

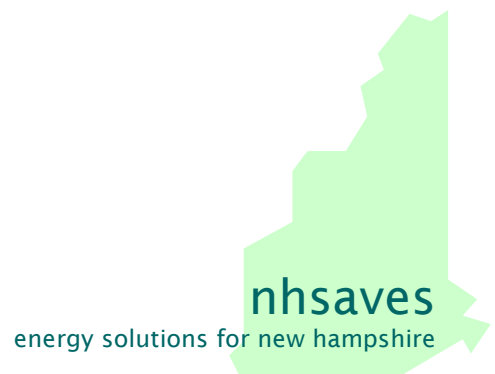
**NEW HAMPSHIRE ELECTRIC UTILITIES
BEFORE THE
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION**

**2013-2014 CORE New Hampshire
Energy Efficiency Programs**

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 No.
DE 12-262**

**SEPTEMBER 17, 2012
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The CORE Programs provide products and services tailored for business, residential and income-eligible customers or members¹. In addition, there are utility-specific programs that are typically utilized to test new technologies, to pilot new programs before offering the program statewide or to offer a program that may be pertinent to the customers of a particular utility. Each year the NH CORE Utilities work together to review the CORE Programs, make adjustments and improvements as needed or suggested by customers, interested parties, the Commission's Staff and program administrators.

The CORE Programs in place today have been thoughtfully developed and enhanced by many different parties. As shown in Table I.1, the results of the CORE Electric Programs since their inception in June 2002 have been exceptional. Key benchmarks highlighting these exceptional results include:

- ❑ The programs have saved 8.7 billion lifetime kilowatt-hours – enough energy to power the city of Concord for 22 years!
- ❑ Saving 8.7 billion kilowatt-hours is equivalent to saving \$1.2 billion at today's average² cost of 13.171 ¢/kWh – benefiting both customers and the NH economy. Based on CORE Program expenditures, this represents a return for customers of \$7 for every program dollar invested.
- ❑ We have provided customers with 795,000 efficiency products or services and reached customers in every city and town served by the NH Electric Utilities. In addition we have provided training and information through customer seminars, point-of-sale displays, brochures, and catalogs to tens of thousands more.
- ❑ Reducing customers' energy needs has the added benefit of reducing power plant emissions. Based on the regional dispatch of plants, we will reduce emissions of CO₂, SO₂, and NO_x by 4.9 million tons – equivalent to the annual emissions of more than 1 million cars.
- ❑ Overall, the programs have saved energy at an average cost of approximately 2.1 cents per lifetime kWh – as compared to the average retail price of 13.171 cents/kWh³.

¹ Hereinafter the word "customer" will be understood to mean both customers and NHEC members.

² OEP's average fuel prices as of August 13, 2012. <http://www.nh.gov/oep/programs/energy/fuelprice/details2.php?pid=264>

³ OEP's average fuel price as of August 13, 2012, <http://www.nh.gov/oep/programs/energy/fuelprice/details2.php?pid=264>

New Hampshire CORE Electric Energy Efficiency Programs					
Results Summary					
	Lifetime GWh Savings (Million)	Customers Served	Dollars Saved (Million)	Emissions Reductions (Tons)	Lifetime kWh Cost (Cents)
2003	1,368	59,467	\$163.4	1,036,277	1.74
2004	925	54,323	\$108.5	546,431	1.86
2005	1,022	81,581	\$117.6	603,754	1.96
2006	973	86,555	\$133.0	539,520	1.96
2007	986	86,113	\$139.8	547,009	1.89
2008	812	109,155	\$128.0	403,248	2.36
2009	806	90,664	\$117.4	405,136	2.32
2010	793	109,104	\$113.8	382,673	2.49
2010 RGGI	249	17,275	\$35.8	120,278	2.23
2011	754	100,397	\$149.6	355,615	2.67
Total	8,688	794,634	\$1,206.9	4,939,941	

Table I.1 – CORE Electric Program Results Summary⁴

The results of the CORE Gas Programs since their inception were not readily available for this filing. The results from 2009 to 2011 are summarized on Table I.2. Key benchmarks highlighting the success of the CORE Gas Programs since 2009 include:

- The programs have saved 5.7 million lifetime MMBTU – enough energy to heat 3,850 homes for 20 years.
- Saving 5.7 million lifetime MMBTU is equivalent to saving \$57.5 million at today’s average cost of \$1.0556 /therm⁵ - benefiting both customers and the NH economy.
- We have provided customers with 11,809 efficiency products or services and reached customers in every city and town served by the NH Gas Utilities. The NH Gas Utilities have also conducted training for trade allies.
- Reducing customers’ energy needs has the added benefit of reducing 6.3 tons of N₂O; 334,943 tons of CO₂; 6.6 tons of CH₄; with GHG Equivalent reduction of 337,021 tons, equivalent to the annual emissions of 2,925 cars for 20 years.
- Overall, the programs have saved energy at an average cost of approximately \$0.3853 per lifetime therm - as compared to the average Tier 2 retail price of \$1.0556/therm.⁶

⁴ C&I Measure Life adjustments were made in 2008, decreasing the Lifetime kWh Savings and increasing the Lifetime kWh Costs (e.g., New Construction measure life went from 20 to 15 years).

⁵ OEP’s average Tier 2 natural gas prices as of September 3, 2012.
<http://www.nh.gov/oep/programs/energy/fuelprice/details2.php?pid=265>

⁶ OEP’s average Tier 2 natural gas prices as of September 3, 2012.
<http://www.nh.gov/oep/programs/energy/fuelprice/details2.php?pid=265>

New Hampshire CORE Gas Energy Efficiency Programs					
Results Summary					
	Lifetime MMBTU Savings	Customers Served	Dollars Saved (Million)	Emissions Reductions (Tons)	Lifetime MMBTU Cost (Cents)
2009/2010	4,115,049	9,351	\$41.3	241,995	\$3.73
2011	1,615,879	2,458	\$16.2	95,026	\$4.17
Total	5,730,928	11,809	\$57.5	337,021	\$3.85

Table I.2 – CORE Gas Program Results Summary

While the NH CORE Utilities are proud of the results achieved to-date, they are very much aware of the need to work with the Commission’s Staff and other interested parties to continue to find opportunities to improve the quality and effectiveness of the CORE Programs.

B. Program Funding

Initially, the CORE Electric Programs were funded solely by a portion of the System Benefits Charge (SBC) on customers’ bills. In recent years, the program budgets have been supplemented by funds obtained by the utilities from the ISO-NE’s Forward Capacity Market, the Regional Greenhouse Gas Emissions Reductions Fund and the American Reinvestment and Recovery Act. In addition, any unspent funds from prior program years are carried forward to the following year’s budget, including interest based on the prime rate.

The CORE Gas Programs are funded by the Local Distribution Adjustment Charge (LDAC) on customers’ bills. Any unspent funds from prior program years are carried forward to the following year’s budget, including interest based on the prime rate.

ISO-NE Forward Capacity Market⁷ Overview

On June 16, 2006, the FERC approved a Settlement Agreement that addressed the future capacity needs of New England and laid the groundwork for the Forward Capacity Market. Effective December 1, 2006, under the Forward Capacity Market Transition Period rules, the ISO-NE was obligated to pay for qualified capacity reductions in accordance with a determined rate schedule from December 1, 2006 to May 31, 2010. All generation and demand resources installed after June 16, 2006, have been eligible to receive capacity payments in accordance with ISO-NE’s Market Rules. June 1, 2010 marked the end of the Forward Capacity Market Transition Period and the beginning of ISO-NE Forward Capacity Market.

The first Commitment Period of the Forward Capacity Market was June 1, 2010 through May 31, 2011. New Hampshire CORE Energy Efficiency Program capacity reductions continue to receive capacity payments under the Forward Capacity Market. The NH Electric Utilities have capacity supply obligations for their CORE program capacity reductions through the sixth Forward Capacity Market which ends on May 31, 2016. The NH Electric Utilities recently submitted Qualification Packages to participate in the upcoming seventh Forward Capacity Auction,

⁷ http://www.iso-ne.com/markets/othrmkts_data/fcm/index.html

I. Performance Incentive

The NH CORE Utilities are proposing that all programs in this filing, other than the non-electric energy savings associated with the Home Performance with ENERGY STAR Program, be included in the determination of the performance incentive. The NH CORE Electric Utilities will not include the non-electric energy savings associated with the Home Performance with ENERGY STAR Program in compliance with the Commission's recent Order No. 25,402 issued August 23, 2012. The NH Electric CORE Utilities will continue to utilize the approved performance incentive mechanism based on actual spending instead of budget spending to avoid potential double counting of budgets in the calculation of the performance incentive as detailed in Commission Order No. 25,189. The current incentive mechanism fosters efficient program implementation efforts and the achievement of program goals while retaining most funding for program efforts. The performance incentive also serves as a motivating factor for the NH Electric and Gas Utilities and holds each utility accountable for meeting their individual program goals. If any individual utility does not meet its program goals, it will not earn its target incentive.

The Commission recently indicated in its Order No. 25,402, that the record is not sufficiently developed to make a determination on an incentive methodology for the non-electric energy savings related to the Home Performance with ENERGY STAR Program and directed the parties to collaborate in a working group for the purpose of developing a performance incentive proposal for non-electric savings. A working group meeting is currently scheduled for October 3, 2012 to begin addressing this issue.

Further information regarding the performance incentive methodology can be found in Section V and detailed calculations for each utility are included in the Attachment section of this filing.

