	370
EnergyStar® Products	\$ 3,538,585	10,961,905	134,218,663	3,494	38,432	134,304
Sub-total	\$ 11,664,209	13,182,673	180,283,339	38,760	784,251	135,779
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 6,826,303	25,184,385	338,067,599	-	-	432
Small Business Energy Solutions	\$ 3,525,227	10,221,481	134,204,168	-	-	804
Municipal Program	\$ 2,000,000	3,905,171	51,500,073	1,617	38,257	261
Sub-total	\$ 12,351,530	39,311,037	523,771,841	1,617	38,257	1,497
<b>Total Electric</b>	<b>\$ 24,015,739</b>	<b>52,493,710</b>	<b>704,055,180</b>	<b>40,377</b>	<b>822,507</b>	<b>137,276</b>
<b><u>Gas Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 1,138,549	220,445	4,466,673	7,945	161,148	369
NH Home Performance w/Energy Star	\$ 840,157	-	-	12,654	254,449	493
EnergyStar® Homes	\$ 140,800	9,950	212,335	1,526	37,330	28
EnergyStar® Products	\$ 1,249,738	51,076	877,243	19,164	336,273	1,645
Sub-total	\$ 3,369,244	281,470	5,556,251	41,288	789,200	2,535
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 1,758,514	-	-	56,938	891,665	179
Small Business Energy Solutions	\$ 1,264,432	2,016	36,288	24,297	500,345	478
Sub-total	\$ 3,022,947	2,016	36,288	81,235	1,392,010	657
<b>Total Gas</b>	<b>\$ 6,392,191</b>	<b>283,486</b>	<b>5,592,539</b>	<b>122,523</b>	<b>2,181,210</b>	<b>3,192</b>
<b>Grand Total</b>	<b>\$ 30,407,930</b>	<b>52,777,196</b>	<b>709,647,720</b>	<b>162,900</b>	<b>3,003,717</b>	<b>140,468</b>

**Notes:**  
(1) Amounts shown above pertain only to the CORE programs. The amounts pertaining to the Company-Specific programs are shown on Attachment N, page 3.

New Hampshire CORE Energy Efficiency Programs  
NHPUC Docket No. DE 14-216  
Attachment N (2015)  
Page 3 of 3

**NH CORE PROGRAMS**  
**2015 Statewide Goals**  
**Company-Specific Programs <sup>(1)</sup>**

Description	Program Budget		kWh Savings		MIMBtu Savings		Customers Count
			Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>							
<b>Residential</b>							
Home Energy Reports	280,402		1,529,834	4,589,501	-	-	25,000
Customer Engagement Platform	221,539		-	-	-	-	-
Education	52,776		-	-	-	-	-
Revolving Loan Fund	-		-	-	-	-	-
Forward Capacity Market Expenses <sup>(2)</sup>	68,500		-	-	-	-	-
Sub-total	\$ 623,217		\$ 1,529,834	4,589,501	-	-	25,000
<b>Commercial &amp; Industrial</b>							
Smart Start	57,000		-	-	-	-	-
C&I Customer Partnerships	19,856		-	-	-	-	-
C&I RFP Program	532,143		2,955,931	36,597,730	-	-	6
Customer Engagement Platform	328,731		-	-	-	-	-
Education	307,707		-	-	-	-	6
Forward Capacity Market Expenses <sup>(2)</sup>	156,500		-	-	-	-	-
Sub-total	\$ 1,401,938		\$ 2,955,931	36,597,730	-	-	12
<b>Total Residential and C&amp;I</b>	<b>\$ 2,025,154</b>		<b>\$ 4,485,764</b>	<b>41,187,231</b>	<b>-</b>	<b>-</b>	<b>25,012</b>
<b><u>Gas Utilities</u></b>							
<b>Residential</b>							
Building Practices & Demonstration	293,550		-	-	18,440	55,320	25,000
Education	17,000		-	-	-	-	-
Sub-total	\$ 310,550		-	-	18,440	55,320	25,000
<b>Commercial &amp; Industrial</b>							
Building Practices & Demonstration	-		-	-	-	-	-
Education	26,000		-	-	-	-	-
Sub-total	\$ 26,000		-	-	-	-	-
<b>Total Residential and C&amp;I</b>	<b>\$ 336,550</b>		<b>-</b>	<b>-</b>	<b>18,440</b>	<b>55,320</b>	<b>25,000</b>
<b>Grand Total</b>	<b>\$ 2,361,704</b>		<b>\$ 4,485,764</b>	<b>41,187,231</b>	<b>18,440</b>	<b>55,320</b>	<b>50,012</b>

**Notes:**

(1) Amounts shown above pertain only to the Company-Specific programs. The amounts pertaining to the CORE programs are shown on Attachment N, page 2. Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.

(2) Amounts shown are budgeted expenses related to the electric utilities' participation in ISO-NE's Forward Capacity Market.

**NH CORE PROGRAMS  
2016 Statewide Goals  
CORE & Company-Specific Programs**

Description	Program Budget <sup>(1)</sup>	kWh Savings		MIMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
CORE Programs						
Municipal Program	\$ 2,000,000	3,855,892	50,863,790	1,613	38,163	260
All Other CORE Programs	\$ 20,167,595	44,341,579	594,901,438	32,650	659,737	120,490
Sub-total	\$ 22,167,595	48,197,471	645,765,229	34,263	697,900	120,750
Company Specific Programs <sup>(2)</sup>	\$ 1,684,056	5,148,827	42,474,630	-	-	25,016
<b>Total Electric</b>	<b>\$ 23,851,651</b>	<b>53,346,298</b>	<b>688,239,859</b>	<b>34,263</b>	<b>697,900</b>	<b>145,766</b>
<b><u>Gas Utilities</u></b>						
CORE Programs	\$ 6,562,310	289,165	5,706,050	125,487	2,236,823	3,274
Company Specific Programs <sup>(2)</sup>	\$ 347,357	-	-	18,440	55,320	25,000
<b>Total Gas</b>	<b>\$ 6,909,667</b>	<b>289,165</b>	<b>5,706,050</b>	<b>143,927</b>	<b>2,292,144</b>	<b>28,274</b>
<b>Grand Total</b>	<b>\$ 30,761,318</b>	<b>53,635,463</b>	<b>693,945,908</b>	<b>178,190</b>	<b>2,990,043</b>	<b>174,040</b>

**Notes:**

(1) Program budgets shown in this report exclude the performance incentive (PI).

(2) Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.

**NH CORE PROGRAMS**  
**2016 Statewide Goals**  
**CORE Programs <sup>(1)</sup>**

Description	Program Budget	kWh Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 3,696,889	462,686	6,358,472	9,720	201,007	349
NH Home Performance w/Energy Star	\$ 2,462,496	259,569	4,626,483	13,134	258,158	576
EnergyStar® Homes	\$ 1,335,170	1,200,754	28,884,744	6,756	167,138	315
EnergyStar® Products	\$ 3,126,368	9,217,982	112,096,148	3,039	33,434	118,105
Sub-total	\$ 10,620,924	11,140,991	151,965,847	32,650	659,737	119,345
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 6,337,063	23,758,887	319,037,280	-	-	408
Small Business Energy Solutions	\$ 3,209,608	9,441,701	123,898,311	-	-	737
Municipal Program	\$ 2,000,000	3,855,892	50,863,790	1,613	38,163	260
Sub-total	\$ 11,546,671	37,056,480	493,799,382	1,613	38,163	1,405
<b>Total Electric</b>	<b>\$ 22,167,595</b>	<b>48,197,471</b>	<b>645,765,229</b>	<b>34,263</b>	<b>697,900</b>	<b>120,750</b>
<b><u>Gas Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 1,169,530	226,694	4,591,831	8,150	165,254	379
NH Home Performance w/Energy Star	\$ 872,325	-	-	13,013	261,586	509
EnergyStar® Homes	\$ 142,624	9,807	209,289	1,548	37,892	28
EnergyStar® Products	\$ 1,280,544	50,312	862,593	19,175	335,742	1,663
Sub-total	\$ 3,465,023	286,813	5,663,714	41,886	800,473	2,580
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 1,801,873	-	-	57,849	909,648	185
Small Business Energy Solutions	\$ 1,295,414	2,352	42,336	25,752	526,702	509
Sub-total	\$ 3,097,287	2,352	42,336	83,600	1,436,350	694
<b>Total Gas</b>	<b>\$ 6,562,310</b>	<b>289,165</b>	<b>5,706,050</b>	<b>125,487</b>	<b>2,236,823</b>	<b>3,274</b>
<b>Grand Total</b>	<b>\$ 28,729,905</b>	<b>48,486,636</b>	<b>651,471,278</b>	<b>159,750</b>	<b>2,934,723</b>	<b>124,024</b>

**Notes:**

(1) Amounts shown above pertain only to the CORE programs. The amounts pertaining to the Company-Specific programs are shown on Attachment N, page 3.



**NH CORE PROGRAMS**  
**2016 Statewide Goals**  
**Company-Specific Programs <sup>(1)</sup>**

Description	Program Budget		kWh Savings		MIMBtu Savings		Customers Count
	Budget	Annual	Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>							
<b>Residential</b>							
Home Energy Reports	249,903	2,267,705	6,803,115	-	-	25,000	
Customer Engagement Platform	106,328	-	-	-	-	-	
Education	52,776	-	-	-	-	-	
Revolving Loan Fund	-	-	-	-	-	-	
Forward Capacity Market Expenses <sup>(2)</sup>	68,500	-	-	-	-	-	
Sub-total	\$ 477,507	2,267,705	6,803,115	-	-	25,000	
<b>Commercial &amp; Industrial</b>							
Smart Start	\$ 57,000	-	-	-	-	-	
C&I Customer Partnerships	19,447	-	-	-	-	4	
C&I RFP Program	521,177	2,881,122	35,671,515	-	-	6	
Customer Engagement Platform	157,448	-	-	-	-	-	
Education	294,977	-	-	-	-	6	
Forward Capacity Market Expenses <sup>(2)</sup>	156,500	-	-	-	-	-	
Sub-total	\$ 1,206,549	2,881,122	35,671,515	-	-	16	
<b>Total Residential and C&amp;I</b>	<b>\$ 1,684,056</b>	<b>5,148,827</b>	<b>42,474,630</b>			<b>25,016</b>	
<b><u>Gas Utilities</u></b>							
<b>Residential</b>							
Building Practices & Demonstration	\$ 302,357	-	-	55,320	18,440	25,000	
Education	17,000	-	-	-	-	-	
Sub-total	\$ 319,357	-	-	55,320	18,440	25,000	
<b>Commercial &amp; Industrial</b>							
Building Practices & Demonstration	\$ 15,000	-	-	-	-	-	
Education	13,000	-	-	-	-	-	
Sub-total	\$ 28,000	-	-	-	-	-	
<b>Total Residential and C&amp;I</b>	<b>\$ 347,357</b>	<b>-</b>	<b>-</b>	<b>55,320</b>	<b>18,440</b>	<b>25,000</b>	
<b>Grand Total</b>	<b>\$ 2,031,413</b>	<b>5,148,827</b>	<b>42,474,630</b>		<b>18,440</b>	<b>50,016</b>	

**Notes:**  
 (1) Amounts shown above pertain only to the Company-Specific programs. The amounts pertaining to the CORE programs are shown on Attachment N, page 2. Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.  
 (2) Amounts shown are budgeted expenses related to the electric utilities' participation in ISO-NE's Forward Capacity Market.

**2015-2016**

---

**New Hampshire Statewide CORE  
Energy Efficiency Plan**

---



**Jointly Submitted by New Hampshire's Electric and Natural Gas Utilities**

Granite State Electric Company d/b/a Liberty Utilities  
New Hampshire Electric Cooperative, Inc.  
Public Service Company of New Hampshire  
Unitil Energy Systems, Inc.  
EnergyNorth Natural Gas, Inc. d/b/a Liberty Utilities  
Northern Utilities, Inc.

**NHPUC Docket DE 14-216**

**September 12, 2014**

**Revised December 11, 2014**





# Table of Contents

<b>I. PROLOGUE</b> .....	1
<b>II. EXECUTIVE SUMMARY</b> .....	6
<b>III. INTRODUCTION</b>	
A. Overview.....	8
B. Engaging Stakeholders.....	9
C. Two-Year Plan Guiding Principles and Beyond.....	9
D. Recent Achievements.....	12
E. Coordinated Program Management and Administrative Costs .....	16
F. Status of Directives Contained in the Home Performance Order No. 25,402 .....	17
G. Summary of Material Changes .....	18
<b>IV. THE TWO YEAR PLAN</b>	
A. Overall Benefits and Cost Effectiveness.....	19
B. Program Funding.....	21
C. Program Budgets.....	23
D. Statewide CORE Program Descriptions	
1) Residential Programs .....	26
2) Commercial & Industrial & Municipal Programs.....	40
E. Utility-Specific Program Descriptions and Initiatives	
1) Liberty Utilities .....	49
2) New Hampshire Electric Cooperative, Inc.....	53
3) Public Service Company of New Hampshire.....	54
4) Unitil .....	72
F. Monitoring & Evaluation and Reporting.....	76
G. Performance Incentive.....	80
<b>V. ATTACHMENTS</b>	
Attachment A: Home Energy Assistance Program Implementation Plan.....	84
Attachment B: Completed Monitoring and Evaluation Studies.....	92
Attachment C: Avoided Costs.....	99
Attachment D: Liberty Utilities – Electric Program Cost-Effectiveness.....	101
Attachment DG: Liberty Utilities – Gas Program Cost-Effectiveness.....	111
Attachment E: NHEC – Electric Program Cost-Effectiveness .....	117
Attachment F: PSNH – Electric Program Cost-Effectiveness.....	127
Attachment G: Unitil Energy Systems, Inc – Electric Program Cost-Effectiveness.....	137
Attachment GG: Unitil – Gas Program Cost-Effectiveness .....	147
Attachment H1: Utility Budgets by Activity.....	153
Attachment H2: Utility Goals by Program.....	161
Attachment I: Liberty Utilities – Electric Detailed Plan by Program.....	171
Attachment IG: Liberty Utilities – Gas Detailed Plan by Program .....	179
Attachment J: NHEC – Electric Detailed Plan by Program.....	185
Attachment K: PSNH – Electric Detailed Plan by Program .....	193
Attachment L: Unitil Energy Systems, Inc. – Electric Detailed Plan by Program .....	202
Attachment LG: Unitil – Gas Detailed Plan by Program.....	210
Attachment M: Summary of Material Changes .....	216
Attachment N: Statewide Goals .....	221



## I. PROLOGUE

Since 2002, New Hampshire has partnered with its electric and natural gas utilities to run our state's CORE energy efficiency program, also known as NHSaves. Energy efficiency is a central mission for all our state's utilities, and a key part of our strategy for building a modern and sustainable energy future. Whether it is helping homeowners to retrofit and reinsulate their homes, helping businesses install technologically advanced, high efficiency lighting systems, or helping school districts install more efficient heating systems – NHSaves is making a difference. Since the programs were started, customers have saved over 10 billion electric kilowatt-hours and 16 million natural gas MMBtus over the life of the measures which translates into customer savings of more than \$1.6 billion. NHSaves offers a suite of efficiency solutions designed to meet the varied needs of our many customers. Through partnerships with the private sector and well-designed rebates and incentives for our customers, the NHSaves programs provide highly successful, award winning efficiency options for New Hampshire citizens and businesses. Some of the ways these programs benefit New Hampshire include:

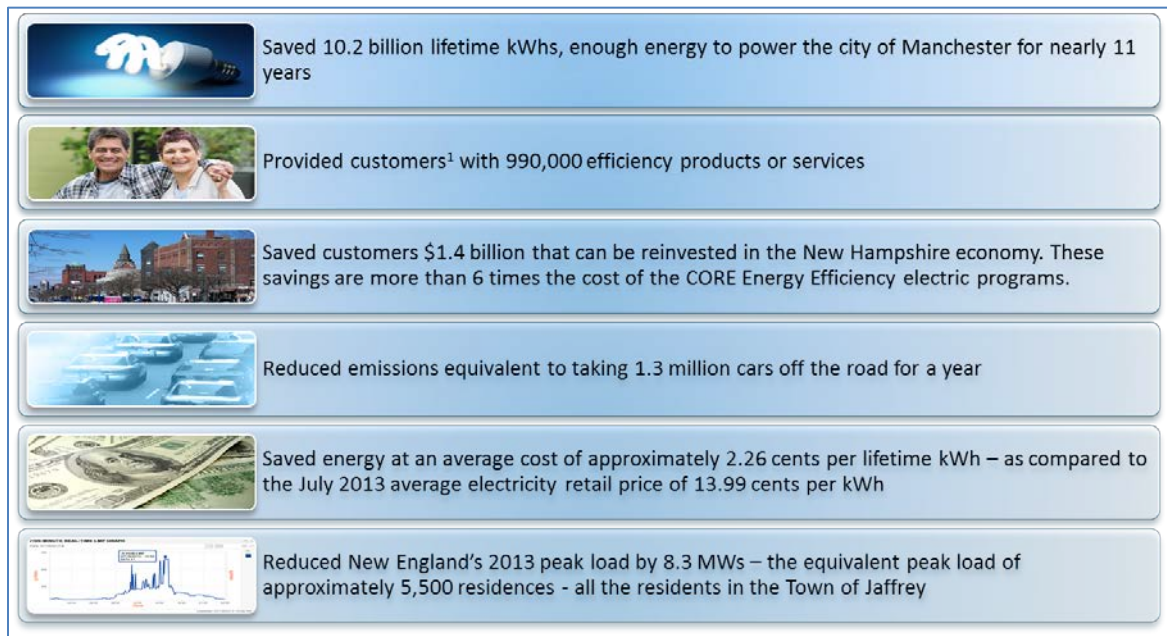
- Working with Home Energy Raters and private builders, our programs help to construct highly efficient homes that use 15-20% less energy than a standard new home.
- Existing homes can have insulation, air-sealing and other weatherization work performed by qualified private contractors to reduce homeowner's heating costs by more than 15%.
- Income qualified customers can receive insulation, air-sealing and other weatherization work, saving them approximately \$350 per year on energy costs, through our collaboration with the NH Office of Energy and Planning's Weatherization Assistance Program and the Community Action Agencies around the state.
- Our appliance programs work with over 100 appliance retailers around the state to help customers purchase highly efficient appliances such as refrigerators, clothes washers and room air conditioners, saving 10-20% of the energy used if they had purchased standard models.
- Working with over 100 lighting retailers around the state, the programs encourage customers to purchase energy efficient light bulbs that save 75% of the energy used by standard incandescent bulbs while lasting 10-25 times longer.
- The NHSaves programs help businesses and non-profits around the state identify and install more efficient lighting, controls, motors, HVAC equipment, air compressors and industrial process equipment. These energy efficiency improvements are implemented in partnership with private contractors around the state who help our business sector reduce energy use and save significantly on energy bills so they have more to invest back into their business.
- A special focus on municipalities helps to save energy in public buildings, reducing overall costs to taxpayers and making our public spaces a model for efficiency improvements.

Energy efficiency is a core part of our business as New Hampshire utilities and we are proud of the trust that regulators, legislators and customers have placed in us to deliver successful and effective energy efficiency solutions.

The following sections highlight some of the significant impacts of the electric and natural gas programs-to-date; the high accountability standards utilized to verify and track program results; and the additional value brought to New Hampshire's residents, businesses and communities through collaboration and leveraging of existing energy efficiency funding.

## Benefits of the CORE Electric and Natural Gas Programs across New Hampshire

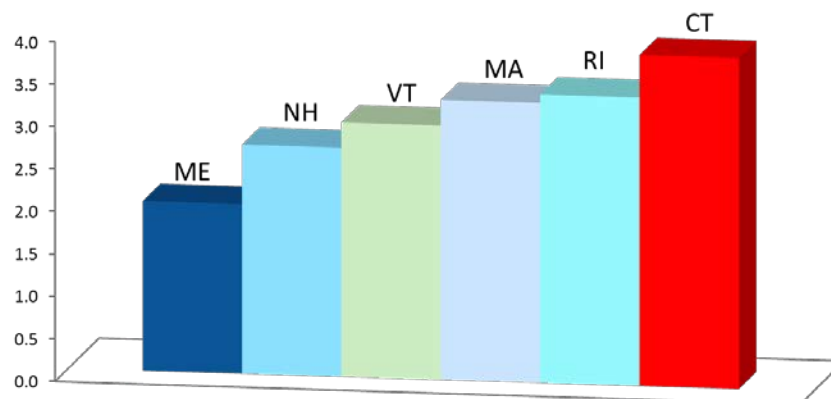
### ❖ The Impacts of the Electric Programs from 2002 – 2013



### ❖ The Electric Programs are Cost Effective

Energy efficiency programs are a cost-effective solution to helping meet the region's overall electrical energy needs. As illustrated below, all of the New England states, including New Hampshire, deliver cost-effective energy efficiency programs – attaining greater kilowatt-hour savings for every dollar spent on energy efficiency than the retail cost (13.99 ¢/kWh) to purchase the energy.

Cost to Save a Lifetime kWh  
 Source: ISO-NE's Energy Efficiency Forecast dated 3/31/14  
 (cents/kWh)



<sup>1</sup> Hereinafter, the word "customer" will be understood to mean both customers and NHEC members.

## ❖ The Impacts of the Natural Gas Programs from 2003 – 2013



Saved 16.7 million lifetime MMBTU's – enough energy to heat 216,728 homes



Provided customers with 52,872 efficiency products or services served by the New Hampshire gas utilities



Saved customers \$259.3 million that can be reinvested in the New Hampshire economy. These savings are more than 7 times the cost of the CORE Energy Efficiency gas programs.



Reduced emissions equivalent to taking 186,757 cars off the road for a year



Saved energy at an average cost of \$0.235 per lifetime therm – as compared to the average Tier 2 retail price of \$1.55 per therm in April 2014

## ❖ Additional Benefits to Both the Electric and Natural Gas Programs - Job Creation and Improved Comfort and Affordability for New Hampshire's Income-Eligible Residents



Job creation – 338 jobs<sup>1</sup> (703,000 work hours) were supported by the CORE programs in 2013



Improved comfort and affordability for over 14,000 of our state's low-income residents, whose homes have been weatherized since 2002, in partnership with the local Community Action Agencies and the NH Office of Energy and Planning

<sup>1</sup> Source of jobs per \$ spent on energy efficiency: An Evaluation of the NH BetterBuilding Program Report, 2013.



## ❖ High Standards of Accountability and Verification of Results

The NH CORE Programs are held to high standards of accountability and are evaluated and audited on a regular basis. The programs also meet stringent reporting requirements and savings, participation and cost effectiveness goals.



## ❖ Collaboration and Leveraging of Energy Efficiency Funding Brings Greater Value

The NH CORE Utilities have a proven track record of cost-effectively scaling up the CORE Programs as demonstrated via partnerships and leveraging available energy efficiency funding to deliver even greater value to our customers.

- ✓ **Federal Weatherization Assistance:** The NH CORE Utilities have an existing long-term, effective partnership with the New Hampshire Community Action Agencies and the New Hampshire Office of Energy and Planning to weatherize the homes of New Hampshire's income eligible residents using a combination of Department of Energy Federal Weatherization Assistance Program funding and CORE program funding.
- ✓ **ISO-NE Forward Capacity Market Revenue:** The four NH Electric Utilities are the only energy efficiency service providers in New Hampshire participating in ISO-NE's forward capacity market – bringing an additional \$11 million in energy efficiency services to New Hampshire's residents and businesses since 2007 and an estimated \$5 million over the next two year plan period (2015/2016).
- ✓ **BetterBuildings Collaboration Agreement:** Fulfilled all requirements contained in the utility Agreements with the New Hampshire Community Development Finance Authority and the Office of Energy and Planning, and delivered an additional \$612,500 in weatherization services to New Hampshire's homeowners.

- ✓ **American Recovery and Reinvestment Act:** Worked with the Office of Energy and Planning and the Commission's Staff to develop a program proposal to gain American Recovery and Reinvestment Act funds for New Hampshire. As a result of this collaboration, the NH Electric Utilities were awarded \$731,000 to provide incentives for the replacement of aging fossil heating systems with new energy efficient water heaters, furnaces and boiler systems and successfully met the goals and objectives of the program ahead of schedule.
- ✓ **Regional Greenhouse Gas Initiative (2009-2010):** Awarded a \$7.4 million grant from the Sustainable Energy Division of the New Hampshire Public Utilities Commission to deliver energy efficiency services in New Hampshire, exceeding our reduction in greenhouse gases goal by 29%.
- ✓ **Regional Greenhouse Gas Initiative (2012):** Effectively delivered an additional \$3.1 million in energy efficiency services in 2013 due to the receipt of additional Regional Greenhouse Gas Initiative funds in late 2012.



## II. EXECUTIVE SUMMARY

New Hampshire is in the midst of an exciting time as we review and revise our energy strategies and policies for the future. The state is poised for a thorough discussion and potential additional investments in energy efficiency. Recent conversation among stakeholders, state agencies, legislators and utilities all indicate a desire to reduce energy usage and to ensure that New Hampshire citizens, municipalities and businesses have the knowledge and opportunity to use energy more efficiently. As implementers of the statewide energy efficiency programs, the utilities are eager to continue working with our partners and stakeholders to move the discussion forward.

Central themes we have identified for future efficiency investments center around a desire to:

- Reduce our dependence on fossil fuels while keeping energy dollars local.
- Encourage New Hampshire homeowners and businesses to do more comprehensive energy efficiency projects.
- Ensure that there is an infrastructure in place that is proficient in delivering and installing energy efficiency measures.
- Leverage private financing to make it easier for people to fund projects.

While current programs in New Hampshire strive to meet these ideals, we recognize that a broader reach and more in-depth programming, supported by additional investments, will be needed to more fully realize our efficiency potential as a state. The utilities stand ready to help the state meet its efficiency goals. Building on our successful existing programming we have the capacity to ramp up quickly, leveraging existing relationships with our customers, supply chains and contractors around the state, as well as internal capacity with knowledgeable and experienced staff and customer service operations. Our experience in New Hampshire, as well as in running highly regarded efficiency programs in other states, gives us the depth of knowledge to develop appropriate incentives and create partnerships to leverage private financing in order to make efficiency work as a positive economic investment for our customers.

This two-year statewide energy efficiency plan includes steps we are taking to position the statewide energy efficiency programs to scale up energy efficiency for New Hampshire customers, including:

- Continuing partnerships with installation contractors around the state to ensure they have the skills needed to provide recommended energy efficiency improvements.
- Providing more comprehensive energy efficiency services for homes, municipalities and businesses.
- Focusing efforts to help municipal customers reduce energy usage in their schools and town facilities, helping to reduce costs for taxpayers.
- Simplifying programs to make them more customer-responsive and focused, while also positioning them to be scaled up if funding is increased during this two-year plan or in future years.
- Engaging customers in long term energy plans, including deeper energy efficiency measures and renewable energy options.
- Continuing to invest in the NHSaves web site to provide meaningful information that helps customers learn more about energy efficiency and how to make best use of the statewide energy efficiency programs.

- Working with supply chains such as lighting and appliance retailers, heating and cooling system suppliers, and others to make sure they are stocking and promoting the most efficient products.
- Continuing to report energy savings to ISO-NE to help reduce New Hampshire's peak demand and to potentially reduce electric costs for customers.
- Engaging banks and other lenders to facilitate financing for home weatherization improvements.

This Statewide CORE Energy Efficiency Plan for New Hampshire is designed to help New Hampshire customers by achieving the following energy savings:

- **Statewide Electric Program Savings:** : Approximately 57.0 million annual kWh savings in 2015, or 0.5% of 2013 electric delivery sales of 10.8 billion kWhs, at an overall cost of 3.8¢ per lifetime kWh as compared to the current statewide average retail cost of 15.3¢ per kWh<sup>1</sup>.
- **Statewide Natural Gas Program Savings:** Approximately 141,000 annual MMBtu savings in 2015, or 0.6% of 2013 natural gas delivery sales of 23.2 million MMBtus, at an overall cost of \$3.25 per lifetime MMBtu as compared to the current statewide average retail cost of \$8.00 per MMBtu<sup>1</sup>.

#### **ELECTRIC PROGRAMS**

	<b>2015</b>	<b>2016</b>
Lifetime kWh Savings	745,242,411	688,239,859
Annual kWh Savings	56,979,474	53,346,298
Annual Savings as a % of 2013 Delivery Sales	0.5%	0.5%
Program Funding	\$28.0M	\$25.6M
Program Cost per Lifetime kWh Savings	\$0.0376	\$0.0372

#### **NATURAL GAS PROGRAMS**

	<b>2015</b>	<b>2016</b>
Lifetime MMBtu Savings	2,236,530	2,292,144
Annual MMBtu Savings	140,963	143,927
Annual Savings as a % of 2013 Delivery Sales	0.6%	0.6%
Program Funding	\$7.3M	\$7.5M
Program Cost per Lifetime MMBtu Savings	\$3.25	\$3.26

The utilities are excited to be part of New Hampshire's energy future. The Plan that follows contains the strategies the utilities plan to implement as we help our customers use energy more efficiently.

---

<sup>1</sup> Based on NH Office of Energy and Planning's average electricity and average natural gas (Tier 2) prices effective August 4, 2014.

### III. INTRODUCTION

#### A. Overview

The New Hampshire electric and natural gas utilities are pleased to submit this 2015-2016 New Hampshire Statewide CORE Energy Efficiency Plan (the “Plan”) for approval by the New Hampshire Public Utilities Commission. This Plan is being filed jointly by Granite State Electric Company d/b/a Liberty Utilities, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire and Until Energy Systems, Inc. (referred to throughout the remainder of this document as the “NH Electric Utilities”) and EnergyNorth Natural Gas, Inc. d/b/a Liberty Utilities and Northern Utilities, Inc. (referred to as the “NH Gas Utilities”) or collectively as the “NH CORE Utilities”. We appreciate the opportunity to continue to provide energy efficiency programs in New Hampshire and look forward to working with all of the energy efficiency stakeholders to continually improve our program offerings and to increase our customers’ awareness of the significant economic and environmental benefits that energy efficiency brings to New Hampshire. The NH CORE Utilities estimate the value of the benefits to be achieved under this two-year Plan to be greater than **\$194 million**.

This Plan represents the results of a coordinated and integrated planning effort among the six New Hampshire Electric and Natural Gas Utilities with a focus on providing high quality, innovative and comprehensive energy efficiency products and services to our customers within the existing available budgets. We have made significant progress over the past two years to create a seamless delivery of products and services to our customers to ensure all New Hampshire’s residents, businesses and municipalities receive similar product and service offerings across all of New Hampshire, while taking into account the unique customer characteristics and demographics of each Utilities’ service area. This accomplishment is reflective of the solid working relationship developed among the energy efficiency teams from each Utility and is critically important to the successful delivery of energy efficiency programs and services to-date and into the future.

The NH CORE Utilities recognize changes could occur over the next year that may necessitate an update to the 2016 program plan in order to accurately reflect program goals and budgets. If necessary, the NH CORE Utilities will file a Plan update by September 30, 2015.

This Plan is separated into the following five major categories:

- A Prologue, which summarizes the significant benefits the NH CORE Energy Efficiency Programs have delivered since their inception in 2002 through 2013.
- An Executive Summary.
- An Introduction, which primarily summarizes the short and long-term vision of the NH CORE Utilities and recent significant achievements.
- The Two Year Plan, which summarizes the benefits and cost effectiveness of the programs and services to be offered in 2015 and 2016; overall program funding by source and program budgets, goals and program descriptions; financing options and initiatives; program monitoring, evaluation and reporting; and the performance incentive structure.
- The Attachments, which contain program budgets and detailed program planning assumptions and results.

## B. Engaging Stakeholders

The range of stakeholders the NH CORE Utilities work with on a daily basis to deliver energy efficiency programs and services is substantial. It includes manufacturers, equipment distributors, contractors, trade associations, non-profit organizations, policy makers and customers. The support and feedback received from this network of energy efficiency professionals, policy makers and customers is crucial to the success of the NH CORE Programs. By working collaboratively, the collective vision to continually improve program offerings while increasing awareness of the significant economic and environmental benefits energy efficiency brings to New Hampshire can be more efficiently and effectively attained.

Two initiatives were undertaken in 2014 to expand regulatory stakeholder input and involvement during the 2015/2016 planning process. The NH CORE Utilities invited all stakeholders on the Commission's CORE Energy Efficiency Program service list in Docket DE 12-262 and members of the Energy Efficiency and Sustainability Board to a half-day brainstorming session in May 2014. The session consisted of a brief program review and presentation of the changes being considered by the NH CORE Utilities, followed by an open brainstorming session. Each stakeholder had an opportunity to provide their ideas and to indicate their priorities from among the ideas that were shared. An online follow-up survey was sent to those who attended the brainstorm session, with results summarized, shared and discussed at the June quarterly stakeholder meeting. Several ideas have already been initiated or incorporated into the 2015/2016 Plan, such as

- Increasing the percentage of funds directed to the income-eligible weatherization program from 15.0% to 15.5%.
- Transitioning to LED lighting incentives.
- Including weatherization services (insulation and air sealing) in the Municipal program.
- Expanding third-party financing.

The NH CORE Utilities wish to extend their appreciation for the candid and beneficial feedback received from stakeholders during this process and look forward to future planning sessions.

## C. Two-Year Plan Guiding Principles and Beyond

In developing this two-year Plan, the NH CORE Utilities were guided by several overarching and inter-related historical commitments, including:

- Providing a portfolio of electric and natural gas programs that are available to all New Hampshire residents, businesses and municipalities;
- Integrating the electric and natural gas programs and jointly coordinating program delivery in order to provide a seamless delivery of energy efficiency services to our customers and improve our customers' experience;
- Implementing cost-effective programs where the overall program benefits exceed the costs;
- Establishing challenging kilowatt-hour and MMBtu savings goals given the existing level of energy efficiency funding available to the NH CORE Utilities;
- Seeking to improve the cost effectiveness of program delivery;
- Delivering programs with a focus on comprehensive, whole building energy savings;
- Incorporating evolving and innovative energy efficiency measures and services;
- Building on opportunities and challenges identified in our "2013 In Review" presentation to stakeholders at the first quarterly meeting in 2014.

In addition, several new overarching themes have emerged, including:

- Expanding collaboration opportunities to more efficiently meet the State's collective energy reduction and renewable energy goals. As one example, the State's renewable energy goals can potentially be expanded by utilizing the NH CORE Utilities' existing program delivery infrastructure and expertise. The benefits produced by the renewable energy fund and the number of customers served can be increased through the combination of renewable energy systems with end-use efficiency measures. End-use efficiency improvements can reduce energy demand resulting in smaller renewable system capacity requirements and together have the potential to drive customers toward net zero energy consumption. The NH CORE Utilities will look for opportunities to collaborate with other programs and market participants.
- Leveraging the private financing market in New Hampshire for increased investment in energy efficiency by building on the collective experiences of the NH Gas Utilities pilot program and the successful model utilized in Massachusetts.
- Enhancing our statewide energy efficiency and sustainability education and marketing to build public awareness of the benefits of energy efficiency and the NH Statewide CORE Programs. Increased knowledge and awareness will help to increase participation in the available energy efficiency programs and services as well as support overall market transformation.

#### Our Vision for the Future

When compared to the previous two year Plan period of 2013-2014, the statewide funding available to the NH CORE Utilities for the delivery of energy efficiency programs and services during 2015-2016 will decrease by approximately \$700,000. This reduction in funding has primarily resulted in the NH CORE Utilities scaling back on incentives for high efficiency fossil-fueled space heating, cooling and water heating measures.

While the 2015-2016 budgets are lower than the previous two-year plan, the State of New Hampshire is contemplating the adoption of an Energy Efficiency Resource Standard (EERS), which could significantly increase the level of energy efficiency funding. Most recently, as stated in the Commission's February 7, 2014 secretarial letter to the Energy Efficiency and Sustainable Energy (EESSE) Board, the Commission has assigned its staff to develop a preliminary EERS proposal and to initiate an informal, non-adjudicative process to solicit feedback from members of the EESSE Board and other key stakeholders.

The NH CORE Utilities believe an expansion of energy efficiency services can provide significant benefits to the businesses, residents and communities in New Hampshire. Drawing on the NH CORE Utilities' collective experience implementing and observing robust efficiency programs in other New England states and around the country, we believe there are some key structural components that support a successful EERS and efficiency programs. Our feedback during the Commission's stakeholder process and in comments on the recent Draft State Energy Strategy conveyed that there are four key areas that need to be incorporated in an effective economic model for energy efficiency programs:

- 1) Program cost recovery coincident with spending, including a reconciling mechanism in the subsequent program year
- 2) Lost revenue recovery on energy efficiency driven savings
- 3) Performance-based incentives that transform energy efficiency into a sustainable line of business for utilities
- 4) Low cost financing mechanisms that support customer investment in energy efficiency and leverage the capital of local financial institutions.



The NH CORE Utilities appreciate the opportunity they were given to provide input on the EERS, and are ready to scale up the level of energy efficiency programs and services offered to our customers if an EERS becomes a reality in New Hampshire. Our collective vision for the future under an EERS includes expanding the reach of our existing award winning programs and implementing new and innovative initiatives, such as:

❖ Expanding Weatherization Services and Fuel-Neutral Measures

The NH CORE Utilities have extensive experience implementing weatherization services in the residential market. The Home Performance with ENERGY STAR Program, the Home Energy Assistance Program, and the ENERGY STAR Homes Program all have a priority focus on improving the energy efficiency of New Hampshire's housing stock, regardless of the type of fuel used for space heating purposes. As a result, the NH CORE Utilities' program administrators and supporting network of contractors have gained the insight and the expertise to support all fuel types, allowing for a complete and comprehensive focus in the delivery of these programs and services. This expertise can be easily expanded to the commercial sector.

In addition, the NH CORE Utilities have implemented successful short-term programs targeted at providing high efficiency fossil-fuel space heating, cooling and water heating measures in both the residential and commercial sectors. An effective infrastructure of HVAC contractors has been built over the years, which helps to deliver the most efficient systems to New Hampshire residents and businesses. With additional energy efficiency funding, the following types of initiatives could be achieved by the NH CORE Utilities:

- An expansion of the number of single and multi-family homes weatherized under our Home Performance with ENERGY STAR program and Home Energy Assistance program, and an increase in the depth of savings;
- Additional fuel neutral measures, such as insulation and air sealing, in commercial, industrial and municipal buildings;
- An increase in the incentive budgets available for high efficiency fossil-fueled space heating, cooling and water heating measures in the income-eligible, residential, commercial and industrial, and municipal sectors; and
- An increase in the level of technical assistance and energy efficiency services provided to municipalities.

❖ Boosting Energy Efficiency and Sustainability Education and Enhanced Customer Outreach

Fostering a culture of energy efficiency and sustainability in New Hampshire is a vision supported by the NH CORE Utilities. Long-term, consistent and clear messaging regarding the benefits of energy efficiency will help strengthen the support of the State of New Hampshire's energy reduction goals. Building upon the experiences of the NH CORE Utilities, a broad-based education, marketing and customer outreach effort could be implemented with initiatives such as:

- An expansion of the NHSaves website, as well as the use of media to provide consistent and clear messages regarding the significant benefits of energy efficiency. Grassroots education could build upon the ButtonUp workshop series that was implemented in 2013, partnering with community organizations and local energy committees to bring efficiency information to residents; business forums where experiences with implementing energy efficiency projects could be shared, or a "NHSaves" contest where NH businesses achieving a high level of energy savings could be honored;

- Increased use of creative marketing strategies that are based on segmenting the commercial/industrial sector by industry type and identifying their unique attributes allowing for a greater expansion of energy efficiency products and services into the market;
- Advancing the use of on-line technology platforms to more fully engage with our customers by bringing together relevant customer information with energy usage, benchmarking and energy efficiency information and recommendations to drive deeper and broader energy savings and increased overall program participation;
- Expanding the Home Energy Reports pilot program to a larger set of customers. Participants in this program receive personalized energy savings reports which include information about their homes' electric usage and recommendations for energy savings. Similar programs have resulted in significant energy savings and the initial results of PSNH's pilot program are similar.

## **D. Recent Achievements**

### **ENERGY STAR Awards**

In the 2015-2016 Plan, the NH CORE Utilities continue to build upon the strong foundation of programs currently in place and initiate new programs and measures; always striving to incorporate lessons learned, to respond to market changes and to share and seek out best practices. Our efforts have been nationally recognized with awards as summarized below. The NH CORE Utilities are proud of these recent awards; but also realize these results cannot be reached without engaged energy efficiency contractors and a supportive stakeholder and regulatory network. These awards represent the significant collaboration and dedication to energy efficiency shown by all stakeholders in New Hampshire.

The NH CORE Utilities were recognized in 2013 and 2014 by the U.S. Environmental Protection Agency (EPA) for their outstanding contributions. In 2014, the NH CORE Utilities were selected from the more than 16,000 organizations that participate in the ENERGY STAR program and honored for their work to increase market share of energy-efficient ENERGY STAR certified Homes in New Hampshire through comprehensive outreach, education and marketing efforts. The award cited the NH CORE Utilities longtime commitment to the ENERGY STAR Homes Program, for working closely with EPA to provide additional certification training for heating system contractors, for partnering with the NH Home Builders Association to do direct one-on-one marketing with builders, for collaborating with ENERGY STAR certified home builders to share their techniques with other builders, and for educating homebuyers about the benefits of the ENERGY STAR Homes Program via the statewide NHSaves website and catalog.

In 2013, the NH CORE Utilities were recognized by the EPA as an ENERGY STAR Partner of the Year for outstanding energy efficiency program delivery for both the ENERGY STAR Homes Program and the Home Performance with ENERGY STAR Program. The Partner of the Year award is reserved for ENERGY STAR partners demonstrating outstanding leadership.

### **2014 Behavior, Energy and Climate Change Conference (BECC) Presenter**

New programs and services offered by the NH CORE Utilities are typically piloted by one utility before expanding the program or service statewide. Some examples include: Liberty Utilities WiFi thermostat demonstration project; NHEC's Ductless Mini-Split pilot, PSNH's Home Energy Reports pilot and Unital's Combined Heat and Power measure. In addition to sharing perspectives within New Hampshire, PSNH will be sharing the initial results of NH's Home Energy Reports pilot program at the 2014 Behavior, Energy and Climate Change Conference in December 2014. The abstract from PSNH was selected from nearly 500 submissions and will be included in a Session titled "Next Generation Home Energy Reports versus Other Interventions". The information learned and shared at this national event will help to inform future program designs in New Hampshire and around the country.

### **Northeast Energy Efficiency Partnership (NEEP) Awards**

The NH CORE Utilities also regularly recognize the significant energy efficiency achievements of our customers. The following business customers have been recently nominated by their respective NH CORE Utility and recognized by NEEP for their outstanding efforts to advance energy efficiency.

Durgin and Crowell Lumber (2014 Northeast Business Leader for Energy Efficiency and Business Leader State Champion): Since 2007, Durgin and Crowell Lumber has participated in the NH CORE Programs and has completed 18 energy efficiency projects at its sawmill facility in Springfield, resulting in an annual savings of nearly 870,000 kilowatt-hours and an annual cost savings of more than \$100,000.

Common Man Family (2014 NH Business Leader for Energy Efficiency): The Common Man Inn and Spa and The Italian Farm House Restaurant in Plymouth were recognized for the comprehensive energy efficiency technologies they've installed since 2009, saving them more than \$44,500 in energy costs each year.

Anheuser-Busch (2013 Northeast Business Leader for Energy Efficiency): From 2004-2013, Anheuser-Busch has participated in the NH CORE Programs and has completed 27 energy efficiency projects at its brewery facility in Merrimack, resulting in an annual savings of over 9 million kilowatt-hours and an annual cost savings of \$990,000.

Woodstock Inn Station & Brewery (2013 NH Business Leader for Energy Efficiency): After an energy audit in 2011 and a major expansion of their business, many different energy efficiency improvements were implemented, saving \$46,000 in energy costs at the Inn each year.

### **BetterBuildings Program / Home Performance with ENERGY STAR Program Collaboration**

As described in the Program Year 2014 Update, the collaboration between the NH CORE Utilities and the Community Development Finance Authority (CDFA) and the Office of Energy and Planning (OEP) resulted in 450 New Hampshire homes receiving over \$600,000 in energy efficiency program services in 2013, including audit and weatherization services and/or the replacement of appliances and lights to more efficient models. In addition, approximately forty percent of the participating customers received on-bill financing services totaling over \$1 million for their portion of the project cost. In late 2013, an independent evaluation of the

BetterBuildings Program highlighted the value of this program collaboration and the value the NH CORE Utilities can bring to energy efficiency program delivery in New Hampshire. Specifically, the evaluation report stated:

*“A number of the concerns regarding contractors, audit reports and multiple funding sources for the residential program were addressed when NH BetterBuildings executed partnership contracts with three utilities that run the HPwES program in New Hampshire. Formally integrating with HPwES allowed NH BetterBuildings to merge with an existing program structure that provides a standardized, easy to read audit report and robust contractor oversight with the option for the customer to choose their own contractor, or if they prefer, to have a qualified contractor assigned by the program. The partnership also created a single entry point and program explanation for customers who were previously confused by the separate NH BetterBuildings and HPwES programs.”*

The NH CORE Utilities appreciated the opportunity to collaborate with the CDFA and OEP to weatherize more homes in New Hampshire and look forward to future collaboration efforts.

### **New NHSaves Website Launch**

In 2014, as part of its statewide outreach to residents and businesses, the NH CORE Utilities launched a new NHSaves.com website. Many stakeholders participated in a survey during the up-front planning process for the new website and provided valuable feedback and suggestions that helped to improve the site design and content. The new website includes the following enhancements:

- **Updated Look & Feel:** A new logo was created with the tag line “We All Win” conveying to customers that making their home, business or property more energy efficient benefits not only themselves but their community and the State of New Hampshire.
- **Benefits Driven:** The focus of NHSaves.com is to help demonstrate to visitors the benefits of energy efficiency and to effectively reduce the barriers to adopting energy efficiency. The photos are intended to emphasize community benefits and create a human, personalized feel. The site now includes case studies highlighting customer projects and a blog that provides information on relevant energy efficient topics and technologies. The case studies and blog are updated regularly.
- **Responsive Design:** NHSaves.com can now be accessed through any type of platform (mobile, tablet, laptop or desktop). The new site provides an optimal experience based on the user’s device.
- **Customer Sector Focused:** NHSaves.com now has sections geared to our three major customer sectors: Homes, Work and Municipalities, as well as a new section for industry professionals.
- **Content Management System:** The new site has been built and designed so that it can be more easily updated without having to rely on a service provider. This will help ensure that the site is kept up-to-date and has a fresh look-and-feel.

The NH CORE Utilities will continue to make enhancements to NHSaves.com in 2015 and 2016 by incorporating additional value-added content specific to New Hampshire, such as expanding the energy efficiency customer project case study library. Additional tools and educational information will also be added, as well as details on renewable energy programs and tax credits.

The goal is to increase awareness and site traffic to NHSaves.com which will be accomplished by investing in low-cost, high-volume marketing tactics such as social media, email, search engine optimization and paid search marketing, print and bill inserts.

### **Comments From Our Customers**

While measures of success such as energy saved, customers served, emissions reduced, jobs created and awards received provide a sense of the overall impact of the NH CORE Programs, it is also important to recognize the significant impact the programs have had on individual residents and businesses. The following comments from customers who have participated in the NH CORE Programs illustrate this impact.

*“When we had that below zero weather a few days ago, I had no idea it was that cold out, no drafts! It is like a new house.”*

Wendy – New London

*“I participated in the Home Performance Program last fall to put insulation in my attic, basement and walls. The contractor also worked to seal up leaks and places where warm air was escaping to outside. This winter has been cold in northern NH, but I have been very comfortable and cozy in my home.”*

Linda – Berlin

*“Thank you PSNH for the NH HPwES program making our home dramatically more energy efficiency and cozy! We are on a rather busy / noisy road and the sound is immensely diminished.”*

Eileen – Chester

*“I would just like to compliment the two workers that did the weatherization in my home Ted & Derek. These two men had nothing but respect at all times while working in and around my home. They also have excellent work ethics. These two workers went nonstop and explained every question we had with professionalism and knowledge. This is a commodity we don't see very much in younger working men so it was a great surprise to me to see this. So thank you very much for training and hopefully retaining men like this to work for your company.”*

James & Estelle – Allenstown

*“It's hard to conceive that the utility companies are so willing to assist in the implementation of acquiring, installing, and operating energy efficient equipment. It almost seems counter intuitive! Yet, without their expertise, teamwork and support, we may not have been as prepared to pursue doing the right thing... in upgrading our boiler plant from a 1950s to state of the art equipment. We need these to help offset some of the costs incurred for an upgrade such as these. You need support from your utility to be there from the beginning to end to work with you for a successful project, all of which we were lucky to have found with Liberty and Unitil.”*

Concord Hospital – Concord

*“The energy project reduced gas budget by more than 40%. We have significantly improved guest satisfaction from heating and hot water systems”*

Comfort Inn/Duprey Hospitality – Concord

*“The Liberty Utilities Energy Efficiency Program worked really well for us. We had certain energy efficiency measures in mind and Liberty was able to come up with rebates that matched up well with our plans.”*

Dartmouth-Hitchcock Regional Facilities Manager – Nashua

*“Conservation and sustainability were an important part of the design of our new facility. The programs and technology that Unitil helped identify exceeded our expectations. We're proud to be an environmentally-responsible business.”*

Smuttynose Brewing Company – Hampton

## **E. Coordinated Program Management and Administrative Costs**

### Coordinated Program Management

Uniform planning, delivery, evaluation and access to the NH CORE Programs will continue under the proposed Plan. The NH CORE Programs are designed to be consistent throughout the State with access to any eligible customer, subject to the available program budgets. Each of the NH CORE Utilities will continue to have the flexibility to utilize different program implementation strategies. However, from a customer’s perspective, the programs will continue to be virtually the same across the State.

The CORE Program Management Team will continue to fulfill its responsibilities to coordinate and oversee the statewide program activities, recognize and resolve program delivery issues and provide quarterly status reports to the Commission’s staff and stakeholders, as was contemplated by the Settlement Agreement reached in DE 01-057, dated October 3, 2001 and summarized below.

The Utilities will establish a CORE Program Management Team (the “Management Team”) to oversee all CORE Program activities and to resolve problems as they arise. The Management Team will be comprised of representatives from each utility and will make decisions by consensus with one member specifically designated as the liaison with the Parties and Staff. The Management Team will meet at least quarterly to review program progress and to resolve problems.

### Administrative Costs

The NH CORE Utilities, the Commission’s staff and other interested parties have worked together to develop uniform program administration and reporting protocols, as well as joint marketing and coordinated monitoring and evaluation for the NH CORE Programs.

The NH CORE Utilities will continue to focus their time and resources on successful program implementation. The level of administrative costs that are spent on successful programs will vary by program and by utility. Unique service territories, commercial customer mixes, and residential customer demographics lead to variances in administrative costs. Each utility’s performance can be judged against agreed-upon program performance goals that are clear and measurable. In addition, the performance incentive mechanism described in Section IV.G includes a cost-control factor such that an inefficiently managed and administered program will likely fail to meet its cost-effectiveness and energy savings goals. Of utmost importance, is that each utility devotes sufficient resources to operate the NH CORE Programs effectively in their service area, as demonstrated by the results of the programs and measured through the performance criteria (i.e. cost-effectiveness and energy savings).

## **F. Status of Directives Contained in the Home Performance Order No 25,402**

On August 23, 2012, the Commission issued Order No. 25,402 (Order on Home Performance with ENERGY STAR Program (HPwES)). In its Order, the Commission provided conditional approval to continue the fuel neutral HPwES Program in 2012 and to include the program in the utilities' 2013-2014 CORE program filing. The Commission's conditional approval is subject to eight directives, seven of which were completed and described in the NH CORE Utilities' Program Year 2014 Update Plan. The status of the final directive is summarized below. The NH Electric Utilities have completed each of the eight directives and will only include updates in future Plans if directed by the Commission.

1) Perform outreach to electric space heating customers and give such customers priority.

### Resolution

The NH Electric Utilities will continue to perform outreach to customers/landlords that are likely to utilize electricity to heat their homes/multi-family buildings and will give priority to electric heat customers via the Home Heating Index screening tool by allowing them to qualify for the program at a lower BTU/Square Foot threshold. In addition, the NH Electric Utilities agreed to conduct a targeted marketing campaign during the time period October 2012 – December 2014.

### Status: Complete

The NH Electric Utilities continue to give priority to electric heat customers via the Home Heating Index screening tool by allowing them to qualify for the program at a lower BTU/Square Foot threshold.

PSNH conducted a direct mail marketing campaign to customers identified to likely heat their homes with electricity based on their monthly usage characteristics. Three separate mailings targeting a different group of customers took place over the period November 2013 through June 2014. Projects and responses to this outreach effort are ongoing. The results-to-date are summarized below:

Of the 4,359 customers targeted,

- 124 responded to the solicitation;
- 61 enrolled in the program;
- 44 home energy audits have been completed; and
- 27 have completed energy efficiency home improvements.

Liberty Utilities conducted similar outreach, including targeted outbound calls to high use electric heat customers, which resulted in two customer installations as of the date of this filing.

Unitil analyzed customer usage to identify high electric residential customers, which resulted in a prospective multi-family electric heat project expected to begin in 2015. It also encouraged its contractor network to prioritize residential customers utilizing electricity for some or all of their heating needs.

## **G. Summary of Material Changes**

In the Settlement Agreement reached in the 2013-2014 CORE Energy Efficiency Program Plan, the NH CORE Utilities agreed to provide a summary highlighting the material changes to the CORE Programs in the CORE Program filing for the 2015-2016 program years. “Material changes” means: changes in funding sources; program design changes; addition of new measures; changes in rebates; new pilot programs; program evolutions (such as a transition from a pilot program to a permanent program); proposed changes to savings assumptions; and explanations for significant savings variances between the most recently completed program year and the proposed program year. For ease of reference, a complete summary of the material changes is included in this Plan as Attachment M. In addition, program-specific modifications are incorporated within each program description in the Two Year Plan section that follows.



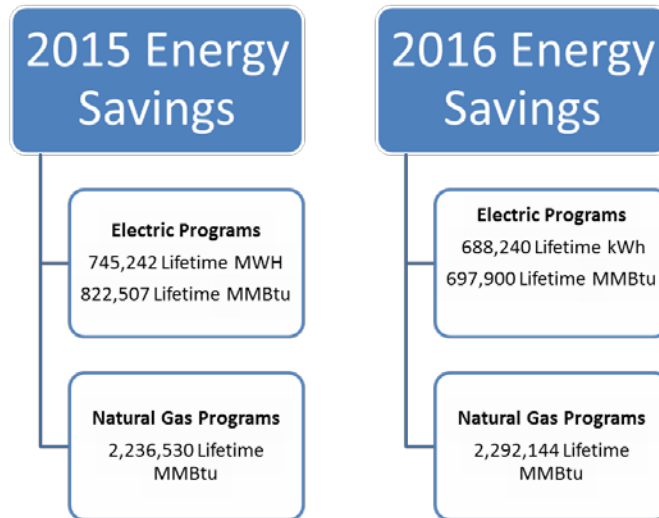


## IV. THE TWO YEAR PLAN

### A. Overall Benefits and Cost Effectiveness

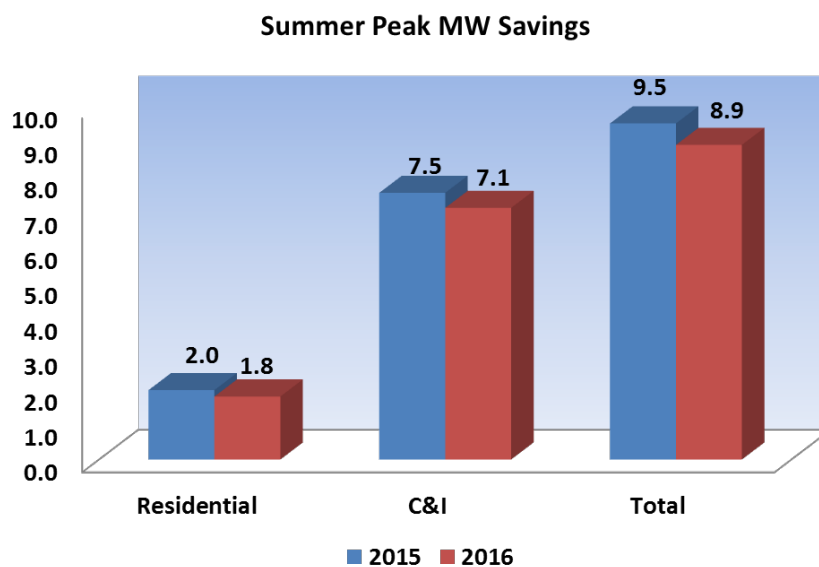
#### 1) Energy Savings

The energy savings goals set by the NH CORE Utilities in 2015 and 2016 represent approximately 0.5% of the NH Electric Utilities 2013 total delivered sales 0.6% of the NH Gas Utilities 2013 total delivered sales.



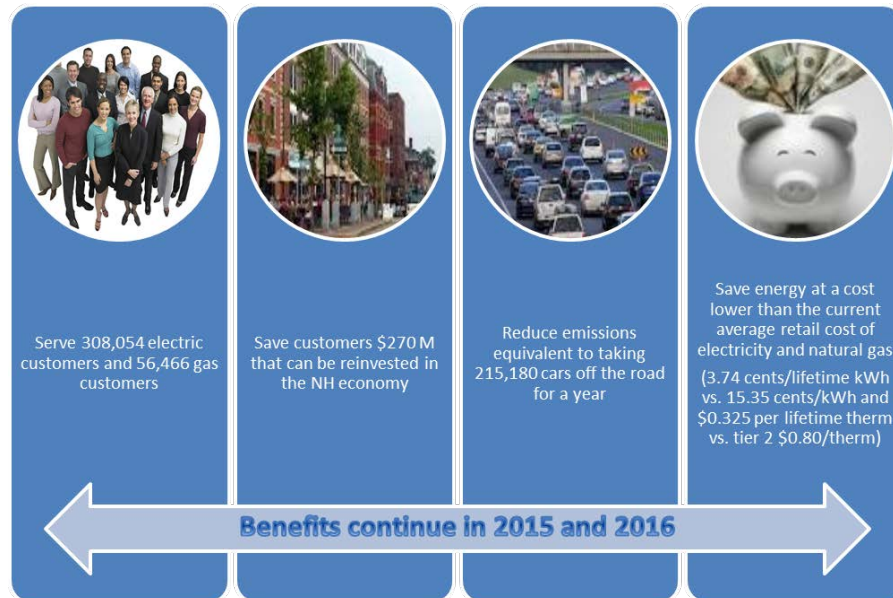
#### 2) Peak Reduction

The energy savings which will result from the NH CORE Programs will lower the overall peak in New Hampshire reducing the need to invest in additional energy sources to meet peak demand, benefitting all customers.



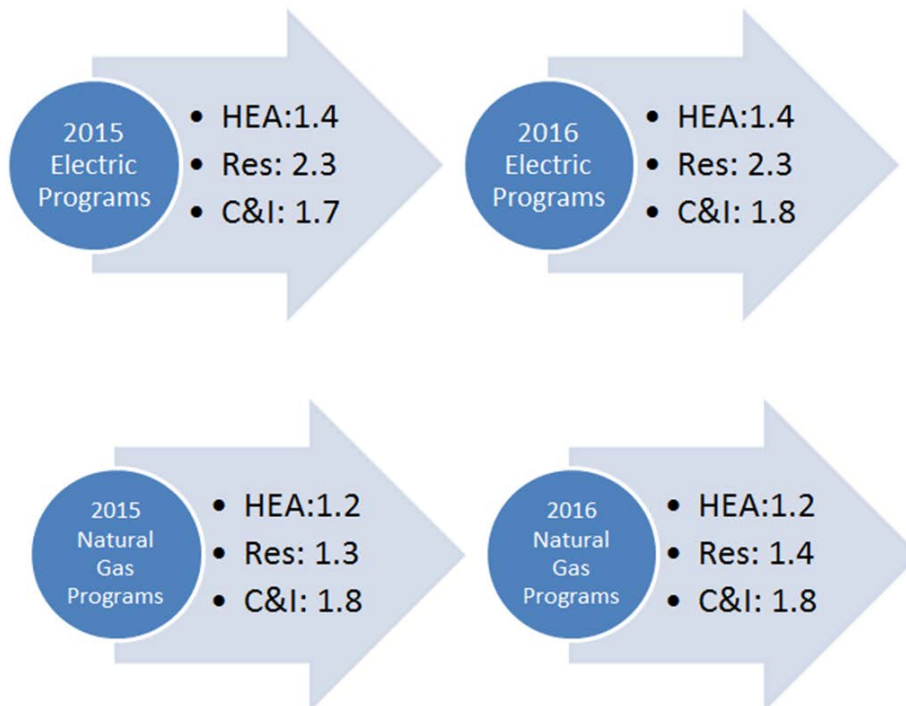
### 3) Benefits

Over 350,000 participating customers will receive direct benefits from lower energy bills while all customers will receive environmental benefits from reduced emissions. Lower energy bills mean more dollars available to invest in New Hampshire's economy.



### 4) Cost-Effectiveness

Programs undergo a rigid cost-effectiveness screening process that results in implementing cost-effective programs with benefit-cost ratios equal to or greater than 1.0.



## B. Program Funding

### CORE Electric Energy Efficiency Program Funding

The CORE Electric Energy Efficiency Programs are funded through three main sources: 1) a portion of the System Benefits Charge (SBC) which is applied to the electric bills of all customers receiving delivery service through one of the NH Electric Utilities; 2) a portion of the Regional Greenhouse Gas Initiative (RGGI) auction proceeds; and 3) proceeds obtained by the NH Electric Utilities from ISO-NE for participation in ISO-New England's Forward Capacity Market (FCM). In addition, any unspent funds from prior program years are carried forward to future years, including interest at the prime rate.

Table IV.1 below summarizes the 2015 and 2016 estimated program funding by source and utility for the CORE Electric Programs.

**Table IV.1 – CORE Electric Program Funding for 2015 and 2016**

<b>New Hampshire Statewide CORE Energy Efficiency Programs</b>					
<b>Electric Programs</b>					
<b>2015 Estimated Program Funding (\$000's)</b>					
	LU-Electric	NHEC	PSNH	Unitil	Total
System Benefits Charge (SBC)	1,750.47	1,406.78	14,511.23	2,227.84	19,896.32
Carryforward & Interest	1,143.81	100.00	757.53	414.78	2,416.12
RGGI	223.56	204.90	1,917.70	294.86	2,641.02
ISO-NE Forward Capacity Market (FCM)	115.00	55.00	2,024.44	250.24	2,444.68
Transfer of RSA 125-O 2013 Year End Balance	-	-	591.54	-	591.54
<b>Total Electric Energy Efficiency Funding</b>	<b>3,232.84</b>	<b>1,766.68</b>	<b>19,802.44</b>	<b>3,187.72</b>	<b>27,989.68</b>
<b>2016 Estimated Program Funding (\$000's)</b>					
	LU-Electric	NHEC	PSNH	Unitil	Total
System Benefits Charge (SBC)	1,787.92	1,427.71	14,721.08	2,247.62	20,184.33
Carryforward & Interest	-	-	-	270.86	270.86
RGGI	222.02	203.63	1,904.60	292.83	2,623.08
Estimated ISO-NE FCM Proceeds	115.00	55.00	2,075.17	312.80	2,557.97
<b>Total Electric Energy Efficiency Funding</b>	<b>2,124.94</b>	<b>1,686.34</b>	<b>18,700.85</b>	<b>3,124.11</b>	<b>25,636.24</b>

The System Benefits Charge revenue is estimated based on a forecast of each utility's 2015 and 2016 delivery sales and a SBC energy efficiency rate of \$0.0018 per kilowatt-hour. The estimated RGGI proceeds of \$2.641 million and \$2.623 million for 2015 and 2016 respectively were provided to the NH Electric Utilities by the Commission's staff and reflect recent changes in the Multiple Pollutant Reduction Program (Senate Bill 268 which updates RSA 125-O:23,III) effective October 3, 2014. The ISO-NE FCM proceeds are estimated based on forecasted prices effective June 1, 2014 for demand assets with multiple year commitments. The NH Electric Utilities will continue to participate in ISO-NE's FCM and to report peak demand savings achieved through the NH CORE Electric Programs to ISO-NE.

Customers who participate in the NH CORE Electric Programs agree to forego any associated ISO-NE qualifying capacity payments and allow their electric utility to report demand savings and collect the capacity payments on behalf of all customers. All ISO-NE capacity payments from demand reductions resulting from the energy efficiency programs are used to support the NH CORE Electric Programs and provide additional energy efficiency opportunities to NH's

residents, businesses and municipalities. As shown above, the estimated FCM proceeds for 2015-2016 is approximately \$5 million, which is 9.4% of the total electric energy efficiency program funding; a significant overall benefit to New Hampshire.

PSNH has an exciting opportunity to join with its parent company Northeast Utilities in scaling up its planned Customer Engagement Platform, which will help to transform the regional energy efficiency market not only in New Hampshire, but in Connecticut and Massachusetts, as well. Through on-going and consistent feedback to and from customers, the Company's web-based Customer Engagement Platform will generate more awareness of energy efficiency and the value it brings to customers. It will provide significant benefits to PSNH's customers directly and to the cost-effective delivery of energy efficiency programs into the future. In order to fund this initiative, PSNH proposes to transfer \$591,540 from the SBC funds that were set aside in compliance with RSA 125-O:5 for energy efficiency projects at its facilities. By leveraging the expertise and the scale of Northeast Utilities, this platform can be introduced to PSNH's customers in the near term, while providing greater long-term value to PSNH's customers than utilizing the funds for energy efficiency projects at its facilities. PSNH respectfully requests the Commission's approval to utilize the requested SBC set-aside funds for this distinct purpose in 2015. A full description of the benefits of this platform is included in Section IV.E of this Plan.

CORE Gas Energy Efficiency Program Funding

The CORE Gas Energy Efficiency Programs are funded by the Local Distribution Adjustment Charge, which is applied to the natural gas bills of all customers receiving service through one of the NH Gas Utilities. Similar to the electric programs, any unspent funds from prior program years are carried forward to future years, including interest at the prime rate.

Table IV.2 below summarizes the 2015 and 2016 estimated program funding by source and utility for the CORE Gas Programs.