J. Multi-year Project Approval

In 2003 the Commission authorized what was termed "multi-year approval" – a process whereby customers with multi-year projects could receive a commitment assuring program continuity and funding for long term projects. The NH CORE Utilities seek to continue multi-year approval and specifically request authorization to make customer commitments during 2013 and 2014 for projects to be completed in 2013-2016. All customer classes currently eligible to participate in the CORE Programs will be eligible. The remainder of this section provides background and support for continuing this policy.

Customers of the NH CORE Utilities often plan and budget for large capital projects with multi-year lead times. Construction projects, renovations and replacement of existing equipment for 2013 and 2014 will be developed in 2012, and the resources necessary to fund such projects need to be arranged when these customers' decisions are made. Large commercial and industrial customers sometimes have two-year planning horizons for large capital expenditures, which are essential to the growth of the NH economy. Home builders will plan construction starts for the following year based on many factors, including the availability of the ENERGY STAR Homes Program. With pre-approval of the number of households that can be served by the Home Energy Assistance Program, the Community Action Agencies or other contractors delivering these services can better plan for the number of crews that will be needed and can better coordinate with the Department of Energy home weatherization jobs.

The NH CORE Utilities will 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 that are approved under the then existing CORE Programs and utility-specific programs. All 2013-2014 program guidelines and rules will apply to future year commitments. Customers receiving commitments in 2013-2014 will not be barred from participating in any new programs introduced in 2015-2016 which supplement or supplant the existing programs. The funds for future projects will be paid out of the budget for the year the project was implemented; however, the commitment to the customer will be made contingent upon the continuation of funding.

The total of all customer commitments, in any given program, in any given future year, will not exceed 40% of the amount budgeted for that program in 2013 or 2014 for Customer Rebates and Services without prior concurrence of the Parties and the Commission's Staff. Any such commitments will be monitored and reported in the NH CORE Utilities' quarterly reports. All customer commitments will be made contingent upon the continuation of the program funding.

K. Interim Changes in Program Budgets

The NH CORE Utilities recommend continuation of the budget adjustment guidelines currently in place. 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 company of the need for a more in-depth review within thirty (30) days of the filing.
- Notwithstanding the 2nd and 3rd bullets above, no funds shall be transferred out of the Home Energy Assistance Program without prior approval by the Commission.

marketing campaign during the time period October 2012 – December 2014. The utilities also 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 threshold⁵. Program information will also be handed out at special events (e.g., home shows) and mailed out upon request. Home Energy Auditors will also market the program as necessary to meet participation goals, and the utilities may include articles in their bill inserts. While piloting and then ramping this program up during 2009-2012, some new marketing approaches were tested that may also be used in the future, including Twitter and Facebook messages about the program, articles in trade ally newsletters, promotion in senior citizen seminars/newsletters, working directly with towns, interviews on radio shows, and working with realtor groups.

Delivery:

NH Electric and Gas Utility personnel will administer the program and will contract for the delivery of program services with qualified energy auditors. Additionally, customers will be educated and informed about opportunities for installing renewable energy technologies.

Budgets, Goals, Benefits:

2013 Plan	Budget	Participation	Lifetime Savings
Electric	\$2,500,808	1,292	5,709,958 kWhs
Gas	\$ 865,000	593	404,077 MMBTUs

2014 Plan	Budget	Participation	Lifetime Savings
Electric	\$2,538,986	1,307	5,775,464 kWhs
Gas	\$ 916,500	624	427,530 MMBTUs

Measures of Success & Market Transition Strategy:

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

⁵ Per page 25 of Residential Energy, Cost Savings and Comfort for Existing Buildings, 4th edition, by John Krigger and Chris Dorsi.

5. Residential Building Practices and Demonstration Program – Gas Companies

The purpose of the Residential Building Practices and Demonstration Program is to explore and demonstrate new and/or underutilized energy efficiency practices and/or equipment that can enhance a home's overall energy saving potential. This unique program allows the Companies to support new and/or advanced energy saving technologies installed by residential customers.

The Companies plan to explore several ideas such as heating equipment programs, insulation and building envelope techniques, and new home construction practices. Ideas will be drawn from the Companies and other utilities' experiences, program vendors, and interested business partners. Eligible participants in this program will include home owners, landlords, and new home builders. Each participant may be asked to allow monitoring of the installation and publication of the results in case study format.

The Companies will consider the following:

- Early Retirement of Boilers Pilot - the Companies will investigate the viability of a boiler early retirement program. Although the usable life for a boiler is documented at 20 years, many of these boilers can last 40 years or more operating inefficiently. The concept of the pilot would be to have old inefficient operating equipment taken out of service and be replaced with high- efficient ENERGY STAR equipment. In contrast, the ENERGY STAR Appliance program provides incentives for failed equipment and new equipment (i.e., a new gas heat customer). The MA utilities will be concluding their pilot shortly on early retirement of gas boilers and the Companies will draw from this experience.
- WIFI Thermostats Pilot - The Companies will investigate a pilot program to evaluate the energy impact of programmable Wi-Fi thermostats installed in homes with existing programmable thermostats controlling their gas heating systems. The primary goal of the evaluation is to measure gas savings associated with these installations. We propose conducting a billing analysis for the 2013-2014 heating season to estimate the heating energy impacts attributable to the pilot program. In addition, we will conduct participant surveys to assess customer motivation, behavior, and satisfaction, and which will help inform potential ways to improve the program offering should it expand beyond the pilot phase. The pilot would be conducted in conjunction with the work of Liberty Utilities conducted in 2012.

The Companies will consider other ideas in addition to the list above.

1. Large Business Energy Solutions Program

Overview:

This program will target electric customers with a twelve-month average demand of 200 kW or more and natural gas customers with an average annual energy usage of 40,000 therms or more.

The largest energy users are concentrated in manufacturing, healthcare, schools, ski areas, large retail, and large commercially metered multi-family facilities. These accounts are generally served by the CORE utilities managed account staff who typically work with these customers on a one-on-one basis to explore efficiency opportunities and assist them through the participation process. This customer segment is generally well informed about the opportunities for energy efficiency improvements and is generally familiar with the CORE programs. They often have in-house staff that evaluate and propose energy efficiency improvements.

The program also targets customers with new construction, major renovation, failed equipment replacement and customers operating aging, inefficient equipment and systems. The Gas Utilities will further target customers that heat their businesses with natural gas or have food service operations.

For new construction projects, the program offers prescriptive and custom rebates designed to cover the lesser of a one year payback or up to 75% of incremental costs. For retrofit projects, the program offers prescriptive and custom rebates designed to cover the lesser of a one year payback or up to 35%⁷ of equipment and installation costs. Opportunities typically include lighting, motors, HVAC, air compressors, chillers, variable frequency drives as well as custom measures. For gas customers, additional opportunities include condensing boilers, high efficiency water heaters, high efficiency cooking equipment, and custom measures. The program also offers Technical Assistance including project evaluation, measure identification, equipment monitoring, compressed air leak detection, and energy audits. Technical Assistance services may require a customer co-payment.

Other initiatives will include: Energy Efficient Schools Initiative - offering rebates of up to 100% of incremental costs; Building Codes - training on the proper implementation of New Hampshire's commercial energy building code; and Compressed Air Services - assisting customers with comprehensive audits and training. NH Utilities will initially reserve five percent of the new equipment and construction sector budget for the Energy Efficient Schools Initiative; however, actual funding will be higher or lower depending on the number of new school building opportunities.

For new construction projects, incentives for customers installing high efficiency heating, cooling, hot water systems and controls will also be available. In the past, such incentives have only been available to gas customers. With the addition of funds from the Regional Greenhouse Gas Initiative auctions, incentives will now be offered on a fuel neutral basis,

⁷ Gas companies will pay up to 50% on Customer Retrofit Projects due to the current low price of natural gas.

Measures of Success & Market Transition Strategy:

Success factors for this program include attaining the planned participation and energy savings goals. The geothermal and air source heat pump options would be available for the duration of the ENERGY STAR Homes Program. Evaluations will help determine program changes, if needed, over time to address the residential market barriers.

IV. Monitoring & Evaluation

A. MONITORING AND EVALUATION PLAN

A settlement agreement in 2006 approved by the New Hampshire Public Utilities Commission on March 17, 2006 (Order No. 24,599 in DE 05-157) transferred responsibility for monitoring and evaluation efforts from the Utilities to Commission Staff. Under that agreement, the Commission receives input and advice from the utilities on monitoring and evaluation activities and to also coordinate efforts with the Utilities' Core programs¹⁸ implementation efforts. In addition, there was also agreement:

(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. (Order No. 24,599, Page 5)

For 2013 and 2014, Measurement and Verification (M&V) efforts are funded at approximately five percent of the annual program budgets. These funds are utilized to support the following activities:

1. Evaluation Planning
2. Measurement and Verification of New Hampshire CORE Energy Efficiency Programs
3. Regional Measurement and Verification Projects
4. Regional Avoided Energy Supply Cost Studies
5. Miscellaneous Research
6. CORE EE Program Tracking and Reporting

During 2013-2014, the Utilities have identified a number of evaluation activities planned for or needed in New Hampshire.

1. Evaluation Planning – A multi-year evaluation plan will be developed to describe the measurement and verification projects and activities that will be required to demonstrate the effectiveness and quantify the savings achieved by energy efficiency programs that are funded by New Hampshire customers via the System Benefits Charge. The evaluation plan will also address the requirements that have been established by ISO New England to measure and verify the demand reduction value of qualified demand resources offered into the ISO-NE Forward Capacity Market.