**Table IV.2 – CORE Gas Program Funding for 2015 and 2016**

<b>New Hampshire Statewide CORE Energy Efficiency Programs</b>			
<b>Gas Programs</b>			
<b>2015 Estimated Program Funding (\$000's)</b>			
	LU-Gas	Unitil-Gas	Total
Local Distribution Adjustment Charge (LDAC)	5,512.23	1,523.53	7,035.76
Carryforward & Interest	240.72	(9.44)	231.28
<b>Total Gas Energy Efficiency Funding</b>	<b>5,752.95</b>	<b>1,514.09</b>	<b>7,267.04</b>
<b>2016 Estimated Program Funding (\$000's)</b>			
	LU-Gas	Unitil-Gas	Total
Local Distribution Adjustment Charge (LDAC)	5,925.06	1,530.20	7,455.26
Carryforward & Interest	-	7.18	7.18
<b>Total Gas Energy Efficiency Funding</b>	<b>5,925.06</b>	<b>1,537.38</b>	<b>7,462.44</b>

## C. Program Budgets

### CORE Electric Energy Efficiency Program Budgets

Table IV.3 below summarizes the 2015 and 2016 program budgets by utility for the CORE Electric Programs. The program budget figures below do not include the estimated performance incentive, which is summarized in Attachment H2 for each utility, along with individual program budgets. As shown, the HEA Program budget is at least 15.5% of each utility's total program budget, as informally agreed to by the energy efficiency stakeholders at the quarterly meeting held in June 2014.

For PSNH, the HEA Program percentage calculation excludes the carryforward and interest, and customer engagement platform portions of the budget in 2015. As approved by the Commission in its Order No. 25,703 in DE 12-262, PSNH's Residential sector, including the HEA Program, was allocated a portion of the 2013 carryforward and interest funds in program year 2014, rather than waiting until 2015. The remaining portion of the 2013 carryforward and interest funds have been allocated directly to the 2015 C&I sector budget. Since the HEA Program received its allocation of 2013 carryforward and interest funds in 2014, the remaining portion of funds transferred to the 2015 budget were appropriately excluded from the HEA Program percentage calculation. In addition, PSNH excluded the customer engagement platform portion of the budget from the HEA Program percentage calculation since the customer engagement platform will benefit and serve all customer sectors, including the income eligible sector. A summary of the process and assumptions used to develop PSNH's 2015 and 2016 budgets by sector can be found in Section IV.E. The budget development process is similar for each utility.

**Table IV.3 – CORE Electric Program Budgets for 2015 and 2016**

New Hampshire Statewide CORE Energy Efficiency Programs					
Electric Programs					
2015 Program Budgets (\$000's)					
	LU-Electric	NHEC	PSNH	Unitil	Total
Residential - Income Eligible (HEA Program)	\$465.55	\$254.86	\$2,661.46	\$459.62	\$3,841.49
Residential - All Other	\$811.56	\$820.53	\$5,829.58	\$915.77	\$8,377.43
C&I and Municipal	\$1,710.19	\$548.39	\$9,721.46	\$1,559.93	\$13,539.97
Smart Start & FCM	\$20.00	\$20.00	\$212.00	\$30.00	\$282.00
<b>Total Budget</b>	<b>\$3,007.30</b>	<b>\$1,643.77</b>	<b>\$18,424.50</b>	<b>\$2,965.32</b>	<b>\$26,040.89</b>
Less Carryforward & Interest Portion of Budget	NA	NA	\$704.68	NA	\$704.68
Less Customer Engagement Platform	NA	NA	\$550.27	NA	\$550.27
<b>Total Budget to Base HEA Allocation</b>	<b>\$3,007.30</b>	<b>\$1,643.77</b>	<b>\$17,169.56</b>	<b>\$2,965.32</b>	<b>\$24,785.95</b>
<b>HEA Program % of Total Budget</b>	<b>15.5%</b>	<b>15.5%</b>	<b>15.5%</b>	<b>15.5%</b>	<b>15.5%</b>
2016 Program Budgets (\$000's)					
	LU-Electric	NHEC	PSNH	Unitil	Total
Residential - Income Eligible (HEA Program)	\$306.31	\$243.24	\$2,696.89	\$450.45	\$3,696.89
Residential - All Other	\$530.59	\$782.31	\$5,104.38	\$915.77	\$7,333.05
C&I and Municipal	\$1,119.80	\$523.50	\$9,386.49	\$1,509.93	\$12,539.72
Smart Start & FCM	\$20.00	\$20.00	\$212.00	\$30.00	\$282.00
<b>Total Budget</b>	<b>\$1,976.70</b>	<b>\$1,569.04</b>	<b>\$17,399.77</b>	<b>\$2,906.15</b>	<b>\$23,851.65</b>
<b>HEA Program % of Total Budget</b>	<b>15.5%</b>	<b>15.5%</b>	<b>15.5%</b>	<b>15.5%</b>	<b>15.5%</b>

CORE Gas Energy Efficiency Program Budgets

Table IV.4 below summarizes the 2015 and 2016 program budgets by utility for the CORE Gas Programs. The program budget figures below do not include the estimated performance incentive, which is summarized in Attachment H2 for each utility, along with individual program budgets. As shown, the HEA Program budget is at least 15.5% of each utility’s total program budget.

**Table IV.4 – CORE Gas Program Budgets for 2015 and 2016**

<b>New Hampshire Statewide CORE Energy Efficiency Programs</b>			
<b>Gas Programs</b>			
<b>2015 Program Budgets (\$000's)</b>			
	LU-Gas	Unitil -Gas	Total
Residential - Income Eligible (HEA Program)	\$921.25	\$217.30	\$1,138.55
Residential - All Other	\$1,912.55	\$628.70	\$2,541.25
Commercial & Industrial	\$2,493.01	\$555.94	\$3,048.95
<b>Total Budget</b>	<b>\$5,326.81</b>	<b>\$1,401.93</b>	<b>\$6,728.74</b>
<b>HEA Program % of Total Budget</b>	<b>17.3%</b>	<b>15.5%</b>	<b>16.9%</b>
<b>2016 Program Budgets (\$000's)</b>			
	LU-Gas	Unitil -Gas	Total
Residential - Income Eligible (HEA Program)	\$948.89	\$220.64	\$1,169.53
Residential - All Other	\$1,969.93	\$644.92	\$2,614.85
Commercial & Industrial	\$2,567.35	\$557.94	\$3,125.29
<b>Total Budget</b>	<b>\$5,486.16</b>	<b>\$1,423.50</b>	<b>\$6,909.66</b>
<b>HEA Program % of Total Budget</b>	<b>17.3%</b>	<b>15.5%</b>	<b>16.9%</b>

Interim Changes in Program Budgets

The NH CORE Utilities recommend continuation of the budget adjustment guidelines currently in place. Individual programs are defined as the programs listed in each utility’s Program Cost Effectiveness Reports, included in this Plan as Attachments D, DG, E, F, G and GG. Specifically,

- Once the budgets are approved, there will be no movement of funds between the residential and commercial & industrial sectors unless specifically approved by the Commission.
- Budget transfers to or from individual programs of 20% of the individual program’s budget or less can be made without consultation and without Commission approval. Notice to the Commission’s Staff and interested parties is required.
- Budget transfers to or from individual programs greater than 20% of the individual program’s budget shall be filed with the Commission. The Commission’s Staff and interested parties may file any comments with the Commission within two weeks of the filing. If no action has been taken by the Commission’s Staff and interested parties, the budget transfer request shall be deemed approved unless the Commission notifies the requesting Company of the need for a more in-depth review within thirty (30) days of the filing.
- Notwithstanding the 2<sup>nd</sup> and 3<sup>rd</sup> bullets above, no funds shall be transferred from the Home Energy Assistance Program without prior approval by the Commission.

### Multi-year Project Budget Approval

The NH CORE Utilities recommend continuation of the previously approved “multi-year project approval” process and request the Commission’s authorization to make customer commitments during 2015 and 2016 for projects to be completed in the subsequent two years using the following requirements.

- All customer classes eligible to participate in the NH CORE Programs are eligible for multi-year project approvals. A letter of intent or a memorandum of understanding outlining the terms of the approval may be issued by a utility.
- The NH CORE Utilities will only make commitments to customers who have presented definitive plans for projects to be completed in the subsequent two years.
- The energy efficiency measures will include those measures offered under the NH CORE Programs and the Utility-specific programs in effect at the time. All of the 2015 and 2016 program guidelines and rules will apply to future year commitments.
- Customers receiving commitments in 2015 and 2016 will not be precluded from participating in any new programs introduced in the future which supplement or supplant the existing programs.
- The funds for future projects will be paid using the budget in the year the project is implemented; however, the commitment to the customer will be made contingent upon the continuation of funding of the NH CORE Energy Efficiency Programs.
- The total of all customer commitments, in any program in any future year, will not exceed 40% of the amount budgeted for the program in 2015 or 2016 in the category “Customer Rebates and Services” without prior concurrence of the interested parties and the Commission’s staff. Any such commitments will be monitored and reported in the NH CORE Utilities’ quarterly reports.

In support of this request, the NH CORE Utilities have found that customers often plan and budget for large capital projects with multi-year lead times. Construction projects, renovations and replacement of existing equipment planned for 2015 and 2016 are likely developed in 2014 or 2015, and the resources necessary to fund such projects need to be arranged when customers make these decisions. Large C&I customers often have two year planning horizons for large capital expenditures, and these expenditures are essential to the growth of the New Hampshire economy. Home builders also plan construction starts for the following year based on many factors, including the availability of funding in the ENERGY STAR Homes Program. Lastly, the Community Action Agencies and other contractors delivering services under the Home Energy Assistance Program can better plan for the number of resources that will be required to deliver program services and can better coordinate and collaborate with Department of Energy funded home weatherization projects given appropriate lead times.



## D. Statewide CORE Program Descriptions

### 1) Residential Programs

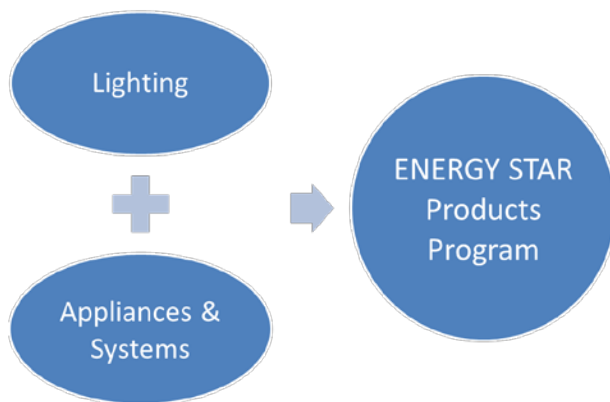
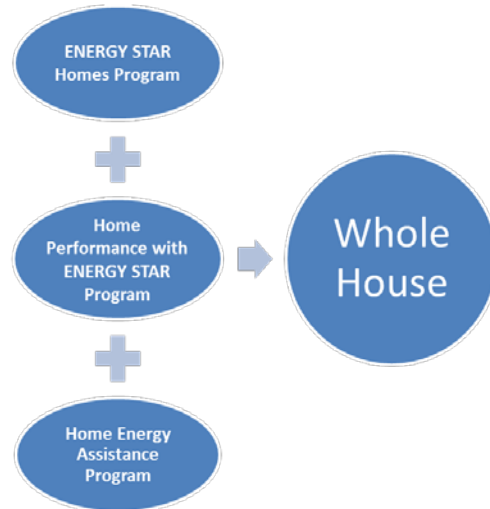
#### Overview

The NH CORE Utilities offer a variety of residential energy efficiency programs targeted at improving the energy efficiency of New Hampshire's existing housing stock and newly constructed homes, and promoting the benefits and use of energy efficient lighting, appliances and space and water heating and cooling equipment. The NH CORE Programs are designed to reduce the market barriers that hinder the acceptance of high efficiency homes and products, as summarized in the table below. Incentives are offered on premium efficiency equipment, premium built homes and for weatherization services for existing homes. The incentives, coupled with education and training initiatives, foster the development of the energy efficiency market in New Hampshire. Program incentive offerings may change based on market conditions throughout a program year or at the beginning of a new program year.

Market Barrier	Program Intervention	Program Objective
Lack of customer awareness of the benefits of energy efficient appliances/performance uncertainties	<p>Promotion of energy efficient appliances at point of purchase, through product labeling and educational materials</p> <p>Education on the benefits of energy efficiency</p> <p>Joint promotion w/program allies</p> <p>Promotion through websites, bill inserts, catalogues, trade and home shows and retail advertising</p>	Increase demand for energy efficient appliances.
High cost of efficient homes and technology	<p>Incentives via rebate</p> <p>Information about Federal tax credits</p>	Decrease the cost barrier and increase market share of energy efficient rated lights, appliances and homes
Retailer uncertainty about product performance and profit potential for providing energy efficiency services	Retailer training and recruitment	Increase visibility and availability of energy efficient appliances
Lack of builder/contractor awareness, experience and availability	<p>Builder/trade ally training and education</p> <p>Coordination between residential programs</p>	<p>Demonstrate the benefits and value of efficiency certifications</p> <p>Provide builders with the resources necessary to meet energy efficiency standards</p>
Perceived lack of demand for premium efficiency homes, equipment and services	Increased customer demand through incentives, education and promotion	Increased supply of energy efficiency services, and premium efficiency equipment and homes

## Program Consolidation and Updated Program Names

The NH CORE Utilities will begin to reference the residential programs using the following two categories: Residential Whole House and the ENERGY STAR Products Program. As shown in the illustration to the right, the Residential Whole House Programs include a new construction program (“ENERGY STAR Homes”), an existing homes program (“Home Performance with ENERGY STAR”) and an income-eligible weatherization program (“Home Energy Assistance”).



As shown in the illustration to the left, the ENERGY STAR Products Program includes ENERGY STAR lighting products and ENERGY STAR appliances & systems.

The primary benefit of the new program categories is to improve communication with our customers, thereby reducing customer confusion. The new naming conventions are customer focused and based on energy efficiency needs, which will allow our customers to more easily select a program that best fits their individual requirements.

In addition to using new program categories, the NH CORE Utilities plan to reduce the number of CORE programs for goal setting and reporting from five programs to the following four programs: 1) ENERGY STAR Homes, 2) Home Performance with ENERGY STAR, 3) Home Energy Assistance and 4) ENERGY STAR Products. The primary purpose and benefit of this consolidation is greater program implementation flexibility to address shifts in market conditions and consumer demand.

## **a) Residential Whole House Programs**

### **i) ENERGY STAR Homes Program (New Construction)**

#### **Key Objectives**

The ENERGY STAR Homes Program strives to increase the market share of new homes built in New Hampshire that are at least 15% more efficient than homes built to the 2009 International Energy Construction Code<sup>2</sup>. This program achieves both a broader market penetration of energy-efficient homes, as well as moving builders and consumers toward deeper energy savings where possible.

#### **Program Design**

The ENERGY STAR Homes Program is designed to be a market driven program, encouraging both builders and homebuyers to build new homes with energy efficiency in mind. It is aligned with a national effort developed by the U.S. Environmental Protection Agency (EPA). Incentives are provided in the form of rebates and services to partially offset the increased cost of building a home to higher energy efficiency standards using the Home Energy Rating System (HERS)<sup>3</sup> and the energy efficient lighting, appliances and HVAC equipment installed.

The HERS performance rating is a nationally recognized scoring system for measuring a home's energy performance and can be described as analogous to a "miles-per-gallon" sticker for houses, giving prospective buyers an insight as to how the home ranks in terms of energy efficiency. The lower the HERS performance rating, the more energy efficient the home is as compared to a standard code built home. A HERS performance rating of 0 represents a net zero energy home. In order to reach net zero, a home must have a renewable energy system installed, such as solar PV, a small wind turbine, or a micro-hydro. Incentives are structured to encourage builders and homebuyers to build higher performing homes above the minimum requirements of the EPA's national program requirements (i.e. higher incentives for homes receiving lower HERS Index ratings).

In addition to the HERS performance rating incentive, the cost associated with HERS Rater services are included to assist builders and homebuyers to obtain a HERS performance rating, to ensure the home meets the EPA's stringent ENERGY STAR technical standards, and to provide technical assistance and guidance in incorporating the best energy efficient building practices into the home's design.

All residential single family and multi-family new construction projects are eligible to participate in this program regardless of the fuel or system used for space heating. In addition, complete rehabs of existing structures are eligible to participate if the amount of rehab work meets ENERGY STAR guidelines.

<sup>2</sup> The State Building Code Review Board adopted the International Energy Conservation Code 2009 with amendments, effective April 1, 2010, which the NH CORE Utilities have incorporated into this program.

<sup>3</sup> Since 2007, an ENERGY STAR home must meet the Home Energy Rating System (HERS) index in accordance with the *Mortgage Industry National Home Energy Rating Standards* administered by the Residential Energy Services Network (RESNET). This HERS index is recognized by the US Environmental Protection Agency as the qualification for ENERGY STAR home designation.

## **Program Modifications**

- Transition from lighting incentives on CFLs to primarily LEDs.
- Collaborate with the Sustainable Energy Division of the NHPUC and the Home Builders and Remodelers Association to encourage and assist builders to construct Net Zero Homes, possibly highlighting a case study of a Net Zero Home on the NHSaves and utility websites.
- Provide a free HERS rating as an introduction to the program to encourage new builders into the program (budgeted in Education Program).
- Fold NHEC's High Efficiency Heat Pump Program and PSNH's Geothermal and Air Source Heat Pump Option into the ENERGY STAR Homes Program in order to streamline and simplify the program offering.

## **Delivery**

The NH CORE Utilities' staff coordinates program delivery to ensure consistent services are provided to home builders and homebuyers across the State. In addition, the NH Electric Utilities collaborate with the NH Gas Utilities to incorporate the incentives for high efficiency natural gas HVAC equipment.

In 2012, the EPA made changes to the national ENERGY STAR Homes Program standards, also known as Version 3.0. The new standards, as summarized below, were incorporated into the NH CORE Utilities program in mid-2012.

- Thermal Enclosure System Rater Checklist
- HVAC System Quality Installation Contractor Checklist
- HVAC System Quality Installation Rater Checklist
- Water Management System Builder Checklist (or Indoor airPLUS Verification Checklist)
- Increased Rater, Builder, and HVAC contractor training

The NH CORE Utilities plan to continue utilizing EPA's ENERGY STAR Version 3.0 standards during the 2015-2016 program years. New standards and requirements are typically met with some resistance; however, the NH CORE Utilities have made great progress over the past two years developing greater builder and HVAC contractor awareness and acceptance of the ENERGY STAR Version 3.0 standards. Efforts will continue to focus on:

- Educating builders, insulation contractors and HVAC contractors on the new standards in order to achieve deeper levels of energy savings,
- Expanding the base of ENERGY STAR builders and certified HVAC contractors, and
- Building consumer and building trade awareness of the benefits of building to ENERGY STAR standards.

## **Marketing & Education**

Marketing is primarily focused on direct builder contact by program administrators and Home Energy Raters.

The NH CORE Utilities also plan to:

- Participate in trade shows, such as the NH Home Builders & Remodelers Association Annual Home Show.
- Perform outreach to REALTOR® groups and insulation and HVAC contractors.
- Make presentations at home builder and home buyer seminars.
- Provide ENERGY STAR signs and literature to builders.
- Provide a free HERS rating as an introduction to the program (budgeted in Education Program).
- Promote energy code training.
- Direct customers/members and builders to the NHSaves web site for energy efficiency services information.
- Co-market ENERGY STAR developments with builders.

The ENERGY STAR trademark is well known with builders and consumers in the New England region and nationally and this program benefits from the advertising efforts the Department of Energy implements.

## **Measures of Success & Market Transition Strategy**

Success factors for this program include attaining the planned participation, energy savings and benefit/cost ratio goals. The NH CORE Utilities expect that increased awareness of and demand for ENERGY STAR homes may eventually decrease the need for incentives. New technologies may change the types of products eligible for incentives in the future. Evaluations will help determine if program changes are needed over time to address market barriers.

## **ii) Home Performance with ENERGY STAR Program (Existing Homes)**

### **Key Objectives**

The focus of the Home Performance with ENERGY STAR Program is to improve the efficiency and comfort of New Hampshire's existing single-family housing stock by assisting customers with improvements to the energy efficiency of their homes. Multi-family homes can also receive services under this program. Basic services include air sealing, insulation, and cost effective appliance and lighting upgrades.

### **Program Design**

The Home Performance with ENERGY STAR Program is designed to encourage customers to improve the efficiency of their homes. Customers who qualify can receive an incentive of approximately 50% of the cost of weatherization services up to a \$4,000 cap. Natural gas customers who qualify can receive an incentive from both the electric company and the gas company, provided the customer first reaches the \$4,000 cap from the gas company. This provides natural gas customers with an opportunity to achieve deeper energy savings. It also recognizes that natural gas customers contribute to both the System Benefits Charge on their electric bill and the Local Distribution Adjustment Charge on their natural gas bill; providing access to both the electric and gas programs.

Co-payments are required from the customer and are determined based on the weatherization measures installed. In addition to the weatherization services incentive, additional incentives are available under this program for high efficiency oil and propane space and water heating systems when such equipment replaces end-of-life equipment and is recommended by one of the program's home energy auditors. Electric and natural gas HVAC and water heating system incentives are offered under the ENERGY STAR Products Program. The home energy auditors refer customers to the ENERGY STAR Products program, as appropriate. This program also has a strong educational component designed to help customers better understand the efficiency of their home and the factors that affect their energy usage, including renewable energy options.

All single family homes are eligible to participate in this program regardless of the fuel or system used for space heating, provided the home qualifies for services. Natural gas customers are first served by the NH Gas Utilities, while all other customers are served by the NH Electric Utilities.

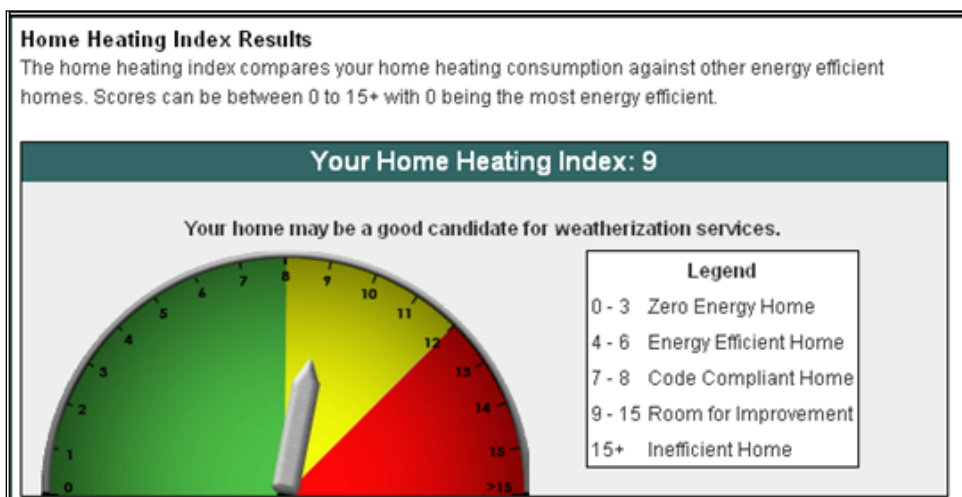
All multi-family homes are eligible to receive certain services under this program depending on the fuel used to heat the home and provided the home qualifies for services, as follows:

- Those customers using natural gas to heat their home are eligible for all services. Weatherization services are provided by the NH Gas Utilities, while incentives on electric base load measures, such as lighting and appliances, are provided by the NH Electric Utilities.
- Those customers using electricity to heat their home are eligible for all services, and are provided by the NH Electric Utilities.
- Those customers using any other fuel to heat their home are only eligible for incentives on electric baseload measures and are provided by the NH Electric Utilities.

Multi-family homes are modeled individually and evaluated for cost-effectiveness using the standard avoided cost benefit/cost test in order to qualify the home for services under this program.

The NH CORE Utilities use the Home Heating Index (HHI) tool to identify single family homes that are good candidates for weatherization services and to qualify single-family homes for services under this program. In limited cases, a program coordinator can waive the HHI qualification if it is determined the project is likely to have significant savings and passes the standard avoided cost benefit/cost test. With just three pieces of information (zip code, conditioned square footage of home, and annual heating fuel usage) the HHI tool creates a tailored Home Heating Index score. The higher the HHI score the more energy used per square foot, resulting in a greater opportunity for energy savings. Currently, single-family homes with an HHI score of 8 or greater qualify for services under this program. As higher use customers are served under this program, the qualifying HHI threshold can be lowered over time. Qualified customers complete a simple application form and provide two years of heating fuel data to enroll in the program.

The following screen is displayed after a customer completes the Home Heating Index on NHSaves.com:



In early 2011, this program was recognized with a national ENERGY STAR award from the Environmental Protection Agency (EPA), which cited the program’s effective screening tool and “exceptional” audit-to-implementation closure rate as two of the major reasons for the award.

Those customers who do not qualify for this program are provided with links to energy auditors who can provide services outside the program, educational materials and other energy-related web sites.

### **Financing**

The NH Electric Utilities currently offer on-bill financing at 0% interest to customers who participate in the Home Performance with ENERGY STAR program, through a revolving loan program subject to the availability of funds. This financing option has been very successful in that the demand has typically outpaced return payments. Although successful, this model does not meet the current demand and is not scalable should the level of energy efficiency services increase in the future. The NH Gas Utilities recently implemented and now offer a financing option through local financial institutions at 2% interest. The initial results of this program are encouraging. Currently, there are three lenders participating in the program covering the Seacoast, Concord, Manchester, Nashua and the Lakes Region areas.

As a result of these encouraging results in New Hampshire, which is based on a similar successful model used in Massachusetts, the NH Electric Utilities propose to implement a financing option through local financial institutions that is similar to the option offered by the NH Gas Utilities. Specifically, the NH Electric Utilities propose the following:

- Offer unsecured third-party lender financing at 2% interest to customers participating in the Home Performance with ENERGY STAR program, where
  - Participating customers enter into loan agreements with lenders and make monthly payments directly to the lenders.
  - Lenders assume all risk associated with non-payment of loans.
  - The maximum loan amount will be negotiated with lenders.
  - The NH Electric Utilities pay an interest buy-down amount to the financial institutions up-front. The interest buy-down amount is the difference between the negotiated interest rate with the financial institution (which will include a not to exceed value for a specified period of time) and the customer's interest rate of 2%. The interest buy-down amount will be included with all other program expenditures in the calculation of the performance incentive.
  - Funds borrowed at the reduced interest rate must be used to pay for auditor recommended energy efficiency measures.
- Limit the existing 0% on-bill financing option to customers with co-payment amounts less than a certain dollar threshold. Each NH Electric Utility will determine the appropriate threshold based on the demand for loans and the current and projected revolving loan fund balance. For example, PSNH's threshold will be initially set at \$2,000. Customers with a co-payment amount less than or equal to \$2,000 will be eligible for 0% on-bill financing while funds are available whereas all other customers will have access to third-party financing.
- Begin implementation by July 1, 2015.
- Work toward the creation of a statewide third-party lender financing option with consistent terms (maximum loan amounts, repayment periods and interest rates) through collaboration with the NH Bankers Association and NH Credit Union League.
- Discuss results at CORE Quarterly Meetings with stakeholders

### **Program Modifications**

- Transition from lighting incentives on CFLs to primarily LEDs.
- Participate in the "Home Energy Labeling" project initiated by the New Hampshire Office of Energy and Planning and the Vermont Public Service Department as a project partner pending approval of a recent grant request by the Department of Energy.
- Explore collaboration opportunities with solar hot water / photovoltaic vendors and installers and the NHPUC's Sustainable Energy Division to help expand the market of renewable energy systems in New Hampshire.
- Implement a third-party financing option for customers participating in the Home Performance with ENERGY STAR program as described in the Financing section above.
- Due to the loss of Regional Greenhouse Gas Initiative funds for programs other than the Home Energy Assistance Program and the Municipal Program, incentives for end-of-life high efficiency fossil fuel space and water heating systems recommended by one of the program's home energy auditors will only be offered under this program to qualifying customers. Previously, these incentives were available to all residential customers under the former ENERGY STAR Appliance Program.



## **Program Delivery**

The NH CORE Utilities' staff coordinates program delivery to ensure consistent services are provided across the State and contract with qualified energy auditors.

### **Marketing & Education:**

Participants in this program are generally acquired through referrals from the Home Energy Auditors, previous program participants, NH CORE Utilities' customer service organization, 2-1-1 New Hampshire organization, and customers who have self-qualified via the Home Heating Index screening tool.

The NH Electric Utilities will continue to perform outreach to those customers likely to utilize electricity to heat their homes/multi-family buildings and to give priority to electric heat customers through the Home Heating Index screening tool by allowing them to qualify for the program at a lower BTU per square foot threshold<sup>4</sup>.

The NH CORE Utilities may also:

- Provide program literature at special events, such as Home Shows and senior citizen seminars.
- Include articles in bill inserts and trade ally newsletters.
- Send Twitter and Facebook messages.
- Collaborate with REALTOR<sup>®</sup> groups.
- Engage with media outlets through press releases and interviews on radio shows.
- Provide homeowner education and program information through workshops and collaboration with local energy committees.

The ENERGY STAR trademark is well known with consumers in the New England region and nationally and this program benefits from the advertising efforts that the Department of Energy and the Environmental Protection Agency implements.

### **Measures of Success & Market Transition Strategy**

Success factors for this program include attaining the planned participation, energy savings and benefit/cost ratio goals. New technologies may change the types of products eligible for incentives in the future. Evaluations will help determine if program changes are needed over time to address market barriers.

<sup>4</sup> Per page 25 of Residential Energy, Cost Savings and Comfort for Existing Buildings, 4<sup>th</sup> edition, by John Krigger and Chris Dorsi.

### **iii) Home Energy Assistance Program (Income Eligible Weatherization)**

#### **Key Objectives**

The focus of the Home Energy Assistance Program is to assist income qualified customers in managing their energy use and reducing their energy burden by offering incentives assisting them with improvements to the energy efficiency of their homes. Basic services include air sealing, insulation, cost effective appliance and lighting upgrades and certain health and safety measures.

#### **Program Design**

Income qualified customers participating in the Home Energy Assistance Program can receive up to \$8,000 in basic program services. Natural gas customers who qualify can receive an incentive from both the electric company and the gas company, provided the customer first reaches the \$8,000 cap from the gas company.

Expenditures above the cap are allowed for the replacement of space heating equipment and combined space/water heating equipment under the following conditions:

- 1) The equipment installed will be ENERGY STAR certified whenever possible. In cases where ENERGY STAR certified equipment is unavailable or a cost effective substitution is unavailable (as in the case of manufactured homes), the equipment must meet the ENERGY STAR annual fuel utilization efficiency (AFUE) minimum requirements.
- 2) Space heating equipment replacements will only be allowed if a home has also been weatherized.
- 3) The NH CORE Utilities will strive to limit the amount of funds spent on space and combined space/water heating equipment to 25% of each Company's annual program budget to ensure most funds are used for weatherization services.

The NH Electric Utilities have the option to provide weatherization and natural gas space heating and combined space/water heating equipment services to natural gas customers; however, natural gas customers are first provided with weatherization services and natural gas space heating and combined space/water heating equipment by the NH Gas Utilities. Weatherization services for customers using any other fuel to heat their home and all electric base load measures, such as cost effective lighting and appliances are provided by the NH Electric Utilities.

All customers who meet the eligibility criteria for participation in the Fuel Assistance Program, the NH Electric Assistance Program, the DOE Weatherization Program, and anyone residing in subsidized housing or municipal or non-profit shelters serving those in need are qualified to participate in this program.

Customers served by Community Action Agencies (CAAs) may also be eligible for Department of Energy Weatherization Assistance funding. The NH CORE Utilities collaborate with the CAAs and the NH Office of Energy and Planning to maximize the number of projects jointly funded by the HEA Program and the DOE's weatherization program administered by OEP and the CAAs.

This program also has a strong educational component specifically tailored for income eligible customers and designed to help them better understand the efficiency of their home and the factors that affect their energy usage.

### **Program Modifications**

- Transition from lighting incentives on CFLs to primarily LEDs.
- Increase the minimum percentage of the NH CORE Utilities program budgets excluding the performance incentive from 15% to 15.5%.
- Increase the NH Gas Utilities per-customer spending cap from \$5,000 to \$8,000 for basic program services to be consistent with the NH Electric Utilities

### **Program Delivery**

The NH CORE Utilities' staff administers the program to ensure consistent services are provided across the State and contract with Community Action Agencies (Qualified CAAs) and other independent contractors (together referred to as "contractors") to deliver program services. The NH CORE Utilities and its contractors cooperatively market the program, address customer intake, schedule work, conduct the initial home visit, install energy efficient measures, and perform quality assurance.

Qualified CAAs will be offered right of first refusal to deliver services under this program provided the CAA:

- 1) Agree to participate in a bidding process with other energy service providers to establish qualifications and pricing for program services.
- 2) Agree to provide services at established statewide rates. Where the same services are provided in the Home Performance with ENERGY STAR Program, pricing would be the same for both programs.
- 3) Would meet established statewide standards for customer response time, work quality, and delivery of program services. The statewide standards apply to both the Home Energy Assistance Program, as well as the Home Performance with ENERGY STAR Program.

The NH CORE Utilities and their contractors will strive to market the program in such a fashion as to promote a reasonably level flow of work. In cases where a CAA cannot provide income qualified energy efficiency services in accordance with the approved weatherization production schedule included in Attachment A to this Plan, or decline to deliver the services, the work will be assigned to other qualified independent contractors who will be held to the same standards for pricing, customer responsiveness and work quality. In such cases, the NH CORE Utilities will provide notice to the CAA, and thereafter to the Weatherization Directors Association (WDA), that the work is being assigned to other qualified independent contractors. The NH CORE Utilities will offer to discuss the matter with the CAA and WDA; however, the NH CORE Utilities shall be permitted to assign work to other qualified independent contractors once notice has been provided to the CAA. If the matter cannot be resolved, the CAA reserves the right to file an appropriate motion with the Commission for resolution of the matter.

### **Marketing & Education**

Participants in this program are principally acquired through referrals from the CAAs, other social service agencies, the NH Electric Assistance Program and the NH CORE Utilities' customer service organizations.

The NH CORE Utilities may promote the program in a number of ways, including direct mail, distribution of program brochures at CAAs or other social service agencies, bill inserts, participation at the Annual CAA Energy Conference and NHSaves and utility website promotions. Direct mailing of the program brochure will only be used if direct referrals from the CAAs are inadequate to meet program goals.

This program is closely coordinated with the NH Electric Assistance Program. Working with EAP participants to reduce their energy burden has the further benefit of potentially increasing the EAP funds available to other customers.

The DOE's Energy Savers Booklet, which provides tips on saving energy and money, will be provided to program participants.

### **Measures of Success & Market Transition Strategy**

Success factors for this program include attaining the planned participation and energy savings goals, high customer satisfaction ratings, and successful delivery of all program services through the CAAs and independent contractors. No market transition strategy is recommended at this time based on the significant need for these services in the state, and the relatively small number who can be served in any given year due to budget constraints. This is consistent with the recommendation of the Energy Efficiency Working Group<sup>5</sup>.

<sup>5</sup> See Final Report of the Energy Efficiency Working Group, July 6, 1999, Docket No. DR 96-150, page A34.

## **b) Residential ENERGY STAR Products Program**

### **Key Objectives**

The focus of the ENERGY STAR Products program is to increase consumer awareness of the benefits of purchasing ENERGY STAR-qualified lighting, appliances, space/water heating and cooling products and to expand their usage and availability.

### **Design and Delivery**

The program design is centered on offering in-store and mail-in rebate incentives aimed to encourage consumers to make purchases of qualifying, ENERGY STAR-rated products. In addition, product markdowns may be utilized with retailers for specific products. The usage of product markdowns can result in greater control over program expenditures and allow for the program to be easily scaled up or down as needed.

Qualifying products under the program include ENERGY STAR-rated lighting fixtures and bulbs, clothes washers, refrigerators, and high efficiency space/water heating and cooling systems, such as low temperature air source heat pumps and ductless mini-splits, heat pump water heaters, central cooling systems, and natural gas furnaces, boilers, water heaters and thermostats.

The NH CORE Utilities have formed a large network of partners for the program, including over 140 retail locations, equipment suppliers, distributors, and installation contractors to promote the program's offerings to customers. To ensure consistent services are provided across the state, the NH CORE Utilities will contract with vendors to work with these partners to help ensure availability and visibility of the qualifying ENERGY STAR products and promotional materials at their locations, update point of purchase forms and incentive coupons, process incentives and develop cooperative advertising. The Utilities will also leverage an online catalog available through NHSaves.com to allow customers to make direct purchase of certain qualified products.

All residential customers of the NH CORE Utilities are eligible to participate in the program. Qualifying products available, and the associated incentives, may be adjusted periodically based on market conditions.

### **Overall Program Modifications**

- Combine the former ENERGY STAR Appliances program and ENERGY STAR Lighting program under a unified ENERGY STAR Products program.
- Transition from lighting incentives on CFLs to primarily LEDs.
- Exclude oil and LP space and water heating systems from the program offering due to budget constraints

### **Marketing and Education**

Marketing tactics for the program will be focused primarily on performing point-of-purchase sales training with the retail, equipment distribution and contractors partners, as well as providing point-of-purchase marketing and educational materials on available incentives and the value of qualifying products. In addition, the online catalog available through NHSaves.com offers product educational information, incentive forms, and the ability to directly purchase certain qualifying products that may not be available at some retailers, and access to a variety of hard-to-find replacement products. Recognizing the importance and convenience to customers

of an online sales channel, the NH CORE Utilities will work to continually improve the online products catalog over time, including exploring the ability for customers to submit rebate forms online for certain qualifying products.

The NH CORE Utilities may also:

- Include articles in newsletters and bill inserts.
- Provide posts on social media sites such as Twitter and Facebook.
- Perform “Pop-up” retail and/or education and promotions in temporary locations, such as home shows, customer/trade events, and other public events.
- Distribute targeted customer direct mailings and emails

The ENERGY STAR trademark is well known with consumers in the New England region and nationally and this program benefits from the advertising efforts that the Department of Energy and the Environmental Protection Agency implements.

### **Measures of Success & Market Transition Strategy**

Success factors for this program include attaining the planned participation, energy savings and benefit/cost ratio goals. New technologies may change the types of products eligible for incentives in the future. Evaluations will help determine if program changes are needed over time to address market barriers.

## 2) Commercial and Industrial and Municipal Programs

### Overview

The NH CORE Utilities offer programs and services focused on the energy efficiency needs of commercial, industrial and municipal customers. The NH CORE Programs are designed to reduce the market barriers that hinder the acceptance of high efficiency buildings and products, as summarized in the table below. Incentives are offered on premium efficiency equipment and for weatherization services for existing municipal buildings. The incentives, coupled with education and training initiatives, foster the development of the energy efficiency market in New Hampshire. Program incentive offerings may change based on market conditions throughout a program year or at the beginning of a new program year.

Market Barrier	Program Intervention	Program Objective
Uncertainty regarding the impacts of energy and cost savings of efficiency measures	Training Seminars  Assistance from Energy Service Companies, Program Administrators, Engineers, third party service providers	Increased program participation  Increased demand for energy efficient equipment and services
High costs associated with premium efficiency equipment and/or incremental costs	Financial incentives	Reduced first cost for customers
Limited customer capacity to identify, install, implement and manage energy efficiency measures	Technical Assistance, including project evaluation, measure identification and energy audits  Customers utilize existing relationships with contractors  Potential for customers to partner with third party service providers	Achieve energy efficiency goals  Development of a competitive market place in the energy efficiency industry
Lack of contractor availability and knowledge regarding energy audits, commercial energy building codes and other efficiency services	Contractors view energy services as profitable, due to increasing demand for efficiency measures  Training activities	Increased supply of contractors capable of providing Technical Services  Provide contractors with the expertise to provide code compliance assistance
Perceived lack of demand for premium energy efficiency projects	Training to help Contractors view energy services as profitable, reach customers ready to adopt energy efficiency improvements	Development of a competitive market place in the energy efficiency industry
Cost barriers to the development of innovative technology	Program focuses on projects not eligible for other programs  Financial incentives provided on customer measures	Stimulates and facilitates the development of innovative energy efficiency projects.

## **a) Large Business Energy Solutions Program**

### **Key Objectives**

The focus of the Large Business Energy Solutions Program is to help large business customers identify, fund and install energy efficiency equipment. Electric and natural gas customers tend to focus on their individual needs, such as manufacturing equipment or large HVAC equipment.

### **Program Design**

Electric customers having an average monthly maximum kilowatt (kW) demand of 200 kW or more over a twelve month period and natural gas customers having an average annual usage of 40,000 therms or more are eligible to participate in this program. These customers are typically concentrated in manufacturing, healthcare, education, ski areas and large retail, and are generally aware of the opportunities available through the NH CORE Programs. They often have in-house staff that works with the NH CORE Utilities to identify energy efficiency improvements and incentives to internally justify energy efficiency projects.

This program targets eligible customers with new construction projects, major renovation projects, failed equipment that needs replacement and those operating aging, inefficient equipment and systems. In addition, the NH Gas Utilities target customers who heat their buildings with natural gas or who have food service operations.

For new equipment and new construction projects, the program offers prescriptive and custom incentives designed to cover the lesser of a one year simple payback or up to 75% of the incremental costs of higher efficiency products up to the customer's incentive cap. For new construction projects, incentives are also available to customers installing high efficiency electric or natural gas heating, cooling, hot water systems and associated controls. New equipment refers to equipment that is replacing failed equipment or equipment added at a customer's facility. New construction refers to equipment installed in newly constructed buildings or buildings undergoing major renovations.

For retrofit projects, the program offers prescriptive and custom incentives designed to cover the lesser of a one year simple payback or up to 35%<sup>6</sup> of the equipment and installation costs<sup>7</sup> up to the customer's incentive cap. Retrofit refers to equipment replacing working equipment for the purpose of saving energy. Opportunities typically include lighting, motors, air compressors, chillers, variable frequency drives, as well as custom measures. For natural gas customers, additional opportunities include condensing boilers, high efficiency water heaters, and high efficiency cooking equipment.

Technical assistance is also offered under this program, including project evaluation, measure identification, equipment monitoring, compressed air leak detection, retro-commissioning and energy audits. Technical assistance services may require a customer co-payment.

Other initiatives include: 1) Building codes - training on the proper implementation of New Hampshire's commercial energy building code; and 2) Compressed air services - assisting customers with comprehensive audits and training.

<sup>6</sup> NH Gas Utilities offer up to 50% due to the current low price of natural gas.

<sup>7</sup> Installation costs include all costs associated with the installation, such as, but not limited to labor, permits and disposal costs.



## **Program Modifications**

- Due to the loss of Regional Greenhouse Gas Initiative funds for programs other than the Home Energy Assistance Program and the Municipal Program, incentives for oil and liquid propane high efficiency heating, hot water systems and associated controls will not be offered.
- Investigate third-party financing options with local financial institutions, including the NH Community Development Finance Authority (CDFA) and the NH Business Finance Authority and other existing financing options, such as C-PACE (Commercial Property Assessed Clean Energy) during 2015.
- Encourage customers to develop multi-year strategic energy plans. For those customers developing multi-year strategic energy plans, the NH CORE Utilities may enter into a multi-year letter of intent or a memorandum of understanding outlining the terms of the energy efficiency services and incentives, subject to the “Multi-year Project Budget Approval” process as described in Section III.C of this Plan.

## **Program Delivery**

The NH CORE Utilities’ staff is responsible for the delivery of this program through multiple channels, including: Account Executives or Energy Service Representatives who typically work with these customers on a one-on-one basis to explore energy efficiency opportunities; Economic Development staff working with new prospects; and Energy Efficiency Program Administrators generating leads through the building development community, real estate professionals, architects, engineers, trade allies, and town permitting offices.

Program delivery emphasizes the benefits of selecting premium efficiency alternatives during the design stage of a project. Audits may be used to identify opportunities for energy efficiency improvements. Customers wishing to participate in this program must sign an incentive offer that documents the project and the energy efficiency services and measures to be installed, the estimated project completion date, and the anticipated energy savings and incentive amount.

## **Marketing & Education**

Marketing is primarily focused on direct customer contact by the NH CORE Utilities’ Account Executives or Energy Service Representatives. The NH CORE Utilities’ staff have developed strong working relationships with these customers as trusted energy efficiency advisors. This program also includes an educational component. Training sessions and seminars of interest to commercial, industrial and municipal customers will be offered, such as Commercial Energy Audit Training, Compressed Air Services, Certified Energy Manager Classes and seminars on new technologies.

In addition to direct customer contact and training, the NH CORE Utilities may also:

- Perform outreach to builders and developers, architects, heating/plumbing installation contractors, as well as manufacturers, distributors and wholesalers who bring high efficiency equipment to market;
- Perform marketing initiatives targeted at specific customer segments; and
- Develop case studies and highlight them on the NHSaves website.

## **Measures of Success & Market Transition Strategy**

Success factors for this program include attaining the planned participation, energy savings and benefit/cost ratio goals. New technologies may change the types of products eligible for incentives in the future. Evaluations will help determine if program changes are needed over time to address market barriers.

## **b) Small Business Energy Solutions Program**

### **Key Objectives**

The focus of the Small Business Energy Solutions Program is to help small business customers identify, fund and install energy efficiency equipment. This program targets electric customers with lighting and refrigeration opportunities and natural gas customers with end of life heating equipment. Assistance is also provided to help customers with deeper energy efficiency improvements such as HVAC, air compressors, process equipment, lighting controls and energy management systems.

### **Program Design**

Electric customers having an average monthly maximum kilowatt (kW) demand less than 200 kW over a twelve-month period and natural gas customers having an average annual usage of less than 40,000 therms are eligible to participate in this program. These customers include office buildings, restaurants, retail, repair services, dry cleaners, schools and the common areas of multi-family facilities, among many others.

This program targets eligible customers with new construction projects, major renovation projects, failed equipment that needs replacement and those operating aging, inefficient equipment and systems. In addition, the NH Gas Utilities target customers who heat their buildings with natural gas or who have food service operations.

For new equipment and new construction projects, the program offers prescriptive and custom incentives designed to cover the lesser of a one year simple payback or up to 75% of the incremental costs of higher efficiency products up to the customer's incentive cap. For new construction projects, incentives are also available to customers installing high efficiency electric or natural gas heating, cooling, hot water systems and associated controls. New equipment refers to equipment that is replacing failed or end of life equipment or equipment added at a customer's facility. New construction refers to equipment installed in newly constructed buildings or buildings undergoing major renovations.

For retrofit projects, the program offers prescriptive and custom incentives designed to cover the lesser of a one year simple payback or up to 35%<sup>8</sup> of equipment and installation costs<sup>9</sup> up to the customer's incentive cap. Retrofit refers to equipment replacing working equipment for the purpose of saving energy. In addition, a turnkey service option is available that is tailored to the unique needs of small businesses, a customer base which is very diverse in terms of technical capabilities and financial resources. As part of the turnkey service option, the NH CORE Utilities offer lighting and refrigeration upgrades delivered by vendors who perform initial assessments of the existing equipment, recommend energy efficient improvements, and install the appropriate measures. Services include, but are not limited to lighting, programmable thermostats, hot water measures, spray valves, weatherization and refrigeration measures. The incentive under the turnkey service option covers up to 50% of the equipment and installation costs up to the customer's incentive cap. Customers may elect to use their own contractors to complete the efficiency projects.

<sup>8</sup> NH Gas Utilities offer up to 50% due to the current low price of natural gas.

<sup>9</sup> Installation costs include all costs associated with the installation, such as, but not limited to labor, permits and disposal costs.

## **Program Modifications**

- Due to the loss of Regional Greenhouse Gas Initiative funds for programs other than the Home Energy Assistance Program and the Municipal Program, incentives for oil and liquid propane high efficiency heating, cooling, hot water systems and associated controls will not be offered.
- Investigate third-party financing options with local financial institutions, including the NH Community Development Finance Authority (CDFA) and the NH Business Finance Authority and other existing financing options, such as C-PACE (Commercial Property Assessed Clean Energy) during 2015.
- Encourage customers to develop multi-year strategic energy plans. For those customers developing multi-year strategic energy plans, the NH CORE Utilities may enter into a multi-year letter of intent or a memorandum of understanding outlining the terms of the energy efficiency services and incentives, subject to the “Multi-year Project Budget Approval” process as described in Section IV.C of this Plan.

## **Program Delivery**

The NH CORE Utilities’ staff coordinates program delivery and may contract with vendors to assist in the delivery of program services. The program vendors meet with customers, perform initial assessments of the customers’ facilities, and recommend cost effective energy saving measures for installation. Customers may elect to have the measures installed by the program vendors or a vendor of their own choosing.

## **Marketing & Education**

Participants in this program are generally acquired through direct mail, leads from trade organizations, previous audits and referrals from the NH CORE Utilities’ customer service organizations.

The main delivery channels for marketing to these customers include:

- Direct mail, email and outbound calling.
- NH CORE Utilities websites and the NHSaves web site.
- Public speaking engagements.
- Trade shows and customer events.
- Outreach to trade associations and trade allies, such as builders and developers, electricians/heating and plumbing contractors.

In addition, the NH CORE Utilities may also:

- Perform marketing initiatives targeted at specific customer segments.
- Develop case studies and highlight them on the NHSaves website.
- Include articles in bill inserts.
- Communicate via social media channels, including Twitter and Facebook.

## **Measures of Success & Market Transition Strategy**

Success factors for this program include attaining the planned participation, energy savings and benefit/cost ratio goals. New technologies may change the types of products eligible for incentives in the future. Evaluations will help determine if program changes are needed over time to address market barriers.

## **c) Municipal Program**

### **Background**

On July 24, 2013, Senate Bill 123 (SB 123) was signed into law. This bill amended RSA 125-O:23, II-III (Multiple Pollutant Reduction Program) effective January 1, 2014, and requires that certain proceeds from the Regional Greenhouse Gas Initiative (RGGI) Program be allocated to municipal and local government energy efficiency projects.

In order to meet the requirements of this law, the NH Electric Utilities first reached out to and solicited feedback from several municipalities of differing sizes throughout New Hampshire, the NH Energy Efficiency and Sustainable Energy (EESE) Board and the NH Local Energy Working Group. In particular, the NH Electric Utilities sought to more fully understand the unique barriers faced by the municipalities which may prohibit or lessen investment in energy efficiency projects and to identify specific technical assistance needs that could be met through this program. Based on the valuable input and feedback received, the NH Electric Utilities proposed a program in 2014 that:

- Leverages the NH Electric Utilities' existing commercial and industrial programs.
- Incorporates a fuel blind component.
- Encompasses a flexible approach for technical assistance.

The primary focus during 2014 was to expand on the successes achieved through the foundation of the existing CORE commercial and industrial programs, and to gain insight and experience that can be utilized in the program design in subsequent years. The NH Electric Utilities believe it is important to continue the collaborative process with stakeholders in order to facilitate leveraging of multiple resources and funding, and to identify best practices that can be incorporated into the program design.

### **Program Design**

In accordance with RSA 123-O:23, the Municipal and Local Government Program is available to all municipal and local government customers of the NH Electric Utilities and to the five communities in New Hampshire that have their own municipal utilities (collectively these customers and five communities are referred to through the remainder of this document as "municipal customers").

Municipal customers face barriers similar to other commercial and industrial customers, but they also have unique challenges. More frequent leadership changes, budgeting processes that require city/town representative approval and/or voter approval, and the level of local energy efficiency knowledge and project management expertise are all factors that can impact the ability of a municipality to cost-effectively implement energy efficiency projects. In addition, the technical assistance needs may vary widely from one city/town to another.

The program targets municipal customers with new construction projects, major renovation projects, failed equipment that needs replacement and those operating aging, inefficient equipment and systems. For new equipment and new construction projects, the program offers prescriptive and custom incentives designed to cover the lesser of a one year simple payback or up to 75% of the incremental cost (100% for public schools) of higher efficiency products up to the customer's incentive cap. Incentives are also available for electric, oil and liquid propane heating, cooling and hot water systems.

For retrofit projects, the program offers prescriptive and custom incentives designed to cover the lesser of a one year simple payback or up to 35%<sup>10</sup> of the equipment and installation cost up to the customer's incentive cap. Retrofit services also include a turnkey service option tailored to the unique needs of municipal customers. As part of the turnkey service option, the NH Electric Utilities offer lighting and refrigeration equipment upgrades and weatherization services delivered by vendors who perform initial assessments of existing buildings, recommend energy efficient improvements, and install the appropriate energy efficiency measures. The incentive under the turnkey service option covers up to 50% of the equipment and installation cost of the energy efficiency measures up to the customer's incentive cap. In addition, municipal customers may elect to use their own contractors to complete the energy efficiency projects.

Municipal customers of the NH Gas Utilities are served under the Small Business Energy Solutions Program or the Large Business Energy Solutions Program, whichever is applicable; and receive the same services and incentives offered under those programs, including, but not limited to prescriptive rebates for heating and water heating equipment and customized weatherization services.

### **Program Modifications**

- Expand the services offered under this program to include cost-effective weatherization services for buildings heated with oil, electricity and propane.
- Explore collaboration opportunities with solar hot water / photovoltaic vendors and installers and the NHPUC's Sustainable Energy Division to help expand the market of renewable energy systems in New Hampshire.
- Encourage customers to develop multi-year strategic energy plans. For those customers developing multi-year strategic energy plans, the NH Electric Utilities may enter into a multi-year letter of intent or a memorandum of understanding outlining the terms of the energy efficiency services and incentives, subject to the "Multi-year Project Budget Approval" process described in Section IV.C of this Plan.

### **Delivery**

The NH Electric Utilities are responsible for the delivery of this program. Municipal customers are served by each of the utilities' account representatives who explore efficiency opportunities with municipal representatives and guide them through the participation process. Technical assistance is tailored to the individual needs of the participating municipality, and existing resources such as completed energy audits are utilized as much as possible.

### **Marketing & Education**

In addition to the marketing activities planned for the other CORE Commercial and Industrial Programs, the marketing of this program will focus on direct outreach to municipal customers to inform them about the program and how to participate and through a new partnership initiative with the New Hampshire Local Energy Working Group (LEWG).

One of the LEWG's primary goals is to support community level reductions in greenhouse gas emissions and related energy cost savings by inspiring, connecting and supporting local leaders to instigate and implement in-depth energy efficiency projects in their communities. This is a goal shared by the NH CORE Electric Utilities. Several communications initiatives are planned, such as the establishment of at least four face-to-face regional roundtables at which a NH CORE

<sup>10</sup> NH Gas Utilities offer up to 50% due to the current low price of natural gas.

Electric Utility representative(s) will be invited to attend and potentially present information on the NH CORE Programs, joint LEWG and NH CORE Electric Utilities communications to LEWG regional contacts about the NH CORE Programs, and the development of four municipal case studies highlighting energy efficiency project successes which will be included on the Local Energy Solutions website and e-newsletter.

**Measures of Success & Market Transition Strategy**

The NH Electric Utilities will continue to monitor the success of the program. In addition, the NH Electric Utilities will continue to collaborate with and seek feedback from program stakeholders. Based on the program's success and the feedback from program participants and stakeholders, the NH Electric Utilities may incorporate program modifications in 2015-2016 and in subsequent years. Program success includes attaining the planned participation and energy saving goals, as well as, customer satisfaction with the program. Program evaluations will help shape any program changes needed over time to address market barriers.

## **d) Education Programs**

### **Overview**

The NH CORE Utilities believe educational programs play an important role in raising awareness of energy efficiency and complement the other programs. Each educational effort is focused on meeting the needs of a particular customer or group of customers; however, the common theme of these efforts is to raise awareness and understanding of the benefits of energy efficiency, and encourage the implementation of energy efficiency improvements. The following programs are planned for 2015-2016:

Energy Code Training: Provide financial support for statewide residential and C&I energy code training. The NH CORE Utilities will continue to deliver initiatives identified in “The NH Energy Building Code Compliance Roadmap” completed April 20, 2012, such as Specialized Energy Code Training for Real Estate & Mortgage Professionals, On-site Builder and Code Official training, and Home and Business Energy Code Compliance Field Guides.

Commercial Energy Auditing Class: Deliver training programs to assist facility managers to identify energy efficiency opportunities, monitor and track energy use, and develop an energy management plan. Based on customer demand, the NH CORE Utilities may offer a Certified Energy Manager (CEM) or similar class in place of the auditing class.

C&I Customer Education: Develop and offer training seminars and workshops of interest to C&I customers and professionals (e.g., NH Energy in Schools Workshop, High Performance Lighting Systems, New Energy Efficient Equipment Opportunities, Operations and Maintenance Best Practices). These seminars and workshops help building owners, facility personnel, architects, engineers, energy service companies and others better understand the opportunities for improving the energy performance of their buildings and equipment. Educational opportunities may also include collaborating and partnering with trade allies to encourage and sponsor energy efficiency seminars and presentations for businesses.

Energy Education for Students: The NH CORE Utilities plan to support educational programs for students and are researching and reviewing existing and new program initiatives with a goal of educating children about energy efficiency, conservation and the value of ENERGY STAR.

Home Energy Ratings for New Homebuilders: Offer one free Home Energy Rating for homebuilders not participating in the Energy Star Homes Program to familiarize them with the process and encourage them to participate.

In addition, the NH CORE Utilities include educational initiatives as part of the CORE Program offerings and budget for such initiatives as part of the individual program budgets.

### **Delivery**

Varies by program; educational classes are presented by industry specialists.

### **Measures of Success**

Success of these programs is based on customer satisfaction. This includes informal feedback from instructors and participants, as well as customer satisfaction surveys used to evaluate a particular training session. These programs will be modified as needed to meet changing customer needs.

## **E. Utility-Specific Program Descriptions and Initiatives**

### **1) Liberty Utilities**

This section provides information on programs specific to Liberty Utilities.

#### **a) Third Party Financing – Pilot**

Liberty Utilities Gas will continue its pilot assessment of offering low interest third party financing to support residential natural gas customers' participation in its Home Performance with ENERGY STAR program and ENERGY STAR Products program.

#### **Objectives**

The following questions are being explored through the pilot:

- 1) Will customers invest in all or most of the auditor recommended energy savings measures (Home Performance with ENERGY STAR as well as ENERGY STAR Products) when they can utilize reduced-cost financing?
- 2) Will customers take advantage of an energy efficiency financing product that is not offered via their utility bill?
- 3) Will financial institutions have interest in collaborating with a utility to offer energy efficiency loans?

#### **Target Market**

The pilot is targeting residential natural gas customers interested in the Home Performance with ENERGY STAR program and the ENERGY STAR Products program, as well as energy auditors, weatherization and heating installation contractors who are working with these customers.

#### **Value Proposition**

The pilot's value proposition is to improve the upfront affordability for customers to install Home Performance with ENERGY STAR auditor recommended measures and/or the ENERGY STAR Products contractor recommended measures.

#### **Offering**

The pilot offering will be consistent with 2014 and provide customers the option of participating in a 2% flat rate unsecured loan for the costs of measures associated with the Home Performance with ENERGY STAR program and ENERGY STAR Products program, including boilers, controls, furnaces and water heaters. Under the pilot, a customer will enter into a loan agreement with the lender and make monthly payments to that entity directly. The lender assumes all the risk if a customer defaults on their unsecured loan. The maximum customer loan is \$10,000 for up to 5 years. To encourage customers to perform recommended measures, the pilot reduces the applicable interest rate for the unsecured loan. Liberty Utilities Gas will complete an interest buy-down upfront. To date, Liberty Utilities Gas has secured agreements with three financing organizations to buy down the customer's interest rate at or below a fixed rate of 6.99% APR, depending on the lender and the customer's credit score, to a 2% fixed rate loan for customers. The currently available APR is subject to change depending on adjustments to the Prime Rate. However, the loan agreements made to-date stipulate that the lender's interest rate offering will not exceed the contracted rate. Liberty Utilities Gas is also seeking other lenders to participate in the pilot.



## Loan Buy-Down Budgets and Estimates of Participation and Costs

The following tables indicates which program the loan will support, estimated average loan, estimated number of loans, and estimated Pilot cost associated with each program.

<b>Program</b>	<b>Average Buy Down</b>	<b>Number of Loans</b>	<b>Cost</b>
<b>Home Performance with ENERGY STAR</b>	\$191	33	\$6,291
<b>ENERGY STAR Products</b>	\$840	12	\$10,078
<b>Both</b>	\$1,163	10	\$11,628
<b>Total</b>		55	\$27,996

### Program Incentives

Liberty Utilities Gas considered the option of using a portion of the incentive to buy down all or a portion of the interest on the loan. This option would mean that the customer's portion of the measure cost would increase. At this time, Liberty Utilities Gas determined that it would be in the pilot's best interest to offer the same incentive for all customers participating in the Home Performance with ENERGY STAR and ENERGY STAR Products programs. To do otherwise would add confusion to the market regarding these programs and would penalize those customers who require financing to participate in residential energy efficiency programs. All customers participating in Home Performance with ENERGY STAR and ENERGY STAR Products would be eligible to seek reduced-cost financing (until pilot funds are exhausted).

### Performance Incentive

Liberty Utilities Gas will not be earning a performance incentive from the customer loan repayments. The savings from the measures installed will be reported in the Home Performance with ENERGY STAR and ENERGY STAR Products programs. Liberty Utilities Gas will, however, include the pilot's expenditures as part of the performance incentive calculation consistent with the treatment of all other program costs.

### Evaluation

Liberty Utilities Gas plans to perform a customer survey and will continue to discuss pilot results during quarterly CORE meetings or at a separately designated meeting. The survey will capture feedback from customer participants, customer non-participants, contractors and lenders who are given the opportunity to participate in the program. This evaluation will help inform future financing proposals and programs.

### Budget

The budget for the pilot is categorized within the Liberty Utilities Gas Residential Building Practices and Demonstration program.

## **b) Home Energy Report – Pilot**

Liberty Utilities Gas will continue its Home Energy Report (HER) behavioral pilot program that includes delivery of paper reports to a randomly selected group of residential natural gas customers. The HER pilot program is designed to engage residential natural gas customers into a long term conversation about how they can save energy and money on their utility bills.

### **Objectives**

The purpose of the HER pilot program is to encourage lower energy usage from residential natural gas customers by providing customers with personalized information regarding their natural gas usage, comparative energy use information, tips to save energy, and opportunities to participate in energy efficiency programs.

### **Value Proposition**

This unique program can help customers: 1) visualize how their natural gas consumption compares to similarly sized and equipped homes in their area, 2) understand how their natural gas usage changes over time and across seasons, and 3) develop goals and strategies to reduce their natural gas use.

### **Target Market**

The pilot will consist of 25,000 residential natural gas heat households that will receive the personalized reports and a 5,000 customer control group.

### **Distribution Schedule**

The pilot will be performed during the heating season months of October through March and consist of four customized reports.

### **Evaluation**

Liberty Utilities Gas will work with its contracted implementation vendor partner, Opower, to perform a customer billing analysis after the 2014/2015 heating season to determine the realized MMBtu savings. In addition, a customer engagement survey will be conducted with a randomly selected group of residential gas customers to better understand how the program's reports are improving awareness and increasing participation in energy efficiency programs. This will also help inform potential ways to enhance the program offering should it expand beyond the pilot phase.

According to the company's contracted implementation partner, who have implemented over 90 behavioral energy efficiency programs, all behavior programs experience a "ramp" period during which customers become aware of the home energy reports and begin to take actions, where typically the savings do not mature or stabilize until three to six months after the first communication. Because the pilot will only be performed during the winter heating season months, it is recommended that a third party, independent evaluation of the pilot be conducted no sooner than after the completion of two heating season cycles, which would be following the 2015/2016 winter heating season.

### **Budget**

The budget for the pilot is categorized within the Liberty Utilities Gas Residential Building Practices and Demonstration program.

### **c) Early Boiler Replacement – Pilot**

Liberty Utilities Gas will continue its Early Boiler Replacement pilot measure offering.

#### **Objectives**

The objective of the pilot is to encourage residential natural gas customers to replace old, inefficient, but still operating natural gas steam and hot water boilers and replace them with new, high-efficient ENERGY STAR-rated equipment. The cost to replace an old, inefficient but still operating boiler can be cost-prohibitive for many customers to perform, absent an equipment failure occurring.

#### **Value Proposition**

The pilot's value proposition is to provide qualifying customers with an enhanced incentive offering, beyond the ENERGY STAR Products standard program incentive for high efficiency boilers that assumes an end-of-life equipment replacement. Liberty Utilities Gas plans to continue to offer an incentive up to \$3,000 to customers for qualifying systems consistent with the pilot offering in 2014.

#### **Target Market**

The target market for the pilot measure are residential customers with old, inefficient, but still operating natural gas steam and hot water boilers as well as heating contractors who may have awareness of customers whose system fits this profile. Liberty Utilities Gas will target completing four steam boiler replacements and sixteen hot water boiler replacements in 2015.

#### **Evaluation**

Liberty Utilities Gas plans to continue to discuss during the CORE quarterly meetings as to how the pilot measure should be evaluated in the future, the form of the evaluation, and the relevance to New Hampshire of other out-of-state evaluations. Liberty Utilities Gas recommends not performing an evaluation of the measure until the recording of enough customer participants since the pilot's inception to allow for a statistically significant sample size.

#### **Budget**

The budget for the pilot is within the Liberty Utilities Gas ENERGY STAR Products program.

### **d) Greenhouse Gas Emissions Reduction Fund – On Bill Financing**

Liberty Utilities Electric will continue to offer its zero-percent, On Bill Financing (OBF) revolving loan program, pursuant to a grant award from the Greenhouse Gas Emissions Reduction Fund, to its commercial, municipal, industrial and residential customers as funds are available. The offering provides customers the opportunity to install energy efficient measures with no up-front costs, and pay for them over time on their electric bills. Under the program, Liberty Utilities Electric pays all of the costs associated with the purchase and installation of the approved measures up to the incentive amount plus a loan amount not to exceed \$50,000 per measure for commercial, municipal, and industrial customers and \$7,500 for residential customers. The program is designed to overcome the traditional barrier for energy efficiency projects of high upfront cost.

## 2) New Hampshire Electric Cooperative, Inc.

This section provides information on programs specific to the NHEC.

### a) Smart Start Program

#### Overview

The Smart Start Program provides members with an opportunity to install energy efficient measures with no up-front costs, and pay for them over time with the savings obtained from lower energy costs. Under the program, NHEC pays all of the costs associated with the purchase and installation of the approved measures. A Smart Start Delivery Charge, calculated to be less than the monthly savings, is added to the member's monthly electric bill until all costs are repaid. The program is designed to overcome many of the traditional barriers to energy efficiency projects including: high first cost; customer uncertainties related to achieving energy savings; customer reluctance to install measures if there is a possibility of moving from the premise before benefiting from the efficiency project; and the so-called "split incentive", where a landlord gets little return on an investment that reduces a tenant's energy costs and a tenant has no incentive to invest in their landlord's building.

#### Delivery

NHEC plans to continue offering Smart Start to commercial members. NHEC staff will identify potential projects and make Smart Start offers where it applies. These offers may be combined with other energy efficiency programs for which the member is eligible.

<b>Budget</b>	<b>2015</b>	<b>2016</b>
Program Implementation	\$5,000	\$5,000

#### Measures of Success & Market Transition Strategy

Success factors for this program include Member acceptance of Smart Start offers, achieving high customer satisfaction ratings, and having a low default rate on Smart Start loans.