¹⁸ NH gas evaluation activities are also coordinated with electric evaluations.

Avoided Costs

The NH Electric Utilities requested and the NHPUC approved¹⁹ the use of a single avoided cost methodology for Generation, Transmission, and Distribution. In determining the Benefit-to-Cost ratio, the NH Electric Utilities used the avoided generation costs from the *2011 Avoided-Energy-Supply Costs in New England*²⁰.

For the avoided Transmission and Distribution costs, we used the weighted average of all the NH Electric Utilities costs. Refer to Attachments B and C for additional information on avoided costs.

Other assumptions used in determining the future and present values of benefits include inflation at 0.50%²¹ per annum and a nominal discount rate of 3.25%²².

Threshold Conditions

There are three threshold conditions that apply to the performance incentive calculation. Specifically,

1. The combined benefit-to-cost ratio for residential programs must be 1.0 or greater. If not, there is no incentive associated with program cost effectiveness. The commercial/industrial component is calculated similarly.
2. The actual lifetime kWh savings for the residential programs must be 65% or greater than the predicted lifetime kWh savings; otherwise, there will be no incentive associated with kWh savings. Kilowatt-hour savings for the commercial/industrial component are treated similarly.
3. The Residential and Commercial/Industrial components are calculated separately and are independent of one another. The residential incentive component is capped at 12% of the combined budget for residential programs. The commercial/industrial component is calculated similarly.

¹⁹ DE 01-057, Order No. 23,850, November 29, 2001, page 19.

²⁰ *Avoided Energy Supply Costs in New England*, August 2011.

²¹ Used the Gross Domestic Product: Implicit Price Deflator and calculated the difference between the January 1, 2009 and January 1, 2010 rates. See <http://research.stlouisfed.org/fred2/data/GDPDEF.txt>

²² Prime rate as of June 1, 2012, in accordance with Energy Efficiency Working Group Report, Section 7, page 17. Prime rate data taken from <http://www.moneycafe.com/library/primerate.htm>.

Low Income CORE & Wxn Participants by County

2013 HEA Quarterly Production Schedule					
Utility	Total Jobs	1st. Qtr.	2nd. Qtr.	3rd. Qtr.	4th. Qtr.
		13%	36%	33%	18%
LU-Electric	55	12	18	17	8
NHEC	57	7	16	20	14
PSNH	657	83	249	211	114
Unitil	49	8	15	17	9
LU-Gas	156	18	53	56	29
Northern Utilities	30	5	9	11	5
TOTAL Electric	818	110	298	265	145
TOTAL Gas	186	23	62	67	34
Cumulative TOTAL		133	493	825	1,004

2013 HEA Job Distribution By County and By Utility							
BY COUNTY	LU-Electric	NHEC	PSNH	Unitil	LU-Gas	Northern Utilities	Grand Total
Belknap		8	80		20		108
Carroll		8	47				55
Cheshire	11		16				27
Coos		3	47		0		50
Grafton	17	21	29				67
Hillsborough	9		263		125		397
Merrimack		6	67	31	10		114
Rockingham	9	4	66	18	1	20	118
Strafford		0	28			10	38
Sullivan	9	7	14				30
Program Totals	55	57	657	49	156	30	1,004

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

Low Income CORE & Wxn Participants by County

2014 HEA Quarterly Production Schedule

Utility	Total Jobs	1st. Qtr.	2nd. Qtr.	3rd. Qtr.	4th. Qtr.
		13%	34%	35%	18%
LU-Electric	58	12	18	21	7
NHEC	57	7	16	20	14
PSNH	657	81	242	222	112
Unitil	61	7	19	22	13
LU-Gas	164	17	48	64	35
Northern Utilities	35	5	9	12	9
TOTAL Electric	833	107	295	285	146
TOTAL Gas	199	22	57	76	44
Cumulative TOTAL		129	481	842	1,032

2014 HEA Job Distribution By County and By Utility

BY COUNTY	LU-Electric	NHEC	PSNH	Unitil	LU-Gas	Northern Utilities	Grand Total
Belknap		8	78		20		106
Carroll		8	45				53
Cheshire	11		17				28
Coos		3	48		0		51
Grafton	18	21	30				69
Hillsborough	10		265		130		405
Merrimack		6	65	36	13		120
Rockingham	10	4	65	25	1	23	128
Strafford		0	29			12	41
Sullivan	9	7	15				31
Program Totals	58	57	657	61	164	35	1,032

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

Present Value Benefits - 2013 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	
Residential Programs										
ENERGY STAR Homes	\$411	\$11	\$0	\$2	\$6	\$10	\$12	\$5	\$6	\$359
Home Performance w/Energy Star	\$460	\$0	\$0	\$0	\$0	\$4	\$7	\$0	\$1	\$449
ENERGY STAR Lighting	\$184	\$12	\$0	\$4	\$14	\$45	\$58	\$23	\$28	\$0
ENERGY STAR Appliances	\$847	\$9	\$0	\$3	\$9	\$20	\$25	\$13	\$15	\$752
Home Energy Assistance	\$375	\$5	\$0	\$1	\$4	\$14	\$18	\$6	\$8	\$319
Subtotal Residential	\$2,278	\$37	\$0	\$11	\$34	\$92	\$120	\$48	\$57	\$1,879
Commercial/Industrial Programs										
Large Business	\$2,265	\$251	\$0	\$67	\$213	\$368	\$388	\$396	\$317	\$264
Small Business	\$1,395	\$141	\$0	\$35	\$113	\$281	\$255	\$183	\$150	\$238
C&I Education	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal C&I	\$3,660	\$392	\$0	\$102	\$326	\$649	\$643	\$579	\$467	\$502
Total	\$5,937	\$429	\$0	\$113	\$360	\$741	\$764	\$627	\$525	\$2,380

Program Cost-Effectiveness - 2014 PLAN

	Total Resource Benefit/Cost Ratio	Present Value					Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
		Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Shareholder Incentive (\$000)						
Residential Programs											
ENERGY STAR Homes	4.95	\$ 442.2	\$ 72.7	\$ 16.6		28	541	9	7	43	
NH Home Performance with ENERGY STAR	1.94	\$ 500.2	\$ 175.6	\$ 82.0		19	193	6	1	114	
ENERGY STAR Lighting	1.39	\$ 206.3	\$ 108.1	\$ 40.1		470	2,829	184	49	7,675	
ENERGY STAR Appliances	1.71	\$ 905.6	\$ 248.3	\$ 281.1		130	1,397	10	19	841	
Home Energy Assistance	1.24	\$ 408.8	\$ 329.5	\$ -		55	798	6	6	58	
	1.82										
Subtotal Residential	1.69	\$ 2,463.2	\$ 934.3	\$ 419.8	\$ 101.0	\$ -	702	5,759	216	81	8,731
Commercial/Industrial Programs											
Large Business	1.93	\$ 2,523.8	\$ 706.5	\$ 604.5	0.00	1,940	25,254	254	347	42	
Small Business	1.75	\$ 1,539.6	\$ 537.5	\$ 343.5		1,079	14,842	176	173	192	
C&I Education	0.00	\$ -	\$ 18.3	\$ -		-	-	-	-	-	
	1.84										
Subtotal C&I	1.78	\$ 4,063.4	\$ 1,262.3	\$ 947.9	\$ 74.7	\$ -	\$ 3,018	\$ 40,096	\$ 430	\$ 520	\$ 234
ISO NE FCM		-	25.0	-	-	-	-	-	-	-	
Total	1.73	\$ 6,526.64	\$ 2,221.62	\$ 1,367.69	\$ 175.73		3,720	45,855	646	601	8,965

Present Value Benefits - 2014 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	
Residential Programs										
ENERGY STAR Homes	\$442	\$12	\$0	\$2	\$7	\$11	\$14	\$5	\$7	\$384
Home Performance w/Energy Star	\$500	\$0	\$0	\$0	\$0	\$4	\$7	\$0	\$1	\$487
ENERGY STAR Lighting	\$206	\$13	\$0	\$5	\$15	\$50	\$65	\$26	\$32	\$0
ENERGY STAR Appliances	\$906	\$11	\$0	\$3	\$10	\$25	\$31	\$15	\$17	\$793
Home Energy Assistance	\$409	\$6	\$0	\$1	\$4	\$15	\$20	\$7	\$9	\$346
Subtotal Residential	\$2,463	\$42	\$0	\$12	\$37	\$105	\$137	\$55	\$65	\$2,010
Commercial/Industrial Programs										
Large Business	\$2,524	\$300	\$0	\$73	\$233	\$0	\$413	\$435	\$443	\$356
Small Business	\$1,540	\$166	\$0	\$38	\$123	\$0	\$315	\$285	\$204	\$168
C&I Education	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal C&I	\$4,063	\$466	\$0	\$111	\$356	\$0	\$728	\$721	\$647	\$524
Total	\$6,527	\$508	\$0	\$123	\$393	\$105	\$865	\$775	\$712	\$2,534