### b) Residential Energy Efficiency Loan Program

NHEC will continue to offer its zero-percent, On Bill Financing revolving loan program to its residential members as funds are available. Residential members who participate in NHEC's Home Performance with Energy Star Program are eligible to apply for interest-free loans to finance a portion of their out-of-pocket expenses for energy efficiency improvements made as part of that program. Repayment of these loans is made through a separate charge on the member's monthly electric bill. The terms of the program are summarized and included in Section V. of NHEC's Non-jurisdictional Terms and Conditions.

### 3) Public Service Company of New Hampshire

This section provides information on matters and programs specific to PSNH.

#### a) 2015 and 2016 Budget Development

The following process and assumptions were used to develop PSNH's 2015 and 2016 budgets.

##### i. 2015 and 2016 Energy Efficiency Program Funding

The total 2015 and 2016 funding available to PSNH's energy efficiency programs was estimated based on the following:

1. PSNH's System Benefits Charge (SBC) energy efficiency revenue is based on a forecast of 2015 and 2016 MWH sales and an SBC energy efficiency rate of 1.8 mills per kilowatt-hour.

	Forecasted MWH Sales	SBC Rate (mills/kWh)	Total SBC Revenue (\$000's)
2015	8,061,793	1.8	\$ 14,511,227
2016	8,178,378	1.8	\$ 14,721,080

2. The estimated 2015 and 2016 RGGI proceeds allocated to the NH CORE Programs of \$2.641 million and \$2.623 million, respectively were provided to the NH Electric Utilities by the Commission's staff.

Of these amounts, \$2.15 million of the RGGI proceeds were allocated to the NH Electric Utilities for municipal and local government energy efficiency projects, including projects by local governments that have their own municipal utilities in both 2015 and 2016. In addition, \$491,030 was allocated to the Home Energy Assistance (HEA) program in 2015 and \$473,090 in 2016. As shown in the following tables, the \$2.15 million was allocated to each NH Electric Utility based on each utility's proportional share of the total 2013 kWh sales, including the 2013 kWh sales of the NH municipal electric utilities. The kWh sales of the municipal electric utilities were assigned to PSNH and the NHEC based on their geographic location. The HEA program funds were allocated to each NH Electric Utility based on each utility's proportional share of the total 2013 kWh sales delivered by each utility. The final RGGI funds allocated to each NH Electric Utility is the summation of the municipal program funds and the HEA program funds.

Table 1:

Utility	2013 kWh		Total Allocated kWh Sales	%	2015 & 2016 Municipal Allocation (\$000's)
	Sales	Allocated to:			
LU-Electric	932,944,930		932,944,930	8.44%	\$181.41
NHEC	766,883,588		875,548,613	7.92%	\$170.25
PSNH	7,937,889,000		8,017,707,087	72.51%	\$1,559.07
Unitil	1,230,461,000		1,230,461,000	11.13%	\$239.27
Ashland	19,259,489	NHEC			
Littleton	76,700,000	PSNH			
New Hampton	3,118,087	PSNH			
Wolfeboro	66,551,801	NHEC			
Woodsville	22,853,735	NHEC			
Total	11,056,661,630		11,056,661,630	100.00%	\$2,150.00

Table 2:

Utility	2013 mWh Sales	Percent Allocation	Municipal Program Allocation (\$000's)	2015	2016	2015	2016
				HEA Program Allocation (\$000's)	HEA Program Allocation (\$000's)	Final RGGI Funds Allocation (\$000's)	Final RGGI Funds Allocation (\$000's)
LU-Electric	932,945	8.58%	\$ 181.41	\$ 42.15	\$ 40.61	\$ 223.56	\$ 222.02
NHEC	766,884	7.06%	\$ 170.25	\$ 34.65	\$ 33.38	\$ 204.90	\$ 203.63
PSNH	7,937,889	73.04%	\$ 1,559.07	\$ 358.64	\$ 345.53	\$ 1,917.70	\$ 1,904.60
Unitil	1,230,461	11.32%	\$ 239.27	\$ 55.59	\$ 53.56	\$ 294.86	\$ 292.83
Total	10,868,179	100.00%	\$2,150.00	\$ 491.03	\$ 473.09	\$ 2,641.03	\$ 2,623.09

- The ISO-NE Forward Capacity Market (FCM) proceeds are estimated to be \$2.024 million for the period January through December 2015 and \$2.075 million for the period January through December 2016.
- The total carryover and interest balance remaining from the 2013 program year is \$757,526. For additional information on the 2013 carryover balance, please refer to the request submitted to the Commission on July 24, 2014 in DE 12-262 and the Commission's Order No. 25,703.
- PSNH proposes to transfer \$591,540 from the SBC funds set aside in compliance with RSA 125-O:5 for energy efficiency projects at PSNH's facilities to the 2015 program year budget for the distinct purpose of implementing a Customer Engagement Platform as described in this Plan.

6. The total 2015 funding of \$19.802 million and the total 2016 funding of \$18.701 million is the summation of the SBC revenue, the 2013 carryforward and interest, the RGGI, FCM proceeds and the transfer of RSA 125-O set-aside funds.

Source	2015 Amount (\$000's)	2016 Amount (\$000's)
SBC Revenues	\$14,511.23	\$14,721.08
Carryforward and Interest	\$757.53	\$0.00
RGGI	\$ 1,917.70	\$ 1,904.60
FCM	\$2,024.44	\$2,075.17
Transfer of RSA 125-O Set Aside Funds	\$591.54	\$0.00
Total	\$19,802.44	\$18,700.85

ii. Performance Incentive Budget

A portion of the total 2015 and 2016 funding is reserved for the performance incentive. The first portion relates to the performance incentive associated with PSNH's Smart Start Program and is calculated based on 6% of the loans repaid<sup>11</sup>. The second portion relates to the performance incentive associated with all of PSNH's other energy efficiency programs and is calculated based on the method approved by the Commission in its Order No. 25,569 issued on September 6, 2013. The performance incentive section of this document (Section IV.G) describes the calculation of the performance incentive in greater detail, including the calculation of the performance incentive budget. Reference Attachment F for the total 2015 and 2016 planned performance incentive budgets and the commercial/industrial/municipal sector and residential sector performance incentive budgets.

iii. Total Program Budget and Allocation to the Residential and Commercial/Industrial Sectors

1. The total program budgets are equal to the total 2015 or 2016 program funding less the performance incentive budget and the Smart Start Program expenses for the applicable year.
2. For 2015, the Carryforward and Interest budget was allocated to the commercial/industrial sector programs, excluding the municipal program as approved in the Commission's Order No. 25,703.
3. The Residential Home Energy Assistance (HEA) Program was allocated 15.5% of the total program budget, excluding the Carryforward and Interest budget and the Customer Engagement Platform budget in 2015.
4. The remaining budget amounts (total program budget as defined in (a) above less the HEA Program budget) is allocated to the residential sector and the commercial/industrial sector based on the funding source.
  - a. The SBC and RGGI budgets are allocated based on each sector's proportional share of the forecasted 2015 or 2016 total kWh sales (2015: Residential – 40.26%; Commercial/Industrial – 59.74%) (2016: Residential – 40.31%; Commercial/Industrial – 59.69%). Of the C&I funds, \$1.45 million was allocated to the C&I municipal program in 2015 and 2016.

<sup>11</sup> Docket DE 01-080, Order No. 23,851 dated November 29, 2001.

- b. Seventy percent (70%) of the 2015 and 2016 FCM budgets are allocated to the Commercial/Industrial sector and thirty percent (30%) are allocated to the Residential sector. (As stated in Order No. 24,719 dated December 22, 2006, the Commission stated “We also believe that it is appropriate, as a preliminary matter, to contribute any payments received by utilities for Core program peak load reduction back to the Core programs.”)
4. Of the Residential and Commercial/Industrial sector budgets, approximately 2% is allocated to marketing activities and approximately 5% is allocated to monitoring and evaluation activities.

iv. Factors Influencing Budget Level

There are several factors that may impact the budget level, including:

1. Any difference between the actual spending level achieved in the 2015 and 2016 program years and the total actual energy efficiency funding exclusive of the actual performance incentive earned in 2015 and 2016 may be allocated to future year program budgets.
2. PSNH plans to monitor spending in each of the programs and propose adjustments as necessary (e.g. in response to customer demand) in accordance with the guidelines contained in Section IV.C of this Plan.
3. PSNH will accrue interest<sup>12</sup> monthly at the prime rate<sup>13</sup> on the average net balance of the total of the SBC revenue and RGGI and FCM proceeds received less funds expended for programs and services.
4. PSNH’s SBC revenue is based on sales projections. Actual sales may differ resulting in proportionately more or less SBC revenue available for energy efficiency programs. In addition, RGGI and FCM proceeds are estimated and are subject to change. The budget will be adjusted to reflect actual sales and actual RGGI and FCM proceeds.

The 2015 and 2016 budgets are presented in Attachment H2.

<sup>12</sup> DE 96-150, Order 23,574, November 1, 2000, page 25.

<sup>13</sup> <http://www.moneycafe.com/library/primerate.htm>



## **b) Availability of C&I Programs**

PSNH's commercial and industrial customers who supply a portion of their energy needs through means which by-pass their meter and for which no System Benefits Charge revenues are collected will qualify for services and incentives offered as part of the state-wide energy efficiency programs with certain restrictions. The energy supply could be generation installed by the Customer or another party on the customer's side of the meter. However, the restrictions noted below apply regardless of the source of the energy (collectively referred to here as "customer generation").

- ❑ Customers with generation which exceeds 50% of the customer's annual maximum kW demand ("Demand") will not qualify for energy efficiency services and incentives.
- ❑ A customer's maximum incentive will be based on the net of their demand less the name plate rating of the customer's generation. For example, a Rate GV customer with a demand of 150 kW who installs 60 kW of generation will be capped at the incentive available to Rate G customers. The table below depicts incentive levels for commercial and industrial customers. Incentives are limited to the customer's end uses and may not be applied to the generation equipment.
- ❑ Customers who install generation within one year of the date they install measures for which they receive a monetary incentive must refund any difference between the incentive received and the incentive for which they would qualify after installing generation. Any such amount would be repaid within 60 days of PSNH's request for payment.

This policy does not apply to customers with generation used for emergency supply during service outages on PSNH's transmission and distribution system. The customer may periodically test emergency generators without affecting program eligibility. In addition, customer generation which meets the fuel source and technology requirements for net metering are not subject to the restrictions noted above.

**c) Incentive Caps on C&I Programs**

In order to manage the overall budget and to help achieve an equitable distribution of program funds, PSNH proposes the following annual caps on the level of incentives offered to any individual customer. The caps will serve as guidelines to be used in dispersing incentives, and will not be absolute limits on the amount of incentive to be provided to any particular customer. PSNH reserves the right to provide incentive payments in excess of the caps on a case-by-case basis.

The retrofit project caps apply to the total of all retrofit program incentives paid. Retrofit and New Equipment & Construction project incentives are independent of one another. Customers selected to participate in PSNH's C&I RFP Program may earn additional incentives and are not limited by the annual incentive caps shown below.

<b>Customer Classification</b>	<b>Retrofit Projects Annual Cap</b>	<b>New Equipment &amp; Construction Projects Annual Cap</b>
Rate G Customers (100 kW and below)	\$50,000	\$50,000
Rate GV Customers (101 kW to 1,000 kW)	\$50,000 plus \$5,000 for each GWH <sup>14</sup> above 1 GWH	\$100,000
Rate LG Customers (in excess of 1,000 kW)	\$100,000 plus \$1,000 for each GWH above 10 GWH	\$150,000

<sup>14</sup> GWH – a gigawatt-hour (equal to 1,000,000 kilowatt-hours). The cap will be based on the customer's GWHs for the preceding calendar year. For new or expanding facilities, the cap will be based on the estimated annual usage.

**d) Smart Start Program**

**Overview**

The Smart Start Program provides PSNH’s municipal customers with an opportunity to install energy saving measures with no up-front costs and to pay for them over time with the savings obtained from lower energy costs. Under the program, PSNH pays all of the costs associated with the purchase and installation of approved measures and the municipality reimburses the Company through charges added to the customer’s regular monthly electric bill. The monthly charges are calculated to be less than or equal to the customer’s estimated monthly energy savings. PSNH’s Delivery Service Tariff Rate SSP outlines the requirements for service under the Smart Start program.

**Delivery**

When meeting with municipal customers regarding energy efficiency projects, Company personnel will inform them of the program, identify potential projects and make Smart Start program offers. Smart Start offers may be combined with other energy efficiency program offers for which the customer is eligible.

**Budget**

	<u>2015</u>	<u>2016</u>
Program Implementation	\$52,000	\$52,000

**Measures of Success & Market Transition Strategy**

Success factors for this program include customer acceptance of Smart Start offers, achieving high customer satisfaction ratings and having a low default rate on Smart Start loans.

## e) Education Enhancement - C&I Customer Partnerships

### Overview

Partner with customer groups to provide focused education to members on energy efficiency technologies and opportunities available in New Hampshire.

### Delivery

There is no set delivery format. It is intentionally left open to accommodate a wide range of opportunities. The following examples are provided to illustrate.

- ✓ Rochester Chamber of Commerce (400+ members): Educational and promotional information regarding the CORE Commercial and Industrial Programs is displayed on several pages of the Chamber's website; in e-mail promotions and in newsletter articles. An enhanced website listing may be utilized to draw attention to energy efficiency projects completed by Chamber members.
- ✓ Local Energy Working Group (LEWG): Educational and promotional information regarding the CORE Commercial and Industrial and Municipal programs will be shared at regional roundtables with local community leaders. In addition, joint communications to LEWG contacts about the NH CORE Programs and municipal energy efficiency project case studies will be developed and included on the Local Energy Solutions website and e-newsletter.

### Goals/Benefits

In its order<sup>15</sup> approving the CORE Programs, the Commission expressed interest in finding innovative approaches for market transformation. Partnerships provide an opportunity to work with customers and other parties to develop alternatives to traditional education approaches.

### Budget

	<u>2015</u>	<u>2016</u>
Program Implementation	\$19,856	\$19,447

### Measures of Success & Market Transition Strategy

Specific success factors will vary depending on the partnership; however, in general, the goal is to advance the partnership to a point where it can become self-sustaining.

<sup>15</sup> Order No. 23,850, November 29, 2001, page 18

f) **Residential Home Energy Reports Pilot Program (formerly named Customer Engagement Pilot Program)**

**Home Energy Reports Pilot Program Update**

Background

PSNH's Home Energy Reports Pilot Program was approved by the Commission with the purpose of evaluating the effectiveness of using a behavioral-based energy efficiency program in New Hampshire before expanding the program to a larger audience of residential customers. The primary objectives of the pilot program include: a) measuring the program's effectiveness on electric energy savings, enrollment in other energy-efficiency programs and customer satisfaction, and b) measuring the effect messaging has on electric energy savings using two separate engagement methods:

- 1) Normative – customers are compared to and ranked against similar customers to stimulate electric energy savings; and
- 2) Rewards – customers receive reward points for saving electric energy that can be redeemed at local merchants.

Twenty-five thousand residential customers were randomly selected for the 12-month pilot, with half assigned to the normative messaging group and half assigned to the rewards messaging group. Customers receive five printed reports in the mail, and both groups have access to an interactive web portal designed to help them actively engage with their energy information.

Pilot Program Implementation Update

The pilot program was successfully launched in February 2014 and will be completed in January 2015. Prior to the launch, an independent evaluator validated the selection of the pilot participant groups and the control group to ensure each are representative of PSNH's residential customer population. The preliminary program results show an overall electric energy savings rate of approximately 1%. On average, customers in the normative messaging group are saving twice as much as the customers in the rewards group. Interestingly, the current customer opt-out rate is lower than the experience of other utilities with similar programs. An independent evaluation of the pilot program results is projected to be completed by mid-March 2015.

**Program Plans for 2015 and 2016**

Based on the preliminary positive results of the pilot program and assuming the independent evaluation results are positive; PSNH has prepared a budget to implement a Home Energy Reports program including approximately 25,000 participants in 2015 and 2016. The kilowatt-hour savings estimates are based on targeting 25,000 high-use residential customers in order to achieve a high level of energy savings. PSNH is also considering targeting residential customers on a circuit scheduled for distribution system upgrades, high-use income-eligible residential customers, and the same set of pilot program participants. A final decision on the program design will be made in early 2015 after the pilot program evaluation is complete.

## Budget

<b>2015 Plan</b>	<b>Budget</b>	<b>Participation</b>	<b>Lifetime Savings</b>
PSNH	\$280,402	25,000	4,589,501 kWhs

<b>2016 Plan</b>	<b>Budget</b>	<b>Participation</b>	<b>Lifetime Savings</b>
PSNH	\$249,903	25,000	6,803,115 kWhs

### Measures of Success & Market Transition Strategy

Success factors for this program include implementing a cost effective program and achieving the stated kilowatt-hour savings goals with a program design that will maximize kWh savings within the budget constraints.

Customer behavioral-based energy efficiency programs are premised on providing customer-specific energy usage information and personalized energy savings tips and recommendations to motivate customers to change their behavior and take action to save energy. Utilizing behavioral science-based marketing and data presentment beyond what is typically displayed on customer bills have resulted in measurable energy savings in programs conducted by other utilities. PSNH's residential home energy reports program can also be utilized to educate and increase awareness and participation in other CORE energy efficiency programs.

## **g) C&I RFP Program**

### **Objective**

To promote competitive market development in the energy efficiency industry by encouraging third parties to bid for energy efficiency projects on a competitive basis. The RFP Program is aimed at energy efficiency potential from large C&I customers that are not participating in the other C&I CORE programs.

### **Target Market**

The minimum customer size is 350 kW of demand, the minimum project energy saving is 100,000 kWh per year (can be aggregated sites), and the minimum total project cost is \$150,000. C&I customers of PSNH, energy service companies<sup>16</sup> and other third party service providers representing C&I customers are eligible to participate in this program.

Bidders are typically of two types:

1. customers with significant in-house technical capability, or
2. customers allied with firms that specialize in implementing energy efficiency projects and have a staff of professionals trained to identify energy efficiency opportunities, calculate potential savings, design system modifications, manage construction and installation of energy efficiency measures, and measure energy savings.

### **Incentives**

The program offers incentives for measurable energy savings achieved through the installation of energy efficiency measures, as specified in a project agreement. Eligible improvements include energy-efficient equipment, products, and measures that are cost-effective using the criteria established by the NH Energy Efficiency Working Group and approved by the NH Public Utilities Commission. The estimated energy savings are verified using approved protocols, and are calculated by subtracting the energy use of the new equipment from the energy use of the existing equipment.

Eligible measures include, but are not limited to replacing standard fluorescent lighting with high efficiency fluorescent lighting or LED lighting, installing variable speed drives on motors, installing lighting controls to reduce lighting operating hours, and replacing low efficiency air conditioning equipment with high efficiency equipment.

Measures that are not eligible include new construction projects, any power-producing project such as cogeneration, switching from electric energy to another fuel (fuel switching), or any repair or maintenance project.

One of the program's goals is to assess the degree to which projects require incentives. As such this program will not have published incentives. Each proposal will need to identify the required incentive amount. All bids are evaluated based upon a comparison of energy savings and other price and non-price variables. Non-price variables include factors such as whether the project includes measures other than lighting (e.g., HVAC and process measures) and whether the environmental impacts reduce on-site emissions or have waste stream impacts. All projects are evaluated on the basis of established cost-effectiveness criteria.

<sup>16</sup> Contractors involved in the implementation of PSNH's C&I energy efficiency programs are ineligible to participate in the RFP Program.

### **Incentive Strategy**

Incentives are intended to be market driven in that bidders (or potential participants) request the incentive level that is required to implement the proposed energy efficiency project. If the incentive request is too high or the project savings are too low, a competing project will be awarded the limited RFP Program funds.

### **Delivery**

Potential bidders are invited to an annual bidders conference to learn how to participate in the program, including energy service companies, third party service providers and customers having a maximum demand greater than 200 kW that may qualify either individually or on an aggregated demand basis. In addition, PSNH promotes the annual bidders conference on PSNH's website and the NHSaves website.

### **Budget**

<b>2015 Plan</b>	<b>Budget</b>	<b>Participation</b>	<b>Lifetime Savings</b>
Electric	\$532,143	6	36,597,730 kWhs

<b>2016 Plan</b>	<b>Budget</b>	<b>Participation</b>	<b>Lifetime Savings</b>
Electric	\$521,177	6	35,671,515 kWhs

### **Measures of Success & Market Transition Strategy**

Success factors for this program include: attaining the planned customer participation and energy savings goals as well as and generating a high level of interest among customers, energy service companies and third party service providers that results in a competitive bidding process.



## **h) Customer Engagement Platform**

### **Background**

The energy efficiency customer engagement platform (CEP) is a product of Northeast Utilities commitment to increasing participation in energy efficiency across its service areas in Massachusetts, Connecticut and New Hampshire by providing a personalized experience for each of its customers. While PSNH's customers are currently able to access their usage information on PSNH's website via the "Green Button"<sup>17</sup>, they do not have access to self-service tools that would enable them to learn more about energy efficiency nor are they provided with customized program information. The CEP will provide customers with greater control and immediacy, which is required to keep pace with customers' service expectations and industry norms. Additionally, the CEP will allow PSNH to reach all customer segments more efficiently, especially micro and small businesses, which will lead to greater adoption of energy efficiency measures in the long term. A broader range of customers will be empowered to take actions that save energy and reduce their utility expenses, putting NU in a position to scale up energy efficiency programs in a cost-effective manner and allowing energy efficiency programs to realize their full potential.

### **Platform Description / High Level Goals**

The CEP is an interactive tool that will allow PSNH to effectively reach all of its customers with energy usage information that is tailored to the customer and their situation. The platform will include self-service assessments (where applicable) as well as benchmarking, which will allow business and residential customers to track energy use over time and compare their usage with similar customers in their geographic area and customer segment.

The CEP will also provide customers with targeted, customized recommendations and actionable steps to reduce costs and save energy based on a customer's situation and profile. A customer will learn about solutions that will save energy and reduce costs in addition to receiving information about incentives customized for them, which will increase their willingness to make improvements. The CEP not only helps to promote participation in existing programs, but it also promotes non-incentive energy efficiency measures to help customers save energy.

### **Customer Benefits by Sector**

	Residential	Micro-business	Small Business	Medium Business	Large Business
Analyze Usage	✓	✓	✓	✓	✓
Tailored Recommendations	✓	✓	✓	✓	✓
Self Service	✓	✓	✓		
Vendor Information	✓		✓		
Interval Data				✓	✓
Account Executive Contacts				✓	✓

<sup>17</sup> <http://www.psnh.com/SaveEnergyMoney/For-Home/Green-Button.aspx>

## *Residential*

The CEP will enhance the way that NU engages with residential customers by providing the interactive experience that they desire. The 360° surround sound marketing platform encourages exploration and will help to drive customer engagement. The CEP provides a consistent look and feel across desktop and mobile devices through a mobile-first design approach, which is becoming customers' method of choice for engaging with technology. Moreover, self-guided exploration will increase customers' sense of empowerment and incentivize energy saving behavior. Customers can examine their usage, compare home energy usage across time and to peers, and explore options for saving energy at their own convenience with 24/7 access to information. For example, while viewing energy usage from the past year, a residential customer may be presented with a link that allows them to see how much they could save on their annual energy bills in winter by lowering the thermostat by a certain number of degrees. Providing customers with the option to view relevant, realistic information about potential savings may be just the motivation they need to take action.

## *Micro- and small business*

For micro- and small business customers, the CEP provides instant, self-service value and engagement upon first login as it leverages a platform compatible with other products. The CEP performs progressive energy assessments at the building, equipment, and measure levels. Customers can review energy usage benchmarked to localized similar businesses, manage their own energy plan within the CEP, and use tools to get expert help. Additionally, with the wide variety of energy efficiency products and incentives that have become available, determining the appropriateness of products and eligibility can be time consuming and confusing, especially for smaller businesses that have limited resources to devote toward facilities management. PSNH's knowledge of customers will allow us to suggest offerings through the CEP that are applicable to each customer's individual situation based on commercial segment (e.g. office, restaurants, salons, schools, clinics, etc.) and also provide recommendations for vendors who carry a specific product and/or can perform the work and assist with applying for incentives. The CEP eliminates extensive research and administrative burden for the micro- and small business customers, saving them time and preventing missteps. For example, a restaurant owner who is considering replacement of refrigeration equipment with high efficiency models will be able to see the estimated cost of the project, monthly energy savings, and payback period in addition to local vendors who sell and install the equipment.

## *Medium to large business*

The CEP offers unparalleled support for medium to large business customers by helping them manage complexity across multiple accounts, services, and meter relationships and across various views (e.g. organizationally, geographically, etc.). Facilities can also be benchmarked across jurisdictions and building types. Energy managers can access data from multi-site businesses in a single place and generate individual and portfolio building reports. As energy managers often update system information while they are away from a computer, the CEP provides a mobile extension for in-field use. Because the CEP leverages a platform that is compatible with other products, customers who sub-meter can upload their own data for analysis. Customers can view and analyze interval data directly in the CEP without having to subscribe to

a service or periodically download. The whole building analysis function allows customers to model and compare predicted energy baselines to actual usage and demand both pre- and post-energy efficiency retrofit. The platform presents effectively bundled energy solutions to encourage customers to pursue more comprehensive solutions for reducing energy usage. Businesses can optimize capital planning for energy management based on a variety of financial, energy, and emission reduction metrics for clearer prioritization of energy efficiency improvements. Through the CEP, medium to large business customers can connect with PSNH's account executives and energy efficiency engineers who are familiar with the needs of their specific market segment.

**Benefits to Energy Efficiency Program Delivery**

The CEP will provide energy efficiency solutions to customers at the time when they are actively thinking about energy, delivering information in the channel of their choice, via laptop, tablet or mobile devices. The CEP will provide easy, intuitive and accessible resources and tools for customers to engage in transactional activities, informational searches on efficiency measures and will allow NU to develop a better understanding of customers, leading to improved targeting of products and services and increased customer satisfaction. Targeted messaging will drive deeper and broader participation in energy efficiency programs, which will stimulate additional savings over the long term.

The CEP will also help to increase operational efficiency within PSNH. The platform will feature automated performance monitoring and evaluation, measurement, and verification reporting, so that metrics and analytics used to evaluate program reach and effectiveness will be readily available. PSNH's call center will be able to refer customers to the CEP for self-service.

**Data Security Protocol**

Customer information collected through the CEP is intended for internal use only. PSNH respects customer confidentiality and will not share or sell any customer information.

**Budget**

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Setup, IT/Implementation	\$400,000			
Software	\$150,270	\$263,777	\$212,703	\$198,392
	(1/2 year)	(full year)	(full year)	(full year)

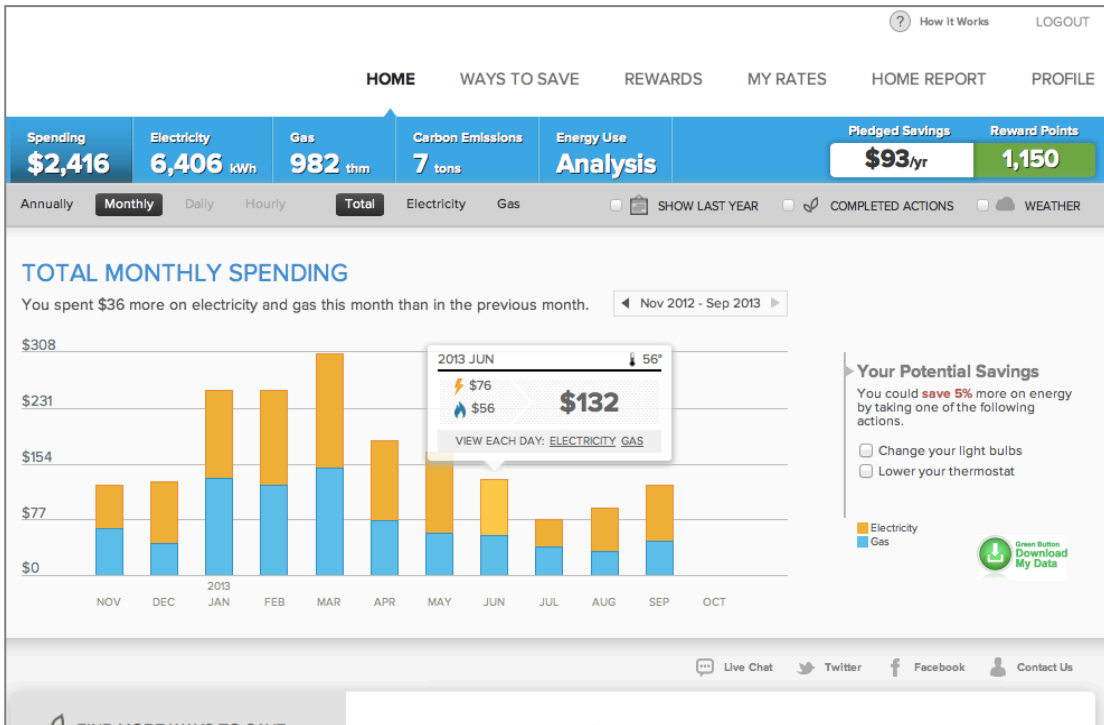
The budgets for 2017 and 2018 are presented for information purposes only. PSNH is currently seeking approval for the 2015 and 2016 program year budgets.

**Timeline and Deliverables**

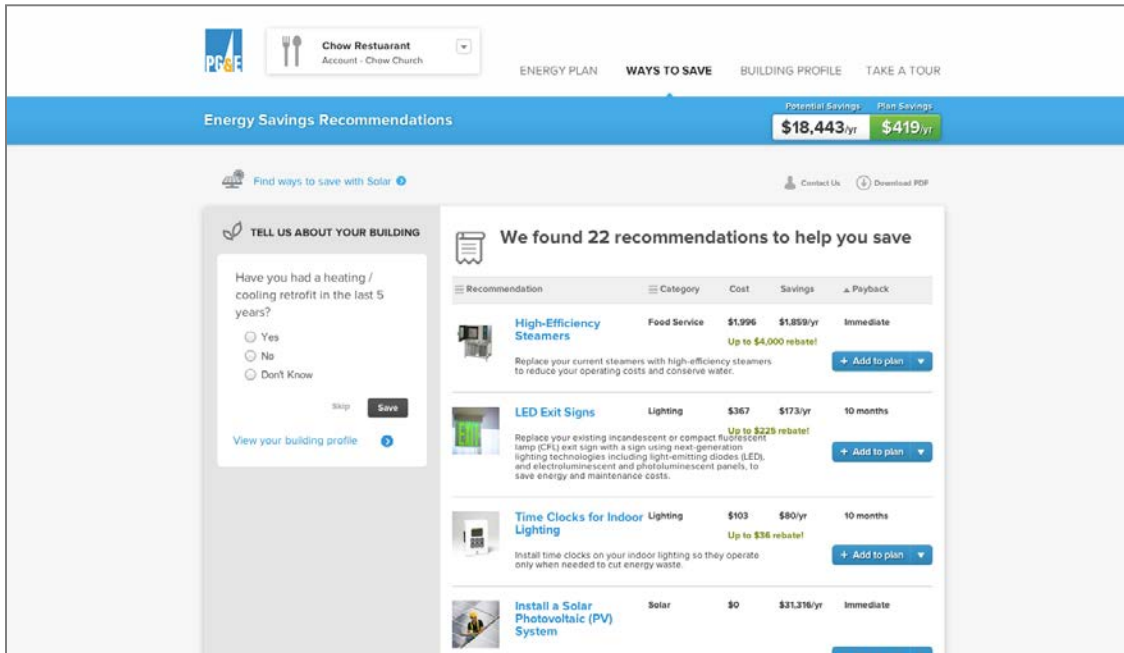
Implementation of the CEP in NH will begin in January 2015 with a target go-live date in July 2015. This approximate schedule is based on similar CEP implementations currently underway in MA and CT.

# Sample Screen Shots from CEP

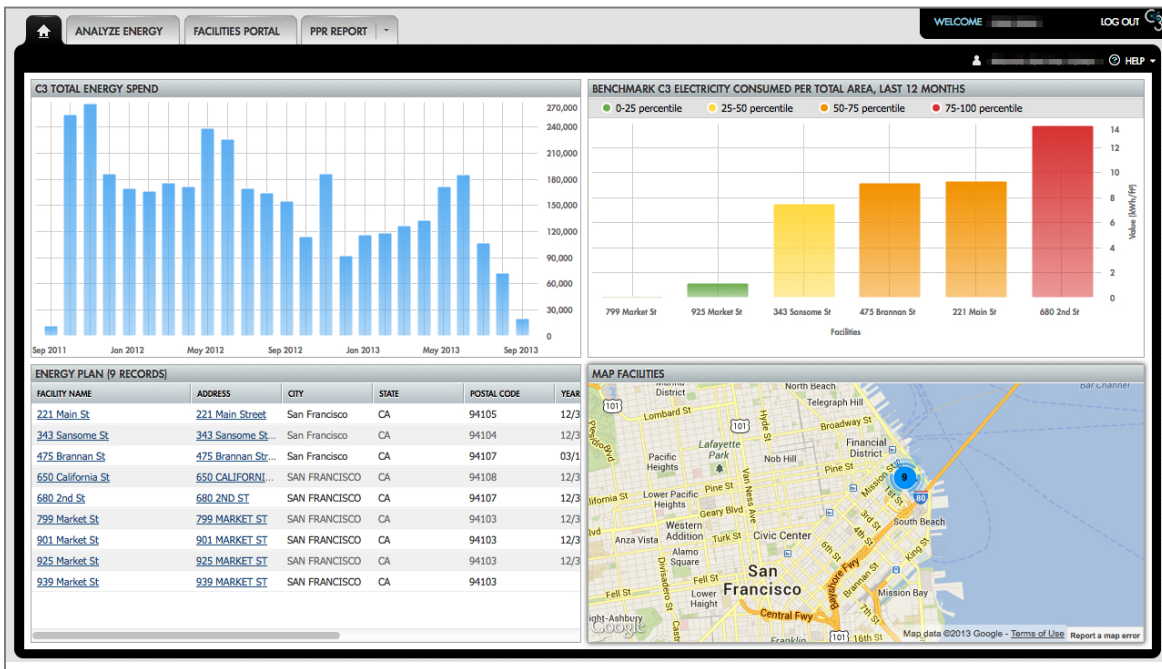
## Residential customer



## Small commercial customer



## Large commercial customer



### “Progressive Audits”

Every interaction customers have with the CEP presents an opportunity to learn more about factors that affect their individual energy usage, including personal preferences and physical building characteristics. Tailored questions will be presented to customers each time they access the platform and their user profiles will be updated accordingly, thereby allowing PSNH to refine product offerings and enhance customers’ experience with each successive login.

### Market Transformation

The CEP stands to dramatically improve how utilities engage with customers. Energy efficiency programs will be able to target offerings to the specific customer groups that would best benefit from those recommendations. It will enable PSNH to analyze participation in programs and modify offerings to improve involvement across all customer segments. Other New Hampshire utilities will be able to leverage the CEP as a model for expanding their energy efficiency programs, leading to improved participation statewide.

**i) On Bill Financing for Residential Customers**

PSNH will continue to offer its zero-percent, On Bill Financing revolving loan program to its residential customers as funds are available. Residential customers who participate in PSNH's Home Performance with Energy Star Program are eligible to apply for interest-free loans to finance a portion of their out-of-pocket expenses for energy efficiency improvements made as part of that program. Repayment of these loans is made through a separate charge on the customer's monthly electric bill. The terms of the program are summarized and included in PSNH's Delivery Service Tariff Rate LP.

## 4) Unitil

This section provides information on programs specific to Unitil.

### a) **Combined Heat and Power (CHP) C&I Pilot Measure for Electric Commercial, Municipal, and Industrial Customers**

#### Overview

The NHPUC's Order No. 25,555 allowed the incorporation of a CHP Pilot Measure within Unitil's C&I electric programs in 2013 and 2014. Due to the unexpected withdrawal by a customer in 2014, no projects went forward during the plan period. However, given continued interest expressed by two customers, the Company proposes to extend the pilot in 2015 and 2016.

The objective of the Combined Heat and Power (CHP) Pilot Measure is to give C&I customers an opportunity to take advantage of this highly efficient technology and to assist in the upfront installation costs. CHP systems reduce electricity (kWh and kW) requirements while providing waste heat to reduce heating and/or hot water (thermal Btus) requirements. Typically, CHP systems emit less greenhouse gas than grid generated power. CHP systems can be fueled by natural gas, diesel fuel, wood pellets, etc. The pilot measure has a number of goals:

1. Market the technology and educate customers - especially those with heat and/or hot water needs for at least 6,000 hours per year.
2. Screen projects to determine if they pass the C&I Field Screening Tool (B/C) with current avoided supply costs.
3. Monitor one (possibly two) projects for performance and compare this to proposed energy savings and fuel usage with a cost up to \$25,000.
4. Assist in the upfront cost of installation via rebates capping the total at \$75,000 for all projects for 2015-2016.
5. Advise customers to participate in ISO-NE programs using the equipment as a critical peak asset.

#### Implementation / Delivery

The CHP Pilot Measure will be added as measure available to Large, Small, and Municipal customers. Unitil will work with its customers to assure maximum performance from the equipment. For fossil fuel systems above 20kW, the systems must be in compliance with CARB 2007 standards. This is the standard adopted by New Hampshire as referenced in RSA 374-G (Distributed Energy Resources).

#### Measures of Success

Success factors for this pilot measure include attainment of the participation, estimated savings, high customer satisfaction ratings, and acceptable M&E results, and an analysis comparing results with the recent evaluation conducted by the MA utilities.

## **b) Third Party Financing – Pilot**

Unitil Gas will continue its pilot assessment of offering low interest third party financing to support residential natural gas customers' participation in its Home Performance with ENERGY STAR program and ENERGY STAR Products program.

### **Objectives**

The following questions are being explored through the pilot:

- 1) Will customers invest in all or most of the auditor recommended energy savings measures (Home Performance with ENERGY STAR as well as ENERGY STAR Products) when they can utilize reduced-cost financing?
- 2) Will customers take advantage of an energy efficiency financing product that is not offered via their utility bill?
- 3) Will financial institutions have interest in collaborating with a utility to offer energy efficiency loans?

### **Target Market**

The pilot is targeting residential natural gas customers interested in the Home Performance with ENERGY STAR program and the ENERGY STAR Products program, as well as energy auditors, and weatherization and heating installation contractors who are working with these customers.

### **Value Proposition**

The pilot's value proposition is to improve the upfront affordability for customers to install Home Performance with ENERGY STAR auditor recommended measures and/or the ENERGY STAR Products contractor recommended measures.

### **Offering**

The pilot offering will be consistent with 2014 and provide customers the option of participating in a 2% flat rate unsecured loan for the costs of measures associated with the Home Performance with ENERGY STAR program and ENERGY STAR Products program, including boilers, controls, furnaces and water heaters. Under the pilot, a customer will enter into a loan agreement with the lender and make monthly payments to that entity directly. The lender assumes all the risk if a customer defaults on their unsecured loan. The maximum customer loan is \$10,000 for up to 5 years. To encourage customers to perform recommended measures, the pilot reduces the applicable interest rate for the unsecured loan. Unitil Gas will complete an interest buy-down upfront. To date, Unitil Gas has secured agreements with three financing organizations to buy down the customer's interest rate at or below a fixed rate of 6.99% APR, depending on the lender and the customer's credit score, to a 2% fixed rate loan for customers. The currently available APR is subject to change depending on adjustments to the Prime Rate. However, the loan agreements made to-date stipulate that the lender's interest rate offering will not exceed the contracted rate. Unitil Gas is also seeking other lenders to participate in the pilot.



## Loan Buy-Down Budgets and Estimates of Participation and Costs

The following tables indicates which program the loan will support, estimated average loan, estimated number of loans, and estimated Pilot cost associated with each program.

<b>Program</b>	<b>Average Buy Down</b>	<b>Number of Loans</b>	<b>Cost</b>
<b>Home Performance with ENERGY STAR</b>	\$191	10	\$1,910
<b>ENERGY STAR Products</b>	\$840	3	\$2,520
<b>Both</b>	\$1,163	4	\$4,652
<b>Total</b>		17	\$9,082

### Program Incentives

Unitil Gas considered the option of using a portion of the incentive to buy down all or a portion of the interest on the loan. This option would mean that the customer's portion of the measure cost would increase. At this time, Unitil Gas determined that it would be in the pilot's best interest to offer the same incentive for all customers participating in the Home Performance with ENERGY STAR and ENERGY STAR Products programs. To do otherwise would add confusion to the market regarding these programs and would penalize those customers who require financing to participate in residential energy efficiency programs. All customers participating in Home Performance with ENERGY STAR and ENERGY STAR Products would be eligible to seek reduced-cost financing (until pilot funds are exhausted).

### Performance Incentive

Unitil Gas will not be earning a performance incentive from the customer loan repayments. The savings from the measures installed will be reported in the Home Performance with ENERGY STAR and ENERGY STAR Products programs. Unitil Gas will, however, include the pilot's expenditures as part of the performance incentive calculation consistent with the treatment of all other program costs.

### Evaluation

Unitil Gas plans to perform a customer survey and will continue to discuss pilot results during quarterly CORE meetings or at a separately designated meeting. The survey will capture feedback from customer participants, customer non-participants, contractors and lenders who are given the opportunity to participate in the program. This evaluation will help inform future financing proposals and programs.

### Budget

The budget for the pilot is categorized within Unitil's Home Performance with ENERGY STAR Program budgeted under Rebates and Services.

**c) Greenhouse Gas Emissions Reduction Fund – On Bill Financing**

Unitil Electric will continue to offer its zero-percent, On Bill Financing (OBF) revolving loan program, pursuant to a grant award from the Greenhouse Gas Emissions Reduction Fund, to its commercial, municipal, industrial and residential customers as funds are available. The offering provides customers the opportunity to install energy efficient measures with no up-front costs, and pay for them over time on their electric bills. Under the program, Unitil Electric pays all of the costs associated with the purchase and installation of the approved measures up to the incentive amount plus a loan amount not to exceed \$50,000 per measure for commercial, municipal, and industrial customers and \$7,500 for residential customers. The program is designed to overcome the traditional barrier for energy efficiency projects of high upfront cost.

## **F. Monitoring & Evaluation and Reporting**

### **Monitoring & Evaluation**

A settlement agreement approved by the Commission on March 17, 2006 (Order No. 24,599 in DE 05-157) transferred responsibility for monitoring and evaluation efforts from the NH CORE Utilities to the Commission's Staff. Under that agreement, the Commission receives input from the NH CORE Utilities on monitoring and evaluation activities. In addition, the settlement agreement included the following provisions as summarized in Order No. 24,599 and listed below:

- (1) To provide utilities with the opportunity to comment on preliminary study findings and results prior to publication,
- (2) To invite interested parties to attend and provide input at evaluation presentations,
- (3) To permit utilities, on a case-by-case basis considered in light of study design, costs, schedule and similar issues, to participate in regional monitoring and evaluation studies as well as studies conducted by multi-jurisdictional utilities, and
- (4) That the Commission would aggressively pursue all available means to protect customer confidential information as permitted by the Right-to-Know Law, RSA 91-A, given that monitoring and evaluation studies frequently require access to such information.

In 2015-2016, no changes are anticipated regarding the responsibilities of the NH CORE Utilities. Funding for Monitoring and Evaluation is proposed to remain at approximately five percent of the annual program budgets. These funds are used to support the following types of activities:

- Evaluation planning
- Measurement and verification of the NH CORE Energy Efficiency Programs
- Regional measurement and verification projects
- Regional avoided energy supply cost studies
- Miscellaneous research associated with program monitoring and evaluation
- Program tracking and reporting

The following monitoring and evaluation studies were completed in 2013 and 2014 and have been added to Attachment B which lists all the evaluation studies completed since 2000.

- The Avoided Energy Supply Costs in New England: 2013 Report, July 12, 2013. The updated avoided energy and capacity costs were utilized by the NH CORE Utilities in their energy efficiency program benefit-cost analyses. This study projects the future avoided cost of generating, distributing and transmitting energy (electricity, oil, liquid propane, natural gas, wood, etc.), rather than the avoided *retail* costs. These avoided cost, rather than retail costs, are used in New Hampshire and throughout the Northeast to determine the cost effectiveness of energy efficiency programs.
- The New Hampshire HVAC Load and Savings Research, April 5, 2013. This study conducted research on electric cooling loads and cooling equipment, additional opportunities for energy efficiency and the comprehensive electric impacts of the Home Performance with ENERGY STAR Program. Results from this study were incorporated into the 2015-16 weatherization programs.

- Wi-Fi Programmable Thermostat Pilot Program Evaluation, July 2013. This report presents the findings and recommendations of Liberty Utilities' Wi-Fi Thermostat Pilot Program.
- The New Hampshire Commercial & Industrial New Construction Program Baseline Evaluation, March 2014. This evaluation provided an update to the baseline efficiency standards used with New Equipment & Construction projects. It compares the next energy code (IECC 2012) with the currently adopted code (IECC 2009) and assesses its impact on the current energy efficiency program offerings.

In June, 2014 the Commission hired an independent consultant to develop a six-year evaluation plan for the NH CORE Energy Efficiency Programs. The NH CORE Utilities are currently reviewing a draft of the report and based on that review have incorporated the following evaluation activities to be completed during program years 2015 and 2016.

#### Measurement and Verification of the NH CORE/Utility Specific Energy Efficiency Programs

The following market assessment, impact and process evaluation studies are proposed:

- CORE Municipal Energy Efficiency Program: a process evaluation to examine the effectiveness of program delivery, including review of marketing and promotional activities, project intake and management, technical assistance/audit performance, measure installation, quality assurance processes and customer satisfaction.
- CORE Energy Star Products Program (Appliances): market assessment of current penetration of ENERGY STAR appliances; measurement and verification of energy savings associated with low temperature ductless mini-splits, heat pump water heaters and possibly fossil fuel heating systems; program participant survey to assess customer satisfaction and purchasing behavior.
- CORE Energy Star Products Program (Lighting): focused study to review the adoption, use and program participant satisfaction with LEDs, including measurement and verification of the installation, hours of use and delta watts of LEDs.
- CORE Small Business Energy Solutions Program: impact evaluation to measure and verify energy savings and update hours of use for certain segments; assess the impact of EISA requirements on linear fluorescent lamp savings baseline; impact evaluation will include Municipal projects.
- Utility Specific: PSNH's Home Energy Reports pilot program impact evaluation of the first year results.

#### Regional Avoided Energy Supply Cost Study

The New England Regional Avoided Energy Supply Component (AESC) Study Group has recommended a transition from a biennial study to one conducted every 3 years with options for annual updates to update the avoided energy and capacity costs utilized by member utilities in their energy efficiency program benefit/cost analyses. An RFP for the next study is scheduled to be issued in the fall of 2014, with a final report to be concluded by the first quarter of 2015.

#### NEEP Regional Evaluation, Measurement & Verification (EM&V) Forum

The EM&V Forum facilitates regional evaluations, the following of which are underway or planned and are expected to be completed in 2015

- Commercial Refrigeration Loadshape Study
- Remaining Useful Life Study
- Incremental Cost Study

Reports and project details are available at <http://neep.org/emv-forum/index>

## Reporting

The NH CORE Utilities submit Quarterly Reports to the NH Public Utilities Commission summarizing each utility's progress towards meeting the program savings, customer participation and spending goals approved by the Commission. These reports are submitted no later than 60 days after the end of a quarter, and include the following information:

1. **NH CORE Program Highlights:** Includes comparisons of program goals to actual accomplishments-to-date (i.e. program expenses, customer participation, annual and lifetime kilowatt-hour savings and annual and lifetime MMBtu savings) by utility and in aggregate; CO2 emissions reductions resulting from the CORE programs; annual savings by fuel type, monitoring and evaluation expenses and activities, and loan program statistics.
2. **Expenses by Activity:** Summarizes actual expenses by the following tracking activities by program and utility.

<b>Tracking Activity</b>	<b>Description</b>
Administration - Internal	Used to track all internal utility costs associated with program design, development, regulatory support, and quality assurance. Costs captured in this activity include: employee labor, benefits, expenses, materials, and supplies.
Administration - External	Used to track the total cost of contractors and consultants used in support of program design, development, regulatory support, and quality assurance. Captures all of the utility's external costs associated with program administration.
Customer Rebates & Services	All rebate dollars paid directly to customers as well as "indirect" payments to customers such as discounted prices. Also includes all costs directly attributable to providing energy efficiency services to customers (e.g. technical audits, employee and contract labor for installing efficiency measures, expenses, materials, and supplies).
Internal Implementation Services	Used to track the utility's internal costs associated with delivering program services to customers. Costs captured in this activity include: employee labor, benefits, expenses, materials, and supplies.
Marketing	Used to track all costs associated with marketing, advertising, trade shows, toll free numbers, and NH Saves web site. Costs captured in this activity include: labor, benefits, expenses, consultants, contractors, materials, and supplies.
Evaluation	Used to track all costs associated with monitoring and evaluation. Costs captured in this activity include: labor, benefits, expenses, consultants, contractors, tracking systems, materials, and supplies.

3. **Home Energy Assistance Program Detailed Results:** Includes greater information than is included in the program highlights report; such as the number of single and multi-family projects, the number of projects by county, the number of collaboration projects and the percentage of the program incentive budget spent on heating systems.

The NH CORE Utilities will include an action plan for any utility that is below its quarterly production goals by more than 20% in its Quarterly Report. The action plan will include revised production goals, and subsequent Quarterly Reports will incorporate the utility's progress towards meeting the revised production goals.

4. **Forward Capacity Market Results:** Includes the actual proceeds received from ISO-NE and the actual expenses incurred-to-date relating to each NH Electric Utilities' participation in the market, including reporting, planning, and evaluation.

In 2014, a "Paperwork Reduction Working Group" was established with the intent of increasing the level of program information content in the Quarterly Report, while reducing the absolute length of the report. A new draft Quarterly Report has been completed by the working group and it will be reviewed at the next quarterly stakeholder meeting with the intent of using the new format to report 3<sup>rd</sup> Quarter 2014 program results. The input the NH CORE Utilities received from both the Commission's staff and The Jordan Institute has resulted in a greatly improved quarterly reporting format.

## G. Performance Incentive

### Background

On September 6, 2013, the Commission issued Order No. 25,569 approving a performance incentive formula for effect beginning with the 2014 program year. In addition, as part of the Settlement Agreement reached as part of the Program Year 2014 Update Plan, the Settling Parties and Commission's Staff agreed to discuss at the CORE meetings in 2014 the performance incentive formula for the gas utilities for 2015 and beyond. As a result of the discussions that took place in 2014, both the Commission's Staff and the NH CORE Utilities informally agreed that it is premature to further discuss the performance incentive formula in light of the fact that a preliminary Energy Efficiency Resource Standard (EERS) proposal will be circulated by the Commission's Staff in 2014. The appropriate time to further discuss the performance incentive mechanism is when the details of the EERS proposal are known, since the issues surrounding an EERS are inter-related with the performance incentive mechanism. Additional performance incentive working group sessions will be planned after the EERS proposal is circulated.

The NH CORE Utilities have utilized the existing performance incentive formula to prepare this Plan. The performance incentive formula is summarized below.

The NH CORE Utilities will each prepare an annual performance incentive filing for each program year and will strive to complete this filing by June 1st of the following program year.

### Performance Incentive Formula

Four factors influence the performance incentive (PI) for the electric programs: (1) the actual dollars spent; (2) the ratio of the actual electric lifetime savings achieved to the total actual lifetime energy savings achieved (includes both electric and non-electric measures); (3) the ratio of the actual benefit-to-cost ratio achieved to the predicted benefit-to-cost ratio; and (4) the ratio of the actual lifetime kilowatt-hour savings achieved to the predicted lifetime kilowatt-hour savings achieved.

Three factors influence the performance incentive (PI) for the gas programs: (1) the actual dollars spent; (2) the ratio of the actual benefit-to-cost ratio achieved to the predicted benefit-to-cost ratio; and (3) the ratio of the actual lifetime MMBTU savings achieved to the predicted lifetime MMBTU savings achieved.

The formula is as follows:

A. For the CORE programs offered by the NH Electric Utilities:

- i. The percentage of electric lifetime savings to the total lifetime energy savings achieved by each electric utility is calculated using the following formula:

$$\text{Electric Lifetime Savings \%} = \frac{\text{Electric Lifetime Savings}}{\text{Total Lifetime Energy Savings}}$$

Where:

**Total Lifetime Energy Savings** = Electric Lifetime Savings (in kWh) + (Lifetime MMBTU Savings x 293)

**Electric Lifetime Savings** = Actual lifetime kilowatt-hour savings achieved by all CORE programs offered by each electric utility

**Lifetime MMBTU Savings** = Actual lifetime MMBTU savings achieved by all CORE programs offered by each electric utility

- ii. If the Electric Lifetime Savings %  $\geq$  55%, then the PI formula for both electric and non-electric measures is:

$$PI = [3.75\% \times ACTUAL] \times [(BC_{ACT} / BC_{PRE}) + (kWh_{ACT} / kWh_{PRE})]$$

Where:

**PI** = Performance Incentive in dollars

**ACTUAL** = Total dollars spent less the performance incentive

**BC<sub>ACT</sub>** = Actual Benefit-to-Cost ratio achieved

**BC<sub>PRE</sub>** = Predicted Benefit-to-Cost ratio

**kWh<sub>ACT</sub>** = Actual Lifetime Kilowatt-hour savings achieved

**kWh<sub>PRE</sub>** = Predicted Lifetime Kilowatt-hour savings

This formula is used to calculate the PI for the residential and the commercial/industrial sectors separately; the overall PI is determined by adding the sector PIs.

The residential and commercial/industrial sector PIs are each capped at 10% of actual expenditures. In addition, the kWh savings ratio component and the B/C ratio component are each capped at 5% of actual expenditures.

- iii. If the Electric Lifetime Savings %  $<$  55%, then the PI formula for both electric and non-electric measures is of the form shown in A.ii. above with the 3.75% multiplier replaced by 3.0%.

The formula is used to calculate the PI for the residential and the commercial/industrial sectors separately; the overall PI is determined by adding the sector PIs.

The residential and commercial/industrial sector PIs are each capped at 8% of actual expenditures. In addition, the kWh savings ratio component and the B/C ratio component are each capped at 4% of actual expenditures.

B. For the CORE programs offered by the NH Gas Utilities:

The formula is:

$$PI = [4\% \times ACTUAL] \times [(BC_{ACT} / BC_{PRE}) + (MMBTU_{ACT} / MMBTU_{PRE})]$$

Where:

**PI** = Performance Incentive in dollars

**ACTUAL** = Total dollars spent less the performance incentive

**BC<sub>ACT</sub>** = Actual Benefit-to-Cost ratio achieved

**BC<sub>PRE</sub>** = Predicted Benefit-to-Cost ratio

**MMBTU<sub>ACT</sub>** = Actual Lifetime MMBTU savings achieved

**MMBTU<sub>PRE</sub>** = Predicted Lifetime MMBTU savings

The residential and commercial/industrial sector PIs are calculated separately and are independent of one another. The residential PI is capped at 12% of the actual residential expenditures. In addition, the commercial/industrial PI is capped at 12% of the actual commercial/industrial expenditures. The overall PI is determined by adding the sector PIs.



- C. The following threshold conditions are applicable:
- i. For the programs offered by the NH Electric Utilities and NH Gas Utilities, the combined benefit-to-cost ratio for residential sector programs must be 1.0 or greater. If not, there is no incentive associated with the program cost effectiveness performance metric. The commercial/industrial component is calculated similarly.
  - ii. For the programs offered by the NH Electric Utilities, the actual lifetime kWh savings for the residential sector programs must be 65% or greater than the predicted lifetime kWh savings. If not, there is no incentive associated with the kWh savings performance metric. The commercial/industrial component is calculated similarly.
  - iii. For the programs offered by the NH Gas Utilities, the actual lifetime MMBTU savings for the residential sector programs must be 65% or greater than the predicted lifetime MMBTU savings. If not, there is no incentive associated with the MMBTU savings performance metric. The commercial/industrial component is calculated similarly.
- D. The NH Electric Utilities and the NH Gas Utilities may exceed the approved residential and commercial/industrial sector budgets which include all sources of funding and do not include the performance incentive by up to 5% without further review or approval by the Commission. A utility may apply for permission to exceed the 5% cap demonstrating good reasons why the cap should be exceeded for the program year.

Performance Incentive Budget

A portion of each utility’s budget is set aside for the PI, as defined in the Energy Efficiency Working Group Report dated July 6, 1999 in DR 96-150 (page 21, part 3f).<sup>1</sup>

Each NH Electric Utility budgets for a 7.5% PI as follows:

Electric Utility PI Budget  
 $PI = 7.5\% \times [BUDGET_{TOT} - PI]$   
 $PI = 0.069767 \times BUDGET_{TOT}$

Each NH Gas Utility budgets for an 8.0% PI as follows:

Gas Utility PI Budget  
 $PI = 8.0\% \times [BUDGET_{TOT} - PI]$   
 $PI = 0.074074 \times BUDGET_{TOT}$

Where:

**PI** = Performance incentive in dollars

**BUDGET<sub>TOT</sub>** = Total budget in dollars, including the performance incentive

Smart Start Program Performance Incentive

PSNH’s Smart Start Program performance incentive is 6% of the loans repaid.

Benefit-to-Cost Ratio Avoided Costs and Assumptions

Refer to Attachment C for information on avoided costs and assumptions used to calculate the benefit-to-cost ratios.

---

<sup>1</sup> “For incentive calculation purposes only, planned energy efficiency budget is defined as the total program budget minus performance incentives...”

Performance Incentive Calculations

Attachments D, DG, E, F, G and GG present each utility's calculations for cost effectiveness, performance incentive, planned benefit-to-cost ratios and planned energy savings for each program.

# NH SAVES

*we all win*



## V. ATTACHMENTS

### Attachment A: Home Energy Assistance Program Implementation Plan

#### Project Timeline

While each customer situation may be different, the CAAs will make every effort to contact a customer within two weeks of the time the customer is assigned and to work with the customer to conduct all necessary audits within four weeks, and to complete the installation of all approved measures within eight weeks. The following illustrates the typical project timeline.

<b>Task</b>	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4</b>	<b>Week 5</b>	<b>Week 6</b>	<b>Week 7</b>	<b>Week 8</b>
Schedule Audit								
Conduct Audit								
Transmit Data To OEP/Utility								
Provide Services								

#### Implementation Targets:

Initial Contact Customer: 2 weeks  
 Lead Assignment to Invoice Submittal: 8 weeks (on average)  
 Up to 10 weeks (with exceptional conditions)  
 Over 10 weeks – CAAs must submit customer specific documentation explaining the reason(s) for the extended timeline. No case should exceed 12 weeks.

#### Program Outline

##### 1. Customer Intake

*This step produces a prioritized list of eligible customers from the combined intake efforts of the Wxn and CORE programs. Eligibility for CORE includes customers who meet the eligibility criteria for participation in the Electric Assistance Program, the Fuel Assistance Program, the DOE Weatherization Program or anyone living in subsidized housing. Customers who are eligible for DOE Weatherization and who authorize any required data sharing between their Utility and CAA, will be eligible for funding from both programs. See the Customer Intake Process diagram below for additional detail.*

- a) Direct inquiries to Utilities from customers not participating in the EAP
  - i. Customers accepted based on (first priority) electric heat and (second priority) high usage
  - ii. Customer's eligibility is verified by CAA.
  - iii. Customer is notified of eligibility outcome.
- b) Weatherization Program Customers (CAA Marketing)
  - i. Customers are prioritized in accordance with DOE Wxn Program rules (e.g. elderly, young children, persons with disabilities, households with high energy burden), and as needed, to meet CORE prioritization requirements described in Section (a)(i) above.
  - ii. Customers will be given an opportunity to request services from both Wxn and the CORE energy efficiency program and authorize required data sharing.

##### 2. Work Scheduling

*In this step eligible customers are assigned to a CAA, and an audit is scheduled. Every effort*

*will be made to contact the customer within a two week period to schedule the audit at a mutually agreeable time.*

- a) Utility assigns jobs to CAA. Alternatively, Utility may request CAAs to develop leads from the Wxn waiting list.
- b) CAA prescreens customer (e.g. electric heat? high use? still at this address?, previously served? any remaining opportunities? Etc.)
- c) Utility assigns all customers who will receive CORE program services and who pass the prescreen regardless of how they were brought into the program (EAP list, direct inquiry, and Wxn customers). [*Note: Based on field experience, this step may be moved to a point after the audit if it can simplify overall implementation of the program.*]
- d) CAA schedules audit within two weeks of job assignment.
- e) CAA notifies Utility of audit schedule date.
- f) If audit is not scheduled within two weeks, Utility may elect to reassign job to another CAA or a non-CAA contractor, approved by the Utility and trained in low income program delivery.

### 3. Conduct Audit

*In this step the CAA will conduct all necessary home audits as detailed below, the initial blower door and combustion air zone testing as appropriate, and provide the customer and the Utility with their report. The home visit is typically completed within four weeks of assigning the job; report distribution may take longer as noted below.*

- a) The audit software creates a list of cost effective measures to install. The Utility also provides a list of predetermined cost effective measures to install which will identify measures such as refrigerator replacements, CFLs, etc.
- b) Auditors will also identify any health and safety items and/or customer education that need to be addressed.
- c) The auditor will review the preliminary audit results with the customer and/or landlord, and if appropriate, seek written customer approval to provide weatherization services.
- d) Audit data is sent electronically to Utility within six weeks of the time the job is assigned.
- e) During the home visit, the CAA auditor identifies energy saving actions the customer can take and provides appropriate educational materials.
- f) A report is provided to customer/landlord within two weeks of the home visit and details the list of proposed services to be provided.

### 4. Provide Services

*This step includes the installation of measures, continuing customer education, the inspection of all completed work, customer signoff, and invoicing.*

- a) All services, final inspections, and invoicing will typically be completed within eight weeks of authorization to provide services.
- b) CAA conducts final inspection on all jobs. Final inspection includes:
  - i. Post-completion blower door and combustion air zone test
  - ii. Review of all work completed by subcontractors to ensure compliance with program specifications

- c) CAA delivers education component of program including:
  - i. Energy efficiency materials (as appropriate, may be covered in step 3.f above)
  - ii. Review the “as installed” measures and audit report with the customer/landlord
- d) Obtain customer/landlord acknowledgement and approval of the services provided.
- e) When job (including Final Inspection) is complete, CAA electronically sends job completion report and invoice to Office of Energy & Planning (OEP) and Utility as appropriate.
- f) A customer satisfaction survey is mailed to the customer; survey results are shared by the Utility and OEP as appropriate.

5. Quality Assurance

*This step provides overall assurance that services are delivered in compliance with all program requirements.*

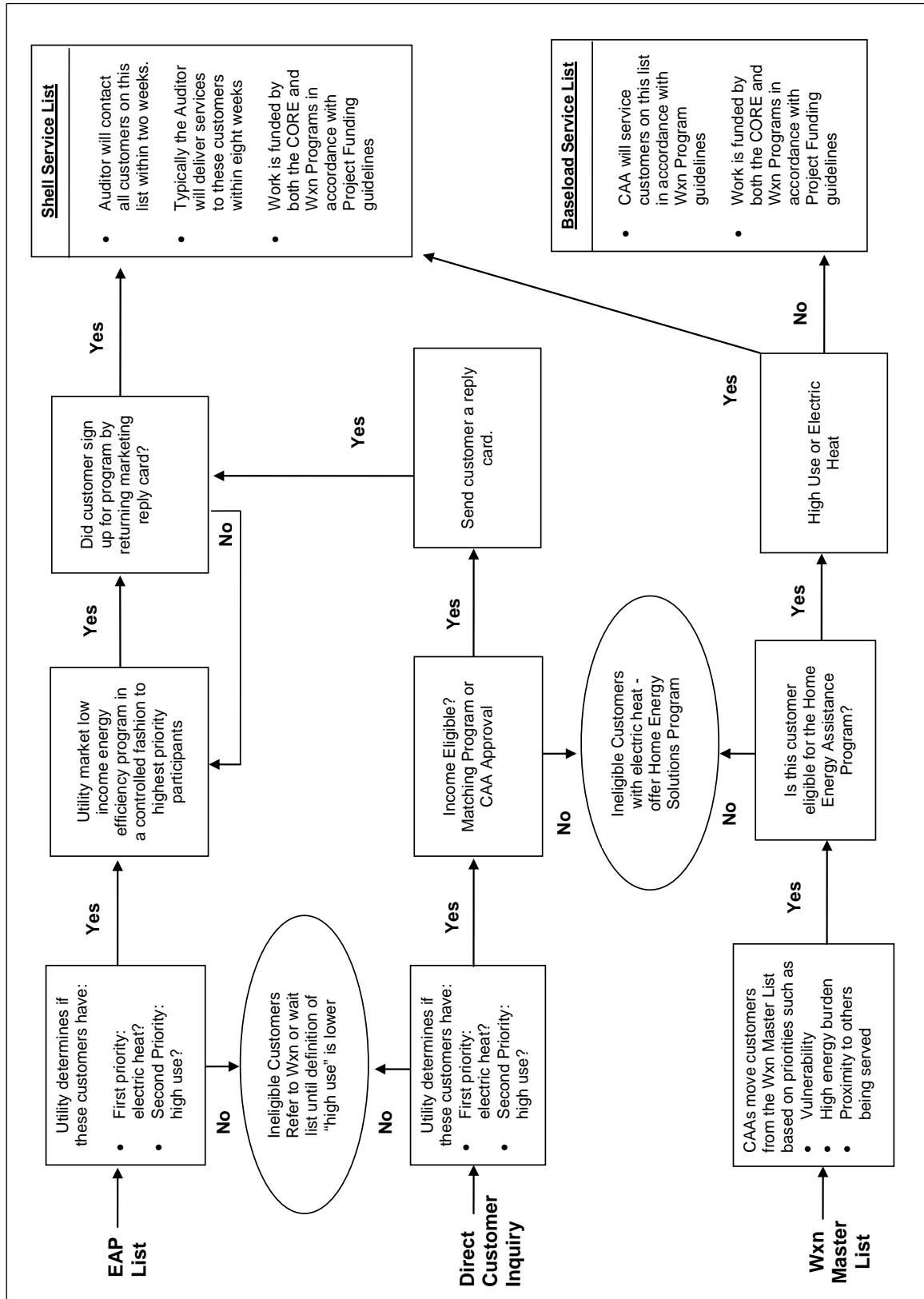
- a) To ensure compliance with federal auditing requirements, OEP personnel will inspect a sampling of all jobs receiving Wxn funding. The Utilities will coordinate their QA activity with OEP when possible to avoid duplicate inspections of the same premise.
- b) QA will typically be conducted on a minimum of 10% of all jobs – more as deemed necessary.

6. Job Closeout

*This step includes follow-up on any customer concerns and invoice payment.*

- a) Follow-up on any call back or QA concerns before processing invoices for payment.
- b) Review and pay CAA invoices. Check for errors such as “double billing.”
- c) Process Customer Satisfaction Surveys.

# Customer Intake Process



## **Project Funding**

Measures will be funded based on the table below. The current program “cap” is \$8,000 for the CORE low income Home Energy Assistance Program.

<b>Measure Description</b>	<b>Funding Source</b>	
	<b>Shell</b>	<b>Baseload</b>
Health & Safety	CORE/DOE	DOE
Repair/Replace Non-electric Heating System	CORE/DOE	DOE
Refrigerator	CORE	CORE
Lighting	CORE	CORE
Weatherization Services	CORE/DOE	DOE
Repair/Replace Electric Heating System & Controls	CORE	CORE
<i>Additional Measures As They Are Defined</i>	<i>To Be Determined</i>	<i>To Be Determined</i>

## **CORE Program Auditor Training**

All program auditors will be trained in the following areas. Training will be coordinated with utilities, OEP, and software vendor(s) to insure continuity, efficiency and consistency:

- a) Sensitivity to low income customer’s needs and guidelines for safe professional behavior in the low income community
- b) Health and safety protocols related to Wxn will be reviewed and emphasized
- c) Health and safety elements relating to appliances will be covered in depth
- d) In-depth appliance diagnostics training
- e) Training on customer education including how adults learn and how best to motivate customers to conserve.
- f) Elements (b) through (e) must be coordinated with appliance software training and must thoroughly address the elements in the Customer Education Specifics Chart.
- g) Auditing software and the process for communicating data to the Utilities.

The training will be offered as needed to accommodate new staff and changing program requirements. Costs for training may be shared between OEP and the Utilities.

## **Training For Customer Service Representatives**

Utility Customer Service Representatives will be trained to handle customer inquires regarding the CORE/Wxn program as well as other related programs designed to assist low income customers such as the Electric Assistance Program, the Fuel Assistance Program, and winter protections.

## **Low Income Customer Education and Training**

Customer education will include a review of the customer’s energy usage, and ways to reduce the energy usage. The auditor will discuss advantages of efficient lighting and appliances as well as life style changes that could reduce energy usage. The auditor will also discuss the weatherization opportunities in the customer’s home. The *Energy Savers Booklet, Tips on Saving Energy & Money at Home* , will be provided to all program participants.



## **Capacity Planning**

The tables on the next page depict (1) the Quarterly Production Schedule for each Utility and (2) the year end Job Distribution By County and By Utility.

The Utilities are committed to working with OEP and the CAAs to ensure there are sufficient qualified CAA personnel to meet program goals. If problems develop, the Utilities will address them with the CAAs and OEP before reassigning work to non-CAA contractors. It is understood that OEP cannot reimburse non-DOE approved subgrantees, and this must be taken into account in any work reassignment plan. For example, this would create significant problems in reassigning work that is already in progress. As such, to the extent non-CAA contractors were required to meet program goals, they would likely be given work that had not yet been assigned.

## **Maximizing Potential Benefits To Income Eligible Customers**

The fundamental principle underlying the collaboration with the Community Action Agencies (CAAs) is that by working together, it will be possible to bring more services to more low income customers. As detailed in the Project Funding Table above, both Shell and Baseload jobs will be jointly funded by CORE and DOE dollars for all jobs implemented by the CAAs. The following table details the quarterly production schedule as well as the annual distribution of jobs by county and utility.

## 2015 HEA Quarterly Production Schedule

Utility	Total Jobs	1st. Qtr. 18%	2nd. Qtr. 31%	3rd. Qtr. 34%	4th. Qtr. 17%
LU-Electric	46	7	11	17	11
NHEC	29	6	10	11	2
PSNH	280	54	90	93	43
Unitil	39	6	14	14	5
LU-Gas	324	58	99	106	61
Northern Utilities	45	8	13	15	9
<b>TOTAL Electric</b>	<b>394</b>	<b>73</b>	<b>125</b>	<b>135</b>	<b>61</b>
<b>TOTAL Gas</b>	<b>369</b>	<b>66</b>	<b>112</b>	<b>121</b>	<b>70</b>
<b>Cumulative TOTAL</b>		139	376	632	763

## 2015 HEA Job Distribution By County and By Utility

BY COUNTY	LU-Electric	NHEC	PSNH	Unitil	LU-Gas	Northern Utilities	Grand Total
Belknap		5	32		39		76
Carroll		3	17				20
Cheshire	8		9				17
Coos		2	18		0		20
Grafton	16	10	11				37
Hillsborough	7		115		245		367
Merrimack		3	26	25	34		88
Rockingham	8	3	28	14	6	29	88
Strafford		0	14			16	30
Sullivan	7	3	10				20
Program Totals	46	29	280	39	324	45	763

Note: Quarterly numbers are benchmarks and not meant to be used to evaluate production on a monthly basis.

## 2016 HEA Quarterly Production Schedule

Utility	Total Jobs	1st. Qtr. 19%	2nd. Qtr. 31%	3rd. Qtr. 34%	4th. Qtr. 16%
LU-Electric	29	5	6	11	7
NHEC	28	6	9	11	2
PSNH	257	54	89	82	32
Unitil	35	6	10	14	5
LU-Gas	334	58	99	116	61
Northern Utilities	45	8	13	15	9
<b>TOTAL Electric</b>	<b>349</b>	<b>71</b>	<b>114</b>	<b>118</b>	<b>46</b>
<b>TOTAL Gas</b>	<b>379</b>	<b>66</b>	<b>112</b>	<b>131</b>	<b>70</b>
<b>Cumulative TOTAL</b>		<b>137</b>	<b>363</b>	<b>612</b>	<b>728</b>

## 2016 HEA Job Distribution By County and By Utility

BY COUNTY	LU-Electric	NHEC	PSNH	Unitil	LU-Gas	Northern Utilities	Grand Total
Belknap		5	29		41		75
Carroll		3	16				19
Cheshire	5		8				13
Coos		2	17		0		19
Grafton	10	9	10				29
Hillsborough	5		106		250		361
Merrimack		3	24	22	36		85
Rockingham	5	3	25	13	7	29	82
Strafford		0	13			16	29
Sullivan	4	3	9				16
Program Totals	29	28	257	35	334	45	728

Note: Quarterly numbers are benchmarks and not meant to be used to evaluate production on a monthly basis.

## **Attachment B: Completed Monitoring & Evaluation Studies**

### **Evaluation Studies Completed since 2000**

1. Hagler Bailly, Inc., 1999 Commercial & Industrial Free Rider Study, June 20, 2000.
2. RER, 1999 Energy Initiative Lighting Program Impact Evaluation, June 20, 2000.
3. RLW Analytics, Inc., Energy Initiative and Small C&I Programs Indoor Prescriptive Lighting Impact Study, June 19, 2000.
4. Michael P. Gallaher, Stephen A. Johnston, Laura J. Bloch, Research Triangle Institute Center for Economics Research, Small Commercial and Industrial Program Evaluation, June 2000.
5. RLW Analytics, Sample Design for the 1999 Custom Evaluation Studies Final Report, February 16, 2000.
6. RLW Analytics, Impact Evaluation analysis of the 1999 Custom Program Final Report, June 28, 2000.
7. SBW Consulting, Inc., Impact Evaluation Study of 1999 Custom Industrial Process Installations, June 1, 2000.
8. DMI, Impact Evaluation of 1999 Custom Industrial Process Installations, June 8, 2000.
9. Michael Ketcham, David Wortman, PE, Wortman Engineering, Impact Evaluation Study of 1999 Custom O&M Installations, June 7, 2000.
10. Michael Ketcham, David Wortman, PE, Wortman Engineering, Impact Evaluation Study of 1998 Custom Comprehensive Installations, February 24, 2000.
11. RER, Multifamily EnergyWise Program Impact Evaluation, July 2000.
12. quantec LLC, Impact Evaluation: Single-Family EnergyWise Program, July 10, 2000.
13. RLW Analytics, ENERGY STAR Market Update FINAL REPORT, June 28, 2000.
14. Easton Consultants, Inc., and Xenergy, Inc., Northeast Premium Motor Initiative Market Baseline and Transformation Assessment Final Report, August 17, 1999.
15. Aspen Systems Corporation, Final Report The Compressed Air Systems Market Assessment and Baseline Study for New England, January 7, 2000.
16. RLW Analytics, Commercial & Industrial O&M Market Segment Baseline Study Final Report, July 1999.
17. PA Consulting Group, National Grid 2000 Commercial and Industrial Free-Ridership and Spillover Study, August 24, 2001.
18. RLW Analytics, Sample Design for the 2000 Custom Evaluation Studies, July 19, 2001.
19. RLW Analytics, Impact Evaluation Analysis of the 2000 Custom Program Executive Summary, July 23, 2001.
20. HEC, Inc., Impact Evaluation Study of 1999 Custom HVAC Installations, December 8, 2000.
21. Science Applications International Corporation, 2000 Custom Lighting Impact Evaluation Executive Summary, July 17, 2001.
22. Xenergy, Inc., Compact Fluorescent Toirchiere Impact Evaluation Executive Summary, August 17, 2001.
23. PA Consulting Group, National Grid 2001 Commercial and Industrial Free-ridership and Spillover Study, July 2, 2002.
24. Shon Krale, Ph.D., Lauren Miller, Heather Williams, M. Sami Khawaja Ph.D., Quantec, LLC, Impact Evaluation: Energy Initiative Prescriptive Lighting, 2000 – 2001, June 25, 2002.

25. Michael P. Gallaher, Stephen A. Johnston, Andrea Goesele, RTI Health, Social, and Economics Research, Small Commercial and Industrial Program Evaluation, June 2002.
26. Regional Economic Research, Inc. (RER), Impact Evaluation of the 2001 Multifamily Energy Wise Program, June 21, 2002.
27. Ebu Alpay, Scott Dimetrosky, Ken Seiden, Ph.D., Quantec, LLC, Impact Evaluation of the 2001 Appliance Management Program, July 1, 2002.
28. Bruce Harley, Conservation Service Croup, Inc., Energy Consumption Analysis of the ENERGY STAR Homes Program, June 15, 2002.
29. Select Energy Services, Inc., Evaluation of 2000 Custom Process Installations – Part I, June 26, 2002.
30. DMI, Final Report for National Grid USA Service Company Evaluation of 2000 Custom Process Installations-Part II, June 26, 2002.
31. SBW Consulting Inc., Impact Evaluation of 2000 Custom Comprehensive Installation FINAL REPORT, June 27, 2002.
32. RLW Analytics, Impact Evaluation Analysis of the 2001 Custom Program, June 26, 2002.
33. PA Government Services, Inc., National Grid 2002 Commercial and Industrial Free-ridership and Spillover Study, May 30, 2003.
34. RLW Analytics, Design 2000plus Lighting Hours of Use and Load Shape Measurement Executive Summary, May 30, 2003.
35. RLW Analytics, Sample Design for the 2002 Custom Evaluation Studies, July 2, 2003.
36. SBW Consulting, Inc., Evaluation of 2001 Custom Process Installations – Part I FINAL REPORT, June 23, 2003.
37. DMI, Evaluation of 2001 Custom Process Installations – Part II, June 27, 2003.
38. Select Energy Services, Inc., Evaluation of 2001 Custom Process Installations – Part III Compressed Air, June 30, 2003.
39. Select Energy Service, Inc., Evaluation of 2001 Custom HVAC Installations, July 9, 2003.
40. RLW Analytics, Impact Evaluation Analysis of the 2002 Custom Program, July 2, 2003.
41. Jane S. Peters, Ph.D., Marjorie R. McRae, Ph.D., Jessica B. Letteney, Research Into Action, Inc. and Tom Rooney, P.E. GDS Associates, Inc., Evaluation of the Building Operator Training and Certification (BOC) Program in the Northeast, September 6, 2002.
42. Energy & Resource Solutions (ERS), Final Report prepared for the New Hampshire Commercial & Industrial New Construction Program Baseline Evaluation for the NH Monitoring and Evaluation Team, June 2003.
43. Nexus Market Research, Inc., Dorothy Conant, Shel Felman Management Consulting, GDS Associates, Inc., Megdal & Associates, Evaluation of the New Hampshire ENERGY STAR® Homes Program Volume 1 Findings and Analysis, March 2003.
44. RLW Analytics, Sample Design for the 2003 Custom Evaluation Studies, February 20, 2004.
45. Select Energy Services, Inc., Evaluation of 2002 Custom Process Installations – Part I, July 15, 2004.
46. DMI, Evaluation of 2002 Custom Process Installations Part II, June 2, 2004.
47. SBW Consulting, Inc., Impact Evaluation Study of 2002 Custom Process Installations Part III FINAL REPORT, July 16, 2004.

48. Science Applications International Corporation, National Grid USA Service Company Impact Evaluation of 2002 Custom Comprehensive Projects Final Report, June 8, 2004.
49. Science Applications International Corporation, Impact Evaluation of 2002 Custom Lighting Installations Final Report, July 15, 2004.
50. RLW Analytics, Impact Evaluation Analysis of the 2003 Custom Program, July 23, 2004.
51. Summit Blue Consulting, Billing Analysis of the Small Business Services Program Final Report, June 7, 2004.
52. RLW Analytics, 2003 Multiple Small Business Lighting Retrofit Program Impact Evaluation Final Report, June 2004.
53. RLW Analytics, National Grid 2003 Energy Initiative "EI" Program Lighting Impact Evaluation FINAL Report, June 2004.
54. RLW Analytics, Inc., Impact Evaluation of a Unitary HVAC Tune-Up Program Final Report – Executive Summary, June 14, 2004.
55. Nexus Market Research, Inc., Dorothy Conant, Shel Feldman Management Consulting, Scoping Study on Market Penetration Tracking of Energy-Efficient Motors and Packaged HVAC Systems in New England and New York, August 8, 2003.
56. Megdal & Associates with Opinion Dynamics Corporation, 2004 Commercial and Industrial Programs Free-Ridership and Spillover Study Executive Summary of National Grid Results Final Report, October 21, 2005.
57. Summit Blue Consulting, Impact Analysis of the 2004 Energy Initiative Program Final Report, July 26, 2005.
58. RLW Analytics, Sample Design and Impact Evaluation Analysis of the 2004 Custom Program, October 26, 2004.
59. Select Energy Services, Inc., Final Report for National Grid USA Service Company Evaluation of 2003 Custom Process Installations – Part I, August 24, 2005.
60. DMI, Evaluation of 2003 Custom Process Installations Part II, October 3, 2005.
61. DMI, Evaluation of 2003 Custom HVAC Installations Part I, October 12, 2005.
62. Select Energy Services, Inc., Final Report for National Grid USA Service Company Evaluation of 2003 Custom HVAC Installations – Part II, September 27, 2005.
63. RLW Analytics, Inc., National Grid USA Custom Lighting Impact Study Executive Summary 2004 energy Initiative and Design 2000plus Program, August 25, 2005.
64. PA Government Services Inc., National Grid USA Process Evaluation of 2004 Targeted Demand Response Program, June 30, 2005.
65. RLW Analytics, Impact and Process Evaluation Building Operator Training and Certification (BOC) Program Final Report, June 2005.
66. PA Consulting Group, 2005 Commercial and Industrial Programs Free-ridership and Spillover Study Revised, August 11, 2006.
67. Demand Management Institute, Prescriptive Variable Frequency Drive Worksheet Development, June 9, 2006.
68. Demand Management Institute, Impact Evaluation of 2004 Compressed Air Prescriptive Rebates, May 15, 2006.
69. RLW Analytics, Sample Design and Impact Evaluation Analysis for Prescriptive Compressed Air Measures in the Energy Initiative and Design 2000 Programs, May 31, 2006.
70. RLW Analytics, Sample Design and Impact Evaluation Analysis of the 2005 Custom Program, July 18, 2006.
71. Demand Management Institute, Impact Evaluation of 2004 Custom Process

- Installations – Part I, June 1, 2006.
72. Select Energy Services, Inc., Evaluation of 2004 Custom Process Installations – Part II, June 19, 2006.
  73. Science Applications Incorporated, Impact Evaluation of 2004 Custom Process Installations – Part III, July 3, 2006.
  74. CDH Energy Corp., Final Report: Field Monitoring the ECR WaterSaver Heat Pump Water Heater, May 2006.
  75. GDS Associates and ENTECH Engineering, Survey of Commercial New Construction Activities in New Hampshire, May 2000
  76. The Cadmus Group, Inc., National Analysis of CEE 2001 ENERGY STAR Household Surveys, August 1, 2002
  77. NH Electric Utilities, Cost-Effectiveness Model Review and Common Assumptions Assessment, December 23, 2002.
  78. Nexus Market Research, Inc. (and others), Evaluation of the New Hampshire ENERGY STAR Homes Program, March 2003.
  79. GDS Associates, Inc., Process Evaluation of the Pilot “Pay As You Save” (PAYS) Energy Efficiency Program, November 2003
  80. ICF Consulting, Report on Avoided Energy Supply Costs in New England, August 21, 2003.
  81. Energy & Resource Solutions, New Hampshire New Construction Program Baseline Evaluation, June 2003.
  82. RWL Analytics, Inc., New Hampshire Low-Income Retrofit Program Process Evaluation, July 2003.
  83. Nexus Market Research, Inc. and RLW Analytics, Inc., Process and Impact Evaluation of the New Hampshire Residential Lighting Program, November 9, 2003.
  84. Kema-Xenergy Inc (and others), National Awareness of ENERGY STAR for 2003, 2004.
  85. RLW Analytics, New Hampshire Small Business Energy Solutions Program Impact Evaluation, September 2004.
  86. Nexus Market Research, Inc., Report on the Web TV Survey for the New Hampshire ENERGY STAR Appliances Program, January 26, 2005.
  87. ICF Consulting, Avoided Energy Supply Costs in New England, December 23, 2005.
  88. Summit Blue Consulting, LLC, Statewide Impact Evaluation of the 2003 Residential Retrofit Program (Home Energy Solutions Program), February 3, 2005.
  89. Opinion Dynamics Corporation, The New Hampshire Electric Utilities’ Low-Income Retrofit Program – Impact Evaluation, January 16, 2006.
  90. GDS Associates, Inc., Summary Report of the Residential and Commercial & Industrial Building Energy Code Compliance Training Workshops, November 2005.
  91. Kema Inc., National Awareness of ENERGY STAR for 2005 – Analysis of CEE Household Survey, 2005.
  92. Kema Inc., New Hampshire Large Business Retrofit Program Impact Evaluation, May 11, 2006.
  93. Demand Management Institute, Impact Evaluation of 2004 Custom Process Installations - Part I, June 1, 2006.
  94. Select Energy Services, Inc., Evaluation of 2004 Custom Process Installations - Part II, June 19, 2006.
  95. Science Applications Incorporated, Impact Evaluation of 2004 Custom Process Installations - Part III, July 3, 2006.

96. PA Consulting Group, 2005 Commercial and Industrial Programs Free-ridership and Spillover Study Revised, September 1, 2006.
97. PA Consulting Group, National Accounts Study: Customer Energy Efficiency Equipment Decision Making Process and Standard Practice, September 8, 2006.
98. Energy & Resource Solutions, Inc., Market Research Report of High Performance T8 Commercial Lighting Technology, June 2006.
99. Synapse Energy Economics, Inc., Avoided Energy Supply Costs in New England: 2007 Final Report, August 2007.
100. ICF Consulting, PSNH Avoided Transmission & Distribution Costs, September 2007.
101. RLW Analytics, Inc., National Grid Lighting Controls Impact Evaluation, Final Report, 2005 Energy Initiative, Design 2000plus and Small Business Services Programs, June 4, 2007.
102. RLW Analytics, Inc., Sample Design and Impact Evaluation of the 2006 Custom Program, July 20, 2007.
103. Demand Management Institute, Impact Evaluation of 2005 Custom Process Installations – Part I, June 5, 2007.
104. UTS Energy Engineering, LLC, Impact Evaluation of 2005 Custom Process Installations – Part II, June 19, 2007.
105. GDS Associates, Inc., Impact Evaluation of 2005 Custom Process Installations – Part III, July 11, 2007.
106. RLW Analytics, Inc., Impact Evaluation Study of 2006 Custom Lighting Installations, July 5, 2007.
107. RLW Analytics, Inc., Small Business Services Custom Measure Impact Evaluation, March 23, 2007.
108. RLW Analytics, Inc., Impact Evaluation Analysis of the 2005 Custom SBS Program, May 29, 2007.
109. PA Consulting Group, *2007 Commercial and Industrial Programs Free-ridership and Spillover Study*, June 23, 2008.
110. RLW Analytics, Inc., *Sample Design and Impact Evaluation Analysis of the 2007 Custom Program*, July 20, 2008.
111. Demand Management Institute, *Impact Evaluation of 2006 Custom Process Installations – Part I*, May 2, 2008.
112. SBW Consulting, Inc., *Impact Evaluation of 2006 Custom Process Installations – Part II*, June 20, 2008.
113. UTS Energy Engineering, LLC, *Impact Evaluation of 2006 Custom Process Installations – Part III*, June 24, 2008.
114. Demand Management Institute, *Impact Evaluation of 2005 Custom HVAC Installations – Part I*, February 27, 2008.
115. SAIC, *Impact Evaluation of 2005 Custom HVAC Installations – Part II*, July 10, 2008.
116. RLW Analytics, Inc., *Coincidence Factor Study, Residential and Commercial Industrial Lighting Measures*, Spring 2007.
117. RLW Analytics, Inc., *Coincidence Factor Study for Residential Room Air Conditioners*, June 23, 2008.
118. RLW Analytics, Inc., Review of ISO-New England Measurement and Verification Equipment Requirements, June 2008.
119. Michael Ozog, Summit Blue Consulting, LLC, *Large Commercial and Industrial Retrofit Program, Impact Evaluation*, 2007.
120. Michael Ozog, Summit Blue Consulting, LLC, *Multiple Small Business Services*



- Programs, Impact Evaluation, 2007.*
121. Nexus Market Research, Inc., RLW Analytics, Inc., *Residential Lighting Measure Life Study*, June 4, 2008.
  122. RLW Analytics, Inc., *Impact Evaluation of 2006 Custom HVAC Installations - Part I*, October 31, 2008.  
----- 2009 -----
  123. GDS Associates, Inc., *Additional Opportunities for Energy Efficiency in New Hampshire, Final Report* – January 2009.
  124. KEMA, Inc., *Sample Design and Impact Evaluation of 2008 Custom Installations*, July 21, 2009.
  125. Demand Management Institute, *Impact Evaluation of 2007 Custom Process Installations - Part I*, June 17, 2009.
  126. UTS Energy Engineering, LLC., *Impact Evaluation of 2007 Custom Process Installations - Part II*, June 26, 2009.
  127. KEMA, Inc., *Design 2000plus Lighting Hours of Use & Load Shapes Measurement Study*, July 2, 2009.
  128. KEMA, Inc., *National Grid USA 2008 Custom Lighting Impact Evaluation*, June 22, 2009.
  129. Synapse Energy Economics, Inc., *Avoided Energy Supply Costs in New England: 2009 Report*, August 21, 2009.  
----- 2010 -----
  130. KEMA, *End-Use Load Data Update Project final Report Phase 1: Cataloguing Available End-Use and Efficiency Measure Load Data*, September, 2009.
  131. KEMA, Inc., *Sample Design and Impact Evaluation Analysis of 2009 Custom Program*, June 1, 2010.
  132. DMI, *Impact Evaluation of 2008 Custom Process Installations – Part I*, July 1, 2010.
  133. UTS Energy Engineering, LLC., *Impact Evaluation of 2008 Custom Process Installations – Part II*, July 16, 2010.
  134. Sebesta Blomberg, *Impact Evaluation of 2008 Custom Process Installations – Part III*, July 14, 2010.
  135. L&S Energy Services, *Impact Evaluation of 2006 Custom CDA Installations*, July 11, 2010.  
----- 2011 -----
  136. KEMA Inc., *Residential Home Performance with ENERGY STAR Program Review*, June 11, 2011.
  137. Cadmus Group, Inc., *Process and Impact Evaluation of the New Hampshire Home Performance with ENERGY STAR Program (HPwES)*, June 13, 2011.
  138. Synapse Energy Economics, Inc., *Avoided Energy Supply Costs in New England: 2011 Final Report*, July 21, 2011, Amended August 11, 2011.
  139. VEIC, *Independent Study of Energy Policy Issues (in NH)*, September 30, 2011.  
----- 2012 -----
  140. NMR Group, *NH Home Buyer Survey, Final Report* February 16, 2012.
  141. DNV Kema, *New Hampshire CORE Residential ENERGY STAR Lighting Program, Impact and Process Evaluation Report*, June 22, 2012.
  142. DNV Kema, *New Hampshire Small Business Energy Solutions Program, Impact and Process Evaluation*, June 27, 2012.
  143. ERS, *New Hampshire Commercial & Industrial New Equipment & Construction Program, Baseline Evaluation*, September, 2012.

----- 2013 -----

- 144. Cadmus, New Hampshire HVAC Load and Savings Research, April 5, 2013
- 145. Synapse Energy Economics, Inc., Avoided Energy Supply Costs in New England: 2013 Report, July 12, 2013
- 146. Cadmus, WI-FI Programmable Thermostat Pilot Program Evaluation, July 2013

----- 2014 -----

- 147. ERS, New Hampshire Commercial & Industrial New Construction Program Baseline Evaluation for the NH Monitoring and Evaluation Team, March 2014



## ATTACHMENT C: AVOIDED COSTS

### Summary of Avoided Electric Costs

In accordance with Commission Order No. 23,850, in DE 01-057, dated November 29, 2001, the NH Electric Utilities have based their avoided costs on the 2013 *Avoided Energy Supply Costs in New England: 2013 Final Report* (“2013 AESC”). Use of common avoided costs by the utilities ensures that all New Hampshire customers will have access to the same programs and services.

The present value of avoided costs over the life of program measures was calculated using a discount rate of 3.25% and a general inflation rate of 1.00%. The use of the 15% adder to represent non-quantified benefits – including environmental and other benefits as recommended by the Energy Efficiency Working Group, originally authorized by the NHPUC in DR 96-150, Order No. 23,574, dated November 1, 2000, has been discontinued because the 2011 AESC avoided costs include market-based price proxies for power plant emissions of NO<sub>x</sub>, SO<sub>2</sub>, Mercury and CO<sub>2</sub>.

The 2013 AESC avoided costs also include a 9% generic retail adder to account for the expected differential between retail and wholesale market prices. In recognition of diversity among states and utilities in energy service procurement and retail pricing policies, the contractor provided the sponsors the option to remove the adder from the avoided cost data. PSNH and NHEC have concluded that the 2013 AESC forecasted wholesale prices of energy and capacity represent a better approximation to the cost of energy service avoided by their retail customers than the prices which include a 9% increase to the wholesale prices.

## Avoided Transmission and Distribution Costs

In accordance with Commission Order No. 23,850, in DE 01-057, dated November 29, 2001, the NH Electric Utilities have based their avoided transmission and distribution costs on the weighted average of NH utility costs and have escalated them for inflation and put them in 2013 dollars. Use of common avoided costs by the utilities ensures that all New Hampshire customers will have access to the same programs and services.

The following table also includes an adjustment to reduce the energy and capacity line loss multipliers by the estimated losses that are accounted for in the 2013 forecast of energy prices.

Marginal T&D Costs and Line Loss Factors (\$2013)								
	<u>MDC (\$/kW-yr)</u>		<u>MTC</u>	<b>Line Loss Multipliers</b>				
	<u>Res.(1)</u>	<u>C&amp;I(2)</u>		<u>Transmission</u>	Summer	Winter	On-Peak	Off-Peak
			<u>(\$/kW-yr)</u>	<u>Capacity</u>	<u>Capacity</u>	<u>Capacity</u>	<u>Energy</u>	<u>Energy</u>
NHEC	\$136.16	\$136.16	\$111.75	1.0207	1.0916	1.0916	1.0916	1.0916
Liberty	\$120.49	\$87.69	\$50.38	1.1220	1.1500	1.1350	1.0630	1.0890
PSNH	\$66.26	\$66.26	\$4.07	1.0000	1.0820	1.0820	1.0820	1.0840
Unitil	\$77.24	\$77.24	\$30.68	1.0000	1.1217	1.1217	1.1217	1.0152
MWh Sales to Ultimate Customers in 2013								
NHEC	766,884	7.06%						
Liberty	932,945	8.58%						
PSNH	7,937,889	73.04%						
Unitil	<u>1,230,461</u>	<u>11.32%</u>						
Total	10,868,179	100.00%						
Weighted Average Marginal T&D Costs and Line Loss Factors (Energy Line Loss Multipliers have been reduced by estimated transmission losses.)								
	<u>MDC (\$/kW-yr)</u>		<u>MTC</u>	<b>Line Loss Multipliers</b>				
	<u>Res.(1)</u>	<u>C&amp;I(2)</u>		<u>Transmission</u>	Summer	Winter	On-Peak	Off-Peak
			<u>(\$/kW-yr)</u>	<u>Capacity</u>	<u>Capacity</u>	<u>Capacity</u>	<u>Energy</u>	<u>Energy</u>
2013\$	\$77.09	\$74.27	\$18.66	1.012	1.077	1.076	1.062	1.053

**Program Cost-Effectiveness - 2015 PLAN**

	Total Resource Benefit/Cost Ratio	Present Value									
		Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
<b>Residential Programs</b>											
ENERGY STAR Homes	5.37	\$ 789.3	\$ 129.9	\$ 17.3	43.0	952.9	13.1	10.9	38	1,186.9	29,561.7
Home Performance with ENERGY STAR	1.55	\$ 719.7	\$ 267.8	\$ 196.3	24.7	434.4	13.0	6.6	49	1,394.3	29,050.4
ENERGY STAR Products <sup>1</sup>	3.06	\$ 1,769.5	\$ 413.9	\$ 163.8	1,694.3	22,261.6	485.5	189.9	15,185	142.9	1,571.7
Home Energy Assistance	1.37	\$ 636.5	\$ 465.5	\$ -	53.4	660.1	6.9	5.4	46	1,242.7	26,130.3
ISO NE FCM - Residential	0.00	\$ -	\$ 6.0	\$ -	-	-	-	-	-	-	-
<b>Subtotal Residential</b>	<b>2.36</b>	<b>\$ 3,915.1</b>	<b>\$ 1,283.1</b>	<b>\$ 377.3</b>	<b>1,815.4</b>	<b>24,309.1</b>	<b>518.6</b>	<b>212.8</b>	<b>15,318</b>	<b>3,966.8</b>	<b>86,314.1</b>
<b>Commercial/Industrial Programs</b>											
Large Business	1.17	\$ 2,470.3	\$ 986.5	\$ 1,118.0	2,119.4	28,400.5	311.5	375.8	27	-	-
Small Business	1.16	\$ 1,351.2	\$ 539.5	\$ 629.4	1,097.9	14,673.3	167.9	224.3	99	-	-
C&I Education	0.00	\$ -	\$ 15.4	\$ -	-	-	-	-	-	-	-
Municipal	1.46	\$ 514.6	\$ 168.8	\$ 183.6	387.5	5,129.0	61.0	60.9	46	167.5	4,069.8
ISO NE FCM - C&I	0.00	\$ -	\$ 14.0	\$ -	-	-	-	-	-	-	-
<b>Subtotal C&amp;I</b>	<b>1.19</b>	<b>\$ 4,336.2</b>	<b>\$ 1,724.2</b>	<b>\$ 1,931.0</b>	<b>3,604.8</b>	<b>48,202.8</b>	<b>540.4</b>	<b>660.9</b>	<b>172</b>	<b>167.5</b>	<b>4,069.8</b>
<b>Total</b>	<b>1.55</b>	<b>\$ 8,251.2</b>	<b>\$ 3,007.3</b>	<b>\$ 2,308.3</b>	<b>5,420.2</b>	<b>72,511.9</b>	<b>1,059.0</b>	<b>873.8</b>	<b>15,490</b>	<b>4,134.3</b>	<b>90,383.9</b>

Note 1: Plan includes 14,161 customers purchasing a total of 56,645 Energy Star lighting products (estimated at 4/customer) and 1,024 Energy Star appliances.

<b>Annual kWh Savings</b>	5,420,202	<b>82% kWh &gt; 55%</b>
<b>Annual MMBTU Savings (in kWh)</b>	1,211,689	18%
<b>Total Annual Energy Savings</b>	6,631,891	100%

<b>Lifetime kWh Savings</b>	72,511,851	<b>73% kWh &gt; 55%</b>
<b>Lifetime MMBTU Savings (in kWh)</b>	26,489,995	27%
<b>Total Lifetime Energy Savings</b>	99,001,846	100%

Present Value Benefits - 2015 PLAN

	Total Benefits (\$000)	CAPACITY						ENERGY					
		Summer		Winter		Transmission	Distribution	Winter		Summer		Non Electric	Resource
		Generation	Generation	Generation	Generation			Off Peak	Peak	Off Peak	Peak		
<b>Residential Programs</b>													
ENERGY STAR Homes	\$789	\$24	\$0	\$4	\$16	\$16	\$22	\$8	\$10	\$690			
Home Performance w/Energy Star	\$720	\$4	\$0	\$1	\$3	\$7	\$11	\$3	\$3	\$687			
ENERGY STAR Products	\$1,770	\$217	\$0	\$40	\$162	\$361	\$488	\$175	\$218	\$108			
Home Energy Assistance	\$637	\$6	\$0	\$1	\$4	\$11	\$16	\$4	\$5	\$590			
<b>Subtotal Residential</b>	<b>\$3,915</b>	<b>\$251</b>	<b>\$0</b>	<b>\$46</b>	<b>\$185</b>	<b>\$395</b>	<b>\$537</b>	<b>\$189</b>	<b>\$237</b>	<b>\$2,075</b>			
<b>Commercial/Industrial Programs</b>													
Large Business	\$2,470	\$470,497	\$0	\$85,091	\$343,820	\$0	\$512,224	\$550,593	\$258,185	\$249,887			
Small Business	\$1,351	\$282,663	\$0	\$51,032	\$206,200	\$0	\$264,566	\$284,389	\$133,338	\$129,060			
C&I Education	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Municipal	\$515	\$73,571	\$0	\$13,433	\$54,278	\$0	\$92,376	\$99,305	\$46,537	\$45,053			
<b>Subtotal C&amp;I</b>	<b>\$4,336</b>	<b>\$826,731</b>	<b>\$0</b>	<b>\$149,556</b>	<b>\$604,298</b>	<b>\$0</b>	<b>\$869,166</b>	<b>\$934,287</b>	<b>\$438,060</b>	<b>\$423,999</b>			
<b>Total</b>	<b>\$8,251</b>	<b>\$826,982</b>	<b>\$0</b>	<b>\$149,602</b>	<b>\$604,483</b>	<b>\$395</b>	<b>\$869,703</b>	<b>\$934,477</b>	<b>\$438,296</b>	<b>\$426,075</b>			

**Performance Incentive Calculation  
 2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.15	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	48,202,778	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	31,331,805	
5. Budget	\$1,724,190	
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	<b>\$129,314</b>	
<b>9. Cap (10%)</b>	<b>\$172,419</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	2.23	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	24,309,074	
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	15,800,898	
14. Budget	\$1,283,111	
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	<b>\$96,233</b>	
<b>18. Cap (10%)</b>	<b>\$128,311</b>	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$225,548</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.



**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 4,336	
2. Implementation Expenses	\$ 1,724	
3. Customer Contribution	\$ 1,931	
4. Total Costs Excluding Performance Incentive	\$ 3,655	
5. Benefit/Cost Ratio - C&I Sector	<b>1.19</b>	
6. Benefit/Cost Ratio - C&I Sector including Performance Incentive	<b>1.15</b>	
<b>Residential:</b>		
6. Benefits (Value) From Eligible Programs	\$ 3,915	
7. Implementation Expenses	\$ 1,283	
8. Customer Contribution	\$ 377	
9. Total Costs Excluding Performance Incentive	\$ 1,660	
10. Benefit/Cost Ratio - Residential Sector	<b>2.36</b>	
11. Benefit/Cost Ratio - Residential Sector including Performance Incentive	<b>2.23</b>	

**Actual Lifetime Energy Savings by Sector and Program  
2015**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business	28,400,475	
Small Business	14,673,310	
C&I Education	0	
Municipal	5,128,993	
Total Commercial & Industrial Included for Incentive Calculation	<b>48,202,778</b>	
<b>Residential:</b>		
ENERGY STAR Homes	952,871	
NH Home Performance with ENERGY STAR	434,413	
ENERGY STAR Products	22,261,649	
Home Energy Assistance	660,141	
Total Residential Included for Incentive Calculation	<b>24,309,074</b>	
<b>Total</b>	<b>72,511,851</b>	



**Program Cost-Effectiveness - 2016 PLAN**

	Total Resource Benefit/Cost Ratio	Present Value									
		Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
<b>Residential Programs</b>											
ENERGY STAR Homes	5.41	\$ 520.0	\$ 84.9	\$ 11.3	31.5	708.1	9.7	8.3	25	750.3	18,685.8
NH Home Performance with ENERGY STAR	1.60	\$ 493.6	\$ 175.1	\$ 134.0	18.1	319.1	9.2	4.4	33	934.6	19,508.5
ENERGY STAR Products <sup>1</sup>	3.19	\$ 1,201.8	\$ 270.6	\$ 106.4	1,110.7	14,561.5	317.5	124.4	9,902	88.5	973.0
Home Energy Assistance	1.37	\$ 418.9	\$ 306.3	\$ -	35.8	444.6	4.9	3.4	29	782.5	16,427.3
ISO NE FCM - Residential	0.00	\$ -	\$ 6.0	\$ -	-	-	-	-	-	-	-
<b>Subtotal Residential</b>	<b>2.41</b>	<b>\$ 2,634.3</b>	<b>\$ 842.9</b>	<b>\$ 251.8</b>	<b>1,196.1</b>	<b>16,033.2</b>	<b>341.3</b>	<b>140.5</b>	<b>9,989</b>	<b>2,555.9</b>	<b>55,594.5</b>
<b>Commercial/Industrial Programs</b>											
Large Business	1.30	\$ 1,690.5	\$ 608.7	\$ 689.8	1,387.6	18,593.8	203.9	246.0	18	-	-
Small Business	1.30	\$ 937.9	\$ 332.9	\$ 388.3	730.3	9,757.0	111.8	148.7	66	-	-
C&I Education	0.00	\$ -	\$ 9.5	\$ -	-	-	-	-	-	-	-
Municipal	1.52	\$ 536.0	\$ 168.8	\$ 183.6	387.5	5,129.0	61.0	60.9	47	167.5	4,069.8
ISO NE FCM - C&I	0.00	\$ -	\$ 14.0	\$ -	-	-	-	-	-	-	-
<b>Subtotal C&amp;I</b>	<b>1.32</b>	<b>\$ 3,164.4</b>	<b>\$ 1,133.8</b>	<b>\$ 1,261.7</b>	<b>2,505.4</b>	<b>33,479.8</b>	<b>376.8</b>	<b>455.6</b>	<b>130</b>	<b>167.5</b>	<b>4,069.8</b>
<b>Total</b>	<b>1.66</b>	<b>\$ 5,798.7</b>	<b>\$ 1,976.7</b>	<b>\$ 1,513.5</b>	<b>3,701.4</b>	<b>49,513.0</b>	<b>718.1</b>	<b>596.2</b>	<b>10,120</b>	<b>2,723.3</b>	<b>59,664.3</b>

Note 1: Plan includes 9,902 customers purchasing a total of 37,017 Energy Star lighting products (estimated at 4/customer) and 648 Energy Star appliances.

<b>Annual kWh Savings</b>	3,701,431	<b>82% kWh &gt; 55%</b>
<b>Annual MMBTU Savings (in kWh)</b>	798,165	18%
<b>Total Annual Energy Savings</b>	4,499,597	100%

<b>Lifetime kWh Savings</b>	49,513,005	<b>74% kWh &gt; 55%</b>
<b>Lifetime MMBTU Savings (in kWh)</b>	17,486,593	26%
<b>Total Lifetime Energy Savings</b>	66,999,598	100%

Present Value Benefits - 2016 PLAN

	Total Benefits (\$000)	CAPACITY						ENERGY								
		Summer Generation		Winter Generation		Transmission		Distribution		Winter Peak		Summer Peak		Non Electric Resource		
<b>Residential Programs</b>																
ENERGY STAR Homes	\$520	\$19	\$0	\$3	\$12	\$12	\$17	\$6	\$8	\$12	\$17	\$6	\$8	\$442		
Home Performance w/Energy Star	\$494	\$2	\$0	\$1	\$2	\$2	\$9	\$2	\$2	\$6	\$9	\$2	\$2	\$469		
ENERGY STAR Products	\$1,202	\$153	\$0	\$26	\$107	\$245	\$332	\$120	\$150	\$245	\$332	\$120	\$150	\$68		
Home Energy Assistance	\$419	\$4	\$0	\$1	\$3	\$8	\$12	\$3	\$3	\$8	\$12	\$3	\$3	\$386		
<b>Subtotal Residential</b>	<b>\$2,634</b>	<b>\$179</b>	<b>\$0</b>	<b>\$31</b>	<b>\$124</b>	<b>\$271</b>	<b>\$369</b>	<b>\$131</b>	<b>\$163</b>	<b>\$271</b>	<b>\$369</b>	<b>\$131</b>	<b>\$163</b>	<b>\$1,366</b>		
<b>Commercial/Industrial Programs</b>																
Large Business	\$1,691	\$332,020	\$0	\$56,266	\$227,350	\$0	\$349,220	\$375,138	\$178,500	\$0	\$349,220	\$375,138	\$178,500	\$172,054		
Small Business	\$938	\$201,815	\$0	\$34,160	\$138,029	\$0	\$183,190	\$196,791	\$93,626	\$0	\$183,190	\$196,791	\$93,626	\$90,251		
C&I Education	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Municipal	\$536	\$79,480	\$0	\$13,567	\$54,821	\$0	\$96,199	\$103,350	\$49,152	\$0	\$96,199	\$103,350	\$49,152	\$47,389		
<b>Subtotal C&amp;I</b>	<b>\$3,164</b>	<b>\$613,316</b>	<b>\$0</b>	<b>\$103,994</b>	<b>\$420,200</b>	<b>\$0</b>	<b>\$628,609</b>	<b>\$675,280</b>	<b>\$321,278</b>	<b>\$0</b>	<b>\$628,609</b>	<b>\$675,280</b>	<b>\$321,278</b>	<b>\$309,693</b>		
<b>Total</b>	<b>\$5,799</b>	<b>\$613,495</b>	<b>\$0</b>	<b>\$104,025</b>	<b>\$420,324</b>	<b>\$271</b>	<b>\$628,978</b>	<b>\$675,411</b>	<b>\$321,442</b>	<b>\$271</b>	<b>\$628,978</b>	<b>\$675,411</b>	<b>\$321,442</b>	<b>\$311,060</b>		

**Performance Incentive Calculation  
 2016**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.28	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	33,479,777	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	21,761,855	
5. Budget	\$1,133,800	
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	<b>\$85,035</b>	
<b>9. Cap (10%)</b>	<b>\$113,380</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	2.28	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	16,033,228	
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	10,421,598	
14. Budget	\$842,896	
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	<b>\$63,217</b>	
<b>18. Cap (12%)</b>	<b>\$84,290</b>	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$148,252</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 3,164	
2. Implementation Expenses	\$ 1,134	
3. Customer Contribution	\$ 1,262	
4. Total Costs Excluding Performance Incentive	\$ 2,396	
5. Benefit/Cost Ratio - C&I Sector	<b>1.32</b>	
6. Benefit/Cost Ratio - C&I Sector including Performance Incentive	<b>1.28</b>	
<b>Residential:</b>		
6. Benefits (Value) From Eligible Programs	\$ 2,634	
7. Implementation Expenses	\$ 843	
8. Customer Contribution	\$ 252	
9. Total Costs Excluding Performance Incentive	\$ 1,095	
10. Benefit/Cost Ratio - Residential Sector	<b>2.41</b>	
11. Benefit/Cost Ratio - Residential Sector including Performance Incentive	<b>2.28</b>	

**Actual Lifetime Energy Savings by Sector and Program  
 2016**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business	18,593,791	
Small Business	9,756,993	
C&I Education	0	
Municipal	5,128,993	
Total Commercial & Industrial Included for Incentive Calculation	<b>33,479,777</b>	
<b>Residential:</b>		
ENERGY STAR Homes	708,062	
NH Home Performance with ENERGY STAR	319,129	
ENERGY STAR Products	14,561,477	
Home Energy Assistance	444,560	
Total Residential Included for Incentive Calculation	<b>16,033,228</b>	
<b>Total</b>	<b>49,513,005</b>	





**Total Resource Benefit Cost Analysis**  
 Summary of Benefit, Costs Program Year 2015

BCR Activity	TRC Benefit/ Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.20	\$184	\$1,106	\$921	\$921	\$0	6,651	133,013	324
Home Performance with ENERGY STAR	1.50	\$650	\$1,940	\$1,290	\$730	\$559	11,681	233,624	468
ENERGY STAR Products	1.29	\$429	\$1,908	\$1,479	\$828	\$650	14,006	238,700	1,238
ENERGY STAR Homes	3.12	\$138	\$203	\$65	\$61	\$4	990	24,742	15
Building Practices and Demo	1.38	\$111	\$405	\$294	\$294	\$0	18,440	55,320	25,000
<b>Subtotal: Residential</b>	<b>1.37</b>	<b>\$1,514</b>	<b>\$5,562</b>	<b>\$4,048</b>	<b>\$2,834</b>	<b>\$1,214</b>	<b>51,768</b>	<b>685,399</b>	<b>27,046</b>
<b>Commercial &amp; Industrial</b>									
Large Business	1.37	\$870	\$3,220	\$2,349	\$1,445	\$904	35,112	510,599	166
Small Business	1.85	\$1,282	\$2,784	\$1,502	\$1,033	\$469	19,195	389,617	380
Codes, Audit Training & Education	0.00	(\$15)	\$0	\$15	\$15	\$0	-	-	-
<b>Subtotal: Commercial &amp; Industrial</b>	<b>1.55</b>	<b>\$2,138</b>	<b>\$6,004</b>	<b>\$3,866</b>	<b>\$2,493</b>	<b>\$1,373</b>	<b>54,307</b>	<b>900,217</b>	<b>546</b>
<b>Grand Total</b>	<b>1.46</b>	<b>\$3,651</b>	<b>\$11,566</b>	<b>\$7,914</b>	<b>\$5,327</b>	<b>\$2,587</b>	<b>106,075</b>	<b>1,585,616</b>	<b>27,592</b>

**Performance Incentive Calculation  
 2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Target Benefit/Cost Ratio	1.48	
2. Threshold Benefit/Cost Ratio <sup>1</sup>	1.00	
3. Target Lifetime MMBTU	900,217	
4. Threshold Lifetime MMBTU (65%) <sup>2</sup>	585,141	
5. Budget	\$2,493,010	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime MMBTU Percentage	4.00%	
<b>8. Target C/I Incentive</b>	<b>\$199,441</b>	
<b>9. Cap (12%)</b>	<b>\$299,161</b>	
<b>Residential Incentive</b>		
10. Target Benefit/Cost Ratio	1.30	
11. Threshold Benefit/Cost Ratio <sup>1</sup>	1.00	
12. Target Lifetime MMBTU (65%) <sup>2</sup>	685,399	
13. Threshold MMBTU	445,509	
14. Budget	\$2,833,800	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime MMBTU Percentage	4.00%	
<b>17. Target Residential Incentive</b>	<b>\$226,704</b>	
<b>18. Cap (12%)</b>	<b>\$340,056</b>	
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$426,145</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$6,003,749	
2. Implementation Expenses	\$2,493,010	
3. Customer Contribution	\$1,373,033	
4. Performance Incentive	\$199,441	
5. Total Costs Including Performance Incentive	<b>\$4,065,484</b>	
6. Benefit/Cost Ratio - C&I Sector	<b>1.55</b>	
7. Benefit/Cost Ratio - C&I Sector including PI	<b>1.48</b>	
<b>Residential:</b>		
8. Benefits (Value) From Eligible Programs	\$5,561,911	
9. Implementation Expenses	\$2,833,800	
10. Customer Contribution	\$1,214,331	
11. Performance Incentive	\$226,704	
12. Total Costs Including Performance Incentive	<b>\$4,274,835</b>	
13. Benefit/Cost Ratio - Residential Sector	<b>1.37</b>	
14. Benefit/Cost Ratio - Residential Sector including	<b>1.30</b>	



**Total Resource Benefit Cost Analysis**  
 Summary of Benefit, Costs Program Year 2016

BCR Activity	TRC Benefit/Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.24	\$228	\$1,177	\$949	\$949	\$0	6,852	137,036	334
Home Performance with ENERGY STAR	1.56	\$740	\$2,072	\$1,332	\$754	\$578	12,069	241,382	484
ENERGY STAR Products	1.34	\$505	\$2,011	\$1,505	\$851	\$655	14,258	242,568	1,232
ENERGY STAR Homes	3.22	\$149	\$216	\$67	\$63	\$5	1,019	25,484	16
Building Practices and Demo	1.36	\$108	\$411	\$302	\$302	\$0	18,440	55,320	25,000
<b>Subtotal: Residential</b>	<b>1.42</b>	<b>\$1,731</b>	<b>\$5,887</b>	<b>\$4,156</b>	<b>\$2,919</b>	<b>\$1,237</b>	<b>52,639</b>	<b>701,790</b>	<b>27,066</b>
<b>Commercial &amp; Industrial</b>									
Large Business	1.43	\$1,039	\$3,450	\$2,411	\$1,489	\$923	36,024	528,583	173
Small Business	1.97	\$1,518	\$3,081	\$1,562	\$1,064	\$499	20,718	416,735	417
Codes, Audit Training & Education	0.00	(\$15)	\$0	\$15	\$15	\$0	-	-	-
<b>Subtotal: Commercial &amp; Industrial</b>	<b>1.64</b>	<b>\$2,542</b>	<b>\$6,531</b>	<b>\$3,989</b>	<b>\$2,567</b>	<b>\$1,422</b>	<b>56,741</b>	<b>945,317</b>	<b>589</b>
<b>Grand Total</b>	<b>1.52</b>	<b>\$4,273</b>	<b>\$12,418</b>	<b>\$8,145</b>	<b>\$ 5,486</b>	<b>\$2,659</b>	<b>109,380</b>	<b>1,647,108</b>	<b>27,655</b>

**Performance Incentive Calculation  
 2016**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Target Benefit/Cost Ratio	1.56	
2. Threshold Benefit/Cost Ratio <sup>1</sup>	1.00	
3. Target Lifetime MMBTU	945,317	
4. Threshold Lifetime MMBTU (65%) <sup>2</sup>	614,456	
5. Budget	\$2,567,350	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime MMBTU Percentage	4.00%	
<b>8. Target C/I Incentive</b>	<b>\$205,388</b>	
<b>9. Cap (12%)</b>	<b>\$308,082</b>	
<b>Residential Incentive</b>		
10. Target Benefit/Cost Ratio	1.34	
11. Threshold Benefit/Cost Ratio	1.00	
12. Target lifetime MMBTU	701,790	
13. Threshold MMBTU	456,164	
14. Budget	\$2,918,814	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime MMBTU Percentage	4.00%	
<b>17. Target Residential Incentive</b>	<b>\$233,505</b>	
<b>18. Cap (12%)</b>	<b>\$350,258</b>	
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$438,893</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$6,530,856	
2. Implementation Expenses	\$2,567,350	
3. Customer Contribution	\$1,421,508	
4. Performance Incentive	\$205,388	
5. Total Costs Including Performance Incentive	<b>\$4,194,246</b>	
6. Benefit/Cost Ratio - C&I Sector	<b>1.64</b>	
7. Benefit/Cost Ratio - C&I Sector including PI	<b>1.56</b>	
<b>Residential:</b>		
8. Benefits (Value) From Eligible Programs	\$5,886,907	
9. Implementation Expenses	\$2,918,814	
10. Customer Contribution	\$1,237,076	
11. Performance Incentive	<b>\$233,505</b>	
12. Total Costs Including Performance Incentive	<b>\$4,389,396</b>	
13. Benefit/Cost Ratio - Residential Sector	<b>1.42</b>	
14. Benefit/Cost Ratio - Residential Sector including	<b>1.34</b>	





Program Cost-Effectiveness - 2015 PLAN

	Total Resource Benefit/Cost Ratio	Present Value													
		Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings				
<b>Residential Programs</b>															
Home Energy Assistance	1.71	\$ 436.6	\$ 254.9	\$ -	35.1	559.7	8.9	2.1	29	803.7	16,641.0				
Home Performance w/Energy Star	1.70	\$ 791.5	\$ 272.2	\$ 193.1	38.3	725.8	38.7	19.4	64	1,633.6	32,879.9				
Energy Star Homes	2.63	\$ 669.5	\$ 186.0	\$ 68.4	165.2	4,055.2	42.2	1.0	21	737.6	18,272.5				
Energy Star Products <sup>1</sup>	2.34	\$ 1,001.0	\$ 362.3	\$ 65.6	999.3	9,886.2	415.3	170.5	29,743	364.1	4,005.5				
FCM Reporting		\$ -	\$ 4.5												
<b>Subtotal Residential</b>	<b>2.06</b>	<b>\$ 2,898.5</b>	<b>\$ 1,079.9</b>	<b>\$ 327.0</b>	<b>1,237.9</b>	<b>15,226.9</b>	<b>505.0</b>	<b>193.1</b>	<b>29,857</b>	<b>3,539.0</b>	<b>71,798.9</b>				
<b>Commercial/Industrial Programs</b>															
Large Business Energy Solutions	1.55	\$ 678.1	\$ 189.0	\$ 249.3	639.6	8,330.6	101.6	94.1	28	-	-				
Small Business Energy Solutions	1.94	\$ 526.5	\$ 170.5	\$ 101.0	459.7	5,973.2	51.0	85.1	73	-	-				
Municipal EE Program (per SB123)	1.12	\$ 319.3	\$ 158.4	\$ 127.6	282.0	3,662.1	56.0	31.7	38	84.6	2,115.0				
Other (Education)		\$ -	\$ 30.5	\$ -	-	-	-	-	-	-	-				
FCM Reporting		\$ -	\$ 10.5												
<b>Subtotal C&amp;I</b>	<b>1.47</b>	<b>\$ 1,523.8</b>	<b>\$ 558.9</b>	<b>\$ 477.9</b>	<b>1,381.4</b>	<b>17,965.8</b>	<b>208.7</b>	<b>210.9</b>	<b>139</b>	<b>84.6</b>	<b>2,115.0</b>				
Smart Start		\$ -	\$ 5.0	\$ -	-	-	-	-	-	-	-				
Other		\$ -	\$ -	\$ -	-	-	-	-	-	-	-				
<b>Subtotal Other</b>		<b>\$ -</b>	<b>\$ 5.0</b>	<b>\$ -</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>				
<b>Total</b>	<b>1.81</b>	<b>\$ 4,422.4</b>	<b>\$ 1,643.8</b>	<b>\$ 804.9</b>	<b>2,619.3</b>	<b>33,192.8</b>	<b>713.7</b>	<b>404.0</b>	<b>29,996</b>	<b>3,623.6</b>	<b>73,913.9</b>				

Note 1: Plan includes 878 membersmembers purchasing a total of 27,513 Energy Star lighting products (estimated at 4/member) and 2,230 Energy Star appliances.

Annual kWh Savings	2,619,275	71.2%	kWh > 55%
Annual MMBTU Savings (in kWh)	1,062,012	28.8%	
<b>Total Annual Energy Savings</b>	<b>3,681,287</b>	100.0%	

Lifetime kWh Savings	33,192,755	60.5%	kWh > 55%
Lifetime MMBTU Savings (in kWh)	21,662,932	39.5%	
<b>Total Lifetime Energy Savings</b>	<b>54,855,687</b>	100.0%	

Present Value Benefits - 2015 PLAN

	CAPACITY						ENERGY						Non Electric Resource
	Total Benefits	Summer Generation	Winter Generation	Transmission Distribution	DRIP	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Summer Peak	Summer Off Peak		
<b>Residential Programs</b>													
Home Energy Assistance	\$ 436,581	\$ 2,260	\$ -	\$ 429	\$ 1,734	\$ -	\$ 9,754	\$ 17,939	\$ 1,767	\$ 2,154	\$ 2,154	\$ 400,544	
Home Performance w/Energy Star	\$ 791,494	\$ 5,999	\$ -	\$ 1,732	\$ 6,998	\$ -	\$ 12,830	\$ 24,064	\$ 2,216	\$ 2,534	\$ 2,534	\$ 735,122	
Energy Star Homes	\$ 669,465	\$ 1,573	\$ -	\$ 269	\$ 1,089	\$ -	\$ 75,870	\$ 152,766	\$ 4,376	\$ 5,378	\$ 5,378	\$ 428,144	
Energy Star Products	\$ 1,000,990	\$ 92,768	\$ -	\$ 19,626	\$ 79,303	\$ -	\$ 154,281	\$ 207,326	\$ 75,966	\$ 95,311	\$ 95,311	\$ 276,409	
FCM Reporting													
<b>Subtotal Residential</b>	<b>\$ 2,898,530</b>	<b>\$ 102,599</b>	<b>\$ -</b>	<b>\$ 22,057</b>	<b>\$ 89,123</b>	<b>\$ -</b>	<b>\$ 252,735</b>	<b>\$ 402,095</b>	<b>\$ 84,325</b>	<b>\$ 105,376</b>	<b>\$ 105,376</b>	<b>\$ 1,840,219</b>	
<b>Commercial/Industrial Programs</b>													
Large Business Energy Solutions	\$ 678,084	\$ 112,033	\$ -	\$ 20,540	\$ 82,993	\$ -	\$ 166,309	\$ 183,988	\$ 66,665	\$ 45,556	\$ 45,556	\$ -	
Small Business Energy Solutions	\$ 526,451	\$ 100,913	\$ -	\$ 18,518	\$ 74,826	\$ -	\$ 126,398	\$ 99,939	\$ 61,279	\$ 44,579	\$ 44,579	\$ -	
Municipal EE Program (per SB123)	\$ 319,314	\$ 37,018	\$ -	\$ 6,812	\$ 27,524	\$ -	\$ 74,006	\$ 66,554	\$ 33,668	\$ 28,657	\$ 28,657	\$ 45,076	
Other (Education)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
FCM Reporting													
<b>Subtotal C&amp;I</b>	<b>\$ 1,523,849</b>	<b>\$ 249,964</b>	<b>\$ -</b>	<b>\$ 45,870</b>	<b>\$ 185,342</b>	<b>\$ -</b>	<b>\$ 366,713</b>	<b>\$ 350,480</b>	<b>\$ 161,611</b>	<b>\$ 118,792</b>	<b>\$ 118,792</b>	<b>\$ 45,076</b>	
Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Total</b>	<b>\$ 4,422,379</b>	<b>\$ 352,563</b>	<b>\$ -</b>	<b>\$ 67,927</b>	<b>\$ 274,466</b>	<b>\$ -</b>	<b>\$ 619,448</b>	<b>\$ 752,575</b>	<b>\$ 245,937</b>	<b>\$ 224,168</b>	<b>\$ 224,168</b>	<b>\$ 1,885,295</b>	

**Performance Incentive Calculation**  
 2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>1.41</b>	<b>0.00</b>
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>17,965,847</b>	<b>0</b>
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	11,677,800	
5. Budget	\$558,891	\$0
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	<b>\$41,917</b>	
<b>9. Cap (10%)</b>	<b>\$55,889</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.95</b>	<b>0.00</b>
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>15,226,908</b>	<b>0</b>
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	9,897,490	
14. Budget	\$1,079,882	\$0
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	<b>\$80,991</b>	
<b>18. Cap (10%)</b>	<b>\$107,988</b>	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$122,908</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.

2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 1,523,849	\$ -
2. Implementation Expenses	\$ 558,891	\$ -
3. Customer Contribution	\$ 477,867	\$ -
4. Estimated Performance Incentive	\$ 41,917	\$ -
5. Total Costs (including Performance Incentive)	<u>\$ 1,078,675</u>	<u>\$ -</u>
6. Benefit/Cost Ratio - C&I Sector	<b>1.41</b>	<b>0.00</b>
<b>Residential:</b>		
7. Benefits (Value) From Eligible Programs	\$ 2,898,530	\$ -
8. Implementation Expenses	\$ 1,079,882	\$ -
9. Customer Contribution	\$ 327,042	\$ -
10. Estimated Performance Incentive	\$ 80,991	\$ -
11. Total Costs (including Performance Incentive)	<u>\$ 1,487,915</u>	<u>\$ -</u>
12. Benefit/Cost Ratio - Residential Sector	<b>1.95</b>	<b>0.00</b>

**Actual Lifetime Energy Savings by Sector and Program  
 2015**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business Energy Solutions	8,330,598	0
Small Business Energy Solutions	5,973,166	0
Municipal EE Program (per SB123)	3,662,083	0
Other (Education)	0	0
FCM Reporting	<u>0</u>	<u>0</u>
 Total Commercial & Industrial Included for Incentive Calculation	 <b>17,965,847</b>	 <b>0</b>
<b>Residential:</b>		
Home Energy Assistance	559,659	0
Home Performance w/Energy Star	725,839	0
Energy Star Homes	4,055,244	0
Energy Star Products	9,886,166	0
FCM Reporting	<u>0</u>	<u>0</u>
 Total Residential Included for Incentive Calculation	 <b>15,226,908</b>	 <b>0</b>



**Program Cost-Effectiveness - 2016 PLAN**

Present Value														
	Total Resource Benefit/Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings	Present Value		
												FCM Reporting	Other	
<b>Residential Programs</b>														
Home Energy Assistance	1.75	\$426.4	\$243.2	\$0.0	33.3	531.6	8.5	2.0	28	763.5	15,807.5			
Home Performance w/Energy Star	1.65	\$699.9	\$250.1	\$174.1	33.4	633.4	33.6	17.0	56	1,410.0	28,405.6			
Energy Star Homes	2.61	\$630.2	\$178.1	\$62.9	152.0	3,730.9	38.8	0.9	20	678.6	16,811.2			
Energy Star Products <sup>1</sup>	2.38	\$993.2	\$354.1	\$63.7	969.4	9,584.9	411.7	166.8	29,565	335.0	3,685.2			
FCM Reporting			\$4.5											
<b>Subtotal Residential</b>	<b>2.07</b>	<b>\$2,749.7</b>	<b>\$1,030.0</b>	<b>\$300.7</b>	<b>1,188.2</b>	<b>14,480.9</b>	<b>492.6</b>	<b>186.8</b>	<b>29,669</b>	<b>3,187.1</b>	<b>64,709.4</b>			
<b>Commercial/Industrial Programs</b>														
Large Business Energy Solutions	1.59	\$636.7	\$177.7	\$223.9	574.6	7,483.4	91.2	84.5	25	-	-			
Small Business Energy Solutions	1.98	\$494.7	\$159.2	\$90.7	413.0	5,365.7	45.8	76.4	66	-	-			
Municipal EE Program (per SB123)	1.17	\$335.3	\$158.4	\$127.6	284.2	3,689.7	56.2	31.7	38	84.6	2,115.0			
Other (Education)		\$0.0	\$28.2	\$0.0	0.0	-	-	-	-	-	-			
FCM Reporting			\$10.5											
<b>Subtotal C&amp;I</b>	<b>1.50</b>	<b>\$1,466.7</b>	<b>\$534.0</b>	<b>\$442.2</b>	<b>1,271.7</b>	<b>16,538.8</b>	<b>193.3</b>	<b>192.7</b>	<b>129</b>	<b>84.6</b>	<b>2,115.0</b>			
Smart Start		\$0.0	\$5.0	\$0.0	0.0	-	-	0	-	-	-			
Other		\$0.0	\$0.0	\$0.0	0.0	-	-	0	-	-	-			
<b>Subtotal Other</b>		<b>\$0.0</b>	<b>\$5.0</b>	<b>\$0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Total</b>	<b>1.82</b>	<b>\$4,216.4</b>	<b>\$1,569.0</b>	<b>\$743.0</b>	<b>2,459.9</b>	<b>31,019.7</b>	<b>685.9</b>	<b>379.4</b>	<b>29,798</b>	<b>3,271.7</b>	<b>66,824.4</b>			

Note 1: Plan includes 878 members purchasing a total of 27,513 Energy Star lighting products (estimated at 4/member) and 2,230 Energy Star appliances.

Annual kWh Savings	2,459,899	72.0%	kWh > 55%
Annual MMBTU Savings (in kWh)	958,882	28.0%	
<b>Total Annual Energy Savings</b>	<b>3,418,781</b>	100.0%	

Lifetime kWh Savings	31,019,741	61.3%	kWh > 55%
Lifetime MMBTU Savings (in kWh)	19,585,119	38.7%	
<b>Total Lifetime Energy Savings</b>	<b>50,604,860</b>	100.0%	



Present Value Benefits - 2016 PLAN

	CAPACITY						ENERGY					
	Total Benefits	Summer Generation	Winter Generation	Transmission	Distribution	DRIVE	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Non Electric Resource	
<b>Residential Programs</b>												
Home Energy Assistance	\$ 426,396	\$ 2,341	\$ -	\$ 412	\$ 1,663	\$ -	\$ 9,642	\$ 17,713	\$ 1,773	\$ 2,153	\$ 390,698	
Home Performance w/Energy Star	\$ 699,913	\$ 5,588	\$ -	\$ 1,532	\$ 6,189	\$ -	\$ 11,646	\$ 21,810	\$ 2,039	\$ 2,323	\$ 648,785	
Energy Star Homes	\$ 630,248	\$ 1,540	\$ -	\$ 250	\$ 1,012	\$ -	\$ 72,618	\$ 146,012	\$ 4,229	\$ 5,177	\$ 399,409	
Energy Star Products	\$ 993,184	\$ 98,476	\$ -	\$ 19,180	\$ 77,498	\$ -	\$ 155,634	\$ 208,930	\$ 77,884	\$ 97,354	\$ 258,228	
FCM Reporting												
<b>Subtotal Residential</b>	<b>\$ 2,749,741</b>	<b>\$ 107,945</b>	<b>\$ -</b>	<b>\$ 21,373</b>	<b>\$ 86,362</b>	<b>\$ -</b>	<b>\$ 249,541</b>	<b>\$ 394,465</b>	<b>\$ 85,926</b>	<b>\$ 107,007</b>	<b>\$ 1,697,120</b>	
<b>Commercial/Industrial Programs</b>												
Large Business Energy Solutions	\$ 636,689	\$ 108,829	\$ -	\$ 18,635	\$ 75,298	\$ -	\$ 155,585	\$ 172,022	\$ 63,265	\$ 43,055	\$ -	
Small Business Energy Solutions	\$ 494,717	\$ 98,049	\$ -	\$ 16,801	\$ 67,888	\$ -	\$ 118,248	\$ 93,441	\$ 58,157	\$ 42,132	\$ -	
Municipal EE Program (per SB123)	\$ 335,274	\$ 40,343	\$ -	\$ 6,927	\$ 27,990	\$ -	\$ 77,658	\$ 69,789	\$ 35,841	\$ 30,380	\$ 46,347	
Other (Education)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
FCM Reporting												
<b>Subtotal C&amp;I</b>	<b>\$ 1,466,680</b>	<b>\$ 247,221</b>	<b>\$ -</b>	<b>\$ 42,364</b>	<b>\$ 171,176</b>	<b>\$ -</b>	<b>\$ 351,491</b>	<b>\$ 335,252</b>	<b>\$ 157,262</b>	<b>\$ 115,567</b>	<b>\$ 46,347</b>	
Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
<b>Total</b>	<b>\$ 4,216,421</b>	<b>\$ 355,167</b>	<b>\$ -</b>	<b>\$ 63,737</b>	<b>\$ 257,538</b>	<b>\$ -</b>	<b>\$ 601,031</b>	<b>\$ 729,717</b>	<b>\$ 243,188</b>	<b>\$ 222,575</b>	<b>\$ 1,743,467</b>	

**Performance Incentive Calculation**  
 2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>1.44</b>	<b>0.00</b>
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>16,538,795</b>	<b>0</b>
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	10,750,217	
5. Budget	\$533,998	\$0
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	<b>\$40,050</b>	
<b>9. Cap (10%)</b>	<b>\$53,400</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.95</b>	<b>0.00</b>
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>14,480,945</b>	<b>0</b>
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	9,412,614	
14. Budget	\$1,030,043	\$0
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	<b>\$77,253</b>	
<b>18. Cap (10%)</b>	<b>\$103,004</b>	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$117,303</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.