2014 TRC BENEFIT COST TEST

Planned Versus Actual Benefit / Cost Ratio by Sector
 2014

	<u>Planned</u>	<u>Actual</u>
Commercial & Industrial:		
1. Benefits (Value) From Eligible Programs	\$ 4,063	
2. Implementation Expenses	\$ 1,262	
3. Customer Contribution	\$ 948	
4. Total Costs Excluding Shareholder Incentive	\$ 2,210	
5. Benefit/Cost Ratio - C&I Sector	1.84	
6. Benefit/Cost Ratio - C&I Sector including SI	1.78	
Residential:		
6. Benefits (Value) From Eligible Programs	\$ 2,463	
7. Implementation Expenses	\$ 934	
8. Customer Contribution	\$ 420	
9. Total Costs Excluding Shareholder Incentive	\$ 1,354	
10. Benefit/Cost Ratio - Residential Sector	1.82	
11. Benefit/Cost Ratio - Residential Sector including SI	1.69	

Program Cost-Effectiveness - 2013 PLAN

	Total Resource Benefit/Cost Ratio	Present Value			Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Members Served
		Benefit (\$000)	Utility Costs (\$000)	Member Costs (\$000)					
Residential Programs									
ENERGY STAR Homes	7.0	\$ 1,616.0	\$ 161.7	\$ 70.1	40.2	796.6	11.4	9.9	43
Home Performance w/Energy Star	2.5	\$ 879.2	\$ 224.6	\$ 132.3	44.9	470.1	16.4	1.5	88
ENERGY STAR Lighting *1	1.3	\$ 266.3	\$ 125.8	\$ 85.2	473.0	3,699.1	185.3	49.2	28,405
ENERGY STAR Appliances	2.4	\$ 1,691.3	\$ 278.5	\$ 437.9	501.8	4,926.7	52.4	61.9	2,181
Home Energy Assistance	1.3	\$ 376.5	\$ 286.2	\$ -	88.6	956.0	9.1	10.1	57
High Efficiency Heat Pump	3.7	\$ 801.7	\$ 107.8	\$ 106.7	488.3	12,207.5	132.8	2.6	14
Subtotal Residential	2.8	\$ 5,631.0	\$ 1,184.6	\$ 832.2	1,636.7	23,055.9	407.4	135.2	30,788
Commercial/Industrial Programs									
New Construction / Major Renovation	0.0								-
Large C&I Retrofit	2.3	\$ 699.1	\$ 155.9	\$ 154.2	730.0	9,489.9	132.8	75.2	11
Small C&I Retrofit	2.3	\$ 1,520.1	\$ 421.0	\$ 253.4	1,236.1	17,090.9	152.7	257.5	79
Other (Education)	0.0	\$ -	\$ 34.3	\$ -	-	-	-	-	-
Smart Start	0.0	\$ -	\$ 12.5	\$ -	-	-	-	-	-
Subtotal C&I	2.2	2,219.2	623.6	407.6	1,966.1	26,580.8	285.6	332.8	90
Total		\$ 7,850.2	\$ 1,808.2	\$ 1,239.8	3,602.8	49,636.7	692.9	468.0	30,878

Note 1: Plan included 7,101 members purchasing a total of 28,405 lighting products (4 per member)

Present Value Benefits - 2013 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	
Residential Programs										
ENERGY STAR Homes	\$1,616,019	\$16,855	\$0	\$3,223	\$10,298	\$14,976	\$19,166	\$7,862	\$9,578	\$1,534,059
Home Performance w/Energy Star	\$879,181	\$127	\$0	\$52	\$165	\$8,860	\$17,642	\$421	\$511	\$851,404
ENERGY STAR Lighting *1	\$266,325	\$20,438	\$0	\$6,066	\$19,382	\$64,053	\$82,789	\$33,082	\$40,513	\$0
ENERGY STAR Appliances	\$1,691,258	\$28,322	\$0	\$9,723	\$31,066	\$83,051	\$106,595	\$47,157	\$55,195	\$1,330,149
Home Energy Assistance	\$376,539	\$5,244	\$0	\$1,728	\$5,521	\$16,408	\$21,459	\$8,596	\$10,437	\$307,145
High Efficiency Heat Pump	\$801,709	\$5,137	\$0	\$935	\$2,988	\$261,813	\$517,626	\$6,554	\$6,656	\$0
Subtotal Residential	\$5,631,031	\$76,124	\$0	\$21,728	\$69,420	\$449,161	\$765,277	\$103,673	\$122,891	\$4,022,758
Commercial/Industrial Programs										
New Construction / Major Renovation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Large C&I Retrofit	\$699,097	\$56,547	\$0	\$15,282	\$48,825	\$198,401	\$273,174	\$61,051	\$45,818	\$0
Small C&I Retrofit	\$1,520,056	\$216,772	\$0	\$55,357	\$176,866	\$384,409	\$297,772	\$227,201	\$161,679	\$0
Other (Education)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Smart Start	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal C&I	\$2,219,153	\$273,319	\$0	\$70,638	\$225,691	\$582,810	\$570,946	\$288,252	\$207,497	\$0
Total	\$7,850,184	\$349,443	\$0	\$92,366	\$295,111	\$1,031,971	\$1,336,223	\$391,925	\$330,388	\$4,022,758

Planned Versus Actual Benefit / Cost Ratio by Sector
2013

	<u>Planned</u>	<u>Actual</u>
Commercial & Industrial:		
1. Benefits (Value) From Eligible Programs	\$ 2,219,153	\$ -
2. Implementation Expenses	\$ 623,632	\$ -
3. Customer Contribution	\$ 457,476	\$ -
4. Estimated Member Incentive	\$ 49,891	\$ -
5. Total Costs Including Member Incentive	\$ 1,081,108	\$ -
5. Benefit/Cost Ratio - C&I Sector	2.05	0.00
Residential:		
6. Benefits (Value) From Eligible Programs	\$ 5,631,031	\$ -
7. Implementation Expenses	\$ 1,184,556	\$ -
8. Customer Contribution	\$ 926,986	\$ -
4. Estimated Member Incentive	\$ 94,765	\$ -
5. Total Costs Including Member Incentive	\$ 2,111,543	\$ -
10. Benefit/Cost Ratio - Residential Sector	2.67	0.00

Program Cost-Effectiveness - 2014 PLAN

	Total Resource Benefit/Cost Ratio	Present Value			Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Members Served
		Benefit (\$000)	Utility Costs (\$000)	Member Costs (\$000)					
Residential Programs									
ENERGY STAR Homes	7.6	\$ 1,963.3	\$ 173.1	\$ 84.8	48.6	963.4	13.8	12.0	52
Home Performance w/Energy Star	2.5	\$ 592.5	\$ 240.4	\$ 143.5	48.7	510.2	17.8	1.6	173
ENERGY STAR Lighting *1	1.3	\$ 307.6	\$ 134.6	\$ 93.5	518.9	4,058.0	203.3	54.0	15,581
ENERGY STAR Appliances	2.5	\$ 1,897.2	\$ 298.1	\$ 455.8	589.4	5,786.9	63.4	71.8	4,864
Home Energy Assistance	1.4	\$ 388.1	\$ 287.2	\$ -	88.6	956.0	9.1	10.1	23
High Efficiency Heat Pump	4.0	\$ 920.1	\$ 115.4	\$ 116.8	534.4	13,359.1	145.3	2.8	15
Subtotal Residential	2.8	\$ 6,068.9	\$ 1,248.9	\$ 894.4	1,828.6	25,633.6	452.7	152.4	20,707
Commercial/Industrial Programs									
New Construction / Major Renovation	0.0								-
Large C&I Retrofit	2.4	\$ 798.7	\$ 166.5	\$ 167.1	791.4	10,288.1	144.0	81.5	22
Small C&I Retrofit	2.4	\$ 1,727.8	\$ 449.5	\$ 273.2	1,332.5	18,424.3	164.6	277.6	85
Other (Education)	0.0	\$ -	\$ 36.6	\$ -	-	-	-	-	-
Smart Start	0.0	\$ -	\$ 13.3	\$ -	-	-	-	-	-
Subtotal C&I	2.3	2,526.5	665.9	440.3	2,123.9	28,712.4	308.6	359.2	107
Total		\$ 8,595.4	\$ 1,914.8	\$ 1,334.7	3,952.5	54,346.0	761.3	511.6	20,815

Note 1: Plan included 7,101 members purchasing a total of 28,405 lighting products (4 per member)

Present Value Benefits - 2014 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	
Residential Programs										
ENERGY STAR Homes	\$1,963,305	\$21,721	\$0	\$3,976	\$12,704	\$19,054	\$24,319	\$9,951	\$12,176	\$1,859,404
Home Performance w/Energy Star	\$976,440	\$146	\$0	\$57	\$182	\$10,162	\$20,232	\$481	\$584	\$944,596
ENERGY STAR Lighting *1	\$307,641	\$23,377	\$0	\$6,788	\$21,688	\$74,314	\$96,177	\$38,289	\$47,007	\$0
ENERGY STAR Appliances	\$1,897,215	\$36,756		\$11,494	\$36,722	\$103,043	\$132,654	\$58,000	\$68,117	\$1,450,429
Home Energy Assistance	\$388,064	\$6,030	\$0	\$1,763	\$5,632	\$17,347	\$22,679	\$9,072	\$11,031	\$314,511
High Efficiency Heat Pump	\$920,143	\$5,957	\$0	\$1,044	\$3,335	\$301,171	\$593,494	\$7,494	\$7,649	\$0
Subtotal Residential	\$6,452,809	\$93,987	\$0	\$25,121	\$80,263	\$525,090	\$889,555	\$123,287	\$146,563	\$4,568,940
Commercial/Industrial Programs										
New Construction / Major Renovation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Large C&I Retrofit	\$798,707	\$68,726	\$0	\$16,898	\$53,990	\$226,254	\$311,217	\$69,398	\$52,224	\$0
Small C&I Retrofit	\$1,727,842	\$259,657	\$0	\$60,869	\$194,478	\$435,824	\$337,160	\$256,666	\$183,188	\$0
Other (Education)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Smart Start	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal C&I	\$2,526,550	\$328,383	\$0	\$77,767	\$248,468	\$662,078	\$648,377	\$326,064	\$235,412	\$0
Total	\$8,979,358	\$422,371	\$0	\$102,889	\$328,731	\$1,187,168	\$1,537,933	\$449,351	\$361,678	\$4,568,940

Planned Versus Actual Benefit / Cost Ratio by Sector
 2014

	<u>Planned</u>	<u>Actual</u>
Commercial & Industrial:		
1. Benefits (Value) From Eligible Programs	\$ 2,526,550	\$ -
2. Implementation Expenses	\$ 665,944	\$ -
3. Customer Contribution	\$ 493,598	\$ -
4. Estimated Member Incentive	\$ 53,275	\$ -
5. Total Costs Including Member Incentive	\$ 1,159,542	\$ -
5. Benefit/Cost Ratio - C&I Sector	2.18	0.00
Residential:		
6. Benefits (Value) From Eligible Programs	\$ 6,068,852	\$ -
7. Implementation Expenses	\$ 1,248,904	\$ -
8. Customer Contribution	\$ 994,332	\$ -
4. Estimated Member Incentive	\$ 99,912	\$ -
5. Total Costs Including Member Incentive	\$ 2,243,236	\$ -
10. Benefit/Cost Ratio - Residential Sector	2.71	0.00

Program Cost-Effectiveness - 2014 PLAN

	Present Value								
	Total Resource	Benefit	Utility Costs	Customer	Annual MWh	Lifetime	Winter	Summer	Number of
	Benefit/Cost Ratio	(\$000)	(\$000)	Costs (\$000)	Savings	MWh Savings	kW Savings	kW Savings	Customers Served
Residential Programs									
ENERGY STAR Homes	6.67	\$7,256.84	\$907.80	\$180.80	505.1	10,749.9	164.8	141.8	317
ENERGY STAR Lighting	1.34	\$1,632.86	\$897.63	\$317.44	3,722.3	22,389.8	1,458.3	387.5	60,732
ENERGY STAR Appliances	2.49	\$15,259.32	\$2,032.48	\$4,102.68	2,982.1	31,982.4	309.5	391.9	17,574
Home Performance w/ENERGY ST/	2.25	\$6,727.90	\$1,906.26	\$1,081.07	443.0	4,569.5	84.0	14.8	1,048
Home Energy Assistance	1.67	\$4,721.60	\$2,819.76	\$0.00	631.8	9,215.7	73.8	68.4	657
EnergyStar Homes (Geothermal)	3.01	\$2,067.85	\$384.70	\$302.76	1,190.7	29,767.7	316.4	10.4	70
Customer Engagement Program	0.97	\$275.03	\$282.75	\$0.00	4,000.0	4,000.0	420.1	456.6	25,000
Other		\$0.00	\$0.00	\$0.00	0.0	-	-	-	-
Subtotal Residential	2.49	\$37,941.40	\$9,231.388	\$5,984.75	13,474.9	112,674.9	2,826.8	1,471.5	105,398
Commercial/Industrial Programs									
Large Business Energy Solutions	2.37	\$22,750.21	\$5,166.20	\$4,419.66	15,830.7	210,634.6	2,098.3	2,864.1	357
Small Business Energy Solutions	1.94	\$12,993.27	\$3,597.40	\$3,115.86	8,098.5	110,068.7	1,337.8	1,274.0	1,641
Other (Education)	0.00	\$0.00	\$195.93	\$0.00	0.0	-	-	-	4
C&I RFP Energy Rewards Program	3.00	\$3,204.08	\$574.02	\$493.59	3,047.4	35,518.4	414.4	625.7	13
CI Partnerships		\$0.00	\$33.48	\$0.00	0.0	-	-	-	6
Other		\$0.00	\$0.00	\$0.00	0.0	-	-	-	-
Subtotal C&I	2.21	\$38,947.56	\$9,567.042	\$8,029.11	26,976.6	356,221.7	3,850.5	4,763.8	2,020
Smart Start		\$0.00	\$35.00	\$0.00	0.0	-	-	0	-
ISO-NE Forward Capacity Market		\$0.00	\$200.00	\$0.00	0.0	-	-	0	-
		\$0.00	\$235.00	\$0.00	0.0	-	-	0	-
Total	2.33	\$76,888.97	\$19,033.43	\$14,013.85	40,451.5	468,896.6	6,677.3	6,235.3	107,418

Present Value Benefits - 2014 PLAN

	Total Benefits	CAPACITY				DRIPE	ENERGY				Non Electric Resource
		Summer Generation	Winter Generation	Transmission	Distribution		Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	
Residential Programs											
ENERGY STAR Homes	\$7,256,838	\$280,553	\$0	\$49,862	\$159,308	\$0	\$217,232	\$276,120	\$108,458	\$137,201	\$6,028,104
ENERGY STAR Lighting	\$1,632,863	\$102,174	\$0	\$38,289	\$122,335	\$0	\$397,201	\$515,830	\$206,054	\$250,979	\$0
ENERGY STAR Appliances	\$15,259,321	\$231,927	\$0	\$67,656	\$216,163	\$0	\$568,077	\$723,214	\$339,163	\$387,079	\$12,726,041
Home Performance w/ENERGY STAR	\$6,727,903	\$4,825	\$0	\$1,937	\$6,188	\$0	\$87,447	\$142,965	\$25,147	\$30,482	\$6,428,912
Home Energy Assistance	\$4,721,600	\$67,697	\$0	\$15,485	\$49,475	\$0	\$174,117	\$236,491	\$83,091	\$101,909	\$3,993,333
EnergyStar Homes (Geothermal)	\$2,067,854	\$22,112	\$0	\$3,875	\$12,379	\$0	\$664,802	\$1,299,578	\$35,104	\$30,003	\$0
Customer Engagement Program	\$275,026	\$21,072	\$0	\$7,823	\$24,994	\$0	\$63,991	\$83,272	\$33,388	\$40,486	\$0
Other	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>		<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Subtotal Residential	\$37,941,404	\$730,361	\$0	\$184,927	\$590,843		\$2,172,867	\$3,277,471	\$830,406	\$978,139	\$29,176,390
Commercial/Industrial Programs											
Large Business Energy Solutions	\$22,750,213	\$2,566,076	\$0	\$613,131	\$1,958,964	\$0	\$3,290,933	\$3,601,076	\$3,779,307	\$3,086,377	\$3,854,350
Small Business Energy Solutions	\$12,993,265	\$1,194,068	\$0	\$279,390	\$892,657	\$0	\$2,514,272	\$2,140,535	\$1,409,487	\$1,140,205	\$3,422,652
Other (Education)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C&I RFP Energy Rewards Program	\$3,204,083	\$422,065	\$0	\$115,561	\$369,220	\$0	\$444,142	\$518,227	\$738,782	\$596,085	\$0
CI Partnerships	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>		<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Subtotal C&I	\$38,947,561	\$4,182,208	\$0	\$1,008,083	\$3,220,841		\$6,249,347	\$6,259,837	\$5,927,576	\$4,822,666	\$7,277,002
Smart Start	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0
		<u>\$0</u>	<u>\$200</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
		\$0	\$200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$76,888,965	\$4,912,569	\$0	\$1,193,010	\$3,811,684	\$0	\$8,422,215	\$9,537,309	\$6,757,982	\$5,800,804	\$36,453,392

Planned Versus Actual Benefit / Cost Ratio by Sector
2014

	<u>Planned</u>	<u>Actual</u>
Commercial & Industrial:		
1. Benefits (Value) From Eligible Programs	\$ 38,947,561	\$ -
2. Implementation Expenses	\$ 9,567,042	\$ -
3. Customer Contribution	\$ 8,029,106	\$ -
4. Estimated Shareholder Incentive	\$ 765,363	\$ -
5. Total Costs (including shareholder incentive)	\$ 18,361,511	\$ -
6. Benefit/Cost Ratio - C&I Sector	2.12	0.00
Residential:		
7. Benefits (Value) From Eligible Programs	\$ 37,941,404	\$ -
8. Implementation Expenses	\$ 9,231,388	\$ -
9. Customer Contribution	\$ 5,984,745	\$ -
10. Estimated Shareholder Incentive	\$ 738,511	\$ -
11. Total Costs (including shareholder incentive)	\$ 15,954,644	\$ -
12. Benefit/Cost Ratio - Residential Sector	2.38	0.00