2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 1,466,680	\$ -
2. Implementation Expenses	\$ 533,998	\$ -
3. Customer Contribution	\$ 442,245	\$ -
4. Estimated Performance Incentive	\$ 40,050	-
5. Total Costs (including Performance Incentive)	\$ 1,016,293	\$ -
6. Benefit/Cost Ratio - C&I Sector	<b>1.44</b>	<b>0.00</b>
<b>Residential:</b>		
7. Benefits (Value) From Eligible Programs	\$ 2,749,741	\$ -
8. Implementation Expenses	\$ 1,030,043	\$ -
9. Customer Contribution	\$ 300,723	\$ -
10. Estimated Performance Incentive	\$ 77,253	-
11. Total Costs (including Performance Incentive)	\$ 1,408,020	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>1.95</b>	<b>0.00</b>

**Actual Lifetime Energy Savings by Sector and Program  
 2016**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business Energy Solutions	7,483,364	0
Small Business Energy Solutions	5,365,687	0
Municipal EE Program (per SB123)	3,689,744	0
Other (Education)	0	0
FCM Reporting	<u>0</u>	<u>0</u>
 Total Commercial & Industrial Included for Incentive Calculation	 <b>16,538,795</b>	 <b>0</b>
<b>Residential:</b>		
Home Energy Assistance	531,626	0
Home Performance w/Energy Star	633,441	0
Energy Star Homes	3,730,938	0
Energy Star Products	9,584,940	0
FCM Reporting	<u>0</u>	<u>0</u>
 Total Residential Included for Incentive Calculation	 <b>14,480,945</b>	 <b>0</b>



Program Cost-Effectiveness - 2015 PLAN

		Present Value									
Total Resource Benefit/Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter KW Savings	Summer KW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings	
<b>Residential Programs</b>											
1.43	\$ 3,805.0	\$ 2,661.5	\$ -	332.7	4,161.9	47.0	31.7	280	7,527.2	158,847.7	
1.45	\$ 5,140.4	\$ 1,923.6	\$ 1,618.1	215.8	3,809.3	104.5	59.2	538	11,608.7	228,959.7	
3.55	\$ 5,056.2	\$ 1,006.6	\$ 419.0	1,127.8	27,340.1	330.7	187.3	283	5,158.6	127,959.7	
2.96	\$ 8,977.3	\$ 2,397.4	\$ 631.4	7,197.9	88,277.9	1,720.8	944.5	64,803	2,839.3	31,232.5	
1.08	\$ 302.2	\$ 280.4	\$ -	1,529.8	4,589.5	160.7	174.6	25,000	-	-	
	\$ -	\$ 221.5	\$ -	-	-	-	-	-	-	-	
	\$ -	\$ 48.0	\$ -	-	-	-	-	-	-	-	
<b>2.08</b>	<b>\$ 23,281.0</b>	<b>\$ 8,539.0</b>	<b>\$ 2,668.5</b>	<b>10,404.1</b>	<b>128,178.7</b>	<b>2,363.7</b>	<b>1,397.3</b>	<b>90,904</b>	<b>27,133.8</b>	<b>546,999.7</b>	
<b>Commercial/Industrial Programs</b>											
2.01	\$ 21,778.0	\$ 4,858.4	\$ 5,980.3	19,691.6	263,178.6	2,726.6	3,090.6	351	-	-	
2.07	\$ 9,461.2	\$ 2,315.2	\$ 2,262.4	7,626.5	100,071.8	968.1	1,681.1	566	-	-	
1.38	\$ 4,163.9	\$ 1,450.3	\$ 1,560.9	2,850.5	37,674.1	355.4	609.8	158	1,203.8	28,524.1	
	\$ -	\$ 216.8	\$ -	-	-	-	-	6	-	-	
2.49	\$ 3,349.5	\$ 532.1	\$ 813.0	2,955.9	36,597.7	382.9	606.1	6	-	-	
	\$ -	\$ 19.9	\$ -	-	-	-	-	-	-	-	
	\$ -	\$ 328.7	\$ -	-	-	-	-	-	-	-	
	\$ -	\$ 112.0	\$ -	-	-	-	-	-	-	-	
<b>1.89</b>	<b>\$ 38,752.6</b>	<b>\$ 9,833.5</b>	<b>\$ 10,616.6</b>	<b>33,124.6</b>	<b>437,522.2</b>	<b>4,433.0</b>	<b>5,987.6</b>	<b>1,088</b>	<b>1,203.8</b>	<b>28,524.1</b>	
<b>Subtotal C&amp;I</b>											
	\$ -	\$ 52.0	\$ -	-	-	-	-	-	-	-	
	\$ -	\$ -	\$ -	-	-	-	-	-	-	-	
	\$ -	\$ 52.0	\$ -	-	-	-	-	-	-	-	
<b>Subtotal Other</b>											
<b>1.96</b>	<b>\$ 62,033.7</b>	<b>\$ 18,424.5</b>	<b>\$ 13,285.1</b>	<b>43,528.7</b>	<b>565,700.8</b>	<b>6,796.8</b>	<b>7,384.9</b>	<b>91,992</b>	<b>28,337.6</b>	<b>575,523.8</b>	
<b>Total</b>											

Note 1: Plan includes 46,347 customers purchasing a total of 185,389 Energy Star lighting products (estimated at 4/customer) and 18,456 Energy Star appliances.

Annual kWh Savings	43,528,679	84.0%	kWh > 55%
Annual MMBTU Savings (in kWh)	8,305,279	16.0%	
<b>Total Annual Energy Savings</b>	<b>51,833,958</b>	<b>100.0%</b>	

Lifetime kWh Savings	565,700,848	77.0%	kWh > 55%
Lifetime MMBTU Savings (in kWh)	168,676,380	23.0%	
<b>Total Lifetime Energy Savings</b>	<b>734,377,228</b>	<b>100.0%</b>	

Present Value Benefits - 2015 PLAN

	CAPACITY										ENERGY			
	Total Benefits	Summer Generation	Winter Generation	Transmission	Distribution	DRIPE	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Non Electric Resource			
<b>Residential Programs</b>														
Home Energy Assistance	\$ 3,805,040	\$ 33,250	\$ -	\$ 6,322	\$ 25,545	\$ -	\$ 67,661	\$ 103,616	\$ 24,376	\$ 31,490	\$ 3,512,780			
Home Performance w/Energy Star	\$ 5,140,376	\$ 33,527	\$ -	\$ 7,446	\$ 30,085	\$ -	\$ 64,070	\$ 102,409	\$ 23,360	\$ 27,348	\$ 4,852,130			
Energy Star Homes	\$ 5,056,161	\$ 428,540	\$ -	\$ 68,205	\$ 275,592	\$ -	\$ 486,702	\$ 816,180	\$ 135,038	\$ 168,135	\$ 2,677,769			
Energy Star Products	\$ 8,977,257	\$ 1,004,492	\$ -	\$ 189,742	\$ 766,676	\$ -	\$ 1,412,732	\$ 1,934,731	\$ 696,206	\$ 817,409	\$ 2,155,270			
Home Energy Reports	\$ 302,194	\$ 25,363	\$ -	\$ 9,766	\$ 39,460	\$ -	\$ 67,669	\$ 91,196	\$ 29,713	\$ 39,026	\$ -			
Customer Engagement Platform														
FCM Reporting														
<b>Subtotal Residential</b>	<b>\$ 23,281,028</b>	<b>\$ 1,525,173</b>	<b>\$ -</b>	<b>\$ 281,481</b>	<b>\$ 1,137,357</b>	<b>\$ -</b>	<b>\$ 2,098,835</b>	<b>\$ 3,048,132</b>	<b>\$ 908,692</b>	<b>\$ 1,083,409</b>	<b>\$ 13,197,949</b>			
<b>Commercial/Industrial Programs</b>														
Large Business Energy Solutions	\$ 21,778,033	\$ 3,806,213	\$ -	\$ 691,407	\$ 2,793,712	\$ -	\$ 3,659,371	\$ 4,626,939	\$ 3,357,565	\$ 2,842,826	\$ -			
Small Business Energy Solutions	\$ 9,461,213	\$ 2,015,520	\$ -	\$ 368,797	\$ 1,490,169	\$ -	\$ 2,184,045	\$ 1,555,091	\$ 1,111,716	\$ 735,876	\$ -			
Municipal	\$ 4,163,878	\$ 738,172	\$ -	\$ 134,713	\$ 544,323	\$ -	\$ 821,824	\$ 589,849	\$ 417,109	\$ 276,159	\$ 641,728			
Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
C&I RFP Energy Rewards Program	\$ 3,349,518	\$ 711,580	\$ -	\$ 130,960	\$ 529,159	\$ -	\$ 314,073	\$ 380,203	\$ 685,712	\$ 597,831	\$ -			
C&I Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
Customer Engagement Platform														
FCM Reporting														
<b>Subtotal C&amp;I</b>	<b>\$ 38,752,642</b>	<b>\$ 7,271,486</b>	<b>\$ -</b>	<b>\$ 1,325,876</b>	<b>\$ 5,357,364</b>	<b>\$ -</b>	<b>\$ 6,979,312</b>	<b>\$ 7,152,082</b>	<b>\$ 5,572,103</b>	<b>\$ 4,452,692</b>	<b>\$ 641,728</b>			
<b>Total</b>	<b>\$ 62,033,670</b>	<b>\$ 8,796,658</b>	<b>\$ -</b>	<b>\$ 1,607,357</b>	<b>\$ 6,494,721</b>	<b>\$ -</b>	<b>\$ 9,078,147</b>	<b>\$ 10,200,214</b>	<b>\$ 6,480,795</b>	<b>\$ 5,536,101</b>	<b>\$ 13,839,678</b>			
Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			

**Performance Incentive Calculation  
2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>1.83</b>	<b>0.00</b>
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>437,522,196</b>	<b>0</b>
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	284,389,427	
5. Budget	\$9,833,459	\$0
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	<b>\$737,509</b>	
<b>9. Cap (10%)</b>	<b>\$983,346</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.96</b>	<b>0.00</b>
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>128,178,653</b>	<b>0</b>
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	83,316,124	
14. Budget	\$8,539,043	\$0
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	<b>\$640,428</b>	
<b>18. Cap (10%)</b>	<b>\$853,904</b>	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$1,377,938</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.



**Planned Versus Actual Benefit / Cost Ratio by Sector**  
2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 38,752,642	\$ -
2. Implementation Expenses	\$ 9,833,459	\$ -
3. Customer Contribution	\$ 10,616,641	\$ -
4. Estimated Performance Incentive	<u>\$ 737,509</u>	<u>\$ -</u>
5. Total Costs (including Performance Incentive)	\$ 21,187,610	\$ -
6. Benefit/Cost Ratio - C&I Sector	<b>1.83</b>	<b>0.00</b>
<b>Residential:</b>		
7. Benefits (Value) From Eligible Programs	\$ 23,281,029	\$ -
8. Implementation Expenses	\$ 8,539,043	\$ -
9. Customer Contribution	\$ 2,668,463	\$ -
10. Estimated Performance Incentive	<u>\$ 640,428</u>	<u>\$ -</u>
11. Total Costs (including Performance Incentive)	\$ 11,847,934	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>1.96</b>	<b>0.00</b>

**Actual Lifetime Energy Savings by Sector and Program  
 2015**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business Energy Solutions	263,178,565	0
Small Business Energy Solutions	100,071,799	0
Municipal	37,674,102	0
Education	0	0
C&I RFP Energy Rewards Program	36,597,730	0
C&I Partnerships	0	0
FCM Reporting	<u>0</u>	<u>0</u>
Total Commercial & Industrial Included for Incentive Calculation	<b>437,522,196</b>	<b>0</b>
<b>Residential:</b>		
Home Energy Assistance	4,161,879	0
Home Performance w/Energy Star	3,809,260	0
Energy Star Homes	27,340,086	0
Energy Star Products	88,277,928	0
Home Energy Reports	4,589,501	0
Customer Engagement Platform	0	0
FCM Reporting	<u>0</u>	<u>0</u>
Total Residential Included for Incentive Calculation	<b>128,178,653</b>	<b>0</b>



**Program Cost-Effectiveness - 2016 PLAN**

		Present Value									
Total Resource Benefit/Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings	
<b>Residential Programs</b>											
	\$ 3,653.5	\$ 2,696.9	\$ -	307.9	3,869.7	43.8	29.1	257	7,027.9	148,396.8	
Home Energy Assistance	\$ 4,168.4	\$ 1,714.4	\$ 1,405.4	171.5	3,032.8	82.3	46.5	431	9,155.3	180,513.2	
Home Performance w/Energy Star	\$ 4,472.0	\$ 897.1	\$ 359.8	970.3	23,518.4	284.6	161.6	244	4,451.4	110,417.1	
Energy Star Homes	\$ 7,905.6	\$ 2,136.7	\$ 527.7	6,067.5	74,156.8	1,436.8	801.3	54,065	2,468.5	27,153.8	
Energy Star Products <sup>1</sup>	\$ 448.9	\$ 249.9	\$ -	2,267.7	6,803.1	238.2	258.9	25,000	-	-	
Home Energy Reports	\$ -	\$ 106.3	\$ -	-	-	-	-	-	-	-	
Customer Engagement Platform	\$ -	\$ 48.0	\$ -	-	-	-	-	-	-	-	
FCM Reporting	\$ 20,648.3	\$ 7,849.3	\$ 2,292.9	9,784.8	111,380.8	2,085.8	1,297.4	79,997	23,103.1	466,480.9	
<b>Subtotal Residential</b>											
<b>Commercial/Industrial Programs</b>											
	\$ 22,063.7	\$ 4,758.3	\$ 5,877.4	19,063.0	254,802.2	2,639.8	2,991.7	340	-	-	
Large Business Energy Solutions	\$ 9,569.0	\$ 2,267.5	\$ 2,225.6	7,373.0	96,745.0	935.9	1,625.3	548	-	-	
Small Business Energy Solutions	\$ 4,324.4	\$ 1,450.3	\$ 1,580.7	2,841.2	37,550.3	354.3	607.7	158	1,199.8	28,430.4	
Municipal	\$ -	\$ 212.4	\$ -	-	-	-	-	6	-	-	
Education	\$ 3,424.7	\$ 521.2	\$ 804.7	2,881.1	35,671.5	373.2	590.8	6	-	-	
C&I RFP Energy Rewards Program	\$ -	\$ 19.4	\$ -	-	-	-	-	4	-	-	
C&I Partnerships	\$ -	\$ 157.4	\$ -	-	-	-	-	-	-	-	
Customer Engagement Platform	\$ -	\$ 112.0	\$ -	-	-	-	-	-	-	-	
FCM Reporting	\$ 39,381.7	\$ 9,498.5	\$ 10,488.4	32,158.3	424,769.0	4,303.2	5,815.5	1,061	1,199.8	28,430.4	
<b>Subtotal C&amp;I</b>											
	\$ -	\$ 52.0	\$ -	-	-	-	-	-	-	-	
Smart Start	\$ -	\$ -	\$ -	-	-	-	-	-	-	-	
Other	\$ -	\$ 52.0	\$ -	-	-	-	-	-	-	-	
<b>Subtotal Other</b>											
<b>Total</b>	\$ 60,030.1	\$ 17,399.8	\$ 12,781.3	41,943.1	536,149.8	6,389.0	7,112.9	81,058	24,303.0	494,911.4	

Note 1: Plan includes 38,019 customers purchasing a total of 152,075 Energy Star lighting products (estimated at 4/customer) and 16,046 Energy Star appliances.

Annual kWh Savings	41,943,120	85.5%	kWh > 55%
Annual MMBTU Savings (in kWh)	7,122,788	14.5%	
<b>Total Annual Energy Savings</b>	<b>49,065,908</b>	<b>100.0%</b>	

Lifetime kWh Savings	536,149,815	78.7%	kWh > 55%
Lifetime MMBTU Savings (in kWh)	145,050,224	21.3%	
<b>Total Lifetime Energy Savings</b>	<b>681,200,039</b>	<b>100.0%</b>	

Present Value Benefits - 2016 PLAN

	CAPACITY										ENERGY			
	Total Benefits	Summer Generation	Winter Generation	Transmission	Distribution	DRIPE	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Non Electric Resource			
<b>Residential Programs</b>														
Home Energy Assistance	\$ 3,653,476	\$ 33,339	\$ -	\$ 5,868	\$ 23,711	\$ -	\$ 65,664	\$ 100,984	\$ 23,711	\$ 30,510	\$ 3,369,689			
Home Performance w/Energy Star	\$ 4,168,421	\$ 28,193	\$ -	\$ 5,930	\$ 23,959	\$ -	\$ 53,068	\$ 84,608	\$ 19,601	\$ 22,899	\$ 3,930,164			
Energy Star Homes	\$ 4,471,963	\$ 387,147	\$ -	\$ 59,432	\$ 240,141	\$ -	\$ 435,497	\$ 728,786	\$ 122,236	\$ 151,629	\$ 2,347,094			
Energy Star Products	\$ 7,905,591	\$ 923,273	\$ -	\$ 162,243	\$ 655,563	\$ -	\$ 1,234,097	\$ 1,690,030	\$ 617,804	\$ 719,864	\$ 1,902,716			
Home Energy Reports	\$ 448,889	\$ 39,573	\$ -	\$ 14,621	\$ 59,078	\$ -	\$ 98,160	\$ 132,350	\$ 45,900	\$ 59,207	\$ -			
Customer Engagement Platform														
FCM Reporting														
<b>Subtotal Residential</b>	<b>\$ 20,648,340</b>	<b>\$ 1,411,525</b>	<b>\$ -</b>	<b>\$ 248,094</b>	<b>\$ 1,002,452</b>	<b>\$ -</b>	<b>\$ 1,886,486</b>	<b>\$ 2,736,758</b>	<b>\$ 829,252</b>	<b>\$ 984,109</b>	<b>\$ 11,549,664</b>			
<b>Commercial/Industrial Programs</b>														
Large Business Energy Solutions	\$ 22,063,667	\$ 3,975,975	\$ -	\$ 676,043	\$ 2,731,636	\$ -	\$ 3,689,271	\$ 4,662,769	\$ 3,433,025	\$ 2,894,947	\$ -			
Small Business Energy Solutions	\$ 9,568,960	\$ 2,106,099	\$ -	\$ 360,102	\$ 1,455,037	\$ -	\$ 2,199,137	\$ 1,564,815	\$ 1,135,336	\$ 748,435	\$ -			
Municipal	\$ 4,324,364	\$ 794,748	\$ -	\$ 135,613	\$ 547,960	\$ -	\$ 853,083	\$ 611,897	\$ 439,113	\$ 289,536	\$ 652,414			
Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
C&I RFP Energy Rewards Program	\$ 3,424,721	\$ 750,709	\$ -	\$ 128,922	\$ 520,925	\$ -	\$ 318,765	\$ 385,762	\$ 706,369	\$ 613,269	\$ -			
C&I Partnerships														
Customer Engagement Platform														
FCM Reporting														
<b>Subtotal C&amp;I</b>	<b>\$ 39,381,712</b>	<b>\$ 7,627,531</b>	<b>\$ -</b>	<b>\$ 1,300,680</b>	<b>\$ 5,255,557</b>	<b>\$ -</b>	<b>\$ 7,060,257</b>	<b>\$ 7,225,242</b>	<b>\$ 5,713,843</b>	<b>\$ 4,546,187</b>	<b>\$ 652,414</b>			
Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
<b>Total</b>	<b>\$ 60,030,051</b>	<b>\$ 9,039,056</b>	<b>\$ -</b>	<b>\$ 1,548,774</b>	<b>\$ 6,258,009</b>	<b>\$ -</b>	<b>\$ 8,946,743</b>	<b>\$ 9,962,001</b>	<b>\$ 6,543,095</b>	<b>\$ 5,530,296</b>	<b>\$ 12,202,078</b>			

**Performance Incentive Calculation  
2016**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>1.90</b>	<b>0.00</b>
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>424,769,030</b>	<b>0</b>
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	276,099,869	
5. Budget	\$9,498,494	\$0
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	<b>\$712,387</b>	
<b>9. Cap (10%)</b>	<b>\$949,849</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.92</b>	<b>0.00</b>
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>111,380,785</b>	<b>0</b>
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	72,397,510	
14. Budget	\$7,849,272	\$0
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	<b>\$588,695</b>	
<b>18. Cap (10%)</b>	<b>\$784,927</b>	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$1,301,082</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 39,381,712	\$ -
2. Implementation Expenses	\$ 9,498,494	\$ -
3. Customer Contribution	\$ 10,488,419	\$ -
4. Estimated Performance Incentive	<u>\$ 712,387</u>	<u>\$ -</u>
5. Total Costs (including Performance Incentive)	\$ 20,699,300	\$ -
6. Benefit/Cost Ratio - C&I Sector	<b>1.90</b>	<b>0.00</b>
<b>Residential:</b>		
7. Benefits (Value) From Eligible Programs	\$ 20,648,339	\$ -
8. Implementation Expenses	\$ 7,849,272	\$ -
9. Customer Contribution	\$ 2,292,874	\$ -
10. Estimated Performance Incentive	<u>\$ 588,695</u>	<u>\$ -</u>
11. Total Costs (including Performance Incentive)	\$ 10,730,841	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>1.92</b>	<b>0.00</b>

**Actual Lifetime Energy Savings by Sector and Program  
 2016**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business Energy Solutions	254,802,164	0
Small Business Energy Solutions	96,745,035	0
Municipal	37,550,316	0
Education	0	0
C&I RFP Energy Rewards Program	35,671,515	0
C&I Partnerships	0	0
FCM Reporting	<u>0</u>	<u>0</u>
Total Commercial & Industrial Included for Incentive Calculation	<b>424,769,030</b>	<b>0</b>
<b>Residential:</b>		
Home Energy Assistance	3,869,696	0
Home Performance w/Energy Star	3,032,796	0
Energy Star Homes	23,518,368	0
Energy Star Products	74,156,811	0
Home Energy Reports	6,803,115	0
Customer Engagement Platform	0	0
FCM Reporting	<u>0</u>	<u>0</u>
Total Residential Included for Incentive Calculation	<b>111,380,785</b>	<b>0</b>





Program Cost-Effectiveness - 2015 PLAN

	Total Resource Benefit/Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings	
<b>Residential Programs</b>												
ENERGY STAR Homes	3.37	\$ 636.8	\$ 175.0	\$ 13.8	51.0	1,007.4	20.4	14.3	28	951.2	23,056.6	
Home Performance with Energy Star	1.72	\$ 829.0	\$ 323.0	\$ 158.9	39.1	687.5	28.2	6.5	60	1,759.6	32,026.8	
ENERGY STAR Products <sup>(1)</sup>	2.50	\$ 1,191.2	\$ 365.0	\$ 111.5	1,070.4	13,792.9	330.2	134.9	24,573	147.5	1,622.3	
Home Energy Assistance	1.40	\$ 642.3	\$ 459.6	\$ -	94.6	1,670.4	3.8	1.8	39	1,261.6	22,432.4	
Education		\$ -	\$ 52.8	\$ -	-	-	-	-	-	-	-	
Forward Capacity Market Expenses		\$ -	\$ 10.0	\$ -	-	-	-	-	-	-	-	
		\$ 3,299.3	\$ 1,385.4	\$ 284.2	1,255.1	17,158.2	382.5	157.6	24,700	4,119.9	79,136.1	
<b>Commercial/Industrial Programs</b>												
Large Business Energy Solutions	1.61	\$ 3,017.8	\$ 792.4	\$ 1,078.9	2,733.7	38,158.0	286.5	360.0	26	-	-	
Small Business Energy Solutions	1.55	\$ 1,263.8	\$ 500.0	\$ 312.9	1,037.4	13,485.9	131.9	250.9	65	-	-	
Municipal Program	1.23	\$ 504.3	\$ 222.6	\$ 188.3	385.1	5,034.9	37.9	67.8	19	161.4	3,547.8	
Education		\$ -	\$ 44.9	\$ -	-	-	-	-	-	-	-	
Forward Capacity Market Expenses		\$ -	\$ 20.0	\$ -	-	-	-	-	-	-	-	
		\$ 4,786.0	\$ 1,579.9	\$ 1,580.1	4,156.2	56,678.8	456.4	678.7	110	161	3,548	
		\$ 8,085.3	\$ 2,965.3	\$ 1,864.3	5,411.3	73,837.0	838.9	836.3	24,810	4,281	82,686	

(1) Target number of products purchased.

Annual kWh Savings	5,411,319	81.2%	kWh > 55%	Lifetime kWh Savings	73,836,957	75.3%	kWh > 55%
Annual MMBTU Savings (in kWh)	1,254,727	18.8%	kWh > 55%	Lifetime MMBTU Savings (in kWh)	24,232,846	24.7%	kWh > 55%
	<b>6,666,046</b>	100.0%			<b>98,069,804</b>	100.0%	

Present Value Benefits - 2015 PLAN

	Total Benefits (\$000)	CAPACITY				ENERGY				Non Electric Resource
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	
<b>Residential Programs</b>										
ENERGY STAR Homes	\$ 636,829.7	\$ 23,626.7	\$ -	\$ 3,235.8	\$ 13,074.6	\$ 30,643.2	\$ 17,104.6	\$ 6,915.0	\$ 4,965.9	\$ 537,264.1
Home Performance w/Energy Star	\$ 829,035.3	\$ 7,242.7	\$ -	\$ 1,036.6	\$ 4,188.6	\$ 13,189.3	\$ 18,682.8	\$ 3,690.8	\$ 3,739.7	\$ 777,264.8
ENERGY STAR Products	\$ 1,191,173.3	\$ 150,116.9	\$ -	\$ 11,750.6	\$ 47,479.8	\$ 234,542.5	\$ 279,678.7	\$ 126,104.1	\$ 128,144.0	\$ 213,356.8
Home Energy Assistance	\$ 642,294.3	\$ 2,355.8	\$ -	\$ 253.0	\$ 1,022.4	\$ 34,913.2	\$ 48,913.2	\$ 5,289.0	\$ 6,383.1	\$ 543,164.6
<b>Subtotal Residential</b>	<b>\$ 3,299,332.6</b>	<b>\$ 183,342.0</b>	<b>\$ -</b>	<b>\$ 16,276.0</b>	<b>\$ 65,765.3</b>	<b>\$ 313,288.2</b>	<b>\$ 364,379.3</b>	<b>\$ 141,998.8</b>	<b>\$ 143,232.7</b>	<b>\$ 2,071,050.2</b>
<b>Commercial/Industrial Programs</b>										
Large Business Energy Solutions	\$ 3,017,835.3	\$ 489,257.8	\$ -	\$ 84,324.6	\$ 324,497.6	\$ 688,322.8	\$ 740,241.7	\$ 347,111.8	\$ 344,079.0	\$ -
Small Business Energy Solutions	\$ 1,263,802.1	\$ 297,780.3	\$ -	\$ 42,473.1	\$ 171,617.6	\$ 294,029.0	\$ 209,339.2	\$ 149,548.8	\$ 99,014.2	\$ -
Municipal Program	\$ 504,329.4	\$ 80,951.3	\$ -	\$ 11,700.3	\$ 47,276.4	\$ 107,887.1	\$ 78,833.7	\$ 57,108.6	\$ 37,062.2	\$ 83,509.8
<b>Subtotal C&amp;I</b>	<b>\$ 4,785,966.8</b>	<b>\$ 867,989.4</b>	<b>\$ -</b>	<b>\$ 138,497.9</b>	<b>\$ 543,391.6</b>	<b>\$ 1,090,238.9</b>	<b>\$ 1,028,414.5</b>	<b>\$ 553,769.2</b>	<b>\$ 480,155.4</b>	<b>\$ 83,509.8</b>
<b>Total</b>	<b>\$ 8,085,299.4</b>	<b>\$ 1,051,331.4</b>	<b>\$ -</b>	<b>\$ 154,774.0</b>	<b>\$ 609,156.9</b>	<b>\$ 1,403,527.1</b>	<b>\$ 1,392,793.9</b>	<b>\$ 695,768.0</b>	<b>\$ 623,388.1</b>	<b>\$ 2,154,560.1</b>

**Performance Incentive Calculation  
 2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.5	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.0	
3. Lifetime kWh Savings	<b>56,678,751</b>	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	36,841,188	
5. Implementation Expenses	\$1,579,928	
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	\$118,495	
<b>9. Cap (10%)</b>	\$157,993	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	1.9	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.0	
12. Lifetime kWh Savings	<b>17,158,206</b>	
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	11,152,834	
14. Implementation Expenses	\$1,385,390	
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	\$103,904	
<b>18. Cap (10%)</b>	\$138,539	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$222,399</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings. Affirmed by Order 25,569 on Sept 6, 2013.

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2015**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 4,785,967	\$ -
2. Implementation Expenses	\$ 1,579,928	\$ -
3. Customer Contribution	\$ 1,580,086	\$ -
4. Performance Incentive	<u>\$ 118,495</u>	<u>\$ -</u>
5. Total Costs	\$ 3,278,508	\$ -
6. Benefit/Cost Ratio - C&I Sector	<b>1.5</b>	<b>0.0</b>
<b>Residential:</b>		
6. Benefits (Value) From Eligible Programs	\$ 3,299,333	\$ -
7. Implementation Expenses	\$ 1,385,390	\$ -
8. Customer Contribution	\$ 284,212	\$ -
9. Performance Incentive	<u>\$ 103,904</u>	<u>\$ -</u>
10. Total Costs	\$ 1,773,507	\$ -
11. Benefit/Cost Ratio - Residential Sector	<b>1.9</b>	<b>0.0</b>

**Actual Lifetime Energy Savings by Sector and Program  
2015**

	Lifetime kWh Savings	
	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
Large Business Energy Solutions	38,157,962	0
Small Business Energy Solutions	13,485,894	0
Municipal Program	5,034,896	0
Total Commercial & Industrial Included for Incentive Calculation	<b>56,678,751</b>	<b>0</b>
<b>Residential:</b>		
ENERGY STAR Homes	1,007,449	0
Home Performance with Energy Star	687,459	0
ENERGY STAR Products	13,792,920	0
Home Energy Assistance	1,670,379	0
Total Residential Included for Incentive Calculation	<b>17,158,206</b>	<b>0</b>



Program Cost-Effectiveness - 2016 PLAN

	Total Resource Benefit/Cost Ratio	Present Value Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings	
<b>Residential Programs</b>												
ENERGY STAR Homes	3.16	\$ 597.0	\$ 175.0	\$ 14.0	47.0	927.4	18.8	13.2	25	875.6	21,224.1	
Home Performance with Energy Star	1.64	\$ 791.0	\$ 323.0	\$ 160.3	36.6	641.1	26.1	6.1	56	1,634.0	29,730.3	
ENERGY STAR Products (1)	2.60	\$ 1,240.4	\$ 365.0	\$ 111.5	1,070.4	13,792.9	330.2	134.9	24,573	147	1,622	
Home Energy Assistance	1.33	\$ 597.9	\$ 450.5	\$ -	85.7	1,512.6	3.4	1.7	35	1,146.6	20,375.1	
Education		\$ -	\$ 52.8	\$ -	-	-	-	-	-	-	-	
Forward Capacity Market Expenses		\$ -	\$ 10.0	\$ -	-	-	-	-	-	-	-	
		\$ 3,226.3	\$ 1,376.2	\$ 285.8	1,239.6	16,874.0	378.5	155.8	24,689	3,803.7	72,951.8	
<b>Commercial/Industrial Programs</b>												
Large Business Energy Solutions	1.68	\$ 3,152.6	\$ 792.4	\$ 1,078.9	2,733.7	38,158.0	286.5	360.0	26	-	-	
Small Business Energy Solutions	1.62	\$ 1,187.8	\$ 450.0	\$ 281.5	925.4	12,030.6	119.7	226.7	58	-	-	
Municipal Program	1.22	\$ 478.7	\$ 222.6	\$ 170.4	343.1	4,494.7	33.4	60.5	17	161.4	3,547.8	
Education		\$ -	\$ 44.9	\$ -	-	-	-	-	-	-	-	
Forward Capacity Market Expenses		\$ -	\$ 20.0	\$ -	-	-	-	-	-	-	-	
		\$ 4,819.1	\$ 1,529.9	\$ 1,530.7	4,002.2	54,683.3	439.6	647.3	101	161.4	3,547.8	
<b>Total</b>		\$ 8,045.4	\$ 2,906.1	\$ 1,816.5	5,241.8	71,557.3	818.1	803.1	24,790	3,965.1	76,499.6	

(1) Target number of products purchased.

Annual kWh Savings	5,241,847	81.9%	kWh > 55%	Lifetime kWh Savings	71,557,298	76.1%	kWh > 55%
Annual MMBTU Savings (in kWh)	1,162,065	18.1%		Lifetime MMBTU Savings (in kWh)	22,419,811	23.9%	
	6,403,913	100.0%			93,977,109	100.0%	



Present Value Benefits - 2016 PLAN

	Total Benefits (\$000)	CAPACITY				ENERGY				Non Electric Resource	
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak		
<b>Residential Programs</b>											
ENERGY STAR Homes	\$ 596,991	\$ 23,088	\$ -	\$ 3,008	\$ 12,156	\$ 29,349	\$ 16,366	\$ 6,708	\$ 4,798	\$ 501,517	
Home Performance w/Energy Star	\$ 791,039	\$ 7,286	\$ -	\$ 970	\$ 3,921	\$ 12,811	\$ 18,133	\$ 3,603	\$ 3,633	\$ 740,683	
ENERGY STAR Products	\$ 1,240,423	\$ 162,425	\$ -	\$ 11,868	\$ 47,955	\$ 243,995	\$ 290,603	\$ 133,059	\$ 134,584	\$ 215,935	
Home Energy Assistance	\$ 597,877	\$ 2,295	\$ -	\$ 231	\$ 935	\$ 32,905	\$ 46,047	\$ 5,048	\$ 6,066	\$ 504,350	
<b>Subtotal Residential</b>	<b>\$ 3,226,330</b>	<b>\$ 195,094</b>	<b>\$ -</b>	<b>\$ 16,078</b>	<b>\$ 64,966</b>	<b>\$ 319,060</b>	<b>\$ 371,149</b>	<b>\$ 148,418</b>	<b>\$ 149,081</b>	<b>\$ 1,962,485</b>	
<b>Commercial/Industrial Programs</b>											
Large Business Energy Solutions	\$ 3,152,585	\$ 524,746	\$ -	\$ 85,168	\$ 327,743	\$ 716,729	\$ 770,192	\$ 366,395	\$ 361,614	\$ -	
Small Business Energy Solutions	\$ 1,187,842	\$ 290,981	\$ -	\$ 38,773	\$ 156,668	\$ 273,168	\$ 194,372	\$ 140,946	\$ 92,933	\$ -	
Municipal Program	\$ 478,658	\$ 78,325	\$ -	\$ 10,580	\$ 42,749	\$ 100,428	\$ 73,113	\$ 53,999	\$ 34,756	\$ 84,709	
<b>Subtotal C&amp;I</b>	<b>\$ 4,819,085</b>	<b>\$ 894,052</b>	<b>\$ -</b>	<b>\$ 134,521</b>	<b>\$ 527,160</b>	<b>\$ 1,090,325</b>	<b>\$ 1,037,677</b>	<b>\$ 561,339</b>	<b>\$ 489,302</b>	<b>\$ 84,709</b>	
<b>Total</b>	<b>\$ 8,045,415</b>	<b>\$ 1,089,146</b>	<b>\$ -</b>	<b>\$ 150,599</b>	<b>\$ 592,126</b>	<b>\$ 1,409,384</b>	<b>\$ 1,408,826</b>	<b>\$ 709,757</b>	<b>\$ 638,383</b>	<b>\$ 2,047,194</b>	

**Performance Incentive Calculation  
 2016**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.5	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.0	
3. Lifetime kWh Savings	<b>54,683,294</b>	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	35,544,141	
5. Implementation Expenses	\$1,529,928	
6. Benefit / Cost Percentage of Budget	3.75%	
7. Lifetime kWh Percentage of Budget	3.75%	
<b>8. C/I Incentive</b>	\$114,745	
<b>9. Cap (10%)</b>	\$152,993	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	1.8	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.0	
12. Lifetime kWh Savings	<b>16,874,004</b>	
13. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	10,968,103	
14. Implementation Expenses	\$1,376,218	
15. Benefit / Cost Percentage of Budget	3.75%	
16. Lifetime kWh Percentage of Budget	3.75%	
<b>17. Residential Incentive</b>	\$103,216	
<b>18. Cap (10%)</b>	\$137,622	
<b>19. TOTAL INCENTIVE EARNED</b>	<b>\$217,961</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.

**Planned Versus Actual Benefit / Cost Ratio by Sector  
2016**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 4,819,085	\$ -
2. Implementation Expenses	\$ 1,529,928	\$ -
3. Customer Contribution	\$ 1,530,681	\$ -
4. Performance Incentive	<u>\$ 114,745</u>	<u>\$ -</u>
5. Total Costs	\$ 3,175,354	\$ -
6. Benefit/Cost Ratio - C&I Sector	<b>1.5</b>	<b>0.0</b>
<b>Residential:</b>		
6. Benefits (Value) From Eligible Programs	\$ 3,226,330	\$ -
7. Implementation Expenses	\$ 1,376,218	\$ -
8. Customer Contribution	\$ 285,788	\$ -
9. Performance Incentive	<u>\$ 103,216</u>	<u>\$ -</u>
10. Total Costs	\$ 1,765,223	\$ -
11. Benefit/Cost Ratio - Residential Sector	<b>1.8</b>	<b>0.0</b>

**Actual Lifetime Energy Savings by Sector and Program  
 2016**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial:</b>		
Large Business Energy Solutions	38,157,962	0
Small Business Energy Solutions	12,030,596	0
Municipal Program	4,494,737	0
<b>Total Commercial &amp; Industrial Included for Incentive Calculation</b>	<b>54,683,294</b>	<b>0</b>
<b>Residential:</b>		
ENERGY STAR Homes	927,377	0
Home Performance with Energy Star	641,117	0
ENERGY STAR Products	13,792,920	0
Home Energy Assistance	1,512,591	0
<b>Total Residential Included for Incentive Calculation</b>	<b>16,874,004</b>	<b>0</b>



**Total Resource Benefit Cost Analysis**  
 Summary of Benefit, Costs Program Year 2015

BCR Activity	TRC Benefit/ Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.21	\$46	\$263	\$217	\$217	\$0	1,294	28,135	45
EnergyStar® Homes	1.36	\$32	\$121	\$89	\$80	\$9	536	12,589	13
HP w/EnergyStar®	1.05	\$7	\$172	\$164	\$110	\$54	973	20,825	25
EnergyStar® Products	1.10	\$72	\$773	\$701	\$422	\$280	5,158	97,573	407
Residential Education		(\$17)	\$0	\$17	\$17	\$0	-	-	
<b>Subtotal: Residential</b>	<b>1.12</b>	<b>\$140</b>	<b>\$1,329</b>	<b>\$1,189</b>	<b>\$846</b>	<b>\$343</b>	<b>7,961</b>	<b>159,121</b>	<b>490</b>
<b>Commercial &amp; Industrial</b>									
Large Business Energy Solutions	2.55	\$1,477	\$2,428	\$951	\$313	\$637	21,825	381,065	12
Small Business Energy Solutions	2.06	\$382	\$742	\$360	\$232	\$128	5,103	110,728	99
C&I Education		(\$11)	\$0	\$11	\$11	\$0	-	-	
<b>Subtotal: Commercial &amp; Industrial</b>	<b>2.40</b>	<b>\$1,848</b>	<b>\$3,170</b>	<b>\$1,322</b>	<b>\$556</b>	<b>\$766</b>	<b>26,928</b>	<b>491,793</b>	<b>111</b>
<b>Grand Total</b>	<b>1.79</b>	<b>\$1,988</b>	<b>\$4,499</b>	<b>\$2,510</b>	<b>\$1,402</b>	<b>\$1,108</b>	<b>34,889</b>	<b>650,915</b>	<b>601</b>

## Performance Incentive Calculation 2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>2.40</b>	
2. Threshold Benefit/Cost Ratio	1.00	
3. Target lifetime MMBTU savings	491,793	
4. Threshold MMBTU savings (65%)	319,666	
5. Budget	\$555,937	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime MMBTU Percentage	4.00%	
<b>8. Target C/I Incentive</b>	<b>\$44,475</b>	
<b>9. Cap (12%)</b>	<b>\$66,712</b>	
<b>Residential Incentive</b>		
10. Benefit/Cost Ratio	<b>1.12</b>	
11. Threshold Benefit/Cost Ratio	1.00	
12. Target lifetime MMBTU savings	159,121	
13. Threshold MMBTU savings (65%)	103,429	
14. Budget	\$845,994	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime MMBTU Percentage	4.00%	
<b>17. Target Residential Incentive</b>	<b>\$67,680</b>	
<b>18. Cap (12%)</b>	<b>\$101,519</b>	
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$112,154</b>	

## Planned Versus Actual Benefit / Cost Ratio by Sector 2015

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ <b>3,170,069</b>	
2. Implementation Expenses	\$ 555,937	
3. Customer Contribution	\$ 765,709	
4. Performance Incentive	\$ 44,475	
5. Total Costs Including Performance Incentive	\$ <b>1,366,121</b>	
6. Benefit/Cost Ratio - C&I Sector		<b>2.32</b>
 <b>Residential:</b>		
7. Benefits (Value) From Eligible Programs	\$ <b>1,328,709</b>	
8. Implementation Expenses	\$ 845,994	
9. Customer Contribution	\$ 342,669	
10. Performance Incentive	\$ 67,680	
11. Total Costs Including Performance Incentive	\$ <b>1,256,343</b>	
12. Benefit/Cost Ratio - Residential Sector		<b>1.06</b>





**Total Resource Benefit Cost Analysis**  
 Summary of Benefit, Costs Program Year 2016

BCR Activity	TRC Benefit/Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Annual MMBTU Savings	Lifetime MMBTU Savings	Participant Goal
<b>Residential</b>									
Home Energy Assistance	1.24	\$52	\$273	\$221	\$221	\$0	1,298	28,218	45
EnergyStar® Homes	1.39	\$34	\$123	\$89	\$80	\$9	529	12,408	13
HP w/EnergyStar®	1.01	\$2	\$172	\$171	\$118	\$53	944	20,204	25
EnergyStar® Products	1.08	\$55	\$765	\$710	\$430	\$280	4,917	93,174	431
Res Education	0.00	(\$17)	\$0	\$17	\$17	\$0	-	-	
<b>Subtotal: Residential</b>	<b>1.10</b>	<b>\$126</b>	<b>\$1,333</b>	<b>\$1,207</b>	<b>\$866</b>	<b>\$342</b>	<b>7,688</b>	<b>154,004</b>	<b>514</b>
<b>Commercial &amp; Industrial</b>									
Large Business Energy Solutions	2.64	\$1,564	\$2,514	\$951	\$313	\$637	21,825	381,065	12
Small Business Energy Solutions	2.10	\$390	\$744	\$354	\$232	\$122	5,034	109,967	93
Education (Gas)	0.00	(\$13)	\$0	\$13	\$13	\$0	-	-	
<b>Subtotal: Commercial &amp; Industrial</b>	<b>2.47</b>	<b>\$1,940</b>	<b>\$3,258</b>	<b>\$1,318</b>	<b>\$558</b>	<b>\$760</b>	<b>26,859</b>	<b>491,032</b>	<b>105</b>
<b>Grand Total</b>	<b>1.82</b>	<b>\$2,067</b>	<b>\$4,591</b>	<b>\$2,525</b>	<b>\$1,424</b>	<b>\$1,101</b>	<b>34,547</b>	<b>645,036</b>	<b>619</b>

## Performance Incentive Calculation 2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>2.47</b>	
2. Threshold Benefit/Cost Ratio	1.00	
3. Target lifetime MMBTU savings	491,032	
4. Threshold MMBTU savings (65%)	319,171	
5. Budget	\$557,937	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime MMBTU Percentage	4.00%	
<b>8. Target C/I Incentive</b>	<b>\$44,635</b>	
<b>9. Cap (12%)</b>	<b>\$66,952</b>	
<b>Residential Incentive</b>		
10. Benefit/Cost Ratio	<b>1.10</b>	
11. Threshold Benefit/Cost Ratio	1.00	
12. Target lifetime MMBTU savings	154,004	
13. Threshold MMBTU savings (65%)	100,102	
14. Budget	\$865,566	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime MMBTU Percentage	4.00%	
<b>17. Target Residential Incentive</b>	<b>\$69,245</b>	
<b>18. Cap (12%)</b>	<b>\$103,868</b>	
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$113,880</b>	

**Planned Versus Actual Benefit / Cost Ratio by Sector**  
 2016

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial:</b>		
1. Benefits (Value) From Eligible Programs	\$ 3,257,857	
2. Implementation Expenses	\$ 557,937	
3. Customer Contribution	\$ 759,609	
4. Performance Incentive	\$ 44,635	
5. Total Costs Including Performance Incentive	\$ 1,362,180	
6. Benefit/Cost Ratio - C&I Sector		<b>2.39</b>
<b>Residential:</b>		
7. Benefits (Value) From Eligible Programs	\$ 1,333,305	
8. Implementation Expenses	\$ 865,566	
9. Customer Contribution	\$ 341,522	
10. Performance Incentive	\$ 69,245	
11. Total Costs Including Performance Incentive	\$ 1,276,333	
12. Benefit/Cost Ratio - Residential Sector		<b>1.04</b>



**NH CORE ENERGY EFFICIENCY PROGRAM - 2015 UTILITY BUDGETS BY ACTIVITY**  
 Residential Programs

Description	Electric Utilities					Gas Utilities			Grand Total
	Liberty Utilities	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
Home Energy Assistance									
Internal Admin	\$ 13,966	\$ 7,238	\$ 56,878	\$ 55,089	\$ 133,172	\$ 25,500	\$ 23,989	\$ 49,489	\$ 182,661
External Admin	0	3,085	0	25,000	28,085	0	17,007	17,007	45,093
Rebate/Services	367,783	216,989	2,345,017	279,914	3,209,703	742,850	131,069	873,919	4,083,622
Implementation Services	60,521	15,433	121,496	68,389	265,839	110,400	32,196	142,596	408,435
Marketing	0	1,313	5,000	4,557	10,870	0	2,173	2,173	13,043
EM&V	23,277	10,799	133,073	26,675	193,824	42,500	10,865	53,365	247,189
Total	\$ 465,549	\$ 254,856	\$ 2,661,464	\$ 459,624	\$ 3,841,493	\$ 921,250	\$ 217,299	\$ 1,138,549	\$ 4,980,042
HP w/EnergyStar®									
Internal Admin	\$ 8,034	\$ 21,713	\$ 41,109	\$ 33,329	\$ 104,185	\$ 19,681	\$ 12,620	\$ 32,301	\$ 136,486
External Admin	0	9,256	0	26,321	35,577	0	6,034	6,034	41,611
Rebate/Services	195,505	182,853	1,537,496	192,622	2,108,477	559,450	69,910	629,360	2,737,837
Implementation Services	34,816	46,299	223,798	45,721	350,633	83,362	14,187	97,549	448,182
Marketing	16,069	1,313	25,000	9,847	52,229	34,863	1,000	35,863	88,092
EM&V	13,391	10,799	96,179	15,149	135,518	32,801	6,250	39,051	174,569
Total	\$ 267,816	\$ 272,233	\$ 1,923,582	\$ 322,990	\$ 2,786,620	\$ 730,157	\$ 110,000	\$ 840,157	\$ 3,626,777
EnergyStar® Homes									
Internal Admin	\$ 3,896	\$ 23,787	\$ 21,512	\$ 22,820	\$ 72,015	\$ 1,650	\$ 10,847	\$ 12,497	\$ 84,512
External Admin	0	10,140	0	2,503	12,643	0	6,000	6,000	18,643
Rebate/Services	94,791	89,284	799,730	112,858	1,096,662	40,500	46,133	86,633	1,183,295
Implementation Services	16,881	50,719	112,546	26,320	206,466	7,150	11,820	18,970	225,436
Marketing	7,791	1,313	22,500	1,750	33,354	8,500	800	9,300	42,654
EM&V	6,493	10,799	50,331	8,750	76,372	3,000	4,400	7,400	83,772
Total	\$ 129,850	\$ 186,042	\$ 1,006,619	\$ 175,000	\$ 1,497,511	\$ 60,800	\$ 80,000	\$ 140,800	\$ 1,638,311
Energy Star® Products									
Internal Admin	\$ 12,417	\$ 39,726	\$ 51,235	\$ 45,679	\$ 149,057	\$ 22,319	\$ 46,196	\$ 68,515	\$ 217,572
External Admin	0	16,935	0	56,409	73,344	0	25,885	25,885	99,229
Rebate/Services	302,145	174,284	2,020,384	167,934	2,664,748	634,450	272,795	907,245	3,571,992
Implementation Services	53,807	84,707	65,946	58,367	262,826	94,538	47,862	142,400	405,225
Marketing	24,834	25,000	140,000	19,562	209,395	39,537	7,873	47,410	256,805
EM&V	20,695	21,598	119,872	17,050	179,214	37,199	21,085	58,284	237,498
Total	\$ 413,897	\$ 362,251	\$ 2,397,437	\$ 365,000	\$ 3,538,585	\$ 828,043	\$ 421,695	\$ 1,249,738	\$ 4,788,323

NH CORE ENERGY EFFICIENCY PROGRAM - 2015 UTILITY BUDGETS BY ACTIVITY  
 Residential Programs (Continued)

Description	Liberty Utilities				Electric Utilities				Gas Utilities				Grand Total
	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	LU Gas	Unitil Gas	Sub-total Gas			
Other*													
Internal Admin	\$ -	\$ -	\$ 7,018	\$ -	\$ 7,018	\$ -	\$ 7,018	\$ 8,240	\$ -	\$ 8,240	\$ -	\$ 15,258	
External Admin	0	4,500	0	27,000	31,500	0	31,500	0	10,200	10,200	0	41,700	
Rebate/Services	0	0	459,432	0	459,432	0	459,432	223,500	0	223,500	0	682,932	
Implementation Services	6,000	0	67,071	8,000	81,071	0	81,071	36,660	1,800	38,460	0	119,531	
Marketing	0	0	0	20,000	20,000	0	20,000	10,500	5,000	15,500	0	35,500	
EM&V	0	0	16,420	7,776	24,196	0	24,196	14,650	0	14,650	0	38,846	
Total	\$ 6,000	\$ 4,500	\$ 549,941	\$ 62,776	\$ 623,217	\$ 293,550	\$ 17,000	\$ 310,550	\$ 293,550	\$ 17,000	\$ 310,550	\$ 933,767	
Total Residential	\$ 38,313	\$ 92,464	\$ 177,753	\$ 156,917	\$ 465,447	\$ 77,390	\$ 93,652	\$ 171,042	\$ 77,390	\$ 93,652	\$ 171,042	\$ 636,489	
Internal Admin	0	43,917	0	137,232	181,150	0	181,150	0	65,126	65,126	0	246,276	
External Admin	960,224	663,411	7,162,059	753,328	9,539,022	2,200,750	519,906	2,720,656	2,200,750	519,906	2,720,656	12,259,678	
Rebate/Services	172,024	197,158	590,856	206,796	1,166,834	332,110	107,864	439,974	332,110	107,864	439,974	1,606,808	
Implementation Services	48,694	28,938	192,500	55,716	325,848	93,400	16,846	110,246	93,400	16,846	110,246	436,094	
Marketing	63,856	53,994	415,875	75,400	609,125	130,150	42,600	172,750	130,150	42,600	172,750	781,875	
EM&V	\$ 1,283,111	\$ 1,079,882	\$ 8,539,043	\$ 1,385,390	\$ 12,287,425	\$ 2,833,800	\$ 845,994	\$ 3,679,794	\$ 2,833,800	\$ 845,994	\$ 3,679,794	\$ 15,967,220	
Total	\$ 1,283,111	\$ 1,079,882	\$ 8,539,043	\$ 1,385,390	\$ 12,287,425	\$ 2,833,800	\$ 845,994	\$ 3,679,794	\$ 2,833,800	\$ 845,994	\$ 3,679,794	\$ 15,967,220	
Total %	3.0%	8.6%	2.1%	11.3%	3.8%	2.7%	11.1%	4.6%	2.7%	11.1%	4.6%	4.0%	
Internal Admin	0.0%	4.1%	0.0%	9.9%	1.5%	0.0%	7.7%	1.8%	0.0%	7.7%	1.8%	1.5%	
External Admin	74.8%	61.4%	83.9%	54.4%	77.6%	77.7%	61.5%	73.9%	77.7%	61.5%	73.9%	76.8%	
Rebate/Services	13.4%	18.3%	6.9%	14.9%	9.5%	11.7%	12.7%	12.0%	11.7%	12.7%	12.0%	10.1%	
Implementation Services	3.8%	2.7%	2.3%	4.0%	2.7%	3.3%	2.0%	3.0%	3.3%	2.0%	3.0%	2.7%	
Marketing	5.0%	5.0%	4.9%	5.4%	5.0%	4.6%	5.0%	4.7%	4.6%	5.0%	4.7%	4.9%	
EM&V	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

\* Other includes company-specific programs, education, forward capacity market administration and loan program administration.

NH CORE ENERGY EFFICIENCY PROGRAM - 2015 UTILITY BUDGETS BY ACTIVITY  
 C&I and Municipal Programs

	Electric Utilities					Gas Utilities			Grand Total
	Liberty Utilities	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
Large Business Energy Solutions									
Internal Admin	\$ 29,596	\$ 21,065	\$ 103,828	\$ 85,995	\$ 240,484	\$ 43,300	\$ 37,471	\$ 80,771	\$ 321,254
External Admin	0	7,919	0	87,166	95,085	0	29,468	29,468	124,553
Rebate/Services	720,157	104,370	3,873,449	523,940	5,221,916	1,066,200	194,589	1,260,789	6,482,706
Implementation Services	128,247	44,917	613,190	47,545	833,899	187,700	34,967	222,667	1,056,566
Marketing	59,191	1,313	25,000	7,962	93,466	75,900	3,662	79,562	173,027
EM&V	49,326	9,398	242,919	39,810	341,453	72,200	13,058	85,258	426,711
Total	\$ 986,517	\$ 188,981	\$ 4,858,387	\$ 792,418	\$ 6,826,303	\$ 1,445,300	\$ 313,214	\$ 1,758,514	\$ 8,584,817
Small Business Energy Solutions									
Internal Admin	\$ 16,185	\$ 15,799	\$ 49,478	\$ 59,575	\$ 141,038	\$ 30,960	\$ 26,133	\$ 57,093	\$ 198,131
External Admin	0	5,939	0	25,000	30,939	0	3,336	3,336	34,275
Rebate/Services	393,836	104,370	1,794,095	314,821	2,607,122	761,200	149,717	910,917	3,518,038
Implementation Services	70,135	33,688	335,885	70,604	510,312	134,200	34,502	168,702	679,014
Marketing	32,370	1,313	20,000	5,000	58,683	54,750	5,716	60,466	119,148
EM&V	26,975	9,398	115,761	25,000	177,134	51,600	12,319	63,919	241,053
Total	\$ 539,501	\$ 170,506	\$ 2,315,220	\$ 500,000	\$ 3,525,227	\$ 1,032,710	\$ 231,722	\$ 1,264,432	\$ 4,789,660
Municipal									
Internal Admin	\$ 5,063	\$ 15,799	\$ 30,994	\$ 22,257	\$ 74,113	\$ -	\$ -	\$ -	\$ 74,113
External Admin	0	5,939	0	23,370	29,309	0	0	0	29,309
Rebate/Services	123,193	92,238	1,282,357	140,891	1,638,678	0	0	0	1,638,678
Implementation Services	21,938	33,688	59,429	22,701	137,756	0	0	0	137,756
Marketing	10,125	1,313	5,000	2,226	18,664	0	0	0	18,664
EM&V	8,438	9,398	72,515	11,129	101,479	0	0	0	101,479
Total	\$ 168,757	\$ 158,375	\$ 1,450,294	\$ 222,574	\$ 2,000,000	\$ -	\$ -	\$ -	\$ 2,000,000
Other*									
Internal Admin	\$ -	\$ 2,091	\$ 19,935	\$ -	\$ 22,026	\$ -	\$ -	\$ -	\$ 22,026
External Admin	0	11,286	0	27,000	38,286	0	6,000	6,000	44,286
Rebate/Services	13,102	23,193	1,017,876	0	1,054,172	11,000	0	11,000	1,065,172
Implementation Services	14,000	9,458	169,106	18,000	210,564	0	0	0	210,564
Marketing	2,312	0	8,000	10,000	20,312	4,000	5,000	9,000	29,312
EM&V	0	0	46,641	9,936	56,577	0	0	0	56,577
Total	\$ 29,414	\$ 46,028	\$ 1,261,559	\$ 64,936	\$ 1,401,938	\$ 15,000	\$ 11,000	\$ 26,000	\$ 1,427,938

\* Other includes company-specific programs, education, forward capacity market administration and loan program administration.



**NH CORE ENERGY EFFICIENCY PROGRAM - 2015 UTILITY BUDGETS BY ACTIVITY  
 C&I and Municipal Program Total and Grand Total (Residential, C&I and Municipal)**

	Electric Utilities					Gas Utilities			Grand Total
	Liberty Utilities	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
Total C&I and Municipal	\$ 50,843	\$ 54,754	\$ 204,236	\$ 167,827	\$ 477,661	\$ 74,260	\$ 63,604	\$ 137,864	\$ 615,525
Internal Admin	0	31,083	0	162,536	193,619	0	38,804	38,804	232,423
External Admin	1,250,288	324,172	7,967,777	979,651	10,521,888	1,838,400	344,306	2,182,706	12,704,594
Rebate/Services	234,321	121,750	1,177,609	158,851	1,692,531	321,900	69,469	391,369	2,083,899
Implementation Services	103,999	3,938	58,000	25,188	191,124	134,650	14,377	149,027	340,151
Marketing	84,739	28,195	477,836	85,875	676,644	123,800	25,377	149,177	825,821
EM&V	\$ 1,724,190	\$ 563,891	\$ 9,885,459	\$ 1,579,928	\$ 13,753,467	\$ 2,493,010	\$ 555,937	\$ 3,048,947	\$ 16,802,414
Total	2.9%	9.7%	2.1%	10.6%	3.5%	3.0%	11.4%	4.5%	3.7%
Total C&I and Municipal %	0.0%	5.5%	0.0%	10.3%	1.4%	0.0%	7.0%	1.3%	1.4%
Internal Admin	72.5%	57.5%	80.6%	62.0%	76.5%	73.7%	61.9%	71.6%	75.6%
External Admin	13.6%	21.6%	11.9%	10.1%	12.3%	12.9%	12.5%	12.8%	12.4%
Rebate/Services	6.0%	0.7%	0.6%	1.6%	1.4%	5.4%	2.6%	4.9%	2.0%
Implementation Services	4.9%	5.0%	4.8%	5.4%	4.9%	5.0%	4.6%	4.9%	4.9%
Marketing	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EM&V	\$ 89,157	\$ 147,219	\$ 381,989	\$ 324,744	\$ 943,108	\$ 151,650	\$ 157,256	\$ 308,906	\$ 1,252,014
Total	0	75,000	0	299,769	374,769	0	103,930	103,930	478,699
Total C&I and Municipal	2,210,512	987,582	15,129,836	1,732,979	20,060,910	4,039,150	864,212	4,903,362	24,964,272
Internal Admin	406,345	318,908	1,768,465	365,647	2,859,365	654,010	177,333	831,343	3,690,708
External Admin	152,692	32,875	250,500	80,904	516,972	228,050	31,223	259,273	776,245
Rebate/Services	148,594	82,189	893,712	161,275	1,285,770	253,950	67,977	321,927	1,607,696
Implementation Services	\$ 3,007,301	\$ 1,643,773	\$ 18,424,502	\$ 2,965,318	\$ 26,040,893	\$ 5,326,810	\$ 1,401,931	\$ 6,728,741	\$ 32,769,633
Marketing	3.0%	9.0%	2.1%	11.0%	3.6%	2.8%	11.2%	4.6%	3.8%
EM&V	0.0%	4.6%	0.0%	10.1%	1.4%	0.0%	7.4%	1.5%	1.5%
Total	73.5%	60.1%	82.1%	58.4%	77.0%	75.8%	61.6%	72.9%	76.2%
Total C&I and Municipal %	13.5%	19.4%	9.6%	12.3%	11.0%	12.3%	12.6%	12.4%	11.3%
Internal Admin	5.1%	2.0%	1.4%	2.7%	2.0%	4.3%	2.2%	3.9%	2.4%
External Admin	4.9%	5.0%	4.9%	5.4%	4.9%	4.8%	4.8%	4.8%	4.9%
Rebate/Services	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Implementation Services									
Marketing									
EM&V									
Total									

**NH CORE ENERGY EFFICIENCY PROGRAM - 2016 UTILITY BUDGETS BY ACTIVITY**  
 Residential Programs

Description	Electric Utilities						Gas Utilities			Grand Total
	LU Electric	NHEC	PSNH	Unitil	Sub-total Electric		LU Gas	Sub-total Gas		
								Unitil Gas	Gas	
Home Energy Assistance	\$ 9,189	\$ 7,238	\$ 61,922	\$ 53,981	\$ 132,329	\$	\$ 26,265	\$ 24,358	\$ 50,623	\$ 182,952
Internal Admin	0	3,083	0	25,000	28,083		0	17,269	17,269	45,352
External Admin	241,986	206,120	2,369,982	273,778	3,091,865		765,136	133,086	898,221	3,990,086
Rebate/Services	39,820	15,433	125,141	67,013	247,406		113,712	32,692	146,404	393,810
Implementation Services	0	1,063	5,000	4,466	10,529		0	2,206	2,206	12,736
Marketing	15,316	10,300	134,844	26,216	186,677		43,775	11,032	54,807	241,484
EM&V	\$ 306,311	\$ 243,237	\$ 2,696,888	\$ 450,453	\$ 3,696,889	\$	\$ 948,888	\$ 220,643	\$ 1,169,530	\$ 4,866,420
Total	\$ 5,253	\$ 21,713	\$ 39,362	\$ 33,329	\$ 99,657	\$	\$ 20,332	\$ 13,630	\$ 33,962	\$ 133,619
HP w/EnergyStar®	0	9,250	0	26,321	35,570		0	6,516	6,516	42,087
Internal Admin	127,818	161,433	1,333,763	192,622	1,815,636		577,967	74,782	652,749	2,468,386
External Admin	22,762	46,299	230,512	45,721	345,293		86,121	15,242	101,363	446,656
Rebate/Services	10,506	1,063	25,000	9,847	46,416		36,017	1,080	37,097	83,513
Implementation Services	8,755	10,300	85,718	15,149	119,922		33,887	6,750	40,637	160,559
Marketing	\$ 175,093	\$ 250,059	\$ 1,714,355	\$ 322,990	\$ 2,462,496	\$	\$ 754,325	\$ 118,000	\$ 872,325	\$ 3,334,821
EM&V	\$ 2,547	\$ 23,787	\$ 20,598	\$ 22,820	\$ 69,752	\$	\$ 1,700	\$ 10,847	\$ 12,547	\$ 82,299
Total	0	10,133	0	2,503	12,635		0	6,000	6,000	18,635
EnergyStar® Homes	61,972	82,144	693,252	112,858	950,226		41,715	46,133	87,848	1,038,074
Internal Admin	11,036	50,719	115,922	26,320	203,998		7,365	11,820	19,184	223,182
External Admin	5,094	1,063	22,500	1,750	30,407		8,755	800	9,555	39,962
Rebate/Services	4,245	10,300	44,856	8,750	68,152		3,090	4,400	7,490	75,642
Implementation Services	\$ 84,894	\$ 178,147	\$ 897,129	\$ 175,000	\$ 1,335,170	\$	\$ 62,624	\$ 80,000	\$ 142,624	\$ 1,477,794
Marketing	\$ 8,118	\$ 39,726	\$ 49,059	\$ 45,679	\$ 142,582	\$	\$ 22,928	\$ 47,097	\$ 70,025	\$ 212,607
EM&V	0	16,923	0	56,409	73,332		0	26,390	26,390	99,722
Total	197,537	167,144	1,772,853	167,934	2,305,468		651,750	278,117	929,867	3,235,335
Energy Star® Products	35,178	84,707	67,924	58,367	246,175		97,116	48,796	145,911	392,086
Internal Admin	16,236	25,000	140,000	19,562	200,797		40,615	8,027	48,642	249,439
External Admin	13,530	20,601	106,833	17,050	158,014		38,213	21,496	59,709	217,723
Rebate/Services	\$ 270,599	\$ 354,101	\$ 2,136,669	\$ 365,000	\$ 3,126,368	\$	\$ 850,621	\$ 429,923	\$ 1,280,544	\$ 4,406,913
Implementation Services										
Marketing										
EM&V										
Total										

**NH CORE ENERGY EFFICIENCY PROGRAM - 2016 UTILITY BUDGETS BY ACTIVITY**  
**Residential Programs (Continued)**

Description	Electric Utilities					Gas Utilities			Grand Total
	LU Electric	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
	\$	\$	\$	\$	\$	\$	\$	\$	
Other*									
Internal Admin	0	4,500	6,840	27,000	31,500	0	10,200	10,200	15,327
External Admin	0	0	0	0	0	0	0	0	41,700
Rebate/Services	6,000	0	313,413	8,000	313,413	230,205	1,800	230,205	543,618
Implementation Services	0	0	69,083	20,000	83,083	37,760	5,000	39,560	122,643
Marketing	0	0	0	7,776	20,000	10,815	0	15,815	35,815
EM&V	0	0	14,895	0	22,671	15,090	0	15,090	37,761
Total	\$ 6,000	\$ 4,500	\$ 404,231	\$ 62,776	\$ 477,507	\$ 302,357	\$ 17,000	\$ 319,357	\$ 796,864
Total Residential	\$ 25,107	\$ 92,464	\$ 177,781	\$ 155,808	\$ 451,160	\$ 79,712	\$ 95,932	\$ 175,644	\$ 626,804
Internal Admin	0	43,889	0	137,232	181,121	0	66,375	66,375	247,497
External Admin	629,313	616,841	6,483,263	747,192	8,476,608	2,266,773	532,119	2,798,891	11,275,499
Rebate/Services	114,797	197,158	608,581	205,420	1,125,956	342,073	110,348	452,422	1,578,377
Implementation Services	31,835	28,190	192,500	55,624	308,150	96,202	17,113	113,315	421,465
Marketing	41,845	51,502	387,147	74,942	555,436	134,055	43,678	177,733	733,169
EM&V	\$ 842,896	\$ 1,030,044	\$ 7,849,272	\$ 1,376,218	\$ 11,098,431	\$ 2,918,814	\$ 865,566	\$ 3,784,380	\$ 14,882,810
Total	3.0%	9.0%	2.3%	11.3%	4.1%	2.7%	11.1%	4.6%	4.2%
Internal Admin	0.0%	4.3%	0.0%	10.0%	1.6%	0.0%	7.7%	1.8%	1.7%
External Admin	74.7%	59.9%	82.6%	54.3%	76.4%	77.7%	61.5%	74.0%	75.8%
Rebate/Services	13.6%	19.1%	7.8%	14.9%	10.1%	11.7%	12.7%	12.0%	10.6%
Implementation Services	3.8%	2.7%	2.5%	4.0%	2.8%	3.3%	2.0%	3.0%	2.8%
Marketing	5.0%	5.0%	4.9%	5.4%	5.0%	4.6%	5.0%	4.7%	4.9%
EM&V	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total									

\* Other includes company-specific programs, education, forward capacity market administration and loan program administration.