Program Cost-Effectiveness - 2013 PLAN

	Total Resource Benefit/Cost Ratio	Present Value Benefit (\$000)	Present Value Utility Costs (\$000)	Present Value Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
ENERGY STAR Homes	9.1	\$ 2,449	\$ 190.0	\$ 78.9	441.1	10,639.5	306.1	19.2	47
Home Performance with Energy Star	2.8	\$ 834	\$ 211.0	\$ 90.5	25.0	480.6	7.8	0.6	47
ENERGY STAR Lighting	1.0	\$ 222	\$ 170.0	\$ 49.8	610.1	3,375.7	239.0	63.5	29,200
ENERGY STAR Appliances	2.2	\$ 1,449	\$ 280.0	\$ 375.8	340.1	3,704.0	47.7	47.6	2,118
Home Energy Assistance	1.6	\$ 664	\$ 409.3	\$ -	74.3	953.3	13.0	8.2	49
Res Education and Outreach	0.0	\$ -	\$ 25.0	\$ -	0.0	0.0	0.0	0.0	0
Res Energy Code Training	0.0	\$ -	\$ 3.5	\$ -	0.0	0.0	0.0	0.0	0
ISO-Related Expenses Res/LI	<u>0.0</u>	<u>\$ -</u>	<u>\$ 5.0</u>	<u>\$ -</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0</u>
Subtotal Residential	3.0	\$ 5,617	\$ 1,293.9	\$ 595.0	1,490.4	19,153.0	613.6	139.1	31,461
Commercial/Industrial Programs									
New Construction / Major Renovation	1.6	\$ 2,004.6	\$ 285.0	\$ 1,006.1	815.8	12,236.9	146.7	225.6	26
Large C&I Retrofit	1.1	\$ 2,309.2	\$ 530.8	\$ 1,504.5	1,855.7	24,124.4	331.7	453.6	20
Small New Construction/Major Renovation	2.9	\$ 424.5	\$ 105.0	\$ 42.3	62.8	816.8	5.8	11.4	32
Small C&I Retrofit	1.9	\$ 1,061.6	\$ 372.3	\$ 181.0	801.0	10,413.3	128.0	222.1	41
C&I Education	0.0	\$ -	\$ 18.6	\$ -	0.0	0.0	0.0	0.0	0
ISO-Related Expenses C&I	<u>0.0</u>	<u>\$ -</u>	<u>\$ 5.0</u>	<u>\$ -</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0</u>
Subtotal C&I	1.4	5,799.9	1,321.7	2,733.9	3,535.3	47,591.3	612.1	912.8	119
Total	1.9	\$ 11,417.3	\$ 2,615.5	\$ 3,328.9	5,025.8	66,744.4	1,225.7	1,051.9	31,580
On Bill Financing Residential			\$ 65.0						
On Bill Financing C&I			\$ 50.0						
Total			\$ 115.0						

**Shareholder Incentive Calculation
 2013**

	<u>Planned</u>	<u>Actual</u>
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	1.4	
2. Threshold Benefit / Cost Ratio ¹	1.0	
3. Lifetime kWh Savings	47,591,310	
4. Threshold Lifetime kWh Savings (65%) ²	30,934,351	
5. Budget ³	\$1,321,664	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime kWh Percentage of Budget	4.00%	
8. C/I Shareholder Incentive	\$119,230	<input type="text"/>
9. Cap (12%)	\$158,600	
Residential Incentive		
10. Benefit / Cost Ratio	2.8	
11. Threshold Benefit / Cost Ratio ¹	1.0	
12. Lifetime kWh Savings	19,153,042	
13. Threshold Lifetime kWh Savings (65%) ²	12,449,477	
14. Budget ³	\$1,293,855	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime kWh Percentage of Budget	4.00%	
17. Residential Incentive	\$118,116	<input type="text"/>
18. Cap (12%)	\$155,263	
19. TOTAL PLANNED / EARNED INCENTIVE	\$237,346	<input type="text"/>

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.
3. HPwES non-electric portion of actual rebates will be reduced on final year-end calculation per NHPUC Order Nos. 24,974 and 25,401.

Program Cost-Effectiveness - 2014 PLAN

	Total Resource Benefit/Cost Ratio	Present Value Benefit (\$000)	Present Value Utility Costs (\$000)	Present Value Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
ENERGY STAR Homes	9.3	\$ 2,497.1	\$ 190.0	\$ 78.9	441.1	10,639.5	306.4	19.5	47
Home Performance with Energy Star	2.9	\$ 887.9	\$ 216.7	\$ 94.6	26.1	502.4	8.2	0.6	49
ENERGY STAR Lighting	1.2	\$ 275.5	\$ 176.2	\$ 52.8	646.5	3,571.2	253.3	67.3	31,512
ENERGY STAR Appliances	2.3	\$ 1,507.9	\$ 282.5	\$ 382.3	347.3	3,782.1	48.7	48.5	2,162
Home Energy Assistance	1.7	\$ 754.5	\$ 456.0	\$ -	82.3	1,056.6	14.4	9.0	61
Res Education and Outreach	0.0	\$ -	\$ 25.0	\$ -	0.0	0.0	0.0	0.0	0
Res Energy Code Training	0.0	\$ -	\$ 3.5	\$ -	0.0	0.0	0.0	0.0	0
ISO-Related Expenses Res/LI	<u>0.0</u>	<u>\$ -</u>	<u>\$ 6.9</u>	<u>\$ -</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0</u>
Subtotal Residential	3.0	\$ 5,923.0	\$ 1,356.8	\$ 608.6	1,543.3	19,551.8	631.0	145.1	33,831
Commercial/Industrial Programs									
New Construction / Major Renovation	1.6	\$ 2,119.0	\$ 285.0	\$ 1,006.1	815.8	12,236.9	146.7	225.6	26
Large C&I Retrofit	1.2	\$ 2,693.5	\$ 570.7	\$ 1,614.9	1,991.9	25,894.1	354.8	485.7	22
Small New Construction/Major Renovation	3.0	\$ 462.6	\$ 110.8	\$ 43.2	72.7	1,091.0	181.4	12.7	32
Small C&I Retrofit	2.1	\$ 1,167.5	\$ 375.0	\$ 182.0	805.4	10,470.5	2,751.0	223.6	42
C&I Education	0.0	\$ -	\$ 18.6	\$ -	0.0	0.0	0.0	0.0	0
ISO-Related Expenses C&I	<u>0.0</u>	<u>\$ -</u>	<u>\$ 6.9</u>	<u>\$ -</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0</u>
Subtotal C&I	1.5	\$ 6,442.6	\$ 1,371.3	\$ 2,846.2	3,685.8	49,692.4	3,433.9	947.7	122
Total	2.0	\$ 12,365.6	\$ 2,728.0	\$ 3,454.8	5,229.1	69,244.2	4,064.9	1,092.7	33,953
On Bill Financing Residential			\$ 65.0						
On Bill Financing C&I			\$ 50.0						
Total			\$ 115.0						

**Shareholder Incentive Calculation
 2014**

	<u>Planned</u>	<u>Actual</u>
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	1.5	
2. Threshold Benefit / Cost Ratio ¹	1.0	
3. Lifetime kWh Savings	49,692,403	
4. Threshold Lifetime kWh Savings (65%) ²	32,300,062	
5. Budget ³	\$1,371,256	
6. Benefit / Cost Percentage of Budget	4.00%	
7. Lifetime kWh Percentage of Budget	4.00%	
8. C/I Shareholder Incentive	\$123,507	
9. Cap (12%)	\$164,551	
Residential Incentive		
10. Benefit / Cost Ratio	2.8	
11. Threshold Benefit / Cost Ratio ¹	1.0	
12. Lifetime kWh Savings	19,551,802	
13. Threshold Lifetime kWh Savings (65%) ²	12,708,671	
14. Budget ³	\$1,356,790	
15. Benefit / Cost Percentage of Budget	4.00%	
16. Lifetime kWh Percentage of Budget	4.00%	
17. Residential Incentive	\$123,554	
18. Cap (12%)	\$162,815	
19. TOTAL PLANNED / EARNED INCENTIVE	\$247,061	

Notes

- Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
- Actual Lifetime kWh Savings for each sector must be greater than or equal to 65% of projected savings.
- HPwES non-electric portion of actual rebates will be reduced on final year-end calculation per NHPUC Order Nos. 24,974 and 25,401.

Attachment GG: Total Resource Benefit Cost Analysis

January 1, 2013 - December 31, 2013 TRC BENEFIT COST TEST

Unitil Gas Energy Efficiency

New Hampshire Program Year ONE Summary of Benefit, Costs Program Year 2013 (January 1, 2013 - December 31, 2013)

Total Resource Cost Test									
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
Residential									
Home Energy Assistance	1.94	\$148	\$306	\$158	\$158	\$0	1,056	20,710	30
Home Performance w/Energy Star	2.20	\$242	\$444	\$202	\$147	\$55	1,323	29,913	24
Energy Star Appliances	1.08	\$45	\$640	\$595	\$300	\$295	2,402	46,298	288
Energy Star Homes	1.59	\$89	\$240	\$150	\$87	\$63	592	14,202	16
Res Building Practices and Demo	NA	(\$18)	\$0	\$18	\$18	\$0	-	-	-
Res Energy Code Training & Education	NA	(\$7)	\$0	\$7	\$7	\$0	-	-	-
Subtotal: Residential	1.44	\$500	\$1,629	\$1,130	\$717	\$413	5,373	111,123	358
Commercial & Industrial									
Large Business Energy Solutions	4.72	\$2,326	\$2,952	\$626	\$305	\$321	12,178	231,888	58
Small Business Energy Solutions	2.06	\$546	\$1,062	\$517	\$228	\$288	3,965	80,979	104
C&I Codes, Energy Audits & Education	NA	(\$6)	\$0	\$6	\$6	\$0	-	-	-
Subtotal: Commercial & Industrial	3.50	\$2,866	\$4,014	\$1,148	\$539	\$609	16,143	312,867	163
Grand Total	2.48	\$3,366	\$5,644	\$2,277	\$1,256	\$1,022	21,516	423,990	520

January 1, 2014 - December 31, 2014 TRC BENEFIT COST TEST

Unitil Gas Energy Efficiency

New Hampshire Program Year TWO Summary of Benefit, Costs Program Year 2014 (January 1, 2014 - December 31, 2014)