NH CORE ENERGY EFFICIENCY PROGRAM - 2016 UTILITY BUDGETS BY ACTIVITY  
 C&I and Municipal Programs

	Electric Utilities						Gas Utilities			Grand Total
	LU Electric	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas		
Large Business Energy Solutions										
Internal Admin	\$ 18,260	\$ 21,065	\$ 109,251	\$ 85,995	\$ 234,571	\$ 44,599	\$ 37,471	\$ 82,070	\$ 316,641	
External Admin	0	7,930	0	87,166	95,096	0	29,468	29,468	124,564	
Rebate/Services	444,327	93,756	3,765,850	523,940	4,827,873	1,098,186	194,589	1,292,775	6,120,649	
Implementation Services	79,127	44,918	620,248	47,545	791,838	193,331	34,967	228,298	1,020,135	
Marketing	36,520	1,063	25,000	7,962	70,545	78,177	3,662	81,839	152,384	
EM&V	30,433	8,983	237,913	39,810	317,139	74,366	13,058	87,424	404,564	
Total	\$ 608,668	\$ 177,715	\$ 4,758,262	\$ 792,418	\$ 6,337,063	\$ 1,488,659	\$ 313,214	\$ 1,801,873	\$ 8,138,936	
Small Business Energy Solutions										
Internal Admin	\$ 9,986	\$ 15,799	\$ 52,063	\$ 53,618	\$ 131,465	\$ 31,889	\$ 26,133	\$ 58,022	\$ 189,487	
External Admin	0	5,947	0	22,500	28,447	0	4,176	4,176	32,623	
Rebate/Services	242,992	93,756	1,736,447	283,339	2,356,533	784,036	148,877	932,913	3,289,446	
Implementation Services	43,272	33,689	345,621	63,544	486,126	138,226	34,502	172,728	658,854	
Marketing	19,972	1,063	20,000	4,500	45,535	56,393	5,716	62,108	107,643	
EM&V	16,643	8,983	113,375	22,500	161,502	53,148	12,319	65,467	226,968	
Total	\$ 332,865	\$ 159,237	\$ 2,267,506	\$ 450,000	\$ 3,209,608	\$ 1,063,691	\$ 231,722	\$ 1,295,414	\$ 4,505,022	
Municipal										
Internal Admin	\$ 5,063	\$ 15,799	\$ 33,299	\$ 22,257	\$ 76,418	\$ -	\$ -	\$ -	\$ 76,418	
External Admin	0	5,947	0	23,370	29,317	0	0	0	29,317	
Rebate/Services	123,193	92,894	1,278,521	140,891	1,635,498	0	0	0	1,635,498	
Implementation Services	21,938	33,689	60,959	22,701	139,288	0	0	0	139,288	
Marketing	10,125	1,063	5,000	2,226	18,414	0	0	0	18,414	
EM&V	8,438	8,983	72,515	11,129	101,064	0	0	0	101,064	
Total	\$ 168,757	\$ 158,375	\$ 1,450,294	\$ 222,574	\$ 2,000,000	\$ -	\$ -	\$ -	\$ 2,000,000	
Other*										
Internal Admin	\$ -	\$ 2,091	\$ 21,054	\$ -	\$ 23,145	\$ -	\$ -	\$ -	\$ 23,145	
External Admin	0	11,287	0	27,000	38,287	0	6,000	6,000	44,287	
Rebate/Services	8,084	20,835	827,370	0	856,289	11,000	0	11,000	867,289	
Implementation Services	14,000	9,458	172,158	18,000	213,616	0	0	0	213,616	
Marketing	1,427	0	8,000	10,000	19,427	4,000	7,000	11,000	30,427	
EM&V	0	0	45,849	9,936	55,785	0	0	0	55,785	
Total	\$ 23,510	\$ 43,671	\$ 1,074,432	\$ 64,936	\$ 1,206,549	\$ 15,000	\$ 13,000	\$ 28,000	\$ 1,234,549	

\* Other includes company-specific programs, education, forward capacity market administration and loan program administration.

**NH CORE ENERGY EFFICIENCY PROGRAM - 2016 UTILITY BUDGETS BY ACTIVITY  
 C&I and Municipal Program Total and Grand Total (Residential, C&I and Municipal)**

	Electric Utilities					Gas Utilities			Grand Total
	LU Electric	NHEC	PSNH	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
Total C&I and Municipal	\$ 33,309	\$ 54,754	\$ 215,668	\$ 161,870	\$ 465,600	\$ 76,488	\$ 63,604	\$ 140,092	\$ 605,692
Internal Admin	0	31,111	0	160,036	191,147	0	39,644	39,644	230,792
External Admin	818,595	301,241	7,608,188	948,169	9,676,194	1,893,222	343,466	2,236,688	11,912,882
Rebate/Services	158,338	121,754	1,198,986	151,790	1,630,868	331,557	69,469	401,026	2,031,893
Implementation Services	68,044	3,189	58,000	24,688	153,921	138,570	16,377	154,947	308,867
Marketing	55,514	26,949	469,652	83,375	635,490	127,514	25,377	152,891	788,381
EM&V	\$ 1,133,800	\$ 538,998	\$ 9,550,494	\$ 1,529,928	\$ 12,753,220	\$ 2,567,350	\$ 557,937	\$ 3,125,287	\$ 15,878,507
Total	2.9%	10.2%	2.3%	10.6%	3.7%	3.0%	11.4%	4.5%	3.8%
Internal Admin	0.0%	5.8%	0.0%	10.5%	1.5%	0.0%	7.1%	1.3%	1.5%
External Admin	72.2%	55.9%	79.7%	62.0%	75.9%	73.7%	61.6%	71.6%	75.0%
Rebate/Services	14.0%	22.6%	12.6%	9.9%	12.8%	12.9%	12.5%	12.8%	12.8%
Implementation Services	6.0%	0.6%	0.6%	1.6%	1.2%	5.4%	2.9%	5.0%	1.9%
Marketing	4.9%	5.0%	4.9%	5.4%	5.0%	5.0%	4.5%	4.9%	5.0%
EM&V	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total	\$ 58,416	\$ 147,218	\$ 393,449	\$ 317,678	\$ 916,760	\$ 156,200	\$ 159,536	\$ 315,735	\$ 1,232,496
Internal Admin	0	75,000	0	297,269	372,268	0	106,020	106,020	478,288
External Admin	1,447,908	918,082	14,091,451	1,695,361	18,152,802	4,159,995	875,584	5,035,579	23,188,381
Rebate/Services	273,134	318,912	1,807,567	357,210	2,756,823	673,630	179,817	853,447	3,610,271
Implementation Services	99,879	31,379	250,500	80,312	462,071	234,772	33,490	268,262	730,332
Marketing	97,359	78,451	856,799	158,316	1,190,926	261,569	69,055	330,624	1,521,550
EM&V	\$ 1,976,696	\$ 1,569,042	\$ 17,399,766	\$ 2,906,146	\$ 23,851,651	\$ 5,486,164	\$ 1,423,503	\$ 6,909,667	\$ 30,761,317
Total	3.0%	9.4%	2.3%	10.9%	3.8%	2.8%	11.2%	4.6%	4.0%
Internal Admin	0.0%	4.8%	0.0%	10.2%	1.6%	0.0%	7.4%	1.5%	1.6%
External Admin	73.2%	58.5%	81.0%	58.3%	76.1%	75.8%	61.5%	72.9%	75.4%
Rebate/Services	13.8%	20.3%	10.4%	12.3%	11.6%	12.3%	12.6%	12.4%	11.7%
Implementation Services	5.1%	2.0%	1.4%	2.8%	1.9%	4.3%	2.4%	3.9%	2.4%
Marketing	4.9%	5.0%	4.9%	5.4%	5.0%	4.8%	4.9%	4.8%	4.9%
EM&V	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total	\$ 1,976,696	\$ 1,569,042	\$ 17,399,766	\$ 2,906,146	\$ 23,851,651	\$ 5,486,164	\$ 1,423,503	\$ 6,909,667	\$ 30,761,317
Internal Admin	3.0%	9.4%	2.3%	10.9%	3.8%	2.8%	11.2%	4.6%	4.0%
External Admin	0.0%	4.8%	0.0%	10.2%	1.6%	0.0%	7.4%	1.5%	1.6%
Rebate/Services	73.2%	58.5%	81.0%	58.3%	76.1%	75.8%	61.5%	72.9%	75.4%
Implementation Services	13.8%	20.3%	10.4%	12.3%	11.6%	12.3%	12.6%	12.4%	11.7%
Marketing	5.1%	2.0%	1.4%	2.8%	1.9%	4.3%	2.4%	3.9%	2.4%
EM&V	4.9%	5.0%	4.9%	5.4%	5.0%	4.8%	4.9%	4.8%	4.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**NH CORE ELECTRIC PROGRAMS - 2015 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**

	LU Electric		NHEC		PSNH		Utiliti Electric		Total
<b>Home Energy Assistance</b>									
Number of Units / Lifetime kWh Savings	46	660,141	29	559,659	280	4,161,879	39	1,670,379	393
B/C Ratio / Planned Budget	1.37	\$465,549	1.71	\$254,856	1.43	\$2,661,464	1.40	\$459,624	\$3,841,493
/ Lifetime MMBtu Savings		26,130		16,641		158,848		22,432	224,051
<b>Home Performance w/ENERGY STAR</b>									
Number of Participants / Lifetime kWh Savings	49	434,413	64	725,839	538	3,809,260	60	687,459	711
B/C Ratio / Planned Budget	1.55	\$267,816	1.70	\$272,233	1.45	\$1,923,582	1.72	\$322,990	\$2,786,620
/ Lifetime MMBtu Savings		29,050		32,880		228,960		32,027	322,917
<b>ENERGY STAR Homes</b>									
Number of Homes / Lifetime kWh Savings	38	952,871	21	4,055,244	283	27,340,086	28	1,007,449	370
B/C Ratio / Planned Budget	5.37	\$129,850	2.63	\$186,042	3.55	\$1,006,619	3.37	\$175,000	\$3,355,649
/ Lifetime MMBtu Savings		29,562		18,272		127,960		23,057	\$1,497,511
									198,850
<b>ENERGY STAR Products</b>									
Number of Participants / Lifetime kWh Savings	15,185	22,261,649	29,743	9,886,166	64,803	88,277,928	24,573	13,792,920	134,304
B/C Ratio / Planned Budget	3.06	\$413,897	2.34	\$362,251	2.96	\$2,397,437	2.50	\$365,000	\$3,538,585
/ Lifetime MMBtu Savings		1,572		4,006		31,232		1,622	38,432
<b>Large Business Energy Solutions</b>									
Number of Participants / Lifetime kWh Savings	27	28,400,475	28	8,330,598	351	263,178,565	26	38,157,962	432
B/C Ratio / Planned Budget	1.17	\$986,517	1.55	\$188,981	2.01	\$4,858,387	1.61	\$792,418	\$6,826,303
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>Small Business Energy Solutions</b>									
Number of Participants / Lifetime kWh Savings	99	14,673,310	73	5,973,166	566	100,071,799	65	13,485,894	804
B/C Ratio / Planned Budget	1.16	\$539,501	1.94	\$170,506	2.07	\$2,315,220	1.55	\$500,000	\$3,525,227
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>Municipal</b>									
Number of Participants / Lifetime kWh Savings	46	5,128,993	38	3,662,083	158	37,674,102	19	5,034,896	261
B/C Ratio / Planned Budget	1.46	\$168,757	1.12	\$158,375	1.38	\$1,450,294	1.23	\$222,574	\$2,000,000
/ Lifetime MMBtu Savings		4,070		2,115		28,524		3,548	38,257
<b>Educational Programs</b>									
Number of Participants / Planned Budget		\$15,414		\$30,528	6	\$216,829		\$97,712	\$360,483
<b>Company Specific Programs / FCM Expenses</b>									
Number of Participants / Lifetime kWh Savings	0	0	0	0	25,006	41,187,231	0	0	41,187,231
B/C Ratio / Planned Budget		\$20,000		\$15,000		\$1,542,671		\$30,000	\$1,607,671
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>Smart Start (NHEC/PSNH), RLF (UES)</b>									
Number of Participants / Planned Budget	0	\$0	\$0	\$5,000	0	\$52,000	0	\$0	\$57,000
<b>Utility Performance Incentive</b>									
Planned Budget		\$225,548		\$122,908		\$1,377,938		\$222,399	\$1,948,792
<b>TOTAL PLANNED BUDGET</b>		<b>\$3,232,848</b>		<b>\$1,766,681</b>		<b>\$19,802,439</b>		<b>\$3,187,716</b>	<b>\$27,989,685</b>

**NH CORE ELECTRIC PROGRAMS  
 SBC and RGGI Funding Allocation  
 2015 Budget**

**Program Allocation Summary**

Program	RGGI	SBC	TOTAL
<b>HEA<sup>1</sup></b>			
LU-Electric	8.4223%	91.5777%	100.0000%
NHEC	12.6466%	87.3534%	100.0000%
PSNH	12.5350%	87.4650%	100.0000%
Unitil	11.2514%	88.7486%	100.0000%
<b>Municipal</b>			
LU-Electric	100.0000%	0.0000%	100.0000%
NHEC	100.0000%	0.0000%	100.0000%
PSNH	100.0000%	0.0000%	100.0000%
Unitil	100.0000%	0.0000%	100.0000%

A	B	C	D	E	F	G	H
Utility	Total Funds	Total SBC	Total RGGI Funds	RGGI HEA <sup>2</sup>	RGGI Municipal	Total RGGI PI <sup>3</sup>	SBC HEA <sup>4</sup>
LU-Electric	\$ 3,232,848	\$3,009,284	\$223,565	\$39,210	\$168,757	\$15,598	\$426,338.52
NHEC	\$ 1,766,681	\$1,561,780	\$204,901	\$32,231	\$158,375	\$14,295	\$222,625.28
PSNH	\$ 19,802,439	\$17,884,736	\$1,917,703	\$333,615	\$1,450,294	\$133,793	\$2,327,848.69
Unitil	\$ 3,187,716	\$2,892,857	\$294,859	\$51,714	\$222,574	\$20,572	\$407,910.34
<b>Total</b>	<b>\$27,989,685</b>	<b>\$25,348,657</b>	<b>\$2,641,028</b>	<b>\$456,770</b>	<b>\$2,000,000</b>	<b>\$184,258</b>	<b>\$3,384,723</b>

Notes:

- <sup>1</sup> HEA Allocation
- RGGI HEA = RGGI HEA (E) / Total HEA Funds (E + F)
- SBC HEA = SBC HEA (H) / Total HEA Funds (E + F)
- <sup>2</sup> RGGI HEA = 15.5% of Total RGGI Funds net of RGGI HEA Performance Incentive
- <sup>3</sup> RGGI PI = Performance Incentive applied to HEA and Municipal RGGI Funds
- <sup>4</sup> SBC HEA = Utility's total HEA program funds less RGGI HEA (E)

**NH CORE ELECTRIC PROGRAMS - 2015 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**  
 (System Benefits Charge, Forward Capacity Market and Interest Funds Only)

	LU Electric	NHEC	PSNH	Unutil Electric	Total
<b>Home Energy Assistance</b>					
Number of Units / Lifetime kWh Savings	42	25	244	34	346
B/C Ratio / Planned Budget	1.37	1.71	1.43	1.40	1.482,438
/ Lifetime MMBtu Savings	23,929	14,536	138,936	19,908	\$3,384,723
					197,311
<b>Home Performance w/ENERGY STAR</b>					
Number of Participants / Lifetime kWh Savings	49	64	538	60	711
B/C Ratio / Planned Budget	1.55	1.70	1.45	1.72	1.72
/ Lifetime MMBtu Savings	29,050	32,880	228,960	32,027	\$2,786,620
					322,917
<b>ENERGY STAR Homes</b>					
Number of Homes / Lifetime kWh Savings	38	21	283	28	370
B/C Ratio / Planned Budget	5.37	2.63	3.55	3.37	3.37
/ Lifetime MMBtu Savings	29,562	18,272	127,960	23,057	\$3,555,649
					\$1,497,511
					198,850
<b>ENERGY STAR Products</b>					
Number of Participants / Lifetime kWh Savings	15,185	29,743	64,803	24,573	134,304
B/C Ratio / Planned Budget	3.06	2.34	2.96	2.50	2.50
/ Lifetime MMBtu Savings	1,572	4,006	31,232	1,622	\$3,538,585
					38,432
<b>Large Business Energy Solutions</b>					
Number of Participants / Lifetime kWh Savings	27	28	351	26	432
B/C Ratio / Planned Budget	1.17	1.55	2.01	1.61	1.61
/ Lifetime MMBtu Savings	0	0	0	0	\$6,826,303
					0
<b>Small Business Energy Solutions</b>					
Number of Participants / Lifetime kWh Savings	99	73	566	65	804
B/C Ratio / Planned Budget	1.16	1.94	2.07	1.55	1.55
/ Lifetime MMBtu Savings	0	0	0	0	\$3,525,227
					0
<b>Municipal</b>					
Number of Participants / Lifetime kWh Savings	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	0.00	0.00	0.00	0.00
/ Lifetime MMBtu Savings	0	0	0	0	\$0
					0
<b>Educational Programs</b>					
B/C Ratio / Planned Budget		\$30,528	\$216,829	\$97,712	\$360,483
<b>Company Specific Programs / FCM Expenses</b>					
Number of Participants / Lifetime kWh Savings	0	0	25,006	0	25,006
B/C Ratio / Planned Budget	0	0	0	0	0
/ Lifetime MMBtu Savings	0	\$15,000	\$1,542,671	0	\$30,000
					0
<b>Smart Start (NHEC/PSNH), RLF (UES)</b>					
Number of Participants / Planned Budget	0	\$0	0	0	\$0
Planned Budget	\$209,950	\$108,613	\$1,244,144	\$201,827	\$1,764,534
<b>Utility Performance Incentive</b>					
Planned Budget					\$57,000
<b>TOTAL PLANNED BUDGET</b>	<b>\$3,009,284</b>	<b>\$1,561,780</b>	<b>\$17,884,737</b>	<b>\$2,892,857</b>	<b>\$25,348,657</b>



**NH CORE ELECTRIC PROGRAMS - 2015 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**  
 (Energy Efficiency Fund Only - Regional Greenhouse Gas Initiative)

	LU Electric		NHEC		PSNH		Unitil Electric		Total
<b>Home Energy Assistance</b>									
Number of Units / Lifetime kWh Savings	4	55,599	4	70,778	35	521,693	4	187,941	47
B/C Ratio / Planned Budget	1.37	\$39,210	1.71	\$32,231	1.43	\$333,615	1.40	\$51,714	\$456,770
/ Lifetime MMBtu Savings		2,201		2,105		19,912		2,524	26,741
<b>Home Performance w/ENERGY STAR</b>									
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	\$0
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>ENERGY STAR Homes</b>									
Number of Homes / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	\$0
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>ENERGY STAR Products</b>									
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	\$0
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>Large Business Energy Solutions</b>									
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	\$0
/ Lifetime MMBtu Savings		0		1		0		0	1
<b>Small Business Energy Solutions</b>									
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	\$0
/ Lifetime MMBtu Savings		0		1		0		0	1
<b>Municipal</b>									
Number of Participants / Lifetime kWh Savings	46	5,128,993	38	3,662,083	158	37,674,102	19	5,034,896	261
B/C Ratio / Planned Budget	1.46	\$168,757	1.12	\$158,375	1.38	\$1,450,294	1.23	\$221,574	\$2,000,000
/ Lifetime MMBtu Savings		4,070		2,115		28,524		3,548	38,257
<b>Educational Programs</b>									
B/C Ratio / Planned Budget		\$0		\$0		\$0		\$0	\$0
<b>Company Specific Programs / FCM Expenses</b>									
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget		\$0		\$0		\$0		\$0	\$0
/ Lifetime MMBtu Savings		0		0		0		0	0
<b>Smart Start (NHEC/PSNH), RLF (UES)</b>									
Number of Participants / Planned Budget	0	\$0	\$0	\$0	0	\$0	0	\$0	\$0
<b>Utility Performance Incentive</b>									
Planned Budget		\$15,598		\$14,295		\$133,793		\$20,572	\$184,258
<b>TOTAL PLANNED BUDGET</b>		<b>\$223,565</b>		<b>\$204,901</b>		<b>\$1,917,703</b>		<b>\$294,859</b>	<b>\$2,641,028</b>

**NH CORE GAS PROGRAMS - 2015 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets and Lifetime MMBtu Savings**

	LU Gas		Unitil Gas		Total	
<b>Home Energy Assistance</b>						
Number of Units / Lifetime MMBtu Savings	324	133,013	45	28,135	369	161,148
B/C Ratio / Planned Budget	1.20	\$921,250	1.21	\$217,299		\$1,138,549
<b>Home Performance w/ENERGY STAR</b>						
Number of Participants / Lifetime MMBtu Savings	468	233,624	25	20,825	493	254,449
B/C Ratio / Planned Budget	1.50	\$730,157	1.05	\$110,000		\$840,157
<b>ENERGY STAR Homes</b>						
Number of Homes / Lifetime MMBtu Savings	15	24,742	13	12,589	28	37,330
B/C Ratio / Planned Budget	3.12	\$60,800	1.36	\$80,000		\$140,800
<b>ENERGY STAR Products</b>						
Number of Participants / Lifetime kWh Savings	1,238	238,700	407	97,573	1,645	336,273
B/C Ratio / Planned Budget / Lifetime MMBtu Savings	1.29	\$828,043	1.10	\$421,695		\$1,249,738
<b>Large Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	166	510,599	12	381,065	179	891,665
B/C Ratio / Planned Budget	1.37	\$1,445,300	2.55	\$313,214		\$1,758,514
<b>Small Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	380	389,617	99	110,728	478	500,345
B/C Ratio / Planned Budget	1.85	\$1,032,710	2.06	\$231,722		\$1,264,432
<b>Education</b>						
B/C Ratio / Planned Budget		\$15,000		\$28,000		\$43,000
<b>Company Specific Programs</b>						
B/C Ratio / Planned Budget		\$293,550		\$0	0	\$293,550
<b>Utility Performance Incentive</b>						
Planned Budget		\$426,145		\$112,154		\$538,299
<b>Total Program Expenses</b>		<b>\$5,752,955</b>		<b>\$1,514,086</b>		<b>\$7,267,040</b>



**NH CORE ELECTRIC PROGRAMS - 2016 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**

	LU Electric		NHEC		PSNH		Until Electric		Total	
<b>Home Energy Assistance</b>										
Number of Units / Lifetime kWh Savings	29	444,560	28	531,626	257	3,869,696	35	1,512,591	349	6,358,472
B/C Ratio / Planned Budget	1.37	\$306,311	1.75	\$243,237	1.35	\$2,696,888	1.33	\$450,453		\$3,696,889
/ Lifetime MMBtu Savings		16,427		15,807		148,397		20,375		201,007
<b>Home Performance w/ENERGY STAR</b>										
Number of Participants / Lifetime kWh Savings	33	319,129	56	633,441	431	3,032,796	56	641,117	576	4,626,483
B/C Ratio / Planned Budget	1.60	\$175,093	1.65	\$250,059	1.34	\$1,714,355	1.64	\$322,990		\$2,462,496
/ Lifetime MMBtu Savings		19,508		28,406		180,513		29,730		258,158
<b>ENERGY STAR Homes</b>										
Number of Homes / Lifetime kWh Savings	25	708,062	20	3,730,938	244	23,518,368	25	927,377	315	28,884,744
B/C Ratio / Planned Budget	5.41	\$84,894	2.61	\$178,147	3.56	\$897,129	3.16	\$175,000		\$1,335,170
/ Lifetime MMBtu Savings		18,686		16,811		110,417		21,224		167,138
<b>ENERGY STAR Products</b>										
Number of Participants / Lifetime kWh Savings	9,902	14,561,477	29,565	9,584,939	54,065	74,156,811	24,573	13,792,920	118,105	112,096,148
B/C Ratio / Planned Budget	3.19	\$270,599	2.38	\$354,101	2.97	\$2,136,669	2.60	\$365,000		\$3,126,368
/ Lifetime MMBtu Savings		973		3,685		27,154		1,622		33,434
<b>Large Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	18	18,593,791	25	7,483,364	340	254,802,164	26	38,157,962	408	319,037,280
B/C Ratio / Planned Budget	1.30	\$608,668	1.59	\$177,715	2.07	\$4,758,262	1.68	\$792,418		\$6,337,063
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Small Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	66	9,756,993	66	5,365,687	548	96,745,035	58	12,030,596	737	123,898,311
B/C Ratio / Planned Budget	1.30	\$332,865	1.98	\$159,237	2.13	\$2,267,506	1.62	\$450,000		\$3,209,608
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Municipal</b>										
Number of Participants / Lifetime kWh Savings	47	5,128,993	38	3,689,744	158	37,550,316	17	4,494,737	260	50,863,790
B/C Ratio / Planned Budget	1.52	\$168,757	1.17	\$158,375	1.43	\$1,450,294	1.22	\$222,574		\$2,000,000
/ Lifetime MMBtu Savings		4,070		2,115		28,430		3,548		38,163
<b>Educational Programs</b>										
Number of Participants / Planned Budget		\$9,510		\$28,171	6	\$212,360		\$97,712		\$347,753
<b>Company Specific Programs / FCM Expenses</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	25,010	42,474,630	0	0	25,010	42,474,630
B/C Ratio / Planned Budget		\$20,000		\$15,000		\$1,214,303		\$30,000		\$1,279,303
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Smart Start (NHEC/PSNH), RLF (UES)</b>										
Number of Participants / Planned Budget	0	\$0	\$0	\$5,000	0	\$52,000	0	\$0	\$0	\$57,000
<b>Utility Performance Incentive</b>										
Planned Budget		\$148,252		\$117,303		\$1,301,082		\$217,961		\$1,784,599
<b>TOTAL PLANNED BUDGET</b>		<b>\$2,124,949</b>		<b>\$1,686,345</b>		<b>\$18,700,848</b>		<b>\$3,124,107</b>		<b>\$25,636,249</b>

**NH CORE ELECTRIC PROGRAMS  
 SBC and RGGI Funding Allocation  
 2016 Budget**

**Program Allocation Summary**

Program	RGGI	SBC	TOTAL
<b>HEA<sup>1</sup></b>			
LU-Electric	12.3330%	87.6670%	100.0000%
NHEC	12.7666%	87.2334%	100.0000%
PSNH	11.9184%	88.0816%	100.0000%
Unitil	11.0610%	88.9390%	100.0000%
<b>Municipal</b>			
LU-Electric	100.0000%	0.0000%	100.0000%
NHEC	100.0000%	0.0000%	100.0000%
PSNH	100.0000%	0.0000%	100.0000%
Unitil	100.0000%	0.0000%	100.0000%

A	B	C	D	E	F	G	H
Utility	Total Funds	Total SBC	Total RGGI Funds	RGGI HEA <sup>2</sup>	RGGI Municipal	Total RGGI PI <sup>3</sup>	SBC HEA <sup>4</sup>
LU-Electric	\$ 2,124,949	\$1,902,924	\$222,024	\$37,777	\$168,757	\$15,490	\$268,533.60
NHEC	\$ 1,686,345	\$1,482,710	\$203,635	\$31,053	\$158,375	\$14,207	\$212,184.43
PSNH	\$ 18,700,848	\$16,796,250	\$1,904,598	\$321,425	\$1,450,294	\$132,879	\$2,375,463.01
Unitil	\$ 3,124,107	\$2,831,279	\$292,828	\$49,824	\$222,574	\$20,430	\$400,628.41
Total	\$25,636,249	\$23,013,164	\$2,623,086	\$440,080	\$2,000,000	\$183,006	\$3,256,809

Notes:

<sup>1</sup> HEA Allocation

RGGI HEA = RGGI HEA (E) / Total HEA Funds (E + F)

SBC HEA = SBC HEA (H) / Total HEA Funds (E + F)

<sup>2</sup> RGGI HEA = 15.5% of Total RGGI Funds net of RGGI HEA Performance Incentive

<sup>3</sup> RGGI PI = Performance Incentive applied to HEA and Municipal RGGI Funds

<sup>4</sup> SBC HEA = Utility's total HEA program funds less RGGI HEA (E)

**NH CORE ELECTRIC PROGRAMS - 2016 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**  
 (System Benefits Charge, Forward Capacity Market and Interest Funds Only)

	LU Electric		NHEC		PSNH		Unitil Electric		Total	
<b>Home Energy Assistance</b>										
Number of Units / Lifetime kWh Savings	26	389,733	24	463,756	226	3,408,491	31	1,345,283	307	5,607,263
B/C Ratio / Planned Budget	1.37	\$268,534	1.75	\$212,184	1.35	\$2,375,463	1.33	\$400,628		\$3,256,809
/ Lifetime MMBtu Savings		14,401		13,789		130,710		18,121		177,022
<b>Home Performance w/ENERGY STAR</b>										
Number of Participants / Lifetime kWh Savings	33	319,129	56	633,441	431	3,032,796	56	641,117	576	4,626,483
B/C Ratio / Planned Budget	1.60	\$175,093	1.65	\$250,059	1.34	\$1,714,355	1.64	\$322,990		\$2,462,496
/ Lifetime MMBtu Savings		19,508		28,406		180,513		29,730		258,158
<b>ENERGY STAR Homes</b>										
Number of Homes / Lifetime kWh Savings	25	708,062	20	3,730,938	244	23,518,368	25	927,377	315	28,884,744
B/C Ratio / Planned Budget	5.41	\$84,894	2.61	\$178,147	3.56	\$897,129	3.16	\$175,000		\$1,335,170
/ Lifetime MMBtu Savings		18,686		16,811		110,417		21,224		167,138
<b>ENERGY STAR Products</b>										
Number of Participants / Lifetime kWh Savings	9,902	14,561,477	29,565	9,584,939	54,065	74,156,811	24,573	13,792,920	118,105	112,096,148
B/C Ratio / Planned Budget	3.19	\$270,599	2.38	\$354,101	2.97	\$2,136,669	2.60	\$365,000		\$3,126,368
/ Lifetime MMBtu Savings		973		3,685		27,154		1,622		33,434
<b>Large Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	18	18,593,791	25	7,483,364	340	25,480,216	26	38,157,962	408	319,037,280
B/C Ratio / Planned Budget	1.30	\$608,668	1.59	\$177,715	2.07	\$4,758,262	1.68	\$792,418		\$6,337,063
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Small Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	66	9,756,993	66	5,365,687	548	96,745,035	58	12,030,596	737	123,898,311
B/C Ratio / Planned Budget	1.30	\$332,865	1.98	\$159,237	2.13	\$2,267,506	1.62	\$450,000		\$3,209,608
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Municipal</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0		\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Educational Programs</b>										
Number of Participants / Planned Budget		\$9,510		\$28,171	6	\$212,360		\$97,712		\$347,753
<b>Company Specific Programs / FCM Expenses</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	25,010	42,474,630	0	0	25,010	42,474,630
B/C Ratio / Planned Budget		\$20,000		\$15,000		\$1,214,303		\$30,000		\$1,279,303
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Smart Start (NHEC/PSNH), RLF (UES)</b>										
Number of Participants / Planned Budget	0	\$0	\$0	\$5,000	0	\$52,000	0	\$0	\$0	\$57,000
<b>Utility Performance Incentive</b>										
Planned Budget		\$132,762		\$103,096		\$1,168,204		\$197,531		\$1,601,593
<b>TOTAL PLANNED BUDGET</b>		<b>\$1,902,924</b>		<b>\$1,482,710</b>		<b>\$16,796,251</b>		<b>\$2,831,279</b>		<b>\$23,013,164</b>

**NH CORE ELECTRIC PROGRAMS - 2016 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**  
 (Energy Efficiency Fund Only - Regional Greenhouse Gas Initiative)

	LU Electric		NHEC		PSNH		Unitil Electric		Total	
<b>Home Energy Assistance</b>										
Number of Units / Lifetime kWh Savings	4	54,828	4	67,870	31	461,204	4	167,307	42	751,209
B/C Ratio / Planned Budget	1.37	\$37,777	1.75	\$31,053	1.35	\$321,425	1.33	\$49,824		\$440,080
/ Lifetime MMBtu Savings		2,026		2,018		17,686		2,254		23,984
<b>Home Performance w/ENERGY STAR</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>ENERGY STAR Homes</b>										
Number of Homes / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>ENERGY STAR Products</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Large Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0	\$0
/ Lifetime MMBtu Savings		0		1		0		0		1
<b>Small Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0	\$0
/ Lifetime MMBtu Savings		0		1		0		0		1
<b>Municipal</b>										
Number of Participants / Lifetime kWh Savings	47	5,128,993	38	3,689,744	158	37,550,316	17	4,494,737	260	50,863,790
B/C Ratio / Planned Budget	1.52	\$168,757	1.17	\$158,375	1.43	\$1,450,294	1.22	\$222,574		\$2,000,000
/ Lifetime MMBtu Savings		4,070		2,115		28,430		3,548		38,163
<b>Educational Programs</b>										
Number of Participants / Planned Budget		\$0		\$0		\$0		\$0		\$0
<b>Company Specific Programs / FCM Expenses</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget		\$0		\$0		\$0		\$0		\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Smart Start (NHEC/PSNH), RLF (UES)</b>										
Number of Participants / Planned Budget	0	\$0	\$0	\$0	0	\$0	0	\$0	\$0	\$0
<b>Utility Performance Incentive</b>										
Planned Budget		\$15,490		\$14,207		\$132,879		\$20,430		\$183,006
<b>TOTAL PLANNED BUDGET</b>		<b>\$222,024</b>		<b>\$203,635</b>		<b>\$1,904,598</b>		<b>\$292,828</b>		<b>\$2,623,085</b>

**NH CORE GAS PROGRAMS - 2016 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets and Lifetime MMBtu Savings**

	LU Gas		Unitil Gas		Total	
<b>Home Energy Assistance</b>						
Number of Units / Lifetime MMBtu Savings	334	137,036	45	28,218	379	165,254
B/C Ratio / Planned Budget	1.24	\$948,888	1.24	\$220,643		\$1,169,530
<b>Home Performance w/ENERGY STAR</b>						
Number of Participants / Lifetime MMBtu Savings	484	241,382	25	20,204	509	261,586
B/C Ratio / Planned Budget	1.56	\$754,325	1.01	\$118,000		\$872,325
<b>ENERGY STAR Homes</b>						
Number of Homes / Lifetime MMBtu Savings	16	25,484	13	12,408	28	37,892
B/C Ratio / Planned Budget	3.22	\$62,624	1.39	\$80,000		\$142,624
<b>ENERGY STAR Products</b>						
Number of Participants / Lifetime kWh Savings	1,232	242,568	431	93,174	1,663	335,742
B/C Ratio / Planned Budget / Lifetime MMBtu Savings	1.34	\$850,621	1.08	\$429,923		\$1,280,544
<b>Large Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	173	528,583	12	381,065	185	909,648
B/C Ratio / Planned Budget	1.43	\$1,488,659	2.64	\$313,214		\$1,801,873
<b>Small Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	417	416,735	93	109,967	509	526,702
B/C Ratio / Planned Budget	1.97	\$1,063,691	2.10	\$231,722		\$1,295,414
<b>Education</b>						
B/C Ratio / Planned Budget		\$0		\$30,000		\$30,000
<b>Company Specific Programs</b>						
B/C Ratio / Planned Budget		\$317,357		\$0	0	\$317,357
<b>Utility Performance Incentive</b>						
Planned Budget		\$438,893		\$113,880		\$552,773
<b>Total Program Expenses</b>		<b>\$5,925,057</b>		<b>\$1,537,383</b>		<b>\$7,462,440</b>





Measure*	Quantity			Annual Savings per Unit (kWh)			Measure Life			Installation or Realization Rate			Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings				
	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	
	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan
Weatherization Package (Electric Heat)	1.1	0.0	1	1	5,418	5,418	19.8	19.8	13	86%	86%	45,047	0	59,489	59,489	0.0	0.0	-	-	-	-	-	-
Weatherization Package (Kerosene Heat)	16.1	5.0	3	2	-	-	20.6	14.2	20	86%	86%	-	139,460	-	-	-	14.7	22.6	19.7	4,193	2,374	1,035	690
Weatherization Package (Liquid Propane Heat)	4.8	4.0	6	3	-	-	21.4	15.0	20	86%	86%	-	55,981	-	-	-	12.9	21.1	30.0	1,151	1,670	3,080	1,714
Weatherization Package (Natural Gas Heat)	16.6	0.0	-	-	-	-	19.4	19.4	20	86%	86%	-	0	-	-	-	6.9	9.2	9.2	1,921	-	-	-
Weatherization Package (Wood Heat)	13.4	20.0	4	2	-	-	20.0	13.0	21	86%	86%	-	213,212	-	-	-	19.8	29.4	38.4	4,583	14,076	2,794	1,397
Weatherization Package (Oil Heat)	0.0	0.0	32	21	-	-	0.0	0.0	21	86%	86%	-	0	-	-	-	0.0	0.0	28.0	-	-	16,320	10,710
Weatherization Package (Other)	2.7	0.0	-	-	-	-	21.0	21.0	20	86%	86%	-	0	-	-	-	21.5	-	28.0	1,044	-	-	-
Electric Svgs on Fossil Heated Homes (Ref, DHW, Lighting)	53.7	49.0	45	28	1,182	1,182	14.3	12.7	12	86%	86%	616,564	1,080,485.0	539,277	339,576	0.0	0.1	-	-	0	60.9	-	-
Heating System Replacements	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Kerosent Mobile Home Furnaces	-	-	4	3	102	102	17	17	17	100%	100%	6,963	5,222	5,222	5,222	8.8	8.8	8.8	600	600	600	450	
- LP Furnace/Boiler	-	-	2	2	530	530	18	18	18	100%	100%	19,066	19,066	19,066	19,066	5.9	5.9	5.9	213	213	213	213	
- Oil Furnace/Boiler	-	-	5	3	283	283	25	25	25	100%	100%	35,345	21,207	21,207	21,207	16.7	16.7	16.7	2,089	2,089	2,089	1,253	



Measure*	Quantity						Annual Savings per Unit (kWh)						Measure Life						In-Service / Realization Rate						Total Lifetime Savings (kWh)						Annual Savings per Unit (MMBTU)						Total Lifetime MMBTU Savings					
	2013 Plan		2013 Actual		2015 Plan		2015 Actual		2016 Plan		2016 Actual		2013 Plan		2013 Actual		2015 Plan		2015 Actual		2016 Plan		2016 Actual		2013 Plan		2013 Actual		2015 Plan		2015 Actual		2016 Plan		2016 Actual							
	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3							
ASHP Heated Home	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3							
Central AC	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
CFL / Screw in Bulb	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3					
Clothes Washer	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3					
Dishwasher	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
Elec Baseboard Heated Home (5%)	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
Gas Heated Home (55%)	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
Interior HW Fixtures	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
LEDs	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
LP Heated Home (35%)	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
Oil Heated Home (5%)	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
Refrigerator	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
Thermostat	0	0.0	32.0	118	233	4	11	39	25	16	3	3	33	33	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			

Measure*	Quantity			Annual Savings per Unit (kWh)						Measure Life			In-Service & Realization Rate		Total Lifetime Savings (kWh)			
	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013	2016	2013 Plan	2013 Actual	2015 Plan	2016 Plan
	Catalog: CFLs	351	1,310	-	-	14.3	23.0	29.0	29.0	5	5	5	5	62%	62%	15,654	93,835	-
Catalog: Interior Fixtures (Lamps and HW Fixtures)	46	43	-	-	60.0	62.3	29.0	29.0	8	8	8	8	96%	100%	21,368	20,649	-	-
Catalog: Exterior Fixtures	23	26	-	-	62.3	62.3	29.0	29.0	5	5	5	5	100%	94%	7,186	8,095	-	-
Catalog: Torchieres	14	0	-	-	64.8	69.4	29.0	29.0	8	8	8	8	94%	95%	6,716	-	-	-
Catalog: LED Bulbs	23	272	4,498	2,939	26.3	27.7	24.6	24.6	20	20	20	20	95%	95%	11,525	142,983	2,103,075	1,374,152
Catalog: LED Bulbs (Multipack Bulbs)			284	186			24.6	24.6									132,786	86,966
Catalog: LED Interior Fixtures	5	9	-	-	26.3	27.7	24.6	24.6	8	8	8	8	95%	62%	2,305	4,731	-	-
Retail: CFLs	943	440	-	-	14.3	23.0	29.0	29.0	5	5	5	5	62%	100%	42,071	31,517	-	-
Retail: CFLs (Multipack Bulbs)	26,310	14,420	20,500	13,397	14.3	23.0	29.0	29.0	5	5	5	5	62%	94%	1,174,087	1,032,896	2,777,467	1,815,108
Retail: Interior Fixtures (Lamps and HW Fixtures)	263	33	-	-	6.0	62.3	29.0	29.0	8	8	8	8	96%	95%	12,180	15,847	-	-
Retail: Exterior Fixtures	18	1	-	-	62.3	62.3	29.0	29.0	5	5	5	5	100%	100%	5,461	311	-	-
Retail: Torchieres	4	0	-	-	64.8	69.4	29.0	29.0	8	8	8	8	94%	100%	2,127	-	-	-
Retail: LED Bulbs	0	1,766	25,363	16,574	0.0	27.7	24.6	24.6	20	20	20	20	50%	100%	-	488,599	12,482,802	8,157,365
Retail: LED Bulbs (Multipack Bulbs)			1,900	1,242			24.6	24.6									935,115	611,270
Retail: LED Interior Fixtures	88	925	1,550	1,013	26.3	27.7	24.6	24.6	20	20	20	20	95%	100%	43,796	486,248	305,143	199,426
Markdown: CFLs (Multipack Bulbs)			900	588			29.0	29.0									130,415	85,204
Markdown: LED Bulbs			900	588			24.6	24.6									442,949	289,394
Markdown: LED Bulbs (Multipack Bulbs)			750	490			24.6	24.6									369,125	241,161

Measure*	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service / Realization Rate				Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings			
	2013		2015		2016		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Energy Star Clothes Washers	323	389	315	195	182	11	11	11	11	11	100%	100%	100%	100%	100%	100%	926,431	1,115,453	629,798	389,875	0.5	0.5	2,618	2,618	0	0	0	0
Energy Star Room Air Conditioners	106	363	150	95	16	16	16	16	9	9	100%	100%	100%	100%	100%	100%	15,354	52,768	21,811	13,814	0.0	0.0	-	-	0	0	0	0
Advanced Power Strip	8	0	14	10	75	75	79	5	5	5	100%	100%	100%	100%	100%	100%	3,030	-	5,535	3,954	0.0	0.0	-	-	0	0	0	0
Energy Star Refrigerators	162	326	315	190	107	107	107	107	12	12	100%	100%	100%	100%	100%	100%	207,420	418,587	404,460	243,960	0.0	0.0	-	-	0	0	0	0
2nd Refrigerator Pickup/Turnin	4	4	75	57	391	391	835	9	8	8	100%	100%	100%	100%	100%	100%	13,104	14,060	502,080	378,847	0.0	0.0	-	-	0	0	0	0
2nd Freezer Pickup/Turnin	12	0	25	18	835	835	663	8	8	8	100%	100%	100%	100%	100%	100%	83,008	-	132,600	95,472	0.0	0.0	-	-	0	0	0	0
Energy Star Freezers	6	0	-	-	234	234	114	8	8	12	100%	100%	100%	100%	100%	100%	11,648	-	162	-	0	0	-	-	0	0	0	0
Room AC Pickup/Turnin	1	0	2	-	18	18	16	5	5	5	100%	100%	100%	100%	100%	100%	55	-	6,176	-	0	0	-	-	0	0	0	0
Energy Star Central AC (3 ton)	-	-	4	2	-	-	110	110	14	14	100%	100%	100%	100%	100%	100%	-	-	858	858	0.0	0.0	-	-	0	0	0	0
Energy Star Ductless Mini Split (Cooling Only)	-	-	2	2	31	31	92	31	14	14	100%	100%	100%	100%	100%	100%	-	-	5,519	3,311	0.0	0.0	-	-	0	0	0	0
Energy Star Air Source Heat Pumps (SEER >=14.5/ EER >=12, Cooling)	-	-	5	3	628	628	628	12	12	12	100%	100%	100%	100%	100%	100%	-	-	37,675	22,605	0.0	0.0	-	-	0	0	0	0
Energy Star Air Source Heat Pumps (HSPF >=8.2, Heating)	-	-	2	1	23	23	23	15	15	15	100%	100%	100%	100%	100%	100%	-	-	526	351	0.0	0.0	-	-	0	0	0	0
Energy Star WHITSTAT for ASHP	-	-	2	1	124	124	124	12	12	12	100%	100%	100%	100%	100%	100%	-	-	95,528	62,690	0.0	0.0	-	-	0	0	0	0
Energy Star DM5HP (Any, SEER >=20, HSPF >=10, Cooling)	-	-	42	21	536	536	536	12	12	12	100%	100%	100%	100%	100%	100%	-	-	205,990	135,181	0.0	0.0	-	-	0	0	0	0
Energy Star DM5HP (Oil, SEER >=20, HSPF >=10, Heating)	-	-	32	21	536	536	536	12	12	12	100%	100%	100%	100%	100%	100%	-	-	205,990	135,181	0.0	0.0	-	-	0	0	0	0
Energy Star DM5HP (LP, SEER >=20, HSPF >=10, Heating)	-	-	32	21	536	536	536	12	12	12	100%	100%	100%	100%	100%	100%	-	-	205,990	135,181	0.0	0.0	-	-	0	0	0	0
Energy Star WHITSTAT for DM5HP	-	-	32	21	110	110	110	15	15	15	100%	100%	100%	100%	100%	100%	-	-	52,654	34,554	0.0	0.0	-	-	0	0	0	0
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (LS+EF>=2.0)	0	7	11	7	-	-	1,775	1,775	10	10	100%	100%	100%	100%	100%	100%	-	-	124,250	124,250	0.0	0.0	-	-	0	0	0	0
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (LS+EF>=2.0)	0	2	3	2	-	-	2,672	2,672	10	10	100%	100%	100%	100%	100%	100%	-	-	80,160	53,440	0.0	0.0	-	-	0	0	0	0

Measure*	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service or			Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings					
	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013	2015	2016	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan			
<b>NEW EQUIPMENT TRACK</b>																								
NC - Chiller	0.0	0.0	0.0	120,658	13,095	13,095	20	10	10	100%	100%	100%	20	10	10	62,049	3,425,511	3,425,511	94%	94%	94%	1,533,671	340,570	340,570
NC - Compressed Air	4.9	3.2	3.2	13,095	66,102	66,102	15	13	13	100%	100%	100%	15	13	13	1,109,346	24,524,530	24,524,530	94%	94%	94%	1,109,346	24,524,530	24,524,530
NC - Custom	0.7	4.0	1.7	49,655	43,613	43,613	15	15	15	100%	100%	100%	15	15	15	231,043	867,460	867,460	100%	100%	100%	231,043	867,460	867,460
NC - HVAC	0.3	1.5	1.0	71,150	71,150	71,150	15	15	15	100%	100%	100%	15	15	15	16,049,841	635,832	635,832	100%	100%	100%	16,049,841	635,832	635,832
NC - Lighting	1.0	6.0	1.2	5,933	26,922	26,922	15	10	10	100%	100%	100%	15	10	10	62,049	3,425,511	3,425,511	94%	94%	94%	62,049	3,425,511	3,425,511
NC - Motor	0.0	0.0	0.0	5,933	26,922	26,922	15	10	10	100%	100%	100%	15	10	10	62,049	3,425,511	3,425,511	94%	94%	94%	62,049	3,425,511	3,425,511
NC - VFD	1.6	1.0	1.0	22,762	32,181	32,181	15	21	21	94%	94%	94%	15	21	21	1,747,018	340,570	340,570	94%	94%	94%	1,747,018	340,570	340,570
Lighting (Occ-Sensors Only)	0.3	3.4	3.0	57,724	13,095	13,095	15	14	14	94%	94%	94%	15	14	14	1,747,018	340,570	340,570	94%	94%	94%	1,747,018	340,570	340,570
Coiling	2.4	2.0	2.0	50,780	13,095	13,095	15	14	14	94%	94%	94%	15	14	14	1,747,018	340,570	340,570	94%	94%	94%	1,747,018	340,570	340,570
Process																								
<b>RETROFIT TRACK</b>																								
Retro - Compressed Air	0.8	4.0	3.6	32,960	117,570	117,570	13	14	14	100%	100%	100%	13	13	13	282,623	11,072,415	11,072,415	100%	100%	100%	282,623	11,072,415	11,072,415
Retro - Custom	11.6	2.0	7.4	49,980	143,713	143,713	13	14	14	94%	94%	94%	13	13	13	6,919,945	392,304	392,304	94%	94%	94%	6,919,945	392,304	392,304
Retro - Lighting	1.1	2.0	0.0	23,730	23,730	23,730	13	13	13	100%	100%	100%	13	13	13	1,254,310	1,653,162	1,653,162	100%	100%	100%	1,254,310	1,653,162	1,653,162
Retro - Motor	0.0	0.0	0.0	65,791	65,791	65,791	13	13	13	100%	100%	100%	13	13	13	1,254,310	1,653,162	1,653,162	100%	100%	100%	1,254,310	1,653,162	1,653,162
Lighting - LED	1.3	-	1.9	83,041	38,638	38,638	13	9	9	94%	94%	94%	13	9	9	1,254,310	1,653,162	1,653,162	94%	94%	94%	1,254,310	1,653,162	1,653,162
Lighting - Occ-Sensors only	2.3	-	-	48,682	61,137	61,137	13	13	13	94%	94%	94%	13	13	13	687,358	1,860,974	1,860,974	94%	94%	94%	687,358	1,860,974	1,860,974
Lighting - Parking Lot Lights	1.2	-	-	61,137	16,327	16,327	13	13	13	94%	94%	94%	13	13	13	1,860,974	399,861	399,861	94%	94%	94%	1,860,974	399,861	399,861
Coiling	2.6	-	-	16,327	61,137	61,137	20	20	20	94%	94%	94%	20	20	20	399,861	4,731,689	4,731,689	94%	94%	94%	399,861	4,731,689	4,731,689
Heating	1.3	-	-	61,137	16,327	16,327	20	20	20	94%	94%	94%	20	20	20	399,861	4,731,689	4,731,689	94%	94%	94%	399,861	4,731,689	4,731,689
Process	7.0	1.0	1.0	61,457	61,457	61,457	12	14	14	94%	94%	94%	12	14	14	4,731,689	428,480	428,480	94%	94%	94%	4,731,689	428,480	428,480

Measure*	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service or Installation Rate			Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings				
	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	
<b>RETROFIT TRACK</b>																							
Retro - Compressed Air	5	5	0.3	0.2	65,755	65,755	13	13	13	100.0%	100%	284,504	189,882	-	-	-	-	-	-	-	-	-	-
Retro - Lighting	18	11	2.9	1.9	19,088	38,670	13	13	13	100.0%	100%	711,560	474,704	-	-	-	-	-	-	-	-	-	-
Retro - Motor	0	0	60.2	40.2	12,713	31,103	13	13	13	100.0%	100%	9,957,640	6,645,856	-	-	-	-	-	-	-	-	-	-
Retro - VFD	0	0	0.9	0.6	11,865	77,887	15	15	15	100.0%	100%	164,137	109,547	-	-	-	-	-	-	-	-	-	-
Lighting - New Construction	16	16	0.7	0.5	77,887	13,788	13	16	13	100.0%	100%	711,560	474,704	-	-	-	-	-	-	-	-	-	-
Lighting - Direct Install	21	21				14,489	13	13	13	100.0%	100%	-	-	-	-	-	-	-	-	-	-	-	-
Lighting - Catalog Sales	73	73				46	6	6	6	100.0%	100%	-	-	-	-	-	-	-	-	-	-	-	-
Smart Strips	9	9				75	5	5	5	100.0%	100%	-	-	-	-	-	-	-	-	-	-	-	-
<b>NEW EQUIPMENT TRACK</b>																							
NC - Chiller	0	0	0.0	0.0	30,165	30,165	20	20	20	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-
NC - Compressed Air	0	0	0.3	0.2	32,878	32,878	15	15	15	100%	100%	167,324	109,547	-	-	-	-	-	-	-	-	-	-
NC - Custom	0	1	11.7	7.7	4,772	8,348	15	16	15	92.5%	100%	389,097	125,220	-	-	-	-	-	-	-	-	-	-
NC - HVAC	0	0	4.1	2.7	13,594	13,594	15	15	15	100%	100%	81,044	547,735	-	-	-	-	-	-	-	-	-	-
NC - Lighting	0	5	17.5	11.5	3,178	11,980	15	16	15	92.5%	100%	304,404	898,528	-	-	-	-	-	-	-	-	-	-
NC - Motor	0	0	0.0	0.0	2,966	2,966	20	20	20	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-
NC - VFD	0	0	0.4	0.3	25,954	25,954	15	15	15	100%	100%	167,324	109,547	-	-	-	-	-	-	-	-	-	-
Cooling	1	1				700	15	16	15	92.5%	92.5%	537,929	10,499	-	-	-	-	-	-	-	-	-	-
Lighting (Occ Sensors Only)	0	0				22,778	10	10	10	92.5%	92.5%	21,765	92,578	-	-	-	-	-	-	-	-	-	-
Process	1	1				50,704	15	14	14	92.5%	92.5%	612,762	854,818	-	-	-	-	-	-	-	-	-	-



Measure*	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service or			Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings		
	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan
Custom - New	5	5	4,772	4,772	4,772	4,772	15	15	15	100%	100%	100%	345,272	345,272	345,272	-	-	-	-	-	-
Custom - Retrofit	2	2	19,088	19,088	19,088	19,088	13	13	13	100%	100%	100%	598,471	598,471	598,471	-	-	-	-	-	-
Lighting - New	7	7	3,178	3,178	3,178	3,178	15	15	15	100%	100%	100%	345,272	345,272	345,272	-	-	-	-	-	-
Lighting - Retrofit	14	14	20,526	20,526	20,526	20,526	13	13	13	100%	100%	100%	3,735,782	3,735,782	3,735,782	-	-	-	-	-	-
VFD - Retrofit	0	0	77,887	77,887	77,887	77,887	13	13	13	100%	100%	100%	59,847	59,847	59,847	-	-	-	-	-	-
Energy Star DMSHP (Any, SEER >=20, HSPF >=10, Cooling)	4	4	124	124	124	124	12	12	12	100%	100%	100%	5,970	5,970	5,970	-	-	-	-	-	-
Energy Star DMSHP (Oil, SEER >=20, HSPF >=10, Heating)	2	2	536	536	536	536	12	12	12	100%	100%	100%	12,874	12,874	12,874	-	-	-	-	-	-
Energy Star DMSHP (LP, SEER >=20, HSPF >=10, Heating)	2	2	536	536	536	536	12	12	12	100%	100%	100%	12,874	12,874	12,874	-	-	-	-	-	-
Energy Star WHI TST/AT for DMSHP	4	4	110	110	110	110	15	15	15	100%	100%	100%	6,582	6,582	6,582	-	-	-	-	-	-
Furnace: Oil, w/ECM, AFUE >= 85%, up to 150 MBH	1	1	168	168	168	168	18	18	18	100%	100%	100%	3,024	3,024	3,024	8	8	8	143	157	157
Furnace: Oil, w/ECM, AFUE >= 87%, up to 150 MBH	1	1	168	168	168	168	18	18	18	100%	100%	100%	3,024	3,024	3,024	9	9	9	157	157	157
Boiler: LP, Condensing, AFUE >= 90%, up to 301-499 MBH	1	1	-	-	-	-	25	25	25	100%	100%	100%	-	-	-	58	58	58	1,659	1,659	1,659
Boiler: Oil, AFUE >= 85%, up to 301-499 MBH	2	2	-	-	-	-	25	25	25	100%	100%	100%	-	-	-	42	42	42	2,110	2,110	2,110

Liberty Utilities Gas Home Energy Assistance Program

Measure	Quantity			Annual Savings per Unit (mmbtu)						Measure Life			Installation or Realization Rate			Total Lifetime Savings (mmbtu)					
	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan	2013	2015 Actual	2016 Plan	2013 Plan	2015 Plan	2016 Plan	
																					2013 Plan
Low Income - Single Family	156.0	330.0	108.2	111.2	17.2	26.2	27.7	27.7	20.0	20.0	20.0	20.0	20.0	20.0	100.0%	100.0%	100.0%	89,172.0	165,141.2	59,875.6	61,528.3
Low Income - Multifamily			216.0	223.0			16.9	16.9	20.0	20.0	20.0	20.0	20.0	20.0	100.0%	100.0%	100.0%	73,137.6		73,137.6	75,507.8

Liberty Utilities Gas Home Performance with ENERGY STAR®

Measure	Quantity				Annual Savings per Unit (mmbtu)						Measure Life			Installation or Realization Rate			Total Lifetime Savings (mmbtu)										
	2013 Plan		2015 Plan		2013 Plan		2015 Plan		2016 Plan		2013 Actual		2015 Plan		2016 Plan		2013 Actual		2015 Plan		2016 Plan						
	24.0	544.0	100.0	571.0	92	376	33.6	18.5	32.9	32.9	32.9	20.0	20.0	20.0	20.0	100%	100%	100%	100%	16,120	358,060	30,842	60,536.0	173,087.8	62,510.0	178,872.0	
Single Family (1-4 Units)																											
Multi-Family (5+ Units)																											

Liberty Utilities Gas ENERGY STAR® Homes Program

Measure	Quantity				Annual Savings per Unit (mmbtu)						Measure Life			In-Service / Realization Rate			Total Lifetime Savings (mmbtu)						
	2013		2015		2013		2015		2016		2013		2015		2016		2013		2015		2016		
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	
Energy Star Homes	37.0	2.0	15.2	15.7	26.9	64.6	65.0	65.0	65.0	25.0	20.484	25.0	25.0	25.0	100%	100%	24,875.0	2,644.5	24,741.5	25,483.8			

Measure	Quantity			Annual Savings per Unit (mmbtu)						Measure Life			In-Service / Realization Rate			Total Lifetime Savings (mmbtu)		
	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Actual	2015 Plan	2016 Plan
	Water Heater - Tankless, On-Demand >= 82	90.0	71.0	60	61	8.0	8.0	10.2	10.2	20.0	20.0	19	19	100%	100%	14,400	11,360	11,628
Water Heater - Tankless, On-Demand >= 94	30.0	51.0	47	48	10.1	10.3	10.5	10.5	20.0	20.0	19	19	100%	100%	6,060	10,506	9,377	9,576
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >= 85% (EF= .82)	175.0	68.0	65	66	3.7	3.7	8	8	20.0	20.0	20	20	100%	100%	12,960	5,032	10,400	10,560
Water Heater - Condensing (EF 0.95)	62.0	4.0	25	2	3.7	3.7	4.2	4.2	13.0	13.0	13	13	100%	100%	2,982	192	255	255
Water Heater - Stand Alone Storage Tank (EF 0.67)	40.0	152.0	155	156	17.8	17.8	23.8	23.8	20.0	20.0	17	17	100%	100%	14,240	54,112	62,713	63,239
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	192.0	148.0	155	156	4.5	4.5	15.9	15.9	18.0	18.0	20	20	100%	100%	15,552	11,988	9,044	9,520
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	17.0	100.0	88	89	5.9	5.9	17.3	17.3	18.0	18.0	17	17	100%	100%	-1,865	10,620	25,881	26,175
Furnace 95+ AFUE (<150) w/ECM Motor	99.0	63.0	69	70	10.4	10.4	12	12	20.0	20.0	18	18	100%	100%	20,600	13,104	14,818	15,120
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	12.0	104.0	63	64	13.1	13.1	13.9	13.9	20.0	20.0	19	19	100%	100%	3,344	27,248	16,638	16,902
Condensing Boiler >= 95% AFUE (Up to 300 MBH)	18.0	5.0	4	4	4.5	4.5	4.5	4.5	15.0	15.0	15	15	100%	100%	1,215	338	270	270
Boiler Reset Controls	1,410.0	303.0	380	380	3.2	3.2	3.2	3.2	15.0	15.0	15	15	100%	100%	67,680	14,544	18,240	18,240
Thermostat - Standard, 7-Day Programmable	81.0	0.0	65	67	6.6	6.6	6.9	6.9	15.0	15.0	15	15	100%	100%	8,025	-	6,728	-
Thermostat - WFI (Cooling & Heating)	322.0	0.0	-	-	6.6	6.6	6.9	6.9	15.0	15.0	15	15	100%	100%	31,875	-	-	-
Thermostat - WFI (Heating Only)	0.0	1.0	2	2	7.7	7.7	7.7	7.7	20.0	20.0	20	20	100%	100%	-	154	308	308
Heat Recovery Ventilator (-133 kWh penalty)	4.0	4.0	4	6	43.9	43.9	43.9	43.9	10	10	10	10	100%	100%	-	1,756	2,634	2,634
Boiler - Early Replacement, Steam - EE: 82%+ AFUE	4.0	4.0	4	6	3.5	3.5	3.5	3.5	20	20	20	20	100%	100%	-	280	420	420
Boiler - Early Replacement, FHW - Retirement: 90 AFUE (65%-90%)	16	16	16	19	23.6	23.6	23.6	23.6	10	10	10	10	100%	100%	-	3,776	4,484	4,484
Boiler - Early Replacement, FHW - EE 90 AFUE (80%-90%)	16	19	16	19	10.4	10.4	10.4	10.4	10	10	10	10	100%	100%	-	3,328	3,952	3,952

Measure	Quantity			Annual Savings per Unit (mmbtu)						Measure Life			In-Service / Realization Rate			Total Lifetime Savings (mmbtu)		
	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Actual	2015 Plan	2016 Plan
	Home Energy Reports			25,000	25,000	0.7	0.7	0.7	0.7			3	3	100%	100%			55,320

Measure	Quantity						Annual Savings per Unit (mmbtu)						Measure Life			Installation or Realization Rate			Total Lifetime Savings (mmbtu)					
	2013 Plan		2015 Plan		2016 Plan		2013 Actual		2015 Plan		2016 Plan		2013 Plan		2015 Plan		2016 Plan		2013 Actual		2015 Plan		2016 Plan	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Large Retrofit Custom	25	20	6	6	6	6	414.4	258.3	2,338.7	2,338.7	2,338.7	15	15	9	9	100%	100%	100%	155,400	63,211	131,904	131,904	131,904	
Large New Equipment Custom	4	35	21	22	22	22	634.3	1,171.4	777.0	777.0	777.0	18	18	21	21	100%	100%	100%	45,666	440,374	341,084	347,638	347,638	
Furnace 95+ AFUE (<150) w/ECM Motor	9	0	0	0	0	0	16.1	-	9.0	9.0	9.0	18	18	18	18	100%	100%	100%	2,610	-	-	-	-	
Furnace 97+ AFUE (<150) w/ECM Motor	1	0	0	0	0	0	21.0	-	9.9	9.9	9.9	18	18	18	18	100%	100%	100%	378	-	-	-	-	
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	0	1	0	1	2	2	-	-	30.6	30.6	30.6	25	25	25	25	100%	100%	100%	-	570	765	1,530	1,530	
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	7	2	2	2	3	3	56.1	42.5	58.4	58.4	58.4	25	25	25	25	100%	100%	100%	9,825	2,115	2,920	4,380	4,380	
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	2	0	0	0	0	0	103.0	-	107.3	107.3	107.3	25	25	25	25	100%	100%	100%	5,150	-	-	-	-	
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	2,86	0	0	0	0	0	189.3	-	197.2	197.2	197.2	25	25	25	25	100%	100%	100%	13,525	-	-	-	-	
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	3	2	2	2	3	3	331.3	249.0	345.1	345.1	345.1	25	25	25	25	100%	100%	100%	24,850	12,450	17,255	25,883	25,883	
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	12	0	0	0	0	0	48.3	-	12.0	12.0	12.0	17	17	17	17	100%	100%	100%	9,860	-	-	-	-	
Infrared Heater, Low Intensity (all sizes)	12	0	0	0	0	0	20.7	-	19.0	19.0	19.0	15	15	15	15	100%	100%	100%	3,720	-	-	-	-	
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	6	0	0	0	3	3	41.0	-	3.0	3.0	3.0	13	13	13	13	100%	100%	100%	4,428	117	117	117	117	
Water Heater - Stand Alone Storage Tank (EF 0.67)	2	0	0	0	0	0	58.5	-	58.6	58.6	58.6	12	12	12	12	100%	100%	100%	1,404	-	-	-	-	
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)	1	0	0	0	0	0	107.0	-	106.6	106.6	106.6	12	12	12	12	100%	100%	100%	1,284	-	-	-	-	
Kitchen - Fryer	1	0	0	0	0	0	31.0	-	30.6	30.6	30.6	12	12	12	12	100%	100%	100%	372	-	-	-	-	
Kitchen - Convection Oven (>= 44% efficiency)	1	0	0	0	0	0	110.0	-	110.3	110.3	110.3	12	12	12	12	100%	100%	100%	1,320	-	-	-	-	
Kitchen - Combination Oven (>= 44% efficiency)	1	0	0	0	0	0	85.0	-	84.5	84.5	84.5	12	12	12	12	100%	100%	100%	1,020	-	-	-	-	
Kitchen - Conveyor Oven (>= 44% efficiency)	1	0	0	0	0	0	211.0	-	211.3	211.3	211.3	12	12	12	12	100%	100%	100%	2,532	-	-	-	-	
Kitchen - Rack Oven (>= 44% efficiency)	1	0	0	0	0	0	19.0	-	18.5	18.5	18.5	12	12	12	12	100%	100%	100%	228	-	-	-	-	
Kitchen - Griddle	30	0	0	0	0	0	32.6	-	12.6	12.6	12.6	5	5	5	5	100%	100%	100%	4,888	-	-	-	-	
Kitchen - Pre Rinse Sprayers	8	2	2	2	2	2	35.5	838.0	35.5	35.5	35.5	15	15	15	15	100%	100%	100%	4,260	25,146	1,065	1,065	1,065	
Boiler Reset Controls	33	129	129	135	135	135	23.6	20.6	25.7	25.7	25.7	3	3	3	3	100%	100%	100%	2,332	7,973	9,946	10,409	10,409	
Steam Trap	15	48	48	48	48	48	2.4	7.6	7.7	7.7	7.7	15	15	15	15	100%	100%	100%	534	5,454	5,544	5,544	5,544	
Thermostat - Standard; 7-Day Programmable	15	48	48	48	48	48	2.4	7.6	7.7	7.7	7.7	15	15	15	15	100%	100%	100%	534	5,454	5,544	5,544	5,544	

Liberty Utilities Gas Small Business Energy Solutions Program

Measure	Quantity			Annual Savings per Unit (mmbtu)			Measure Life			In-Service & Realization Rate			Total Lifetime Savings (mmbtu)			
	2013 Plan	2013 Actual	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan
Small Retrofit Custom	25.0	92.0	5.0	6.0	115.4	230.3	230.3	230.3	15	12	19	100%	121,620	131,011	21,532	25,838
Small New Equipment Custom	-	10.0	24.0	26.0	180.0	276.7	276.7	276.7	18	5	22	100%	79,902	900	148,098	160,440
Furnace 95+ AFUE (<150) w/ECM Motor	-	3.0	9.0	4.0	24.8	9.0	9.0	9.0	15	12	18	100%	-	2,976	486	648
Furnace 97+ AFUE (<150) w/ECM Motor	-	3.0	9.0	10.0	4.5	9.9	9.9	9.9	15	18	18	100%	-	243	1,604	1,782
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	55.0	67.0	60.0	61.0	22.8	30.6	30.6	30.6	25	25	25	100%	30,388	38,190	45,900	46,665
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	5.0	2.0	3.0	4.0	22.1	27.8	27.8	27.8	25	25	25	100%	2,763	1,105	2,085	2,780
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	21.0	5.0	5.0	5.0	42.3	58.4	58.4	58.4	25	25	25	100%	22,208	7,013	7,300	7,300
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	11.0	52.0	42.8	44.7	77.1	103.0	107.3	107.3	25	25	25	100%	21,203	133,900	114,737	119,849
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	-	1.0	2.0	2.0	189.2	197.2	197.2	197.2	25	25	25	100%	-	4,730	9,860	9,860
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	-	1.0	1.0	1.0	249.0	345.1	345.1	345.1	25	25	25	100%	-	6,225	8,628	8,628
Infrared Heater, Low Intensity (all sizes)	22.0	10.0	5.0	5.0	74.4	48.3	12.0	12.0	17	17	17	100%	27,826	8,211	1,020	1,020
Water Heater - Tankless, On-Demand >= 82	12.0	1.0	1.0	1.0	7.1	7.1	7.1	7.1	20	20	20	100%	1,704	142	142	142
Water Heater - Tankless, On-Demand >= 94	-	-	2.0	2.0	-	9.4	9.4	9.4	20	20	20	100%	-	-	376	376
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >= 85% (EF= .82)	45.0	-	16.0	16.0	30.4	-	19.0	19.0	15	25	15	100%	20,520	-	4,560	4,560
Water Heater - Stand Alone Storage Tank (EF 0.67)	-	-	3.0	3.0	-	3.0	3.0	3.0	13	13	13	100%	-	-	117	117
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)	5.0	2.0	2.0	2.0	40.9	40.9	40.9	40.9	18	18	18	100%	3,683	1,472	1,472	1,472
Kitchen - Fryer	9.0	5.0	5.0	5.0	58.6	58.6	58.6	58.6	12	12	12	100%	6,329	3,516	3,516	3,516
Kitchen - Steamer (ES >= 38% efficiency)	2.0	-	-	-	153.6	-	106.6	106.6	12	25	12	100%	3,686	-	-	-
Kitchen - Convection Oven (>= 44% efficiency)	2.0	-	-	-	40.3	-	30.6	30.6	12	12	12	100%	595	-	-	-
Kitchen - Combination Oven (>= 44% efficiency)	3.0	-	-	-	40.3	-	110.3	110.3	12	12	12	100%	1,451	-	-	-
Kitchen - Conveyor Oven (>= 44% efficiency)	2.0	-	-	-	84.5	-	84.5	84.5	12	12	12	100%	2,028	-	-	-
Kitchen - Rack Oven (>= 50% efficiency)	1.0	-	-	-	211.3	-	211.3	211.3	12	25	12	100%	2,536	-	-	-
Kitchen - Griddle	1.0	-	-	-	18.5	-	18.5	18.5	12	12	12	100%	222	-	-	-
Kitchen - Pre Rinse Sprayers	52.0	141.0	141.0	155.0	33.6	12.6	12.6	12.6	5	5	5	100%	8,736	23,688	8,883	9,765
Boiler Reset Controls	3.0	5.0	5.0	8.0	35.5	35.5	35.5	35.5	15	15	15	100%	1,598	2,663	2,663	4,260
Steam Trap	8.0	15.0	25.0	30.0	25.7	25.7	25.7	25.7	3	3	3	100%	617	356	1,928	2,313
Thermostat - Standard, 7-Day Programmable	9.0	8.0	9.0	15.0	2.5	7.7	7.7	7.7	15	15	15	100%	338	300	1,040	1,733
Hydronic boiler <= 300 mbh	-	9.0	-	-	18.5	-	-	-	25	18	-	100%	-	2,997	-	-
Hydronic boiler 1000-1700 mbh	-	20.0	-	-	8.0	-	-	-	25	20	-	100%	-	3,200	-	-
Hydronic boiler 1701+ mbh	-	3.0	-	-	30.4	-	-	-	25	15	-	100%	-	1,368	-	-
Integrated water heater/condensing boiler (0.9 EF, 0.9 AFUE)	8.0	-	-	-	24.6	-	-	-	20	20	20	100%	3,930	-	-	-
Condensing Stand Alone >95% TE, >75000 btu	5.0	-	-	-	25.0	-	-	-	15	15	15	100%	1,975	-	-	-







NHEC Energy Star® Homes Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service / Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings			
	2013		2015		2016		2013		2015		2016		2013	2013/2014	2013		2015		2016		2013		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	2013	2014	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
LED Bulbs	38	36	128	118	25	25	20	20	5	5	20	20	100%	3,510	63,091	58,045	66	117	0.738	0.738	47,242	5,069	87	80	38	35
ES CFL Lights	90	15					5	5	20	20	20	20	100%	112,683												
ES Light Fixture (Interior)	26	5					11	11	20	20	20	20	100%	73,778	21,358	19,650										
ES Clothes Washer	36	7					31	31	10	10	10	10	100%	11,745	6,239	5,740										
ES Dishwasher	36	5					106	106	12	12	12	12	100%	45,273	21,672	19,939										
ES Refrigerator	2	1					198	149	14	14	14	14	100%	5,930	2,086											
ES Central AC	1	1					757		25	25	25	25	100%	543,640												
Oil Heated Homes	29	3							25	25	25	25	100%													
Liquid Propane Heated Homes	1	1							25	25	25	25	100%													
Wood Heated Homes	5	5							25	25	25	25	100%													
Electric Heated Homes	14	2					382		25	25	25	25	100%	11,682,515	1,472,716	1,354,940										
GSHF (Heating)	14	2					33,057	13,401	5	5	5	5	100%	34,024	12,018	11,057										
GSHF (Cooling)	14	2					96	141	5	5	5	5	100%	490,935	2,292	199,881										
GSHF (Hot Water)	14	1					1,389	2,292	5	5	5	5	100%													
GSHF (Lights & Appliances)	14	1					533	1,627	5	5	5	5	100%													
Propane Home (Heating)	9	8					129	129	25	25	25	25	100%													
Propane Home (Cooling)	9	8							25	25	25	25	100%													
Propane Home (Hot Water)	9	8							25	25	25	25	100%													
Propane Home (Lights & Appliances)	9	8					(236)	(236)	25	25	25	25	100%													
Split Sys HP (Heating)	7	7					10,937	10,937	7	7	7	7	100%													
Split Sys HP (Cooling)	7	7					(42)	(42)	25	25	25	25	100%													
Split Sys HP (Hot Water)	7	7					1,792	1,792	25	25	25	25	100%													
Split Sys HP (Lights & Appliances)	7	7					(197)	(197)	25	25	25	25	100%													

**Planning Assumptions**

- The High Efficiency Heat Pump Program is being merged in to the Energy Star Homes program for 2015-2016.
- Measure Life Changes:
  - > LEDs have a longer life than CFLs due to longer hours (20 years at 2 hours/day)
- Lighting & Appliance Energy Savings: have been updated to per the EPA Energy Star Appliance Calculators and NH evaluation results.