Total Resource Cost Test									
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
Residential									
Home Energy Assistance	1.96	\$177	\$362	\$185	\$185	\$0	1,238	24,281	35
Home Performance w/Energy Star	2.34	\$306	\$535	\$229	\$163	\$65	1,579	35,713	29
Energy Star Appliances	1.09	\$56	\$704	\$648	\$326	\$322	2,621	50,507	314
Energy Star Homes	1.15	\$28	\$216	\$188	\$109	\$79	496	12,027	20
Res Building Practices and Demo	NA	\$0	\$0	\$0	\$0	\$0	-	-	-
Res Energy Code Training & Education	NA	(\$7)	\$0	\$7	\$7	\$0	-	-	-
Subtotal: Residential	1.45	\$567	\$1,816	\$1,256	\$790	\$466	5,935	122,528	398
Commercial & Industrial									
Large Business Energy Solutions	4.76	\$2,355	\$2,980	\$626	\$305	\$321	12,178	231,888	58
Small Business Energy Solutions	2.07	\$555	\$1,072	\$517	\$228	\$288	3,960	80,913	104
C&I Codes, Energy Audits & Education	NA	(\$6)	\$0	\$6	\$6	\$0	-	-	-
Subtotal: Commercial & Industrial	3.53	\$2,904	\$4,052	\$1,148	\$539	\$609	16,138	312,801	163
Grand Total	2.44	\$3,471	\$5,868	\$2,404	\$1,329	\$1,075	22,073	435,329	560

New Hampshire CORE Energy Efficiency Goals - 2013

PROGRAMS	Liberty Utilities - Gas		Northern Utilities		TOTALS	
ENERGY STAR Homes						
Number of Homes / Lifetime MMBTU Savings	37	24,863	16	14,202	53	39,065
B/C Ratio / Planned Budget	2.01	\$90,000	1.59	\$80,000		\$170,000
ENERGY STAR Lighting						
Number of Units / Lifetime MMBTU Savings	0	0			0	0
B/C Ratio / Planned Budget	0.00	\$0				\$0
ENERGY STAR Appliances						
Number of Rebates / Lifetime MMBTU Savings	2,578	207,559	288	46,298	2,866	253,857
B/C Ratio / Planned Budget	1.11	\$730,000	1.08	\$275,000		\$1,005,000
Home Performance w/ENERGY STAR						
Number of Rebates / Lifetime MMBTU Savings	569	374,164	24	29,913	593	404,077
B/C Ratio / Planned Budget	2.71	\$730,000	2.20	\$135,000		\$865,000
Home Energy Assistance						
Number of Units / Lifetime MMBTU Savings	156	89,172	30	20,710	186	109,882
B/C Ratio / Planned Budget	1.04	\$750,000	1.94	\$145,000		\$895,000
Large Business Energy Solutions						
Number of Participants / Lifetime MMBTU Savings	178	295,915	58	231,888	236	527,803
B/C Ratio / Planned Budget	1.36	\$1,184,397	4.72	\$280,000		\$1,464,397
Small Business Energy Solutions						
Number of Participants / Lifetime MMBTU Savings	313	365,747	104	80,979	417	446,726
B/C Ratio / Planned Budget	1.71	\$1,093,289	2.06	\$210,000		\$1,303,289
Educational Programs						
B/C Ratio / Planned Budget		\$32,314		\$12,686	0	\$45,000
Company Specific Programs						
Number of Participants / Lifetime MMBTU Savings	0	0			0	0
B/C Ratio / Planned Budget		\$70,000		\$17,500		\$87,500
Smart Start Program						
Number of Participants / Planned Budget		\$0			0	\$0
Utility Performance Incentive						
B/C Ratio / Planned Budget		<u>\$374,400</u>		<u>\$100,386</u>		<u>\$474,786</u>
TOTAL PLANNED BUDGET		\$5,054,400		\$1,255,572		\$6,309,972

New Hampshire CORE Energy Efficiency Goals - 2014

PROGRAMS	Liberty Utilities - Gas		Northern Utilities		TOTALS	
ENERGY STAR Homes						
Number of Homes / Lifetime MMBTU Savings	37	24,863	20	12,027	57	36,890
B/C Ratio / Planned Budget	2.01	\$94,500	1.15	\$100,000		\$194,500
ENERGY STAR Lighting						
Number of Units / Lifetime MMBTU Savings	0	0			0	0
B/C Ratio / Planned Budget	0.00	\$0				\$0
ENERGY STAR Appliances						
Number of Rebates / Lifetime MMBTU Savings	2,578	207,559	314	50,507	2,892	258,066
B/C Ratio / Planned Budget	1.11	\$766,500	1.09	\$300,000		\$1,066,500
Home Performance w/ENERGY STAR						
Number of Rebates / Lifetime MMBTU Savings	569	374,164	29	35,713	598	409,877
B/C Ratio / Planned Budget	2.71	\$766,500	2.34	\$150,000		\$916,500
Home Energy Assistance						
Number of Units / Lifetime MMBTU Savings	164	89,172	35	24,281	199	113,453
B/C Ratio / Planned Budget	1.04	\$787,500	1.96	\$170,000		\$957,500
Large Business Energy Solutions						
Number of Participants / Lifetime MMBTU Savings	178	295,915	58	231,888	236	527,803
B/C Ratio / Planned Budget	1.36	\$1,244,457	4.76	\$280,000		\$1,524,457
Small Business Energy Solutions						
Number of Participants / Lifetime MMBTU Savings	313	365,747	104	80,913	417	446,660
B/C Ratio / Planned Budget	1.71	\$1,148,729	2.07	\$210,000		\$1,358,729
Educational Programs						
B/C Ratio / Planned Budget		\$32,314		\$12,687	0	\$45,001
Company Specific Programs						
Number of Participants / Lifetime MMBTU Savings	0	0			0	0
B/C Ratio / Planned Budget		\$73,500		\$0		\$73,500
Smart Start Program						
Number of Participants / Planned Budget		\$0			0	\$0
Utility Performance Incentive						
B/C Ratio / Planned Budget		<u>\$393,120</u>		<u>\$106,251</u>		<u>\$499,371</u>
TOTAL PLANNED BUDGET		\$5,307,120		\$1,328,938		\$6,636,058

Liberty Utilities Electric Home Energy Assistance Program

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					
	2011		2013 Plan	2014 Plan	2011		2013 Plan	2014 Plan	2011		2013 Plan	2014 Plan	2011	2013	2011		2013 Plan	2014 Plan	2011		2013 Plan	2014 Plan	2011		2013 Plan	2014 Plan		
	Plan	Actual			Plan	Actual			Plan	Actual					Plan	Actual			Plan	Actual			Plan	Actual			Plan	Actual
AMP Baseload	50.0	52.0			206.0	206.0			13.0	13.0				100%				133,900.0	139,256.0			0.0	0.0			0.0	0.0	
Electric Weatherization	2.0	1.0			541.0	595.0			20.0	20.0				100%				21,640.0	11,900.0			0.0	0.0			0.0	0.0	
CFLs	289.0	237.0			63.0	63.0			8.0	8.0				100%				145,704.0	119,448.0			0.0	0.0			0.0	0.0	
Fixtures	45.0	14.0			127.3	126.0			20.0	20.0				100%				114,540.0	35,280.0			0.0	0.0			0.0	0.0	
Replacement Refrigerator	31.0	26.0			1013.0	1016.0			19.0	19.0				100%				596,676.0	501,904.0			0.0	0.0			0.0	0.0	
DHWater Measure (elec)	23.0	23.0			414.0	419.0			15.0	15.0				100%				142,845.0	144,555.0			0.0	0.0			0.0	0.0	
DHWater Measure (OIL)	12.0	47.0			0.0	0.0			15.0	15.0				100%				0.0	0.0			6.2	0.0			1,124.3	0.0	
Tstats	7.0	14.0			299.3	288.0			10.0	10.0				100%				20950.0	40320.0			0.0	0.0			0.0	0.0	
AMP Oil Wx	25.0	47.0			145.6	143.0			15.0	20.0				100%				54600.0	134420.0			1.4	1645.0			525.0	1,546,300.0	
Refrigerator Removal	0.0	27.0			0.0	136.0			0.0	5.0				100%				0.0	18360.0			0.0	0.0			0.0	0.0	
Freezer Replacement	0.0	2.0			0.0	726.0			0.0	19.0				100%				0.0	27588.0			0.0	0.0			0.0	0.0	
Weatherization Package (Electric Heat)			1.1	1.2		2,412.6	2,412.7			19.8	19.8			86.2%						45,047.1	47,736.5			0.0	0.0	0	0	
Weatherization Package (Kerosene Heat)			16.1	17.1		0.0	0.0			20.6	20.6			86.2%						0.0	0.0			14.7	14.7	0	4,193	4,443
Weatherization Package (Liquid Propane Heat)			4.8	5.1		0.0	0.0			21.4	21.4			86.2%						0.0	0.0			12.9	12.9	0	1,151	1,220
Weatherization Package (Natural Gas Heat)			16.6	17.6		0.0	0.0			19.4	19.4			86.2%						0.0	0.0			6.9	6.9	0	1,921	2,036
Weatherization Package (Wood Heat)			2.7	2.8		0.0	0.0			21.0	21.0			86.2%						0.0	0.0			21.5	21.6	0	1,044	1,106
Weatherization Package (Oil Heat)			13.4	14.2		0.0	0.0			20.0	20.0			86.2%						0.0	0.0			19.8	19.8	0	4,583	4,856
Weatherization Package (Other)			0.0	0.0		0.0	0.0			0.0	0.0			86.2%						0.0	0.0					0	0	0
Electric Svgs on Fossil Heated Homes			53.7	56.9		931.5	912.9			14.3	14.3			86.2%						616,563.6	640,255.4			0.0	0.0	0	0	0