NHEC Energy Star® Products Program - Lighting

Measure	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service & Realization Rate			Total Lifetime Savings (kWh)			
	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan
	Catalog Sales: CFLs	1,676	641			23	23			5	5			120,043	45,914	
Retail Sales: CFLs	1,676	1,598			23	23			5	5			120,043	114,464		
Retail Sales: Multipacks	21,304	21,453	9,243	9,243	23	23	29	29	5	5	5	5	1,525,975	1,536,666	834,399	834,399
Retail Sales: Interior Fixture	568	304			62	62			8	8			272,812	145,986		
Retail Sales: Exterior Fixture	57	10			62	62			5	5			17,688	3,113		
Retail Sales: Torchieres	36				69	69			8	8			18,537			
Retail Sales: LED Fixtures	284	22	2,054	2,054	28	28	25	25	20	20	8	8	149,317	11,565	363,918	363,918
Retail Sales: LED Multipacks			3,081	3,081	28	28	25	25	20	20	20	20	1,493,174	2,054,330	1,440,510	1,440,510
Retail Sales: LED Bulbs	2,841	3,908	5,135	5,135	28	28	25	25	20	20	20	20	1,493,174	2,054,330	2,362,942	2,362,942
Markdown: CFLs (Multipack Bulbs)			8,000	8,000			29	29			5	5			1,117,507	1,117,507

**Planning Assumptions**

1. The Annual kWh Savings for both CFLs and LEDs were adjusted to reflect the weighted average of bulbs they are intended to replace.  
 > kWh Savings = (Delta Watts) \* (2 hours/days \* 386 days/year) / 1000 to convert from watt hours to kWh
2. Transitioning to incent more LEDs in 2015-2016, but providing some incentives for lower cost CFLs (e.g., multi-packs).

Measure	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service / Realization Rate			Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings					
	2013 Plan	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan	2013	2015	2016	2013 Actual	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Actual	2015 Plan	2016 Plan			
Energy Star Clothes Washer	858	812	739	261	182	182	11	11	11	100%	100%	100%	2,461,138	2,328,394	1,605,029	1,476,679	0.74	0.45	0.45	6,964	6,588	4,006	3,685	
Energy Star Room A/C	200	512	431	16	16	16	9	9	9	100%	100%	100%	29,024	74,449	68,092	62,647								
SmartStrip Power Strip	60	19		75	75	75	5	5	5	100%	100%	100%	22,469	7,129										
Energy Star Refrigerator	599	865	780	107	107	107	12	12	12	100%	100%	100%	768,871	1,110,660	1,002,126	921,989								
2nd Refrigerator/Freezer Pickup	200	145	111	103	835	835	8	8	8	100%	100%	100%	1,333,348	955,240	744,793	665,234								
Energy Star Room Air Purifiers	60	50	57	663	663	663	8	8	8	100%	100%	100%	317,608	265,200	331,170	304,687								
Room AC Pickup	20	21	4	391	391	391	9	9	9	100%	100%	100%	70,173	73,829	15,679	14,425								
Energy Star Central Air Conditioner	5	5		110	110	110	14	14	14	100%	100%	100%	7,144	7,720										
Energy Star Mini Split Heat Pump-Cooling	1	1		123	123	123	12	12	12	100%	100%	100%	1,474	1,474										
Energy Star Mini Split Heat Pump-Fossil Retrofit	103			(2,158)						100%	100%	100%		(2,667,437)										
Energy Star Mini Split Heat Pump-Electric Retrofit	21			856						100%	100%	100%												
Energy Star Mini Split Heat Pump, SEER 14.5, HSPF 8.2 cooling		4			123		8			100%	100%	100%		3,932										
Energy Star Mini Split Heat Pump, SEER 14.5, HSPF 8.2 heating		4			(2,158)		8			100%	100%	100%		(69,060)										
Energy Star Mini Split Heat Pump, SEER 19, HSPF 10 cooling		4								100%	100%	100%												
Energy Star Mini Split Heat Pump, SEER 19, HSPF 10 heating		4								100%	100%	100%												
Burn: LP, Furnace, FHA, AFUE >=95% w/ECM	11	3		168	168	168	18	18	18	100%	100%	100%	33,579	9,072										
Burn: LP, Furnace, FHA, AFUE >=96% w/ECM	6			168	168	168	18	18	18	100%	100%	100%	16,789											
Burn: LP, Furnace, FHA, AFUE >=97% w/ECM	2	2		168	168	168	18	18	18	100%	100%	100%	5,596	6,048										
Burn: Oil, Furnace, FHA, AFUE >=85% w/ECM	6			168	168	168	18	18	18	100%	100%	100%	16,789											
Burn: Oil, Furnace, FHA, AFUE >=90 w/ECM	2	4		168	168	168	18	18	18	100%	100%	100%	5,596											
Boil: LP, Boiler, FHW, AFUE >=96%	11	4					20	20	20	100%	100%	100%												
Boil: LP, Boiler, FHW, AFUE >=95%	70	55					20	20	20	100%	100%	100%												
Boil: Oil, Boiler, FHW, AFUE >=80%	9	6					20	20	20	100%	100%	100%												
Boil: Oil, Combo condensing boiler w/ On-Demand DWH 90%	1	10					20	20	20	100%	100%	100%												
Boil: Oil, Tankless Water Heaters (EF>=0.82)	22	36					20	20	20	100%	100%	100%												
DHW: LP, Indirect Water Heater (attached to LP Energy Star FHW boiler)	1	12					20	20	20	100%	100%	100%												
DHW: Oil, Indirect Water Heater (attached to oil Energy Star FHW boiler)	1	1					20	20	20	100%	100%	100%												
DHW: LP, Stand Alone Storage Water Heater (EF>=0.67)	1	1					13	13	13	100%	100%	100%												
DHW: Energy Star Heat Pump 50 Gall Water Heater, EF>=2.3 (ESE-EP>=2.0)	1	1		1,775	1,775	1,775	10	10	10	100%	100%	100%	16,425											
DHW: Energy Star Heat Pump 80 Gall Water Heater, EF>=2.3 (ESE-EP>=2.0)	0	0		2,672	2,672	2,672	10	10	10	100%	100%	100%	24,725											
BRC: Gas, Boiler Reset Controls	1						15	15	15	100%	100%	100%												
BRC: Oil, Boiler Reset Controls	8	2					15	15	15	100%	100%	100%												
TSTAT: LP, 7-Day Programmable Thermostats	11	20		14	14	14	15	15	15	100%	100%	100%												
TSTAT: Oil, 7-Day Programmable Thermostats	1	12		14	14	14	15	15	15	100%	100%	100%	200	2,592										
TSTAT: LP, WiFi Enabled 7-Day Programmable Thermostats	1	10		14	14	14	15	15	15	100%	100%	100%	200	2,160										
TSTAT: Oil, WiFi Enabled 7-Day Programmable Thermostats	1	1		14	14	14	15	15	15	100%	100%	100%												

**Planting Assumptions**

1. Clothes Washer Annual kWh savings updated based on mix of Water Heating Survey Results (Electric vs LP/Oil/NG water heating) and per EnergyStar.gov Savings Calculator.
2. All Energy Star Appliance savings were updated based on review of the EnergyStar.gov Savings Calculator and/or recent evaluations.
3. Central air conditioner and Mini Split Heat Pump Annual kWh savings were updated via the EnergyStar.gov calculator, and conservatively assumed 50% of heat provided by heat pump, 50% provided by existing fossil system.
4. As part of the Statewide CORE Energy Efficiency Plan, the plan is to provide ductless Mini Split incentives only for the more efficient "Low Temperature" models.
5. All furnace-related measures are part of the HPWES program starting in 2015.



NHEC Small Business Energy Solutions Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service or Installation Rate				Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings					
	2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	
Lighting-Retrofit	58	51	19	17	12,623	14,262	7,884	7,884	13	13	13	13	89%	89%	100%	100%	100%	100%	10,780,416	8,415,419	1,950,076	1,751,750								
Refrigeration-Retrofit	6	2	3	3	13,242	9,789	2,462	2,462	13	13	13	13	89%	89%	100%	100%	100%	100%	1,002,768	226,506	101,493	91,171								
VFD-Retrofit		2				48,114																								
Lighting-New Construction	9	4			42,705				15	15	15	15	89%	89%	100%	100%	100%	100%	5,587,285											
HVAC-New Construction					6,925				15	15	15	15	89%	89%	100%	100%	100%	100%	411,843											
Refrigeration-New Construction	2				46,695				15	13	13	13	89%	62%	100%	100%	100%	100%	1,066,177	298,182										
Compressed Air		1				25,772																								
Catalog CFL		4,475				23																								
Catalog LED		975				28																								
Lighting Retrofit LED			25	23			9,299	9,299	20	13	13	13	100%	100%	100%	100%	100%	100%			3,066,720	2,754,830								
Parking Lot Lights			6	6			9,251	9,251	13	13	13	13	100%	100%	100%	100%	100%	100%			762,741	685,169								
Energy Star Mini Split Heat Pump (SEER>=19, HSPF>=10)			6	6			105	105	12	12	12	12	100%	100%	100%	100%	100%	100%			7,986	7,174								
Energy Star Mini Split Heat Pump (SEER>=19, HSPF>=10)			6	6			751	751	12	12	12	12	100%	100%	100%	100%	100%	100%			57,155	51,343								
Energy Star Mini Split Heat Pump (SEER>=14.5, HSPF>=6.2)			3	3			34	34	12	12	12	12	100%	100%	100%	100%	100%	100%			1,368	1,175								
Energy Star Mini Split Heat Pump (SEER>=14.5, HSPF>=6.2)			3	3			142	142	12	12	12	12	100%	100%	100%	100%	100%	100%			5,412	4,861								
Energy Star Wifi TSTAT for ASHP			10	9			142	142	15	15	15	15	100%	100%	100%	100%	100%	100%			20,275	18,213								

Planning Assumptions

- Annual Savings were updated based on recent trends and reflect expected project sizes.

NHEC Municipal Program

Measure	Quantity						Annual Savings per Unit (kWh)						Measure Life						In-Service or Installation Rate						Total Lifetime Savings (kWh)						Annual Savings per Unit (MMBTU)						Total Lifetime MMBTU Savings					
	2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016							
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual								
SCI Interior Lighting LED							12	12	9,299	9,299	13	13	100%	1,473,197	1,484,483	42.30	42.30																									
Parking Lot Lights							6	6	14,233	14,233	13	13	100%	1,127,304	1,136,031																											
Refrigeration							3	3	1,799	1,799	13	13	100%	71,257	71,803																											
Refrigeration Controls							2	2	8,752	8,752	13	13	100%	173,316	174,644																											
LOI Interior Lighting LED							8	8	8,687	8,687	13	13	89%	765,563	771,428																											
Boilers (up to 300 MBH)							2	2	105	105	25	25	100%	6,296	6,296																											
Energy Star Mini Split Heat Pump (SEER=19, HSPF=10)							5	5	751	751	12	12	100%	45,060	45,060																											
Energy Star Mini Split Heat Pump (SEER=19, HSPF=10)							5	5	751	751	12	12	100%	45,060	45,060																											

- The Energy Star Mini Split Heat Pump has been separated into a Energy Star Model (SEER=14.5, HSPF=8.7) and a higher efficiency low temperature heat pump (SEER=19.0, HSPF=10.0). The energy savings have also been modified to be the difference between a standard efficiency unit vs. Energy Star model vs. a higher efficiency low temperature model.
- Used average energy savings from the Gas Networks, and expanded for oil and LP.
- Annual kWh Savings for the WiFi Thermostat for Ductless Mini-split Heat Pumps comes from the EnergyStar.gov calculator and assumes an additional 16.6% heating and cooling savings.
- Since this is funded by RGGI, the 2015-2016 Plan includes some Weatherization Projects and incentives for customers replacing heating systems to upgrade to more efficient models.







PSNH ENERGY STAR® Homes Program

Measure	Quantity						Annual Savings per Unit (kWh)						Measure Life						In-Service / Realization Rate						Total Lifetime Savings (kWh)						Annual Savings Per Unit (MMBTU)						Total Lifetime MMBTU Savings					
	2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016							
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual								
ES CFL/LED Lights <sup>1</sup>	312.1	3	2,076.0	2,438.3	2,104.0		23.0	23.0	24.6	24.6	24.6	5	8	20	20	20	100.00%	100.00%	80.30%	100.00%	100.00%	100.00%	288,178	306,666	1,200,037	1,035,518	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
ES Light Fixture (Interior)	312.1	1,449.0	243.8	210.4		62.3	62.3	24.6	24.6	24.6	20	20	20	20	20	20	100.00%	100.00%	100.00%	100.00%	100.00%	388,727	1,804,556	120,004	103,552	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
ES Clothes Washer	46.8	26.0	43.9	37.9	223.0	181.8	33.0	33.0	31.4	31.4	31.4	10	10	10	10	10	100.00%	100.00%	100.00%	100.00%	100.00%	114,851	63,778	87,750	75,720	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74					
ES Dishwasher	218.5	288.0	195.1	168.3	106.0	107.0	106.0	107.0	107.0	107.0	107.0	12	12	12	12	12	100.00%	100.00%	100.00%	100.00%	100.00%	72,103	95,040	61,250	52,852	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19					
ES Refrigerator	249.7	365.0	231.6	199.9	178.8	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	12	12	100.00%	100.00%	100.00%	100.00%	100.00%	317,629	464,280	297,421	256,646	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
ES Thermostats	234.1	328.0	207.3	178.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	12	12	100.00%	100.00%	100.00%	100.00%	100.00%	202,817	263,375	50,082	43,216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
ON Heated Homes	15.6	1.0	4.9	4.2	519.8	410.8	410.8	98.3	98.3	98.3	25	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	563,577	89,881	77,559	77,559	25.80	23.36	23.10	23.10	25.80	23.36	23.10	23.10	25.80	23.36	23.10	23.10					
Natural Gas Heated Homes	171.7	146.0	126.8	109.4	506.0	462.6	462.6	462.6	462.6	462.6	462.6	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	2,171,679	506,949	1,466,331	1,265,304	37.20	34.48	31.80	31.80	37.20	34.48	31.80	31.80	37.20	34.48	31.80	31.80					
Liquid Propane Heated Homes	15.6	1.0	14.6	12.6	7,323.0	8,790.0	7,935.8	7,935.8	7,935.8	7,935.8	7,935.8	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	2,857,206	219,750	2,902,451	2,504,539	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Electric Baseboard Heated Home	62.4	209.0	61.0	52.6	4,347.3	5,355.0	5,355.0	5,355.0	5,355.0	5,355.0	5,355.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	3,609,841	22,714,575	8,160,606	7,041,827	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
ASHP Heated Home (MF)	0.0	6.0	0.0	0.0	617.0	10,675.0	0.0	0.0	0.0	0.0	0.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	0	92,550	0	0	26.96	0.00	0.00	0.00	0.00	26.96	0.00	0.00	0.00	26.96	0.00	0.00	0.00				
Wood Heated Homes	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	0	266,875	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
GSPH/NG Heated Homes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Geothermal & Air Source Heat Pump Program	54.0	28.0	30.4	26.0	15,303.0	12,374.3	12,250.0	12,250.0	12,250.0	12,250.0	12,250.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	20,642,251	8,661,975	9,296,821	7,969,300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
GSPH (Heating)	54.0	28.0	30.4	26.0	808	62.8	69.0	69.0	69.0	69.0	69.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	108,924	43,925	52,366	44,888	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
GSPH (Cooling)	54.0	28.0	30.4	26.0	1,538.2	1,527.0	1,819.0	1,819.0	1,819.0	1,819.0	1,819.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	2,074,868	1,068,925	1,380,483	1,183,360	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
GSPH (Hot Water)	54.0	28.0	30.4	26.0	-238.2	-1,277.6	-1,620.0	-1,620.0	-1,620.0	-1,620.0	-1,620.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	-321,282	-89,300	-122,946	-105,390	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
GSPH (Lights & Appliances)	15.2	3.0	9.0	7.7	17,244.0	13,608.7	9,671.0	9,671.0	9,671.0	9,671.0	9,671.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	6,542,007	1,020,650	2,182,030	1,870,452	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
ASHP (Heating)	15.2	3.0	9.0	7.7	468.0	285.3	71.0	71.0	71.0	71.0	71.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	177,549	21,400	16,019	13,732	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
ASHP (Cooling)	15.2	3.0	9.0	7.7	0.0	1,481.7	520.0	520.0	520.0	520.0	520.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	0	111,125	117,326	100,572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
ASHP (Hot Water)	15.2	3.0	9.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	109,261	-38,200	-17,824	-15,279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
ASHP (Lights & Appliances)	15.2	3.0	9.0	7.7	288.0	-376.0	-79.0	-79.0	-79.0	-79.0	-79.0	25	25	25	25	25	100.00%	100.00%	100.00%	100.00%	100.00%	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

Notes:

1. CFL bulbs for 2013 and LED for 2015 and 2016.

Planning Assumptions

- The Energy Star Homes Heat Pump Program is being merged in to the Energy Star Homes program for 2015-2016. The new single family homes with heat pumps are listed at the bottom of the table above.
- Measure Life Changes:
  - > LEDs have a longer life than CFLs due to longer hours (20 years at 2 hours/day)
- Lighting & Appliance Energy Savings have been updated to per the EPA Energy Star Appliance Calculators and NH evaluation results.

PSNH ENERGY STAR® Products Program - Lighting

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life			In-Service & Realization Rate			Total Lifetime Savings (kWh)					
	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan
	Catalog CFLs	2,859	24,283			23.0	23.0			5	5			62.30%	204,772	1,739,377	0	0	0	0
Catalog Interior Fixtures (Lamps and HW Fixtures)	376	677			62.3	62.3			8	8			96.40%	180,636	325,108	0	0	0	0	0
Catalog Exterior Fixtures	188	83			62.3	62.3			5	5			100.00%	58,557	25,842	0	0	0	0	0
Catalog Torchieres	113	0			69.4	69.4			8	8			93.50%	58,538	0	0	0	0	0	0
Catalog LED Fixtures	38	0			27.7	27.7			20	20			95.00%	19,773	0	0	0	0	0	0
Catalog LED Bulbs	188	3,526	13,144	10,782	27.7	27.7	24.6	24.6	20	20	20	20	95.00%	98,867	1,853,523	6,145,597	5,041,248	367,714	301,637	
Catalog LED Multi-packs			830	681			24.6	24.6			20	20	90.00%	0	0	0	0	0	0	0
Retail CFLs	7,683	40,322			23.0	23.0			5	5			62.30%	550,324	2,888,242	0	0	0	0	0
Retail CFL Multi-packs	214,407	146,346	77,397	63,489	23.0	23.0	29.0	29.0	5	5	5	5	62.30%	15,357,877	10,482,680	6,987,039	5,731,484	0	0	
Retail Interior Fixtures (Lamps and HW Fixtures)	2,144	2,464			62.3	62.3			8	8			96.40%	1,029,624	1,183,258	0	0	0	0	0
Retail Exterior Fixtures	143	25			62.3	62.3			5	5			100.00%	44,503	7,784	0	0	0	0	0
Retail Torchieres	36	0			69.4	69.4			8	8			93.50%	18,537	0	0	0	0	0	0
Retail LED Fixtures	715	8,936			27.7	27.7			20	20			95.00%	375,694	4,697,414	0	0	0	0	0
Retail LED Bulbs	7,147	9,498	71,473	58,630	27.7	27.7	24.6	24.6	20	20	20	20	95.00%	3,756,939	4,992,842	32,890,272	26,979,967	0	0	
Retail LED Bulbs Labeled as Retail CFLs							27.7	27.7			20	20	100.00%	0	2,067,278	0	0	0	0	0
Retail LED Bulbs Multi-Packs			5,507	4,517			24.6	24.6			20	20	95.00%	0	0	2,574,651	2,111,993	0	0	
Markdown: CFLs (Multipack Bulbs)			605	496			29.0	29.0			5	5	96.40%	0	0	84,521	69,332	0	0	
Markdown: LED Bulbs			2,531	2,076			24.6	24.6			20	20	90.00%	0	0	1,121,081	919,625	0	0	
Markdown: LED Bulbs (Multipack Bulbs)			561	460			24.6	24.6			20	20	96.40%	0	0	266,124	218,302	0	0	
Retail LED Interior Fixtures			13,342	10,944			24.6	24.6			8	8	90.00%	0	0	2,363,878	1,939,095	0	0	

**Planning Assumptions**

- The Annual kWh Savings for both CFLs and LEDs were adjusted to reflect the weighted average of bulbs they are intended to replace.  
 > kWh Savings = (Delta Watts) \* (2 hours/days \* 386 days/year) / 1000 to convert from watt hours to kWh
- Transitioning to incent more LEDs in 2015-2016, but providing some incentives for lower cost CFLs (e.g., multi-packs).

Measure	2013		2016 Plan		2013		2016 Plan		Annual Savings per Unit (MMBTU)		Total Lifetime Savings (MMBTU)	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	2013 Plan	2013 Actual	2015 Plan	2016 Plan
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	2013 Plan	2013 Actual	2015 Plan	2016 Plan
Energy Star Clothes Washer	7,809.0	6,885.0	6,259.5	5,442.1	181.8	181.8	11	11	0.7	0.7	0.5	0.5
Energy Star Room Air Conditioner	2,552.9	3,869.0	3,688.2	3,215.3	16.2	16.2	9	9	0.0	0.0	0.0	0.0
Smartstrip Power Strip	196.2	419.0	352.2	306.2	79.1	79.1	5	5	0.0	0.0	0.0	0.0
Energy Star Refrigerator	3,904.5	5,668.0	4,754.9	4,133.9	107.0	107.0	12	12	0.0	0.0	0.0	0.0
2nd Refrigerator Pickup	300.3	580.0	528.3	459.3	835.0	835.0	8	8	0.0	0.0	0.0	0.0
2nd Freezer Pickup	130.2	197.0	176.1	153.1	663.0	663.0	8	8	0.0	0.0	0.0	0.0
Energy Star Room Air Purifiers	90.1	97.0	88.1	76.6	390.6	390.6	9	9	0.0	0.0	0.0	0.0
Room ACPickup/Turn-in	15.0	10.0	17.6	15.3	16.2	16.2	5	5	0.0	0.0	0.0	0.0
Energy Star Central AC (3 ton)			70.4	61.2	110.3	110.3	14	14	0.0	0.0	0.0	0.0
Energy Star Ductless Mini Split (Cooling Only)			17.6	15.3	30.6	30.6	14	14	0.0	0.0	0.0	0.0
Energy Star Air Source Heat Pumps (SEER >=14.5/ EER >=12, Cooling)			52.8	45.9	92.0	92.0	12	12	0.0	0.0	0.0	0.0
Energy Star Air Source Heat Pumps (HSPF >=8.2, Heating)			38.0	33.1	627.9	627.9	12	12	0.0	0.0	0.0	0.0
Energy Star WiFi TSTAT for ASHP			38.0	33.1	23.4	23.4	15	15	0.0	0.0	0.0	0.0
Energy Star DMSHP (Any, SEER >=10, HSPF >=10, Cooling)			396.2	344.5	536.4	536.4	12	12	0.0	0.0	0.0	0.0
Energy Star DMSHP (Oil, SEER >=20, HSPF >=10, Heating)			396.2	344.5	536.4	536.4	12	12	0.0	0.0	0.0	0.0
Energy Star DMSHP (LP, SEER >=20, HSPF >=10, Heating)			396.2	344.5	536.4	536.4	12	12	0.0	0.0	0.0	0.0
Energy Star WiFi TSTAT for DMSHP			570.6	496.1	109.7	109.7	15	15	0.0	0.0	0.0	0.0
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (ES-EF>=2.0)			176.1	153.1	1,775.0	1,775.0	10	10	0.0	0.0	0.0	0.0
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (ES-EF>=2.0)			17.6	15.3	2,672.0	2,672.0	10	10	0.0	0.0	0.0	0.0
Energy Star Central Air Conditioner	45.1	57.0	110.3	110.3	110.3	110.3	14	14	0.0	0.0	0.0	0.0
Energy Star Mini Split Heat Pump (\$900 incentive - total)	77.6	548.0	122.9	122.9	122.9	122.9	12	12	0.0	0.0	0.0	0.0
Energy Star Mini Split Heat Pump (for homes w/Oil heat)	57.6	423.0	-2,158.1	-2,158.1	-2,158.1	-2,158.1	12	12	17.1	17.1	17.1	17.1
Energy Star Mini Split Heat Pump (for homes w/LP heat)	20.0	125.0	-2,158.1	-2,158.1	-2,158.1	-2,158.1	12	12	15.4	15.4	15.4	15.4
Energy Star Mini Split Heat Pump (\$450 incentive - total)	0.0	17.3	79.6	79.6	79.6	79.6	12	12	0.0	0.0	0.0	0.0
Energy Star Mini Split Heat Pump (for homes w/Oil heat)	0.0	134.0	-2,158.1	-2,158.1	-2,158.1	-2,158.1	12	12	0.0	0.0	0.0	0.0
Energy Star Mini Split Heat Pump (for homes w/LP heat)	0.0	39.0	-2,158.1	-2,158.1	-2,158.1	-2,158.1	12	12	0.0	0.0	0.0	0.0
Burn: LP, Furnace, FHA, AFUE >=95% w/ECM	103.4	38.0	168.0	168.0	168.0	168.0	18	18	4.5	4.5	4.5	4.5
Burn: LP, Furnace, FHA, AFUE >=96% w/ECM	51.7	0.0	168.0	168.0	168.0	168.0	18	18	5.6	5.6	5.6	5.6
Burn: LP, Furnace, FHA, AFUE >=97% w/ECM	17.2	24.0	168.0	168.0	168.0	168.0	18	18	5.9	5.9	5.9	5.9
Burn: Oil, Furnace, FHA, AFUE >=85% w/ECM	51.7	0.0	168.0	168.0	168.0	168.0	18	18	18.0	18.0	18.0	18.0
Burn: Oil, Furnace, FHA, AFUE >=90 w/ECM	17.2	0.0	168.0	168.0	168.0	168.0	18	18	20.7	20.7	20.7	20.7
Boil: LP, Boiler, FHW, AFUE >= 80%	103.4	57.0	2,672.0	2,672.0	2,672.0	2,672.0	20	20	10.4	10.4	10.4	10.4
Boil: LP, Boiler, FHW, AFUE >=86%	34.5	78.0	0.0	0.0	0.0	0.0	20	20	13.1	13.1	13.1	13.1
Boil: Oil, Boiler, FHW, AFUE >=85%	654.9	264.0	0.0	0.0	0.0	0.0	20	20	5.4	5.4	5.4	5.4
Boil: Oil, Boiler, FHW, AFUE >=90%	86.2	3.0	0.0	0.0	0.0	0.0	20	20	10.8	10.8	10.8	10.8
Boil: Oil, Combo condensing boiler w/ On-Demand DHW 90%	8.6	54.0	0.0	0.0	0.0	0.0	20	20	17.8	17.8	17.8	17.8
DHW: LP, Tankless Water Heaters (EF>=0.82)	206.8	89.0	0.0	0.0	0.0	0.0	20	20	9.7	9.7	9.7	9.7
DHW: LP, Indirect Water Heater (attached to LP Energy Star FHW boiler)	8.6	55.0	0.0	0.0	0.0	0.0	20	20	8.0	8.0	8.0	8.0
DHW: Oil, Indirect Water Heater (attached to oil Energy Star FHW boiler)	8.6	172.0	0.0	0.0	0.0	0.0	13	13	8.0	8.0	8.0	8.0
DHW: LP, Stand Alone Storage Water Heater (EF>=0.67)	8.6	2.0	0.0	0.0	0.0	0.0	10	10	3.7	3.7	3.7	3.7
DHW: Energy Star Heat Pump 50 Gal Water Heater, EF>=2.3 (ES-EF>=2.0)	8.6	125.0	1,775.0	1,775.0	1,775.0	1,775.0	10	10	0.0	0.0	0.0	0.0
DHW: Energy Star Heat Pump 80 Gal Water Heater, EF>=2.3 (ES-EF>=2.0)	8.6	13.0	2,672.0	2,672.0	2,672.0	2,672.0	10	10	0.0	0.0	0.0	0.0
BRC: Oil, Boiler Reset Controls	103.4	13.0	0.0	0.0	0.0	0.0	15	15	9.6	9.6	9.6	9.6
BRC: Oil, Boiler Reset Controls	103.4	13.0	0.0	0.0	0.0	0.0	15	15	9.6	9.6	9.6	9.6
TSTAT: LP, 7 Day Programmable Thermostats	8.6	32.0	14.4	14.4	14.4	14.4	15	15	7.7	7.7	7.7	7.7
TSTAT: Oil, 7 Day Programmable Thermostats	8.6	110.0	14.4	14.4	14.4	14.4	15	15	7.7	7.7	7.7	7.7
TSTAT: LP, WiFi Enabled 7 Day Programmable Thermostats	8.6	0.0	14.4	14.4	14.4	14.4	15	15	6.6	6.6	6.6	6.6
TSTAT: Oil, WiFi Enabled 7 Day Programmable Thermostats	8.6	0.0	14.4	14.4	14.4	14.4	15	15	6.6	6.6	6.6	6.6
Water Heater: LP Tankless, EF>=0.94	0.0	67.0	0.0	0.0	0.0	0.0	20	20	3.90	3.90	3.90	3.90

**Planning Assumptions**

1. Clothes Washer Annual kWh Savings updated based on mix of Water Heating Survey Results (Electric vs LP/Oil/NG water heating) and per EnergyStar.gov Savings Calculator.
2. All Energy Star Appliance savings updated based on review of the EnergyStar.gov Savings Calculator and/or recent evaluations.
3. Central air conditioner and Mini Split Heat Pump Annual kWh savings were updated via the EnergyStar.gov calculator, and conservatively assumed 50% of heat provided by heat pump, 50% provided by existing fossil system.
4. As part of the Statewide CORE Energy Efficiency Plan, the plan is to provide Ductless Mini Split incentives only for the more efficient "Low Temperature" models.
5. All furnace-related measures are part of the HPWES program starting in 2015.

Measure	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service or Realization Rate			Total Lifetime Savings (kWh)			Annual Savings Per Unit (MMBTU)			Total Lifetime MMBTU Savings					
	2013 Plan	2013 Actual	2016 Plan	2013 Plan	2013 Actual	2016 Plan	2013 Plan	2013 Actual	2016 Plan	2013	2015	2016	2013 Plan	2013 Actual	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2015 Plan	2016 Plan	
	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Plan	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	
<b>NEW EQUIPMENT TRACK</b>																								
Cooling	44.2	49.0	28.2	27.4	34,776.7	44,213.2	39,908.4	39,908.4	39,908.4	15	15	15	92.50%	92.50%	92.50%	21,310,898	29,851,653	15,993,461	15,515,378	0	0	0	0	0
Heating	4.3	10.0	14.3	13.9	53,278.3	226,338.5	94,862.4	94,862.4	94,862.4	15	15	15	92.50%	92.50%	92.50%	3,210,435	31,265,717	18,680,114	18,121,720	0	0	0	0	0
Lighting (LED)	13.0	22.0	17.7	17.2	66,783.4	72,786.9	59,831.5	59,831.5	59,831.5	15	15	15	92.50%	92.50%	92.50%	12,059,476	22,218,204	14,714,089	14,274,249	0	0	0	0	0
Lighting (Occ Sensors Only)	3.8	2.0	0.0	0.0	454,417.5	0.0	0.0	0.0	0.0	15	15	15	92.50%	92.50%	92.50%	0	0	0	0	0	0	0	0	0
Other	8.5	0.0	0.0	0.0	17,100.5	0.0	0.0	0.0	0.0	10	10	10	92.50%	92.50%	92.50%	862,163	2,580,874	0	0	0	0	0	0	0
Process	31.9	36.0	20.5	19.9	131,370.3	134,370.3	117,825.5	117,825.5	117,825.5	15	15	15	92.50%	92.50%	92.50%	15,414,643	0	32,973,324	31,987,671	0	0	0	0	0
Lighting - Parking Lot Lights	0.0	0.0	43.9	42.6	54,812.6	124,799.3	2,250.0	2,250.0	2,250.0	15	15	15	92.50%	92.50%	92.50%	24,275,347	58,316,417	1,371,507	1,330,510	0	0	0	0	0
<b>RETROFIT TRACK</b>																								
Cooling	18.6	3.0	8.5	8.2	65,103.9	53,784.7	93,521.4	93,521.4	93,521.4	13	13	13	94.00%	94.00%	94.00%	14,299,887	1,971,746	9,844,960	9,522,725	0	0	0	0	0
Heating	9.4	2.0	5.3	5.1	17,368.5	53,229.0	52,904.1	52,904.1	52,904.1	20	20	20	94.00%	94.00%	94.00%	3,072,035	1,318,378	3,426,090	3,313,951	0	0	0	0	0
Lighting	83.6	30.0	93.5	90.5	52,212.4	87,626.5	69,199.6	69,199.6	69,199.6	13	13	13	94.00%	94.00%	94.00%	53,165,257	32,123,861	78,692,908	76,310,672	0	0	0	0	0
Lighting - LED	8.9	16.0	0.0	0.0	88,341.6	36,975.9	0.0	0.0	0.0	13	13	13	94.00%	94.00%	94.00%	9,636,735	7,229,532	0	0	0	0	0	0	0
Lighting - Occ Sensors only	16.9	9.0	0.0	0.0	30,253.0	24,688.6	0.0	0.0	0.0	9	9	9	94.00%	94.00%	94.00%	4,512,326	1,879,788	0	0	0	0	0	0	0
Other	6.1	1.0	15.3	14.8	27,788.3	177,033.0	30,062.7	30,062.7	30,062.7	14	13	13	94.00%	94.00%	94.00%	2,171,361	2,163,343	5,746,144	5,558,668	0	0	0	0	0
Lighting - Parking Lot Lights	8.5	21.0	36.2	35.0	51,129.8	36,125.3	21,950.7	21,950.7	21,950.7	13	13	13	94.00%	94.00%	94.00%	5,280,733	9,270,471	9,702,149	9,384,588	0	0	0	0	0
Process	50.5	20.0	67.3	65.1	65,379.8	134,197.3	91,880.3	91,880.3	91,880.3	12	12	12	94.00%	94.00%	94.00%	36,353,093	32,338,942	71,833,817	69,482,631	0	0	0	0	0
<b>Fuel Neutral Heating, Hot Water and Controls</b>																								
Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	4.1	0.0	0.0	0.0	122.9	122.9	0.0	0.0	0.0	12	12	12	100.00%	100.00%	100.00%	6,075	0	0	0	0	0	0	0	0
LP-Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	0.8	0.0	0.0	0.0	-2,158.1	-2,158.1	0.0	0.0	0.0	12	12	12	100.00%	100.00%	100.00%	-21,339	0	0	0	0	0	0	0	0
Oil-Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	3.3	0.0	0.0	0.0	-2,158.1	-2,158.1	0.0	0.0	0.0	12	12	12	100.00%	100.00%	100.00%	-85,354	0	0	0	0	0	0	0	0
Indirect Water Heater (attached to Oil Energy Star FHW boiler)	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	15	15	15	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
On Demand Tankless Water Heater >= 95 EF w/Electronic Ignition	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boilers, LP >= 90% thermal efficiency (801 to 499 MBH), Condensing	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boilers, LP >= 90% thermal efficiency (500 to 999 MBH), Condensing	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boilers, Oil >= 85% thermal efficiency (500 to 999 MBH)	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boilers, LP >= 90% thermal efficiency (1000 to 1700 MBH), Condensing	0.2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boilers, Oil >= 85% thermal efficiency (1000 to 1700 MBH)	12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boilers, Oil >= 85% thermal efficiency (1701 to 2000 MBH)	20.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
7-Day Programmable Thermostats (Oil)	0.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boiler Reset Controls, LP, After Market, 1 shift operation	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Boiler Reset Controls, Oil, After Market, 1 shift operation	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Steam Traps, Oil (greater than 10 steam traps requires pre-approval)	0.0	157.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0
Low Intensity Infrared Heaters - LP	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0

**Planning Assumptions**

- Annual Savings were updated based on recent trends and reflect expected project sizes.
- The New Construction Track projects are expected to be generally smaller projects (had we increased the average incentive and annual kWh savings, it would have not reflected trends and it would have reduced the number of projects to be done).
- Lighting (LED) and Lighting Occupancy Sensor projects are incorporated into Lighting Projects for planning purposes.
- Fossil Heating System incentives eliminated as a result of SB 268 (no Energy Efficiency Funds (REGI)).
- "Heating" projects are mostly efficient snowmaking equipment (we use heating because we don't have a snowmaking load shape yet), and we are expecting smaller projects in 2015-2016 than we've seen in 2013.

Measure	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service or Installation Rate			Total Lifetime Savings (kWh)			Annual Savings Per Unit (MMBTU)			Total Lifetime MMBTU Savings				
	2013	2015	2016	2013	2015	2016	2013	2015	2016	2013	2015	2016	2013	2015	2016	2013	2015	2016	2013	2015	2016		
	Actual	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan	Actual	Plan	Plan		
Lighting - New Equipment & Construction	143.5	103.0	62.3	60.2	13,787.6	19,780.8	18,194.1	16	15	15	100.00%	100.00%	31,432,153	16,459,891	0.0	0.0	0.0	0	0	0	0	0	
Lighting - Retrofit	167.8	285.0	138.4	133.8	19,981.5	22,298.1	23,569.9	13	13	13	100.00%	100.00%	42,978,806	17,025,896	0.0	0.0	0.0	0	0	0	0	0	0
Lighting - Direct Install	192.1	184.0	187.6	181.3	14,488.5	22,372.0	16,169.2	6	6	6	100.00%	100.00%	35,772,621	36,986,222	0.0	0.0	0.0	0	0	0	0	0	0
Lighting - Catalog Sales	667.7	3,902.0	120.4	116.4	46.3	46.3	1,618.1	6	13	13	100.00%	100.00%	185,501	2,533,108	0.0	0.0	0.0	0	0	0	0	0	0
SmartStrips	80.7	13.0	57.8	55.9	75.0	75.0	75.0	5	5	5	100.00%	100.00%	30,280	21,689	0.0	0.0	0.0	0	0	0	0	0	0
<b>Fuel Neutral Heating, Hot Water and Controls</b>																							
Central Air Conditioner (Energy Star >= 14.5 SEER), 3 ton	32.3	7.0			110.3	110.3		14	14	14	100.00%	100.00%	49,810	0	0.0	0.0	0.0	0	0	0	0	0	0
Central Air Conditioner (Energy Star >= 14.5 SEER), 6 ton	0.0	1.0			220.6	220.6		14	14	14	100.00%	100.00%	0	0	0.0	0.0	0.0	0	0	0	0	0	0
Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	125.4	48.0			122.9	122.9		12	12	12	100.00%	100.00%	184,973	70,775	0.0	0.0	0.0	0	0	0	0	0	0
Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	0.0	0.0			-2,158.1	-2,158.1		12	12	12	100.00%	100.00%	0	0	0.0	0.0	0.0	0	0	0	0	0	0
Gas Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	35.8	11.0			-2,158.1	-2,158.1		12	12	12	100.00%	100.00%	-928,235	-285,908	15.4	15.4	15.4	6,637	2,044	0	0	0	0
Oil Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	88.6	37.0			-2,158.1	-2,158.1		12	12	12	100.00%	100.00%	-2,320,588	-957,170	17.1	17.1	17.1	18,430	7,602	0	0	0	0
Indirect Water Heater (attached to LP Energy Star FHW boiler)	4.0				0.0	0.0		15	15	15	100.00%	100.00%	0	0	20.7	20.7	20.7	0	1,242	0	0	0	
Indirect Water Heater (attached to Oil Energy Star FHW boiler)	3.0				0.0	0.0		15	15	15	100.00%	100.00%	0	0	20.7	20.7	20.7	0	932	0	0	0	
On Demand Tankless Water Heater, LP, >= 82 EF w/Electronic Ignition	35.8	1.0			0.0	0.0		20	20	20	100.00%	100.00%	0	0	7.1	7.1	7.1	5,090	142	0	0	0	
On Demand Tankless Water Heater, LP, >= 95 EF w/Electronic Ignition	21.5	3.0			0.0	0.0		20	20	20	100.00%	100.00%	0	0	9.6	9.6	9.6	4,125	575	0	0	0	
Furnace, LP (forced hot air) >= 95% AFUE w/ECM (up to 150 MBH)	0.0	6.0			0.0	0.0		18	18	18	100.00%	100.00%	0	0	16.1	16.1	16.1	0	1,739	0	0	0	
Furnace, Oil (forced hot air) >= 95% AFUE w/ECM (up to 150 MBH)	0.0	2.0			0.0	0.0		18	18	18	100.00%	100.00%	0	0	16.1	16.1	16.1	0	580	0	0	0	
Furnace, LP (forced hot air) >= 97% AFUE w/ECM (up to 150 MBH)	17.9	3.0			0.0	0.0		18	18	18	100.00%	100.00%	0	0	18.5	18.5	18.5	0	1,998	0	0	0	
Boilers, LP >= 90% AFUE (up to 300 MBH), Condensing	35.8	5.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	22.8	22.8	22.8	10,215	1,710	0	0	0	
Boilers, Oil >= 85% AFUE (up to 300 MBH)	0.0	5.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	25.2	25.2	25.2	20,430	2,850	0	0	0	
Boilers, LP >= 96% AFUE (up to 300 MBH)	17.9	0.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	25.2	25.2	25.2	0	5,150	0	0	0	
Boilers, Oil >= 87% AFUE (up to 300 MBH)	0.0	8.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	42.3	42.3	42.3	0	5,040	0	0	0	
Boilers, LP >= 90% thermal efficiency (301 to 499 MBH), Condensing	35.8	1.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	42.3	42.3	42.3	18,952	0	0	0	0	
Boilers, LP >= 85% thermal efficiency (500 to 999 MBH)	0.0	1.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	42.3	42.3	42.3	37,904	0	0	0	0	
Boilers, LP >= 90% thermal efficiency (500 to 999 MBH), Condensing	0.0	1.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	77.1	77.1	77.1	0	1,928	0	0	0	
Boilers, Oil >= 85% thermal efficiency (500 to 999 MBH)	0.0	1.0			0.0	0.0		25	25	25	100.00%	100.00%	0	0	77.1	77.1	77.1	0	1,928	0	0	0	
Boilers, Oil >= 85% thermal efficiency (1000 to 1700 MBH)	0.0	11.0			0.0	0.0		15	15	15	100.00%	100.00%	0	0	142.6	142.6	142.6	0	3,565	0	0	0	
7-Day Programmable Thermostats (LP)	0.0	21.0			0.0	0.0		15	15	15	100.00%	100.00%	0	0	7.7	7.7	7.7	0	1,271	0	0	0	
Boiler Reset Controls, LP, After Market, 1 shift operation	17.9	0.0			0.0	0.0		15	15	15	100.00%	100.00%	0	0	19.3	19.3	19.3	0	5,188	0	0	0	
Boiler Reset Controls, Oil, After Market, 1 shift operation	17.9	3.0			0.0	0.0		15	15	15	100.00%	100.00%	0	0	19.3	19.3	19.3	0	5,188	869	0	0	
Steam Traps, Oil (greater than 10 steam traps requires pre-approval)	0.0	7.0			0.0	0.0		3	3	3	100.00%	100.00%	0	0	25.7	25.7	25.7	0	540	0	0	0	
Unit Heaters (up to 300 MBH), LP, Condensing	5.0				0.0	0.0		18	18	18	100.00%	100.00%	0	0	30.0	30.0	30.0	0	2,700	0	0	0	
Heat Pump Water Heaters, 50gal	3.0				1,775.0	1,775.0		10	10	10	100.00%	100.00%	0	53,250	0.0	0.0	0.0	0	0	0	0	0	0

**Planning Assumptions**

- Annual kWh Savings updated to reflect the trend in smaller "Lighting - Direct Install" projects.
- Annual kWh Savings for "Lighting - Catalog Sales" (or online sales) were updated to reflect projects (purchase of more than one bulb) rather than on a per bulb basis, and the measure life updated to reflect the purchase of longer life LEDs.
- Fossil Heating System incentives eliminated as a result of SB 288 (no Energy Efficiency Funds (REGI)).

Measure	Quantity						Annual Savings per Unit (kWh)						Measure Life						In-Service or Installation Rate						Total Lifetime Savings (kWh)						Annual Savings Per Unit (MMBTU)						Total Lifetime MMBTU Savings					
	2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016		2013		2015		2016							
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual								
Lighting - New Equipment & Construction	0.0	0.0	31.8	31.7	13,787.6	14,392.9	14,392.9	13	15	15	100.00%	0	0	6,866,580	6,844,018	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Lighting - Retrofit	0.0	0.0	44.0	43.8	19,981.5	23,714.9	23,714.9	13	14	13	92.90%	0	0	13,559,009	13,514,458	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Lighting - Direct Install	0.0	0.0	35.5	35.4	14,488.5	37,457.3	37,457.3	13	13	13	92.90%	0	0	17,034,410	16,978,440	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Lighting - Catalog Sales	0.0	0.0	0.0	0.0	46.3	0.0	0.0	5	6	6	92.90%	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
SmartStrips	0.0	0.0	0.0	0.0	75.0	0.0	0.0	5	5	5	92.90%	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Wxn (LP Heat)	0.0	0.0	5.0	5.0	0.0	0.0	0.0	20	20	20	100.00%	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Wxn (Oil Heat)	0.0	0.0	5.0	5.0	0.0	0.0	0.0	20	20	20	100.00%	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Energy Star DMSHP (Any, SEER >=20, HSPF >=10, Cooling)	0.0	0.0	11.7	11.6	124.4	124.4	124.4	12	12	12	100.00%	0	0	17,424	17,367	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Energy Star DMSHP (Oil, SEER >=20, HSPF >=10, Heating)	0.0	0.0	5.8	5.8	536.4	536.4	536.4	12	12	12	100.00%	0	0	37,572	37,449	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Energy Star DMSHP (LP, SEER >=20, HSPF >=10, Heating)	0.0	0.0	5.8	5.8	109.7	109.7	109.7	12	12	12	100.00%	0	0	37,572	37,449	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Energy Star Wifi TSTAT for DMSHP	0.0	0.0	11.7	11.6	1,775.0	1,775.0	1,775.0	15	15	15	100.00%	0	0	19,208	19,145	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Heat Pump Water Heater (59 gallons)	0.0	0.0	2.1	2.1	2,672.0	2,672.0	2,672.0	10	10	10	100.00%	0	0	37,297	37,174	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Heat Pump Water Heater (80 gallons)	0.0	0.0	2.1	2.1	1,680	1,680	1,680	18	18	18	100.00%	0	0	57,185	56,997	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Furnace: LP, w/ECM, AFUE >= 95%, up to 150 MBH	0.0	0.0	1.6	1.6	168.0	168.0	168.0	18	18	18	100.00%	0	0	4,707	4,691	15.4	15.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Furnace: LP, w/ECM, AFUE >= 97%, up to 150 MBH	0.0	0.0	1.0	1.0	168.0	168.0	168.0	18	18	18	100.00%	0	0	3,138	3,128	15.4	15.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: LP, Condensing, AFUE >= 90%, up to 300 MBH	0.0	0.0	1.1	1.0	0.0	0.0	0.0	25	25	25	100.00%	0	0	0	0	30.6	30.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Boiler: Oil, AFUE >= 85%, up to 300 MBH	0.0	0.0	1.1	1.0	0.0	0.0	0.0	25	25	25	100.00%	0	0	0	0	22.1	22.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: LP, Condensing, AFUE >= 95%, up to 300 MBH	0.0	0.0	1.1	1.1	0.0	0.0	0.0	25	25	25	100.00%	0	0	0	0	27.8	27.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: Oil, AFUE >= 87%, up to 300 MBH	0.0	0.0	1.6	1.6	0.0	0.0	0.0	25	25	25	100.00%	0	0	0	0	22.1	22.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: LP, Condensing, AFUE >= 90%, up to 301-499 MBH	0.0	0.0	5.8	5.8	0.0	0.0	0.0	25	25	25	100.00%	0	0	0	0	58.4	58.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: Oil, AFUE >= 85%, up to 301-499 MBH	0.0	0.0	5.8	5.8	0.0	0.0	0.0	25	25	25	100%	0	0	0	0	42.20	42.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: LP, Condensing, AFUE >= 90%, up to 500-999 MBH	0.0	0.0	1.0	1.0	0.0	0.0	0.0	25	25	25	100%	0	0	0	0	107.30	107.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: Oil, AFUE >= 85%, up to 500-999 MBH	0.0	0.0	1.0	1.0	0.0	0.0	0.0	25	25	25	100%	0	0	0	0	79.10	79.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: LP, Condensing, AFUE >= 90%, up to 1000-1700 MBH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100%	0	0	0	0	197.20	197.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Boiler: Oil, AFUE >= 85%, up to 1000-1700 MBH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	100%	0	0	0	0	142.30	142.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

**Planning Assumptions**

- The Energy Star Mini Split Heat Pump has been separated into a Energy Star Model (SEER=>14.5, HSPF=>8.7) and a higher efficiency cold climate heat pump (SEER=>19.0, HSPF=>10.0).
- The energy savings have also been modified to be the difference between a standard efficiency unit vs. Energy Star model vs. a higher efficiency cold climate model.
- Annual kWh Savings for the WiFi Thermostat for Ductless Mini-split Heat Pumps comes from the EnergyStar.gov calculator and assumes an additional 1.66% heating and cooling savings.
- Since this is funded by RGGI, the 2015-2016 Plan includes some Weatherization Projects and incentives for customers replacing heating systems to upgrade to more efficient models.

PSNH Company Specific Programs  
 A. C&I RFP Program  
 B. Home Energy Reports

Measure	Quantity						Annual Savings per Unit (kWh)						Measure Life			In-Service or Realization Rate			Total Lifetime Savings (kWh)						
	2013 Plan		2015 Plan		2016 Plan		2013 Plan		2015 Plan		2016 Plan		2013 Plan	2015 Plan	2016 Plan	2013 Actual	2015 Actual	2016 Actual	2013 Plan	2015 Plan	2016 Plan				
	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan			
A. C&I RFP: Lighting	2.2	2.0	13.8	13.5	392,000.0	37,420.5	35,918.8	35,918.8	13	13	13	13	100.00%	100.00%	100.00%	11,152,478	965,133	6,451,384	6,288,112	14,916,470	12,639,655	12,319,771			
A. C&I RFP: Process	6.1	6.0	3.5	3.4	212,000.0	355,084.7	293,068.7	293,068.7	12	13	13	13	100.00%	100.00%	100.00%	8,654,300	5,262,218	14,528,177	14,160,497	0	232,452	2,978,515	2,903,134		
A. C&I RFP: Cooling	4.2	2.0	9.3	9.1	197,000.0	202,393.0	119,692.5	119,692.5	11	13	13	13	100.00%	100.00%	100.00%	25,638,010	25,638,010	12,639,655	12,319,771	0	0	0	0	0	
A. C&I RFP: Lighting (Occ Sensors Only)	0.0	1.0	10.4	10.1	30,767.0	25,828.0	31,799.2	31,799.2	10	9	9	9	100.00%	100.00%	100.00%	0	0	0	0	0	0	0	0	0	0
B. Home Energy Reports	25,000.0	0.0	25,000.0	25,000.0	108.0	0.0	61.2	90.7	1	1	3	3	100.00%	100.00%	100.00%	2,700,000	0	4,589,501	6,803,115	0	0	0	0	0	0

**Planning Assumptions**

- A. C&I RFP Program
  1. PSNH estimated 2015 projects based on trends seen in 2013 and 2014, which are slightly smaller projects.
- B. Home Energy Reports Program
  1. Annual kWh Savings were developed with contractor based on transitioning from a "representative sample" to "high use" customers.





Measure	Quantity			Annual Savings per Unit (kWh)			Measure Life			In-Service / Realization Rate			Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings		
	2013 Actual	2014 Plan	2015 Plan	2013 Actual	2014 Plan	2015 Plan	2013 Actual	2014 Plan	2015 Plan	2013 Actual	2014 Plan	2015 Plan	2013 Actual	2014 Plan	2015 Plan	2013 Actual	2014 Plan	2015 Plan	2013 Actual	2014 Plan	2015 Plan
	2013 Plan	2014 Plan	2015 Plan	2013 Plan	2014 Plan	2015 Plan	2013 Plan	2014 Plan	2015 Plan	2013 Plan	2014 Plan	2015 Plan	2013 Plan	2014 Plan	2015 Plan	2013 Plan	2014 Plan	2015 Plan	2013 Plan	2014 Plan	2015 Plan
ES-STAR Homes - CFLs	541	904	23	23	25	25	5	20	100%	62,204	103,945	204,022	187,806	0	0	0	0	0	0	0	0
ES-STAR Homes - LEDs	38	151	62	62	33	33	20	11	100%	46,871	83,370	2,508	2,309	0	0	0	0	0	0	0	0
ES-STAR Homes - FRIGS	47	42	33	33	33	33	11	11	100%	17,077	10,834	724	724	0	0	0	0	0	0	0	0
ES-STAR Homes - Dishwashers	25	18	14	14	107	107	12	12	100%	3,728	2,418	17,742	16,333	0	0	0	0	0	0	0	0
ES-STAR Homes - Refrigerators	16	1	261	261	261	261	13	12	100%	51,506	24,155	39,623	36,773	0	0	0	0	0	0	0	0
ES-STAR Homes - Thermostats	16	38	0	0	0	0	15	11	100%	0	0	0	0	0	0	0	0	0	0	0	0
Air Source Heat Pump heating	3	2	1,925	1,925	536	536	25	12	100%	158,483	372,000	44,474	40,939	0	0	0	0	0	0	0	0
ES-STAR Homes - Heating (Elec)	11	38	0	0	791	791	25	25	100%	0	0	546,699	503,064	30	32	32	32	32	8,118	47,405	21,971
ES-STAR Homes - Heating (Nat Gas)	28	3	1,136	1,136	247	247	25	25	100%	801,647	232,174	2,221,593	36,760	63	63	63	63	63	44,232	47,405	0
ES-STAR Homes - Heating (Propane)	5	3	79,001	79,001	58	58	25	25	100%	9,286,216	2,221,593	38,934	36,760	0	0	0	0	0	0	0	0
ES-STAR Homes - Geothermal (GSHP)	28	2	217	217	600	600	25	12	100%	100,188	63,323	48,745	45,791	0	0	0	0	0	0	0	0
ES-STAR Homes - Water Heating (Elec)	3	2	3,012	3,012	152	152	15	15	100%	148,785	10,395	62,902	57,903	4	3	3	3	3	649	1,086	1,000
ES-STAR Homes - Water Heating (Nat Gas)	11	38	0	0	0	0	15	15	100%	0	0	0	0	4	4	4	4	4	1,715	1,633	0
ES-STAR Homes - Water Heating (Propane)	28	3	0	0	0	0	15	15	100%	0	0	0	0	0	0	0	0	0	0	0	0
ES-STAR Homes - Water Heating (Geothermal)	3	3	2,541	2,541	0	0	15	15	100%	0	114,826	0	0	0	0	0	0	0	0	0	0

Note: In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service/Neutralization Rate				Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings														
	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual	2013 Plan	2013 Actual	2014 Plan	2014 Actual							
	225	210	266	210	23	51	43	43	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7							
CEUs																																							
Exterior Furnaces																																							
Refrigerators																																							
Weatherization, Electric																																							
Weatherization, Non-Electric																																							
Air-Sealing, Electric																																							
Insulation, Electric																																							
Air-Sealing, Gas																																							
Air-Sealing, Oil																																							
Insulation, Oil																																							
Air-Sealing, Propane																																							
Insulation, Propane																																							
Weatherization, Wood																																							
Baseband Only (BHS)																																							
Thermostats, Non-Electric																																							
Thermostats, Oil																																							
Thermostats, Propane																																							
Thermostats, Electric																																							
DHW, Gas																																							
DHW, Electric																																							
DHW, Oil																																							
DHW, Propane																																							
High Efficiency Furnace																																							
Boiler, Propane AFUE > 90%																																							
Furnace w/ECM Oil AFUE > 85%																																							
Furnace w/ECM Propane AFUE > 97%																																							
Room AC Ancillary Savings																																							
Central AC Ancillary Savings																																							
LED Energy Saving Mixers (Ins and CO detectors)																																							
LED Fixtures																																							
Aerators																																							
Energy Star Mini Split Heat Pump																																							

Note: in an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this statement.

Measure	Quantity						Annual Savings per Unit (kWh)						Measure Life						In-Service / Realization Rate						Total Lifetime Savings (kWh)										
	2013 Plan		2013 Actual		2014 Plan		2015 Plan		2016 Plan		2013 Plan		2014 Plan		2015 Plan		2016 Plan		2013 Actual		2014 Plan		2015 Plan		2016 Plan		2013 Actual		2014 Plan		2015 Plan		2016 Plan		
Retail Sales: # CFLs	19,564	31,158	26,518	12,950	12,950	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
Retail CFL Multi-packs (values are for each bulb, not pack)	292	449	259	0	0	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	
Retail Interior Fixtures (Lamps and HW Fixtures)	29	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Retail Exterior Fixtures																																			
Retail Torchiere																																			
Retail LED Fixtures	20,400	4,569	194	1,295	1,295	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
Retail LED Bulbs	20,400	17,331	5,821	15,540	15,540	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
Markdown CFL Bulbs (negotiated)	280	29		1,942	1,942	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
Markdown LEDs (negotiated)				697	697	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
Markdown LED fixtures (negotiated)	120			0	0	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	

**Planning Assumptions**

1. Assumed the Energy Independence and Security Act of 2007 was fully in place in Jan2012 (e.g., Used 72W halogen as base rather than 100W incandescent)
2. This reduces the kWh savings for all CFLs - the largest rebated product - by nearly 1/3.
3. Realization Rates for CFLs were modified from 80.3% to 62.3%, per KEMA Impact Evaluation, June 22, 2012.
4. Average hours on per energy efficient lights were ALL modified to 2 hours/day (from 3.4, or 41% reduction), per KEMA Impact Evaluation, June 22, 2012.
5. Assumed an increase in LED bulbs and fixture purchases in 2013-2014.

Note: in an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.



Unit#1 Home Energy Assistance Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service / Realization Rate				Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings											
	2013		2014 Plan		2015 Plan		2016 Plan		2013		2014 Plan		2015 Plan		2016 Plan		2013		2014 Plan		2015 Plan		2016 Plan		2013		2014 Plan		2015 Plan		2016 Plan					
	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan						
CFLs	245	217	583	583	23	71	23	939	7	7	7	7	91%	91%	91%	91%	36,026	97,873	85,603	85,603	0	0	0	0	0	0	0	0	0	0	0					
Refrigerator	74	62	67	10	821	530	939	939	12	12	12	12	91%	91%	91%	91%	661,092	359,688	597,679	597,679	99,063	99,063	89,673	89,673	0	0	0	0	0	0	0					
Wx Electric, MF	7	7	7	7	1,474	1,474	1,474	1,474	20	20	20	20	91%	91%	91%	91%	197,895	0	10,943	10,943	29	29	3,083	3,083	4,759	4,759	6,421	6,421	6,421	6,421						
Wx Oil, MF	6	6	6	6	0	0	0	0	20	20	20	20	91%	91%	91%	91%	0	0	9,727	9,727	44	44	1,170	1,170	0	0	0	0	0	0	0					
Wx Propane, MF	1	1	1	1	0	0	0	0	20	20	20	20	91%	91%	91%	91%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Wx Kerosene, MF	1	1	1	1	0	0	0	0	20	20	20	20	91%	91%	91%	91%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
DHW/MF Non-Elec	15	15	17	17	120	340	697	697	7	7	7	7	91%	91%	91%	91%	11,280	32,514	13,154	13,154	11	11	11	11	11	11	11	11	11	11	11					
DHW/MF Elec																																				
Air Sealing																																				
Insulation																																				
Wx Electric	7	20	2	2	45	4,421	1,304	1,304	20	20	20	20	91%	91%	91%	91%	5,600	1,209,668	54,309	54,309	25	25	38	38	38	38	38	38	38	38	38	38				
Wx Gas	21	14	20	20	66	0	66	66	20	20	20	20	91%	91%	91%	91%	24,852	0	24,354	24,354	37	37	37	37	37	37	37	37	37	37	37	37				
Wx Oil	7	2	11	11	115	0	66	66	20	20	20	20	91%	91%	91%	91%	14,467	0	13,395	13,395	19	19	19	19	19	19	19	19	19	19	19	19	19			
Wx Propane																																				
Wx Kero																																				
Wx Wood																																				
DHW - aerators																																				
DHW/Elec	3	5	4	10	96	0	0	0	7	7	7	7	91%	91%	91%	91%	2,106	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1			
DHW/Non-Elec																																				
DHW/Gas																																				
DHW/Oil																																				
Thermostats																																				
Thermostats Elec																																				
Thermostats Non-Elec																																				
Interior Fixtures																																				
Doors																																				
Furnace Replacement																																				
Boiler Replacement																																				
AC Ancillary Savings																																				
LEDs																																				
Interior Fixture (LED)																																				

Note: "2013 actual savings" for "Wx Electric" includes kWh savings for any customer, regardless of heating type, who realized kWh savings as a result of weatherization. A total of 37 customers received air sealing and/or insulation in 2013. Note is an effort to better match planning, reporting, and modeling. The Company is adding, as of 10/1/2014, and/or updating some measure names from previously filed versions of this attachment. The Company does not distinguish between MF and SF homes in this program and has therefore included all measure information in the non-MF measured for 2015-2016 Plan. Additionally, the Company plans participation by insulation and air sealing installs, not by fuel type.

Measure	Quantity		Annual Savings per Unit (kWh)		Measure Life		Realization Rate		Total Lifetime Savings (kWh)			Annual Savings per Unit (MMBTU)			Total Lifetime MMBTU Savings		
	2014 Plan	2015 Plan	2014 Plan	2015 Plan	2014 Plan	2015 Plan	2014	2015-2016	2014 Plan	2015 Plan	2016 Plan	2014 Plan	2015 Plan	2016 Plan	2014 Plan	2015 Plan	2016 Plan
Lighting - Fluorescents - Retro	15	5	30,435	13,093	13	13	100%	97%	5,740,979	794,668	715,049	0	0	0	0	0	0
Lighting - LEDC - Retro		10		24,732		13		100%		3,098,304	2,787,881	0	0	0	0	0	0
Air Conditioning (Energy Star) <14.5 SEER) 3 ton	1		110		14		100%		1,868								
Mini Split HP SEER 14.5 EER 12 HSDF 8.2 (Heating)	1		142		12		100%		2,064								
Mini Split HP SEER 14.5 EER 12 HSDF 8.2 (Cooling)	1		34		12		100%		489								
Mini Split HP SEER 19 EER 13.8 HSDF 10 (Heating)	2		751		12		100%		21,797			5					
Mini Split HP SEER 19 EER 13.8 HSDF 10 (Cooling)	2		105		12		100%		3,046					142			
Mini Split Heat Pump Cooling SEER 20		6		600		18		100%		68,689	61,807	0	0	0	0	0	0
Mini Split Heat Pump (F OI) SEER 20		3		536		18		100%		30,706	27,629	0	0	0	0	0	0
Mini Split Heat Pump (F OI) SEER 20		3		536		18		100%		30,706	27,629	0	0	0	0	0	0
Boiler Replacement <= 300 MBH 90% AFUE		3		0	25	25	100%	100%	-	0	0	42	31	31	6398	2295	2295
Indirect Water Heater (attached to Oil Energy Star FHW boiler)		3		0	0	0	100%	100%	-	0	0	21	21	35	1879	1253	1353
Condensing Boiler <= 300 MBH 90% AFUE		2		188	15	18	100%	100%		6,768	6,768	0	0	0	0	0	0
Weatherization		1		77,000		13		100%		964,618	867,972	0	0	0	0	0	0
VFDs		0		0		13		89%		0	0	0	0	0	0	0	0
Custom		3		175		15		100%		4,937	0	0	0	0	0	0	0
Energy Star VWF Thermostat for Mini Split only		2		1,775		10		100%		35,500	0	0	0	0	0	0	0
DHW: Heat Pump Water Heater 50 Gallon Electric, EF=2.3 (ES=EF=2.0)		2		0		10		100%		0	0	0	0	0	0	0	0

Note: In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Measure	Quantity			Annual Savings per Unit (kWh)					Measure Life					To-Service / Installation Rate					Total Lifetime Savings (kWh)					Annual Savings per Unit (MMBTU)					Total Lifetime MMBTU Savings																										
	2013 Plan	2013 Actual	2018 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan																						
<b>NEW EQUIPMENT TRACK</b>																																																							
Large CFL (Rebate Up average)	6	2	2																																																				
Lighting LED - New	6	2	1	58,340	60,174	55,995	32,832	32,832	32,832	15	15	15	15	15	15	100%	100%	4,846,325	1,805,222	1,629,655	492,480	492,480	492,480																																
HVAC	6	2	2	27,699	30,224	27,699	32,832	32,832	32,832	15	15	15	15	15	15	100%	100%	2,683,415	906,770	802,933	492,480	492,480	492,480																																
Compressors (Rebate Up)	6	2	2	48,577		75,529				15	15	15	15	15	100%	100%	4,207,148	2,669,298																																					
Motors	1	1	3	60,853	117,966					15	15	15	15	15	100%	100%	908,295	4,724,538																																					
<b>REBATE TRACK</b>																																																							
New Lighting (Rebate Up Average)	4	10	4	92,748	64,615	64,615	130,887	130,887	130,887	13	13	13	13	13	89%	89%	3,405,115	2,135,065	3,405,115	10,677,249	10,677,249	10,677,249																																	
Lighting Fluorescent - Rebate	10	10	4	317,848	83,905	83,905	130,887	130,887	130,887	13	13	13	13	13	89%	89%	3,294,336	3,638,168	3,294,336	6,331,168	6,331,168	6,331,168																																	
Freezer/Cooler LED	1	2	2	83,273	83,273	83,273	100,980	100,980	100,980	13	13	13	13	13	89%	89%	994,662	2,100,362	2,100,362	4,591,507	4,591,507	4,591,507																																	
Lighting LED - Rebate	2	2	2	77,951	86,673	86,673	115,500	115,500	115,500	13	13	13	13	13	100%	100%	2,294,629	2,181,074	2,181,074	3,241,163	3,241,163	3,241,163																																	
Lighting LED - Rebate	3	1	5	95,100	118,777	48,606	115,500	115,500	115,500	13	13	13	13	13	89%	89%	3,180,608	1,374,220	2,868,094	3,241,163	3,241,163	3,241,163																																	
CFL Bulbs																																																							
Motors																																																							
Motorway Sensors																																																							
Custom	5	1	5	385,119	346,458	346,458	246,500	246,500	246,500	13	15	15	15	15	89%	89%	21,122,119	4,625,214	19,155,563	19,155,563	19,155,563	19,155,563																																	
<b>Point Measure Heating Hot Water and Controls</b>																																																							
Oil-Air Source Heat Pump Split Systems (Energy Star >= 14.5 SEER)	1			0																																																			
Boilers (80% to 99% MBH) Condensing	2			0																																																			
Boilers (100% to 200% MBH)	2			0																																																			
CIP Pilot Measure	4			0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0																																																			
				0	</																																																		



Measure	Quantity					Annual Savings per Unit (kWh)					Measure Life					In-Service / Realization Rate					Total Lifetime Savings (kWh)					Annual Savings per Unit (MMBTU)					Total Lifetime MMBTU Savings					
	2013 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan					
	Plan	Actual	Plan	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan					
Lighting (New Construction)	5	2				13,788	8,113																													
Lighting (Retrofit)	33	62	54			20,343	18,382	15,533																												
Lighting LEDs- Retro				33	29			19,662	19,662	19,662																										
Refrigerator/Freezer LEDs	1	1		26	23	46,807	14,281	14,281	14,760	14,760																										
Retro Nonlighting	6	18				11,433	12,449																													
VFD																																				
ECM																																				
Custom		1		6	6		7,620	4,276	4,276	4,276																										
<b>Fuel/Neutral Heating/Hot Water and Controls</b>																																				
Central Air Conditioner (Energy Star >= 14.5 SEER, 3 ton)	2		1			110	110																													
Hot Water Tankless Water Heater (Energy Star >= 14.5 SEER)	3					0	0																													
On-Demand Tankless Water Heater (Energy Star >= 14.5 SEER)	7					0	0																													
Mini Split HP SEER 14.5, EER 12, HSPF 8.2 (Heating)	3		1			0	142																													
Mini Split HP SEER 14.5, EER 12, HSPF 8.2 (Cooling)	7		1			0	34																													
On-Demand Tankless Water Heater EF >= 0.82 EF w/Electronic Ignition	3					0	0																													
Boilers (up to 500 Btu/h), Condensing	16					0	0																													
Boilers (up to 500 Btu/h), Non-Condensing	1					0	0																													

Note in an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Unitil Gas Home Performance with ENERGY STAR\*

Measure	Quantity			Annual Savings per Unit (MMBTU)			Measure Life			Installation or Realization Rate			Total Annual MMBTU Savings			Total Lifetime MMBTU Savings													
	2013 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan								
	Weatherization (per home)	24	11	19	25	24	12	12	12	12	15	15	15	15	100%	100%	100%	100%	218	99	225	306	297	3,265	1,485	3,377	4,588	4,448	
HP-WES Air Sealing	24	11	19	25	24	12	12	12	12	15	15	15	15	100%	100%	100%	100%	1,034	470	541	636	616	25,850	11,756	13,524	15,893	15,405		
HP-WES Insulation	5	1	10	5	5	3	3	3	3	15	15	15	15	100%	100%	100%	100%	37	8	56	16	16	561	87	837	239	244		
HP-WES Thermostats	5	1	4	12	13	1	1	1	1	7	7	7	7	100%	100%	100%	100%	34	7	27	15	15	237	54	190	105	107		
HP-WES DHW ISM (aerators & pipewrap)		1		12	13	0	0	0	0	1	1	1	1	100%	100%	100%	100%		7					7				0	
HP-WES Non-Energy Saving Measures				0	0	0	0	0	0																				0
HP-WES LED bulbs				0	0	0	0	0	0	20	20	20	20	100%	100%	100%	100%												0

In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Measure	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Replacement Rate				Total Annual MMBTU Savings				Total Lifetime MMBTU Savings				
	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	
Boiler Reset Controls	4	8	4	4	4	5	5	5	15	15	15	15	100%	100%	100%	100%	18	36	18	19	270	540	275	291	
Boiler (forced hot water) >= 95% AFUE	32	41	41	52	12	12	12	12	15	20	20	20	100%	100%	100%	100%	394	394	489	621	5,504	5,504	9,775	12,417	
Boiler (forced hot water) 90% AFUE	46	21	20	61	10	10	14	14	20	20	20	20	100%	100%	100%	100%	479	208	849	779	9,588	4,160	16,985	15,581	
Boiler (forced hot water) >= 96% AFUE	12	50	72	0	13	13	13	13	20	0	0	0	100%	100%	100%	100%	151	943	0	0	13,205	18,864	0	0	
Furnace (forced hot air) 92% AFUE																									
Furnace (forced hot air) 92% AFUE w/ ECM																									
Furnace (forced hot air) >= 95% AFUE w/ ECM	17	24	52	33	5	5	16	16	18	18	18	18	100%	100%	100%	100%	108	234	518	343	1,944	4,212	9,266	6,170	
Furnace (forced hot air) >= 97% AFUE	26	4	29	34	6	6	17	17	18	18	18	18	100%	100%	100%	100%	117	24	493	597	2,106	625	8,879	10,741	
Furnace (forced hot air) >= 97% AFUE (65)	17	4	4	4	6	6	6	6	18	18	18	18	100%	100%	100%	100%	154	34	1,826	1,826	7,832	8,544	0	0	
Furnace (forced hot air) >= 97% AFUE (65) w/ ECM	29	24	33	22	18	18	24	24	20	20	20	20	100%	100%	100%	100%	392	427	10,256	783	7,832	8,544	0	0	
Combo water heater (condensing boiler >= 90%																									
Combo water heater (condensing boiler >= 95%																									
Heat Recovery Ventilator	1								20	20	20	20	100%	100%	100%	100%	8		0	15	154		0	308	
High Efficiency Stand Alone Water Heater (0.62 EF)																									
Energy Star Storage Water Heater (0.67 EF)	4	12	2	4	4	4	4	4	13	13	12	12	100%	100%	100%	100%	15	44	9	18	194	566	103	217	
On-Demand Tankless Water Heaters (EF 0.82)	40	48	48	61	10	10	10	10	20	20	19	19	100%	100%	100%	100%	466	466	623	660	7,825	9,312	11,840	12,533	
On-Demand Tankless Water Heaters (EF 0.94)	9	52	60	37	39	10	11	11	20	20	19	19	100%	100%	100%	100%	87	618	385	407	1,746	10,712	12,360	7,741	
Indirect Water Heater (attached to 1-Star HW boiler)	40	49	48	61	8	8	8	8	20	20	20	20	100%	100%	100%	100%	323	354	345	345	7,840	7,880	6,517	9,886	
Water Heating Thermostats (Energy Star)	17	17	17	17	7	7	7	7	15	15	15	15	100%	100%	100%	100%	112	250	269	228	856	4,356	4,032	3,415	
Water Heating Thermostats (Energy Star) w/ ECM	9	17	44	41	7	7	7	7	15	15	15	15	100%	100%	100%	100%	57	250	269	228	856	4,356	4,032	3,415	
W-F-T Thermostats (controls elec cooling & gas heat)																									
Boiler - Steam 82%																									
Early Replacement Boiler Forced Hot Water (Retire)																									
Early Replacement Boiler Forced Hot Water (EE)																									
Early Replacement Boiler Steam (Retire)																									
Early Replacement Boiler Steam (EE)																									

In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Measure	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate				Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan
	Actual																							
RNC ES Homes (Heating)	16	13	13	13	34	45	36	36	25	25	25	25	100%	100%	100%	100%	536	587	462	455	13,913	14,677	11,540	11,374
RNC ES Homes (Cooling)	2	7	6	6	0	0	0	0	25	25	25	25	100%	100%	100%	100%	0	0	0	0	0	0	0	0
RNC ES Homes (Water Heating)	16	13	13	13	3	11	5	5	15	15	15	15	100%	100%	100%	100%	49	153	58	57	1,320	2,298	868	856
RNC Dishwashers	16	8	4	4	0	2	2	2	10	10	10	10	100%	100%	100%	100%	6	13	6	6	304	177	63	62
RNC Clotheswashers	5	4	3	3	0	10	3	3	11	11	11	11	100%	100%	100%	100%	1	42	11	11	4	465	117	116
Thermostats			6	6			0	0		12	12	12	100%	100%	100%	100%								
RNS Refrigerators			154	151			0	0		19	19	19	100%	100%	100%	100%								
RNC LEDs			13	13			0	0		1	1	1	100%	100%	100%	100%								
RNC Raters Fees							0	0																

In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Unihl Gas Home Energy Assistance Program

Measure	Quantity					Annual Savings per Unit (MMBTU)					Installation or Realization Rate					Measure Life					Total Annual MMBTU Savings					Total Lifetime MMBTU Savings					
	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2013 Plan	2014 Plan	2015 Plan	2016 Plan		
	Weatherization (per home)	9	30	45	45	0	23	14	13	7	20	20	15	15	15	100%	209	392	316	317	3,141	3,996	5,983	4,736	4,751	3,141	3,996	5,983	4,736	4,751	
Air Sealing	9	27	45	45	0	30	16	30	19	15	15	15	25	25	100%	286	884	857	860	6,654	11,063	22,103	21,437	21,505	6,654	11,063	22,103	21,437	21,505		
Insulation	21	13	4	4	6	9	6	6	6	15	15	15	25	25	100%	130	79	79	79	1,943	1,943	1,886	1,886	1,886	1,943	1,943	1,886	1,886	1,886	1,886	
Air Sealing MF	21	13	4	4	6	9	6	6	6	15	15	15	25	25	100%	185	113	113	113	4,627	4,627	2,823	2,823	2,823	4,627	4,627	2,823	2,823	2,823	2,823	
Insulation MF	21	13	4	4	6	9	6	6	6	15	15	15	25	25	100%	27	88	88	88	106	1,259	618	618	618	106	1,259	618	618	618	618	
DHW/506 (generators & pipewrap)	21	13	4	4	6	9	6	6	6	15	15	15	25	25	100%	68	41	41	41	270	270	288	288	288	270	270	288	288	288	288	
DRW/506 (generators & pipewrap) MF	21	13	4	4	6	9	6	6	6	15	15	15	25	25	100%	14	41	41	41	281	670	2,695	413	413	281	670	2,695	413	413	413	
Furnace Replacement w/ECON Motor	1	2	1	1	10	10	19	30	23	20	20	18	20	20	100%	8	3	3	3	46	46	46	46	46	46	46	46	46	46	46	
Boiler Replacement	1	4	2	2	2	2	2	2	2	20	20	20	20	20	100%	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Thermostats	1	7	5	5	8	8	5	8	7	15	15	15	15	15	100%	158	103	103	103	2,366	497	1,540	493	493	2,366	497	1,540	493	493	493	
Controls	21	13	5	5	8	8	5	8	7	15	15	15	15	15	100%	158	103	103	103	2,366	497	1,540	493	493	2,366	497	1,540	493	493	493	
Water Heater Stand Alone															100%																
Windows			34	34	0	0	0	0	0	1	1	1	20	20	100%																
Non-Energy Saving Measures			269	269	0	0	0	0	0	20	20	20	20	20	100%																
LED bulbs																															

Note: In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment. The Company does not distinguish between MF and SF homes in this program and has therefore included all measure information in the non-MF measures for 2015-2016 Plan. Additionally, the Company plans participation by insulation and air sealing installs, not by fuel type.



Measure	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate				Total Annual MMBTU Savings				Total Lifetime MMBTU Savings						
	2013 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2013 Actual	2014 Plan	2015 Plan	2016 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan		
<b>NEW EQUIPMENT TRACK</b>																											
CBK Remote Control	2	3	5	1	1	4,470	4,556	4,132	2,373	2,373	9,450	6,000	18	18	15	15	100%	8,981	13,667	20,551	2,820	2,820	161,659	227,780	349,925	42,306	
Custom HVAC	0	0	0	0	0	0	0	0	9	9	9,450	6,000	18	18	15	15	100%	0	0	0	0	0	0	0	0	0	0
Custom Process	0	0	0	0	0	0	0	0	10	10	9,450	6,000	18	18	15	15	100%	0	0	0	0	0	0	0	0	0	0
Custom Hot Water	0	0	0	0	0	0	0	0	58	58	6,000	6,000	25	25	20	20	100%	0	0	0	0	0	0	0	0	0	0
<b>NEW EQUIPMENT TRACK</b>																											
Furnace 94 AFUE w/ECM Motor	0	0	0	0	0	0	0	0	9	9	9,450	6,000	18	18	18	18	100%	0	0	0	0	0	0	0	0	0	0
Furnace 95 AFUE (L15) w/ECM Motor	0	0	0	0	0	0	0	0	10	10	9,450	6,000	18	18	18	18	100%	0	0	0	0	0	0	0	0	0	0
Furnace 97 AFUE (L15) w/ECM Motor	1	1	1	1	1	0	0	0	10	10	9,450	6,000	18	18	18	18	100%	21	21	20,551	2,820	2,820	0	0	0	0	0
Furnace 97 AFUE (L15) w/ECM Motor	1	1	1	1	1	0	0	0	10	10	9,450	6,000	18	18	18	18	100%	21	21	20,551	2,820	2,820	0	0	0	0	0
Condensing boiler 301-499 mbh 90% AFUE	12	12	12	12	12	56	56	56	58	58	5,800	5,800	25	25	25	25	100%	468	468	468	0	0	16,200	16,200	16,200	0	
Condensing boiler 500-999 mbh 90% AFUE	9	9	9	9	9	103	107	107	107	107	10,700	10,700	25	25	25	25	100%	927	927	927	0	0	23,179	23,179	23,179	0	
Condensing boiler 1000-1700 mbh 90% AFUE	3	2	4	2	2	189	189	189	197	197	345	345	25	25	25	25	100%	532	378	757	344	344	13,305	9,460	18,920	8,593	
Condensing boiler 1701+ mbh 90% AFUE	3	4	3	2	2	29	331	331	345	345	4,400	4,400	25	25	25	25	100%	82	1,325	994	752	752	2,061	33,120	24,840	18,798	
Condensing boiler <= 300 mbh >=86% AFUE	0	0	0	0	0	48	0	48	48	48	4,400	4,400	17	17	17	17	100%	0	0	0	0	0	0	0	0	0	
On demand Tankless Water Heater >= 82	0	0	0	0	0	48	0	48	48	48	4,400	4,400	17	17	17	17	100%	0	0	0	0	0	0	0	0	0	
On demand Tankless Water Heater >= 84	0	0	0	0	0	48	0	48	48	48	4,400	4,400	17	17	17	17	100%	0	0	0	0	0	0	0	0	0	
On demand Tankless Water Heater >= 82	8	1	1	1	1	21	21	21	19	19	19,100	19,100	15	15	15	15	100%	175	21	9	25	25	2,620	311	180	0	
Combo Boiler-Water Heater AFUE >=85% (EF=82)	0	0	0	0	0	25	0	25	25	25	25	25	15	15	15	15	100%	0	0	0	0	0	0	0	0	0	
Combo Boiler-Water Heater AFUE >=85% (EF=82)	0	0	0	0	0	25	0	25	25	25	25	25	15	15	15	15	100%	0	0	0	0	0	0	0	0	0	
Hydronic Boiler (0.9 EF, >7500 btu)	5	0	0	0	0	25	0	25	25	25	25	25	15	15	15	15	100%	0	0	0	0	0	0	0	0	0	
Hydronic Boiler (0.9 EF, >7500 btu)	5	0	0	0	0	25	0	25	25	25	25	25	15	15	15	15	100%	0	0	0	0	0	0	0	0	0	
Condensing Unit Heaters	0	0	0	0	0	41	0	41	41	41	41	41	20	20	20	20	100%	111	0	0	0	0	2,214	0	0	0	
Boiler Reset Controls	0	0	0	0	0	41	0	41	41	41	41	41	20	20	20	20	100%	0	0	0	0	0	0	0	0	0	
Kitchen - Fryers	7	0	0	0	0	59	0	59	59	59	59	59	12	12	12	12	100%	429	0	0	0	0	5,143	0	0	0	
Kitchen - Gas Steamer (EnergyStar >=38% efficiency)	0	0	0	0	0	107	0	107	107	107	107	107	12	12	12	12	100%	0	0	0	0	0	0	0	0	0	
Kitchen - Gas Combustion Oven (0-48% efficiency)	1	1	1	1	1	110	110	110	110	110	110	110	12	12	12	12	100%	31	31	31	0	0	0	367	367	0	
Kitchen - Gas Combustion Oven (0-48% efficiency)	1	1	1	1	1	110	110	110	110	110	110	110	12	12	12	12	100%	124	0	0	0	0	1,489	0	0	0	
Kitchen - Gas Conveyor Oven (0-44% efficiency)	0	0	0	0	0	85	0	85	85	85	85	85	12	12	12	12	100%	0	0	0	0	0	0	0	0	0	
Kitchen - Gas Rack Oven (0-50% efficiency)	0	0	0	0	0	211	0	211	211	211	211	211	12	12	12	12	100%	0	0	0	0	0	0	0	0	0	
Kitchen - Gas Griddle	0	0	0	0	0	19	0	19	19	19	19	19	12	12	12	12	100%	0	0	0	0	0	0	0	0	0	
Steam Trap	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	100%	0	0	0	0	0	0	0	0	0	
Kitchen - Fire Retard Spray Valve	0	0	0	0	0	13	0	13	13	13	13	13	5	5	5	5	100%	0	0	0	49	49	0	0	0	0	
Hydronic Boiler (301-499 mbh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Custom Projects	0	1	0	0	0	0	911	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13,658	0	0	247

Note: In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

## Attachment M: Summary of Material Changes

Topic	Description of Change
<b>Program Design, Evolution, Measure and Incentive Changes</b>	
<p>ENERGY STAR Homes Program / NHEC's High Efficiency Heat Pump Program / PSNH's Geothermal and Air Source Heat Pump Option</p>	<ul style="list-style-type: none"> <li>▪ Transition from lighting incentives on CFLs to primarily LEDs.</li> <li>▪ Collaborate with the Sustainable Energy Division of the NHPUC and the Home Builders and Remodelers Association to encourage and assist builders to construct Net Zero Homes, possibly highlighting a case study of a Net Zero Home on the NHSaves and utility websites.</li> <li>▪ Provide a free HERS rating as an introduction to the program to encourage new builders into the program.</li> <li>▪ Fold NHEC's High Efficiency Heat Pump Program and PSNH's Geothermal and Air Source Heat Pump Option into the Energy Star Homes Program in order to streamline and simplify the program offering.</li> </ul>
<p>Home Performance with ENERGY STAR Program</p>	<ul style="list-style-type: none"> <li>▪ Transition from lighting incentives on CFLs to primarily LEDs.</li> <li>▪ Participate in the "Home Energy Labeling" project initiated the New Hampshire Office of Energy and Planning and the Vermont Public Service Department as a project partner, pending approval of their recent grant request by the Department of Energy.</li> <li>▪ Explore collaboration opportunities with solar hot water / photovoltaic vendors and installers and the NHPUC's Sustainable Energy Division to help expand the market of renewable energy systems in New Hampshire.</li> <li>▪ Implement a third-party financing option as described in the Financing section of the Home Performance with ENERGY STAR program.</li> <li>▪ Due to the loss of Regional Greenhouse Gas Initiative funds for programs other than the Home Energy Assistance Program and the Municipal Program, incentives for end-of-life high efficiency fossil fuel space and water heating systems recommended by one of the program's home energy auditors will be offered only under this program to qualifying customers. Previously, these incentives were available to all residential customers under the Energy Star Appliance Program.</li> </ul>



Topic	Description of Change
Home Energy Assistance Program	<ul style="list-style-type: none"> <li>▪ Transition from lighting incentives on CFLs to primarily LEDs.</li> <li>▪ Increase the minimum percentage of the NH CORE Utilities program budgets allocated to the HEA Program to 15.5% (from 15.0%).</li> <li>▪ Increase the NH Gas Utilities per-customer spending cap from \$5,000 to \$8,000 for basic program services to be consistent with the NH Electric Utilities.</li> </ul>
ENERGY STAR Products Program (Lighting, Appliances & System)	<ul style="list-style-type: none"> <li>▪ Combine the ENERGY STAR Appliance Program with the ENERGY STAR Lighting Program under a unified ENERGY STAR Products Program.</li> <li>▪ Transition from lighting incentives on CFLs to primarily LEDs.</li> <li>▪ Exclude oil and LP space and water heating systems from the program offering due to budget constraints.</li> </ul>
All C&I Programs	<ul style="list-style-type: none"> <li>▪ Investigate third-party financing options with local financial institutions, including the NH Community Development Finance Authority (CDFA) and the NH Business Finance Authority and other existing financing options, such as C-PACE (Commercial Property Assessed Clean Energy) during 2015.</li> <li>▪ Encourage customers to develop multi-year strategic energy plans. For those customers developing multi-year strategic energy plans, the NH CORE Utilities may enter into a multi-year letter of intent or a memorandum of understanding outlining the terms of the energy efficiency services and incentives, subject to the “Multi-year Project Budget Approval” process as described in Section IV.C of this Plan.</li> </ul>
Large Business & Small Business Energy Solutions Programs	<ul style="list-style-type: none"> <li>▪ Due to the loss of Regional Greenhouse Gas Initiative funds for programs other than the Home Energy Assistance Program and the Municipal Program, incentives for oil and liquid propane high efficiency heating, hot water systems and associated controls will not be offered.</li> </ul>

<b>Topic</b>	<b>Description of Change</b>
Municipal Program	<ul style="list-style-type: none"> <li>▪ Expand the services offered under this program to include cost-effective weatherization services for buildings heated with oil, electricity and propane.</li> <li>▪ Explore collaboration opportunities with solar hot water / photovoltaic vendors and installers and the NHPUC’s Sustainable Energy Division to help expand the market of renewable energy systems in New Hampshire.</li> </ul>
Residential Customer Engagement Pilot Program	<ul style="list-style-type: none"> <li>▪ Name change to the “Residential Home Energy Reports Pilot Program”.</li> </ul>
Customer Engagement Platform	<ul style="list-style-type: none"> <li>▪ New Utility-specific initiative (PSNH). Reference Section IV.E.3.</li> </ul>
<b>Changes in Savings Assumptions</b>	
Home Energy Assistance Program	<ul style="list-style-type: none"> <li>▪ Updated Annual kWh and MMBtu savings per unit based on the split between boilers and furnaces and based on the modeled energy savings for units installed in 2013-2014.</li> <li>▪ Used a 100% in service/realization rate on furnaces and boilers. Hours-of use energy savings calculation assumption are different from products program based on instructions to auditors to install CFLs and LEDs only in sockets used 3 or more hours/day.</li> </ul>
Home Performance with ENERGY STAR Program	<ul style="list-style-type: none"> <li>▪ Updated the measure lives for electric baseload projects to reflect a transition from CFLs to LEDs, with LEDs having a longer useful life. Hours-of use energy savings calculation assumption are different from products program based on instructions to auditors to install CFLs and LEDs only in sockets used 3 or more hours/day. Included ancillary energy savings based on Cadmus evaluation recommendations.</li> <li>▪ Updated annual kWh and MMBtu savings based on trends seen in 2013 and into 2014.</li> </ul>

Topic	Description of Change
ENERGY STAR Homes Program	<ul style="list-style-type: none"> <li>▪ Updated lighting and appliance savings to reflect changes identified in the ENERGY STAR Products program, including kWh savings and measure lives.</li> <li>▪ Updated the in-service/realization rate to 100% on LED lights as the Home Energy Rater verifies that they are installed.</li> <li>▪ Updated the annual kWh and MMBtu savings to reflect 2013 and 2014 savings seen on the homes being modeled by HERS Raters in REMRATE.</li> </ul>
ENERGY STAR Products Program	<ul style="list-style-type: none"> <li>▪ Lighting annual kWh savings were updated to reflect weighted average delta watts of the bulbs they are replacing, and reflect hours on at 2 hours/day based on the KEMA evaluation. Updated measure lives to reflect the longer lasting LEDs.</li> <li>▪ Appliance annual kWh and MMBtu savings were reviewed against the EPA's ENERGY STAR products calculators and updated as appropriate. Clothes washer annual kWh and MMBtu savings were revised to reflect the mix of water heating types customers checked off on rebate forms. Air source heat pump energy savings were updated to reflect the difference between standard and low temperature heat pumps (the CORE electric programs are only incenting low temperature units in 2015-2016), using the assumptions that these units would be used to provide 50% of a customer's heating needs while the existing fossil system would provide the other 50%.</li> </ul>
Large Business Energy Solutions Program	<ul style="list-style-type: none"> <li>▪ Annual kWh and MMBtu savings were adjusted to reflect actual activity seen in 2013 and 2014 in project sizes and energy savings.</li> <li>▪ Some measures, such as lighting occupancy sensors in the New Equipment track, are no longer planned as they are required by code and recommended by the recent ERS Baseline Evaluation.</li> </ul>
Small Business Energy Solutions Program	<ul style="list-style-type: none"> <li>▪ Annual kWh and MMBtu savings were adjusted to reflect actual activity trends being seen in 2013 and 2014 in project sizes and energy savings.</li> <li>▪ Measure lives on catalog sales were updated to reflect</li> </ul>

Topic	Description of Change
	LED long lives.
Municipal Program	<ul style="list-style-type: none"> <li>▪ Annual kWh savings were adjusted to reflect actual activity in 2013 and 2014 in the C&amp;I programs in project sizes and energy savings.</li> <li>▪ Measures added include weatherization and electric, propane and oil HVAC systems.</li> <li>▪ Used a 100% realization rate that will be evaluated in the future.</li> </ul>
PSNH's RFP Program	<ul style="list-style-type: none"> <li>▪ Updated annual kWh savings to reflect current projects and trends.</li> </ul>
PSNH's Home Energy Reports Pilot Program	<ul style="list-style-type: none"> <li>▪ Planned for a transition from customers with average energy use to high energy use to maximize the savings for this program.</li> <li>▪ Updated the measure life assumption based on recent evaluations showing longer energy savings persistence.</li> </ul>
<b>Changes in Funding Sources</b>	
Multiple Pollutant Reduction Program	<ul style="list-style-type: none"> <li>▪ The NH Electric Utilities incorporated the recent changes in RSA 125-O:23,III effective October 3, 2014, when developing program budgets for 2015 and 2016. Proceeds from the Regional Greenhouse Gas Initiative were allocated to the Home Energy Assistance Program and the Municipal Program based on values provided by the Commission's staff.</li> </ul>
<b>Other</b>	
Evaluation	<ul style="list-style-type: none"> <li>▪ Incorporated certain market assessment, impact and process evaluation studies into the Plan based on the Draft Six-Year Evaluation Plan for CORE Energy Efficiency Programs prepared for the Commission by TecMarket Works.</li> </ul>



**NH CORE PROGRAMS**  
**2015 Statewide Goals**  
**CORE & Company-Specific Programs**

Description	Program Budget <sup>(1)</sup>	kWh Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
CORE Programs						
Municipal Program	\$ 2,000,000	3,905,171	51,500,073	1,617	38,257	261
All Other CORE Programs	\$ 22,015,739	48,588,540	652,555,107	38,760	784,251	137,015
Sub-total	\$ 24,015,739	52,493,710	704,055,180	40,377	822,507	137,276
Company Specific Programs <sup>(2)</sup>	\$ 2,025,154	4,485,764	41,187,231	-	-	25,012
<b>Total Electric</b>	<b>\$ 26,040,893</b>	<b>56,979,474</b>	<b>745,242,411</b>	<b>40,377</b>	<b>822,507</b>	<b>162,288</b>
<b><u>Gas Utilities</u></b>						
CORE Programs	\$ 6,392,191	283,486	5,592,539	122,523	2,181,210	3,192
Company Specific Programs <sup>(2)</sup>	\$ 336,550	-	-	18,440	55,320	25,000
<b>Total Gas</b>	<b>\$ 6,728,741</b>	<b>283,486</b>	<b>5,592,539</b>	<b>140,963</b>	<b>2,236,530</b>	<b>28,192</b>
<b>Grand Total</b>	<b>\$ 32,769,634</b>	<b>57,262,961</b>	<b>750,834,951</b>	<b>181,340</b>	<b>3,059,038</b>	<b>190,480</b>

**Notes:**

(1) Program budgets shown in this report exclude the performance incentive (PI).

(2) Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.

**NH CORE PROGRAMS**  
**2015 Statewide Goals**  
**CORE Programs <sup>(1)</sup>**

Description	Program Budget	kWh Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 3,841,493	515,881	7,052,057	10,835	224,051	394
NH Home Performance w/Energy Star	\$ 2,786,620	317,829	5,656,971	16,396	322,917	711
EnergyStar® Homes	\$ 1,497,511	1,387,058	33,355,649	8,034	198,850	370
EnergyStar® Products	\$ 3,538,585	10,961,905	134,218,663	3,494	38,432	134,304
Sub-total	\$ 11,664,209	13,182,673	180,283,339	38,760	784,251	135,779
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 6,826,303	25,184,385	338,067,599	-	-	432
Small Business Energy Solutions	\$ 3,525,227	10,221,481	134,204,168	-	-	804
Municipal Program	\$ 2,000,000	3,905,171	51,500,073	1,617	38,257	261
Sub-total	\$ 12,351,530	39,311,037	523,771,841	1,617	38,257	1,497
<b>Total Electric</b>	<b>\$ 24,015,739</b>	<b>52,493,710</b>	<b>704,055,180</b>	<b>40,377</b>	<b>822,507</b>	<b>137,276</b>
<b><u>Gas Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 1,138,549	220,445	4,466,673	7,945	161,148	369
NH Home Performance w/Energy Star	\$ 840,157	-	-	12,654	254,449	493
EnergyStar® Homes	\$ 140,800	9,950	212,335	1,526	37,330	28
EnergyStar® Products	\$ 1,249,738	51,076	877,243	19,164	336,273	1,645
Sub-total	\$ 3,369,244	281,470	5,556,251	41,288	789,200	2,535
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 1,758,514	-	-	56,938	891,665	179
Small Business Energy Solutions	\$ 1,264,432	2,016	36,288	24,297	500,345	478
Sub-total	\$ 3,022,947	2,016	36,288	81,235	1,392,010	657
<b>Total Gas</b>	<b>\$ 6,392,191</b>	<b>283,486</b>	<b>5,592,539</b>	<b>122,523</b>	<b>2,181,210</b>	<b>3,192</b>
<b>Grand Total</b>	<b>\$ 30,407,930</b>	<b>52,777,196</b>	<b>709,647,720</b>	<b>162,900</b>	<b>3,003,717</b>	<b>140,468</b>

**Notes:**  
 (1) Amounts shown above pertain only to the CORE programs. The amounts pertaining to the Company-Specific programs are shown on Attachment N, page 3.

**NH CORE PROGRAMS**  
**2015 Statewide Goals**  
**Company-Specific Programs <sup>(1)</sup>**

Description	Program Budget		kWh Savings		MIMBtu Savings		Customers Count
			Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>							
<b>Residential</b>							
Home Energy Reports	280,402		1,529,834	4,589,501	-	-	25,000
Customer Engagement Platform	221,539		-	-	-	-	-
Education	52,776		-	-	-	-	-
Revolving Loan Fund	-		-	-	-	-	-
Forward Capacity Market Expenses <sup>(2)</sup>	68,500		-	-	-	-	-
Sub-total	\$ 623,217		\$ 1,529,834	4,589,501	-	-	25,000
<b>Commercial &amp; Industrial</b>							
Smart Start	57,000		-	-	-	-	-
C&I Customer Partnerships	19,856		-	-	-	-	-
C&I RFP Program	532,143		2,955,931	36,597,730	-	-	6
Customer Engagement Platform	328,731		-	-	-	-	-
Education	307,707		-	-	-	-	6
Forward Capacity Market Expenses <sup>(2)</sup>	156,500		-	-	-	-	-
Sub-total	\$ 1,401,938		\$ 2,955,931	36,597,730	-	-	12
<b>Total Residential and C&amp;I</b>	<b>\$ 2,025,154</b>		<b>\$ 4,485,764</b>	<b>41,187,231</b>	<b>-</b>	<b>-</b>	<b>25,012</b>
<b><u>Gas Utilities</u></b>							
<b>Residential</b>							
Building Practices & Demonstration	293,550		-	-	18,440	55,320	25,000
Education	17,000		-	-	-	-	-
Sub-total	\$ 310,550		-	-	18,440	55,320	25,000
<b>Commercial &amp; Industrial</b>							
Building Practices & Demonstration	-		-	-	-	-	-
Education	26,000		-	-	-	-	-
Sub-total	\$ 26,000		-	-	-	-	-
<b>Total Residential and C&amp;I</b>	<b>\$ 336,550</b>		<b>-</b>	<b>-</b>	<b>18,440</b>	<b>55,320</b>	<b>25,000</b>
<b>Grand Total</b>	<b>\$ 2,361,704</b>		<b>\$ 4,485,764</b>	<b>41,187,231</b>	<b>18,440</b>	<b>55,320</b>	<b>50,012</b>

**Notes:**

(1) Amounts shown above pertain only to the Company-Specific programs. The amounts pertaining to the CORE programs are shown on Attachment N, page 2. Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.

(2) Amounts shown are budgeted expenses related to the electric utilities' participation in ISO-NE's Forward Capacity Market.





**NH CORE PROGRAMS**  
**2016 Statewide Goals**  
**CORE & Company-Specific Programs**

Description	Program Budget <sup>(1)</sup>	kWh Savings		MIMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
CORE Programs						
Municipal Program	\$ 2,000,000	3,855,892	50,863,790	1,613	38,163	260
All Other CORE Programs	\$ 20,167,595	44,341,579	594,901,438	32,650	659,737	120,490
Sub-total	\$ 22,167,595	48,197,471	645,765,229	34,263	697,900	120,750
Company Specific Programs <sup>(2)</sup>	\$ 1,684,056	5,148,827	42,474,630	-	-	25,016
<b>Total Electric</b>	<b>\$ 23,851,651</b>	<b>53,346,298</b>	<b>688,239,859</b>	<b>34,263</b>	<b>697,900</b>	<b>145,766</b>
<b><u>Gas Utilities</u></b>						
CORE Programs	\$ 6,562,310	289,165	5,706,050	125,487	2,236,823	3,274
Company Specific Programs <sup>(2)</sup>	\$ 347,357	-	-	18,440	55,320	25,000
<b>Total Gas</b>	<b>\$ 6,909,667</b>	<b>289,165</b>	<b>5,706,050</b>	<b>143,927</b>	<b>2,292,144</b>	<b>28,274</b>
<b>Grand Total</b>	<b>\$ 30,761,318</b>	<b>53,635,463</b>	<b>693,945,908</b>	<b>178,190</b>	<b>2,990,043</b>	<b>174,040</b>

**Notes:**

(1) Program budgets shown in this report exclude the performance incentive (PI).

(2) Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.

**NH CORE PROGRAMS**  
**2016 Statewide Goals**  
**CORE Programs <sup>(1)</sup>**

Description	Program Budget	kWh Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 3,696,889	462,686	6,358,472	9,720	201,007	349
NH Home Performance w/Energy Star	\$ 2,462,496	259,569	4,626,483	13,134	258,158	576
EnergyStar® Homes	\$ 1,335,170	1,200,754	28,884,744	6,756	167,138	315
EnergyStar® Products	\$ 3,126,368	9,217,982	112,096,148	3,039	33,434	118,105
Sub-total	\$ 10,620,924	11,140,991	151,965,847	32,650	659,737	119,345
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 6,337,063	23,758,887	319,037,280	-	-	408
Small Business Energy Solutions	\$ 3,209,608	9,441,701	123,898,311	-	-	737
Municipal Program	\$ 2,000,000	3,855,892	50,863,790	1,613	38,163	260
Sub-total	\$ 11,546,671	37,056,480	493,799,382	1,613	38,163	1,405
<b>Total Electric</b>	<b>\$ 22,167,595</b>	<b>48,197,471</b>	<b>645,765,229</b>	<b>34,263</b>	<b>697,900</b>	<b>120,750</b>
<b><u>Gas Utilities</u></b>						
<b>Residential</b>						
Home Energy Assistance	\$ 1,169,530	226,694	4,591,831	8,150	165,254	379
NH Home Performance w/Energy Star	\$ 872,325	-	-	13,013	261,586	509
EnergyStar® Homes	\$ 142,624	9,807	209,289	1,548	37,892	28
EnergyStar® Products	\$ 1,280,544	50,312	862,593	19,175	335,742	1,663
Sub-total	\$ 3,465,023	286,813	5,663,714	41,886	800,473	2,580
<b>Commercial &amp; Industrial</b>						
Large Business Energy Solutions	\$ 1,801,873	-	-	57,849	909,648	185
Small Business Energy Solutions	\$ 1,295,414	2,352	42,336	25,752	526,702	509
Sub-total	\$ 3,097,287	2,352	42,336	83,600	1,436,350	694
<b>Total Gas</b>	<b>\$ 6,562,310</b>	<b>289,165</b>	<b>5,706,050</b>	<b>125,487</b>	<b>2,236,823</b>	<b>3,274</b>
<b>Grand Total</b>	<b>\$ 28,729,905</b>	<b>48,486,636</b>	<b>651,471,278</b>	<b>159,750</b>	<b>2,934,723</b>	<b>124,024</b>

**Notes:**

(1) Amounts shown above pertain only to the CORE programs. The amounts pertaining to the Company-Specific programs are shown on Attachment N, page 3.

**NH CORE PROGRAMS**  
**2016 Statewide Goals**  
**Company-Specific Programs <sup>(1)</sup>**

Description	Program Budget		kWh Savings		MIMBtu Savings		Customers Count
			Annual	Lifetime	Annual	Lifetime	
<b><u>Electric Utilities</u></b>							
<b>Residential</b>							
Home Energy Reports	249,903		2,267,705	6,803,115	-	-	25,000
Customer Engagement Platform	106,328		-	-	-	-	-
Education	52,776		-	-	-	-	-
Revolving Loan Fund	-		-	-	-	-	-
Forward Capacity Market Expenses <sup>(2)</sup>	68,500		-	-	-	-	-
Sub-total	\$ 477,507		\$ 2,267,705	\$ 6,803,115	-	-	25,000
<b>Commercial &amp; Industrial</b>							
Smart Start	\$ 57,000		-	-	-	-	-
C&I Customer Partnerships	19,447		-	-	-	-	4
C&I RFP Program	521,177		2,881,122	35,671,515	-	-	6
Customer Engagement Platform	157,448		-	-	-	-	-
Education	294,977		-	-	-	-	6
Forward Capacity Market Expenses <sup>(2)</sup>	156,500		-	-	-	-	-
Sub-total	\$ 1,206,549		\$ 2,881,122	\$ 35,671,515	-	-	16
<b>Total Residential and C&amp;I</b>	<b>\$ 1,684,056</b>		<b>\$ 5,148,827</b>	<b>\$ 42,474,630</b>	-	-	<b>25,016</b>
<b><u>Gas Utilities</u></b>							
<b>Residential</b>							
Building Practices & Demonstration	\$ 302,357		-	-	18,440	55,320	25,000
Education	17,000		-	-	-	-	-
Sub-total	\$ 319,357		-	-	18,440	55,320	25,000
<b>Commercial &amp; Industrial</b>							
Building Practices & Demonstration	\$ 15,000		-	-	-	-	-
Education	13,000		-	-	-	-	-
Sub-total	\$ 28,000		-	-	-	-	-
<b>Total Residential and C&amp;I</b>	<b>\$ 347,357</b>		-	-	<b>18,440</b>	<b>55,320</b>	<b>25,000</b>
<b>Grand Total</b>	<b>\$ 2,031,413</b>		<b>\$ 5,148,827</b>	<b>\$ 42,474,630</b>	<b>18,440</b>	<b>55,320</b>	<b>50,016</b>

**Notes:**

- (1) Amounts shown above pertain only to the Company-Specific programs. The amounts pertaining to the CORE programs are shown on Attachment N, page 2.  
 Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.  
 (2) Amounts shown are budgeted expenses related to the electric utilities' participation in ISO-NE's Forward Capacity Market.

# WHITE PAPER

## THIRD PARTY FINANCING PILOT FOR NH RESIDENTIAL NATURAL GAS and ELECTRIC CUSTOMERS

### **Introduction**

As described further below, for the 2015 and 2016 years, the Natural Gas Utilities and Electric Utilities (referred to collectively as “Utilities”) propose to enhance customers’ access to energy efficiency investments and savings by continuing an existing natural gas third party financing option, and beginning an electric third party financing option, which includes the use of \$150,000 per year of Better Buildings money to buy down the interest rates applicable to loans associated with certain Core programs. This White Paper describes the Utilities’ third party financing option in greater detail. Additional undertakings are described in the Settlement Agreement filed by the parties in this proceeding.

### **Background**

#### Existing Natural Gas Utilities Energy Efficiency Financing

In 2014, the Commission authorized Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities and Northern Utilities, Inc. (“Natural Gas Utilities”) to conduct a pilot third party financing option (“Natural Gas Financing Pilot”). In support of its request for this pilot, the Natural Gas Utilities cited challenges experienced in driving residential natural gas customers to perform more comprehensive energy efficiency improvements. Access to available cash was commonly cited by customers as a barrier for not pursuing any energy efficiency improvements or for not pursuing all energy efficiency improvements recommended by their auditor. The Natural Gas Utilities proposed in the 2015-2016 Plan to continue this financing option for program years 2015 and 2016.<sup>1</sup>

#### Existing Electric Utilities Energy Efficiency Financing

In 2009, Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities, the New Hampshire Electric Cooperative, Public Service Company of New Hampshire and Unitil Energy Systems, Inc. (“Electric Utilities”) were awarded a RGGI-funded grant to support 0% on-bill financing loans for certain Core programs. In addition, the Commission subsequently approved the use of some Core program funds for certain utilities to increase the balance of funds available in their on-bill financing option. At this point in time, Liberty, NHEC and PSNH have exhausted or will shortly exhaust their 0% on-bill financing revolving loan funds and will have to discontinue offering such loans until funds are returned via customer repayments. Since the demand for these funds ultimately is greater than the supply, Liberty, NHEC and PSNH expect to be in a stop/start situation with on-bill financing going into the future.

---

<sup>1</sup> 2015-2016 New Hampshire Statewide CORE Energy Efficiency Plan, September 12, 2014 pages 49 and 73.

### Existing Better Buildings Energy Efficiency Financing

With \$10 million in funding from the U.S. Department of Energy's (DOE) Better Buildings Neighborhood Program, the NH Better Buildings program was first established as a program focused on the three "Beacon Communities" of Berlin, Nashua and Plymouth to achieve transformative energy savings and reductions in fossil fuel use and greenhouse gases through deep energy retrofits and complementary sustainable energy solutions. The goal was to reduce energy use by a minimum of 15% through energy efficiency upgrades in residential and commercial buildings. The program expanded statewide in April 2012 by issuing a competitive solicitation for additional commercial projects from any community in the state, and through a partnership with the state's utility administered, ratepayer funded residential Home Performance with ENERGY STAR® (HPwES) program.

The NH Better Buildings program is administered by the New Hampshire Office of Energy and Planning (OEP) and currently managed by the NH Community Development Finance Authority (CDFA). Four financial products were established through the program:

1. Residential Loans – 0% on-bill financing through partnership with the Utility Home Performance with ENERGY STAR® (HPwES) program;
2. Residential Loan Loss Reserve (LLR) – 50% loan loss reserve funds backing residential loans for energy efficiency;
3. Commercial Loans – 2% - 4% co-lending agreements for commercial energy efficiency loans with local banks and credit unions; and
4. Commercial Loan Loss Reserve (LLR) – 50% loan loss reserve funds backing commercial loans for energy efficiency

All loan repayments and interest income accumulates in two Revolving Loan Funds (RLFs) to be utilized for future loans. The two loan loss reserves earn interest and are available to back additional loans once the aggregate loan principal is less than the amount of the reserve.

A partnership between Better Buildings and the utilities' HPwES program was approved by the NH Public Utilities Commission (PUC) in 2012 so that the utilities could expand their on-bill loan offerings by partnering with Better Buildings. The maximum allowable residential loan was increased from \$7,500 to \$20,000 and the maximum term was increased from five years to ten years (term dependent on loan amount).

Using Better Buildings funds as capital, customers taking loans through this collaboration were also allowed to finance "deep dive" measures that were not typically eligible for rebates or loans under the current cost-effectiveness test for HPwES. These "deep dive" measures included installation of pellet boilers, solar thermal hot water, geothermal systems, exterior insulation and ENERGY STAR® rated windows and doors. Customers adding these items were required to implement a base efficiency project achieving a minimum 15% savings first.

The Better Buildings program partnered with New Hampshire-based lenders to provide a third-party loan program. Better Buildings developed agreements with eight New Hampshire banks and credit unions. Those agreements were used as the basis for the agreement used in the

Natural Gas Financing Pilot and could be used as the basis for the agreement used by the Electric Utilities.

Example of Existing Financing Program in another Jurisdiction, MA HEAT Loan

The MA HEAT Loan program offers 0% unsecured third-party lender financing. This financing is off-bill for customers participating in their Home Energy Solutions and Energy Star Products programs. The MA utilities have an agreement with the MA Bankers Association, which recruited participating lenders. The utilities buy down the interest from the Prime Rate plus 1% (floor of 5.00%) to a fixed rate of 0%. Customers taking a loan receive the full incentive as well as the loan. The maximum loan is \$25,000 up to 7 years. Unitil has had over 140 customers participate in this program in 2013 in its MA service territory.

Comments from Independent Study of Energy Policy Issues – Market Barriers

The Independent Study of Energy Policy Issues (in NH), published September 30, 2011, identifies four market barriers to energy efficiency. One of the four is “Lack of capital to address upfront first costs and short return on investment (ROI) expectations by energy users.” Third-party financing is a proven way to reduce the impact of this barrier in energy efficiency investments in NH.<sup>2</sup>

**Utilities Proposed Financing Options for 2015-2016**

As a solution to the limitations and circumstances described above, and to mitigate the financial impact to customers of energy efficiency measures, Utilities propose to offer an expanded third party financing option to customers. This option will be in addition to existing on-bill financing options.

In designing the expanded third party financing offering, the Utilities plan to build on experiences from similar financing programs in other jurisdictions and the Electric Utilities will build on experiences from the Natural Gas Financing Pilot. For example, a number of Liberty Utilities’ natural gas customers in Nashua participated in the now completed Better Buildings Residential Financial Program (“Better Buildings program”)<sup>3</sup> and 28 third party loans have been completed under the Natural Gas Pilot introduced in 2014. Also, Unitil has offered the third party Mass Save Residential HEAT Loan (“MA HEAT Loan”) for several years to its Massachusetts customers as part of the Commonwealth’s statewide offering, and has been referring its New Hampshire gas customers to lenders participating in the Natural Gas Pilot, with several loans in process or recently closed.

---

<sup>2</sup> See Page 8

[http://www.puc.nh.gov/Sustainable%20Energy/Reports/Key%20Findings%20&%20Recommendations%20-%20NH%20Independent%20Study%20of%20Energy%20Policy%20Issues\\_09-30-11.pdf](http://www.puc.nh.gov/Sustainable%20Energy/Reports/Key%20Findings%20&%20Recommendations%20-%20NH%20Independent%20Study%20of%20Energy%20Policy%20Issues_09-30-11.pdf)

<sup>3</sup> This offering is described at <http://www.nh.gov/oeep/energy/programs/betterbuildings/index.htm>. The program, implemented by Better Buildings NH and described herein, was not associated with the Core programs.

## **Objectives of Third Party Financing Pilot in New Hampshire**

The following questions will be explored by the Utilities:

1. Will customers invest in all or most of the auditor recommended energy savings measures (weatherization as well as heating, cooling and water heating measures) utilizing reduced-cost financing?
2. Will customers take advantage of an energy efficiency financing product that is not offered via their utility bill?
3. Will financial institutions have interest in collaborating with the Utilities to offer energy efficiency loans?
4. Will the NH Banker's Association and/or NH Credit Union League be able to recruit lenders to cover most of the geography of the state that are willing to engage in a standard state-wide offering similar to those in Massachusetts?

## **Target Market**

The Utilities will target residential customers interested in the HPwES program as they work directly with energy auditors and weatherization and heating installation contractors to explain the third party financing option as part of their interaction with customers participating in HPwES.

Natural gas customers can receive financing by participating in the HPwES program, ENERGY STAR Products program, or both. Electric customers will receive financing by participating in the HPwES program. In order for an electric customer to receive financing for a heating, cooling or a water heating system, the HPwES auditor must have recommended the measure. Fossil fuel heating and water heating measures will be incented via the HPwES program. Electric measures will be incented via the Energy Star Products program.

## **Value Proposition**

The Natural Gas Utilities' value proposition is to improve the upfront affordability for customers to install HPwES auditor recommended measures and/or the ENERGY STAR Products measures.

The Electric Utilities' value proposition is to improve the upfront affordability for customers to install HPwES auditor recommended measures including heating, cooling and water heating measures.

## **Financing Offering**

All participating customers will be offered a 2%<sup>4</sup> loan for up to 7 years. The maximum loan amount will be \$15,000, which should allow for weatherization and a heating system replacement. Lenders that offer a maximum loan amount less than \$15,000 will be included in the offering, and customers needing larger loans will be referred to those lenders that can accommodate them, though the interest rate buy-down would be limited to the \$15,000 loan amount. The lender assumes all the risk if a customer defaults on its unsecured loan.

---

<sup>4</sup> This 2% may be adjusted upward if bank interest rates increase beyond 8%.



The minimum loan amount for the Natural Gas Utilities is \$1,000. The minimum loan amount for the Electric Utilities is \$2,000. Electric customers seeking loans between \$500 and \$2,000 will be served by the Electric Utilities that offer 0% on-bill financing.

To date, Liberty Utilities and Northern Utilities have secured agreements with Merrimack County Savings Bank, Meredith Village Savings Bank (both offering a fixed annual rate of 6.745%), and Northeast Credit Union (offering a 5.99% rate and 6.99% rate depending on the customer’s credit score) to buy down a customer’s interest rate from a fixed annual rate to a 2% fixed rate loan for customers.

The currently available rates are subject to change depending on adjustments to the Prime Rate or other economic factors. However, the loan agreements made to-date stipulate that the lender’s interest rate offering will not exceed the contracted rate. If a lender requests to raise its rate, the Utilities will consider amending the contracts to accommodate the new lending rate, while continuing to buy down the rate to 2%. If the Prime Rate or other economic factors cause rates to rise significantly, the Utilities will consider amending the lenders’ contracts, as well as increasing the buy-down rate applicable to future customers. The Utilities need to negotiate rates for 2015 and 2016. For 2015, the Utilities will not accept lender rates in excess of 8.0%. If lenders’ rates are generally above 8.0%, the Utilities may increase the customer interest rate from 2%. The Utilities are also seeking additional lenders to participate in the offering.

**Estimated 2015 Loan Buy-Down Budgets and Participation**

The following tables summarize the estimated average buy-down amounts, the number of loans and the loan buy-down budgets by utility and program.

**Natural Gas Utilities**

**Liberty Utilities**

<b>Program</b>	<b>Average Buy Down Amount</b>	<b># of Loans</b>	<b>Budget</b>
HPwES	\$191	33	\$6,291
ENERGY STAR Products	\$840	12	\$10,078
Both	\$1,163	<u>10</u>	<u>\$11,628</u>
<b>TOTAL</b>		<b>55</b>	<b>\$29,776</b>

**Northern Utilities**

<b>Program</b>	<b>Average Buy Down Amount</b>	<b># of Loans</b>	<b>Budget</b>
HPwES	\$191	10	\$1,910
ENERGY STAR Products	\$840	3	\$2,520
Both	\$1,163	<u>4</u>	<u>\$4,652</u>
<b>TOTAL</b>		<b>17</b>	<b>\$9,082</b>

**Electric Utilities**

<b>HPwES Program Only</b>	<b>Average Buy Down Amount</b>	<b># of Loans</b>	<b>Budget</b>
Liberty Utilities	\$478	16	\$7,648
NHEC	\$488	46	\$22,448
PSNH	\$400	100	\$40,000
Unitil	\$551	<u>34</u>	<u>\$18,737</u>
<b>TOTAL</b>		<b>196</b>	<b>\$88,833</b>

**Support for 2% Loan**

For the offering, the Utilities compared other loan programs and considered the costs associated with offering a buy-down to a 2% loan and a buy-down to a 0% loan. In order to allow limited funds to be spread over more customers, the Utilities chose a 2% loan. Two percent is a competitive rate compared to other financing options such as fixed rate home equity loans (3.99% for 5 years) that are secured by property, personal loans (12.536%), credit cards, or home improvement loans (6.745%).<sup>5</sup> Feedback from OEP, which has experience with federally funded revolving loan programs, suggests that a 0% loan potentially undercuts other energy efficiency financing in the market, which cannot go as low as 0%.

**Off-Bill Financing**

The Utilities are choosing to move in the direction of off-bill financing as is currently in use by the MA HEAT Loan program. Off-bill financing is the best match for third-party financing because it leverages the existing private market resources and processes to administer the loans.

**Program Incentives**

The Utilities considered the option of using a portion of the incentive to buy down all or a portion of the interest on the loan. This option would mean that the customer’s portion of the measure cost would increase. At this time, the Utilities determined that it would be in the program’s best interest to offer the same incentive for all customers participating in HPwES and/or ENERGY STAR Products programs as described above. To do otherwise would add confusion to the market regarding these programs and would penalize those customers who require financing to participate in the residential energy efficiency programs. All customers participating in HPwES and/or ENERGY STAR Products will be eligible to seek reduced-cost financing (until funds are exhausted).

---

<sup>5</sup> Merrimack County Savings Bank, October 31, 2014  
[http://www.mcsbnh.com/personal\\_banking/consumerLoanRates.php](http://www.mcsbnh.com/personal_banking/consumerLoanRates.php)

### **Performance Incentive**

The savings from the measures installed will be captured in the HPwES and ENERGY STAR Products programs. The Utilities plan to include the expenditures related to interest rate buy down in the calculation of total program costs, which is used in calculating the performance incentive. The Utilities are not proposing to earn a performance incentive from customer loan repayments.

### **Evaluation**

The Utilities plan to perform surveys and discuss results at a quarterly Core meeting or at a separately designated meeting of stakeholders. The surveys, which may be part of a future impact evaluation, will capture feedback from customer participants, customer non-participants, contractors and lenders who are given the opportunity to participate in the program. This evaluation will help inform future financing proposals and programs.

### **Proposed Partnership with the NH Better Buildings Program in 2015/2016**

At this time, most of the NH Better Buildings ARRA funds have been lent out to commercial and residential clients. Residential loans have a maximum 10-year term and OEP expects loan repayments of approximately \$240,000 annually for the next three to four years with the amount declining as smaller, shorter term loans are fully repaid. Because the majority of these loans were written through the NH Better Buildings and utility partnership, which offered interest-free loans, there is minimal interest income.

To build upon NH Better Buildings' successful collaboration with the utility HPwES programs, OEP proposes to utilize a portion of the residential revolving loan fund to expand the utilities' third-party financing offering for interest rate buy-downs only, subject to PUC approval.

Using revolving federal Better Building funds for interest rate buy downs helps to expand the efficiency financing market, allows more HPwES customers to finance efficiency projects, and helps to promote market transformation by gradually introducing financing "products" with interest rates to the market in New Hampshire. OEP's goal is to work with the Core parties to include the federal Better Building funding in the third-party financing option in the current docket by providing up to \$150,000<sup>6</sup> in 2015 and in 2016

In program year 2015, the Utilities will utilize the interest rate buy-down 2015 budget amount included in the 2015/2016 Plan to support the third party financing option. As shown in the tables on page 4, the total interest rate buy-down budget amount for all the Utilities combined is approximately \$128,000. The Utilities are confident a portion of the Better Buildings funds can be spent in 2015 and 2016 and these additional federal funds will help to improve the HPwES project and measure closure rate.

---

<sup>6</sup> Depending on the level of customer interest in the third party financing option, the Utilities estimate 50 to 100 projects with interest rate buy-downs using Better Buildings funds could potentially be completed in 2015. The Utilities will use their best efforts to offer a financing option to those customers who may need financing in order to complete all or a portion of the recommended energy efficiency measures.

For the Electric Utilities, the revolving federal NH Better Buildings funds will be utilized for interest rate buy downs associated with standard HPwES Program projects as contemplated under the 2015/2016 Plan (weatherization; high efficiency oil and propane space and water heating systems when such equipment replaces end-of-life equipment and is recommended by one of the program's home energy auditors; and electric and natural gas HVAC and water heating systems through the ENERGY STAR Products program).

For the Natural Gas Utilities, the revolving federal NH Better Buildings funds will be utilized for interest rate buy downs associated with the HPwES Program and/or the ENERGY STAR Products program as contemplated under the 2015/2016 Plan.

Better Buildings revolving federal funds utilized for third party interest rate buy downs will be included in the calculation of the performance incentive and in the calculation of the applicable program's benefit/cost ratios, but will not be utilized to fund the performance incentive. The estimated performance incentive based on a budget of \$150,000 is \$11,250, using the planned electric utility performance incentive percentage of 7.5%, and \$12,000, using the planned natural gas utility performance incentive percentage of 8.0%.

There is no expectation that the infusion of money from Better Buildings for interest-rate buy downs will result in any material, incremental administrative costs. To the extent that any incremental administrative costs arise they will be recovered through the Core Programs, and Better Buildings funds will not be used to reimburse the Core Programs for these costs.

Better Buildings must continue to comply with all ARRA regulations. OEP must report certain information regarding the revolving loan funds and activity to DOE on a regular basis. OEP will work with the utilities, CDFA, participating third party lenders, and other interested parties to ensure that reporting requirements are clear and manageable.