Liberty Utilities Electric Home Performance with ENERGY STAR®

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			
	2011		2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013	2011		2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan		
	2011 Plan	Actual													2011 Plan	Actual										
HES - ELECTRIC																										
EnergyWise SF Elec	10	5			915	1,398			12	9			100.00%	100.00%	109,824	62,910					0.0	0.0			0.0	0.0
EnergyWise SF Non Elec	51	69			535	615			8	8			100.00%	100.00%	218,104	339,300					0.0	0.0			0.0	0.0
EW Multi Electric CFL	520	1,320			67	67			5	5			100.00%	100.00%	173,056	439,326.0					0.0	0.0			0.0	0.0
EW Multi Electric DHWS	29	0			83	0			15	15			100.00%	100.00%	36,300	0.0					0.0	0.0			0.0	0.0
EW Multi Electric Heat Fixtures	291	112			347	347			20	20			100.00%	100.00%	2,021,635	778,086.0					0.0	0.0			0.0	0.0
EW Multi Electric Heat REFRIG	22	0			329	0			13	13			100.00%	100.00%	94,042	0.0					0.0	0.0			0.0	0.0
Lighting only projects (6 CFLs, possible ref. voucher)			0.0	0.00			0.0	0.0					100.00%			0.0	0.0			0	0.00			0	0	
Weatherization for > 30% Electric Heat (MultiFamily)			0.0	0.0			0.0	0.0			14	14				0.0	0.0			0	0.00			0	0	
Baseload SF			4.6	4.9			138.0	138.0			5	5			100.00%		3,173.0	3362.9			0	0.00			0	0
Baseload MF			36.1	38.3			138.0	138.0			5	5			100.00%		24,906.3	26397.6			0	0.00			0	0
Other			0.0	0.0			0.0	0.0			8	8			100.00%		0.0	0.0			0	0.00			0	0
Other			0.0	0.0			0.0	0.0			0	0			100.00%		0.0	0.0			0	0.00			0	0
Other			0.0	0.0			0.0	0.0			14	14			100.00%		0.0	0.0			0	0.00			0	0
Fuel Neutral, SF, Electric, CFLs			32.8	34.8			138.0	138.0			5	5			100.00%		22,647.0	24003.0			0	0.00			0	0
Fuel Neutral Pilot (Oil)-SF- 52%			26.4	28.0			0.0	0.0			21	21			100.00%		0.0	0.0			28.6	28.6			15,815	16,763
Fuel Neutral Pilot (LP) - SF - 20%			3.1	3.3			0.0	0.0			21	21			100.00%		0.0	0.0			22.5	22.6			1,451	1,546
Fuel Neutral Pilot (Gas) - SF - 3%			0.1	0.1			0.0	0.0			19	19			100.00%		0.0	0.0			15.5	14.4			38	37
Fuel Neutral Pilot (Wood) - SF - 18%			1.8	1.9			0.0	0.0			21	21			100.00%		0.0	0.0			19.0	18.8			724	759
Fuel Neutral Pilot (Kerosene) - SF - 2%			0.3	0.3			0.0	0.0			22	22			100.00%		0.0	0.0			32.7	31.9			214	221
Fuel Neutral Pilot (Electric) - SF - 5%			1.1	1.2			6,552.2	6,552.2			18	18			100.00%		131,827.7	139720.9			-	0.0			0	0
Heating System Replacements (Oil Boilers?)			1.4	1.5			0.0	0.0			20	20			100.00%		0.0	0.0			11.4	11.2			325	340

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			
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan
RNC ES Homes (Heating) All Fuel Types	50.0	13.0			286.0	2,863.0			25	25			100%		357,125.0	930,400.0			26.9	588.7			33,600.0	191,327.5		
RNC ES Homes (Cooling) All Units	50.0	13.0			20.0	-2.0			25	25			100%		25,100.0	-675.0			0.0	0.0			0.0	0.0		
RNC ES Homes (Water Heating) All Fuel Types	50.0	13.0			32.0	287.0			15	15			100%		24,060.0	55,878.0			4.3	50.8			3,225.0	9,906.0		
Indoor Fixture	1,000.0	14.0			105.9	111.0			8	8			100%		847,200.0	12,383.0			0.0	0.0			0.0	0.0		
Screw In Bulb	500.0	561.0	233.5	247.4	50.6	43.0	18.5	18.5	7	7	5	5	100%	100%	177,100.0	168,861.0	21554.5	22,845.0	0.0	0.0	0.0	0.0			0.0	0.0
Interior HW Fixtures			70.0	74.2			62.3	62.3			20	20	100%				87225.2	92,447.5	0.0	0.0	0.0	0.0			0.0	0.0
Exterior Fixtures			0.0	0.0			0.0	0.0			5	5	100%				0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Clothes Washer	34.0	4.0	3.5	3.7	15.0	46.0	260.7	260.7	11	11	11	11	100%	100%	5,610.0	2,024.0	10041.8	10,643.0	0.6	0.7	0.7	0.8	220.0	30.8	28.4	33.0
Dishwasher	3.0	11.0	14.0	14.8	33.3	39.0	33.0	33.0	10	10	10	10	100%	100%	1,000.0	4,290.0	4622.6	4,899.3	0.0	0.5	0.4	0.4	0.0	110.0	56.0	60.0
Refrigerator	50.0	13.0	18.7	19.8	144.7	107.0	106.0	106.0	12	12	12	12	100%	100%	64,200.0	16,692.0	23757.2	25,179.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Room AC			0.0	0.0			0.0	0.0			9	9	100%				0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Central AC			0.0	0.0			0.0	0.0			14	14	100%				0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Thermostat			17.5	18.6			0.0	0.0			12	12	100%				0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Oil Heated Home (5%)			1.2	1.2			519.8	519.8			25	25	100%				15169.8	16,078.1	29.0	29.1	29.0	29.1			846.1	900.0
Gas Heated Home (55%)			12.8	13.6			481.5	481.5			25	25	100%				154561.4	163,815.3	23.7	23.7	23.7	23.7			7609.7	8075.0
LP Heated Home (35%)			8.2	8.7			506.0	506.0			25	25	100%				103365.9	109,554.6	40.6	40.5	40.6	40.5			8284.3	8775.0
Elec Baseboard Heated Home (5%)			1.2	1.2			3,077.0	3,077.0			25	25	100%				89795.8	95,172.1	0.0	0.0	0.0	0.0			0.0	0.0
ASHP Heated Home			0	0			0	0.00			25	25	100%				0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0

Liberty Utilities Electric ENERGY STAR® Lighting Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service & Realization Rate		Total Lifetime Savings (kWh)			
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013	2011 Plan	2011 Actual	2013 Plan	2014 Plan
Catalog CFLs	46	79	350.8	371.8	51.0	51.0	14.3	14.3	5	5	5	5	84.0%	62.3%	9,828.0	16,888.0	15,654.5	16,591.8
Catalog Interior Fixtures (Lamps and HW Fixture)	26	16	46.2	48.9	107.0	107.0	60.0	60.0	8	8	8	8	104.0%	96.4%	23,499.0	14,312.0	21,367.9	22,647.2
Catalog Exterior Fixtures	26	0	23.1	24.5	107.0	107.0	62.3	62.3	5	5	5	5	109.0%	100.0%	15,277.0	0.0	7,185.5	7,615.7
Catalog Torchieres	13	0	13.8	14.7	120.0	120.0	64.8	64.8	8	8	8	8	108.0%	93.5%	13,641.0	0.0	6,716.3	7,118.4
Catalog LED Fixtures	0	0	4.6	4.9	0.0	0.0	26.3	26.3	20	20	20	20	95.0%	95.0%	0.0	0.0	2,305.1	2,443.1
Catalog LED Bulbs	0	0	23.1	24.5	0.0	0.0	26.3	26.3	20	20	20	20	95.0%	95.0%	0.0	0.0	11,525.4	12,215.4
Retail LED Bulbs	0	0	0.0	0.0	0.0	43.0	0.0	0.0	5	5	20	20	80.3%	50.0%	0.0	0.0	0.0	0.0
Retail CFLs	12,872	17,987	942.8	999.2	51.0	51.0	14.3	14.3	5	5	5	5	84.0%	62.3%	2,730,189.0	3,845,165.0	42,071.5	44,590.4
Retail CFL Multi-packs	0	0	26,310.0	27,885.2	0.0	111.0	14.3	14.3	8	8	8	8	96.4%	62.3%	0.0	0.0	1,878,539.5	1,991,011.8
Retail Interior Fixtures (Lamps and HW Fixtures)	67	98	263.1	278.9	106.0	106.0	60.0	60.0	5	5	5	5	104.0%	96.4%	58,973.0	86,680.0	76,123.2	80,680.8
Retail Exterior Fixtures	66	8	17.5	18.6	106.0	106.0	62.3	62.3	5	5	5	5	109.0%	100.0%	37,766.0	4,600.0	5,461.0	5,788.0
Retail Torchieres	13	0	4.4	4.6	104.0	47.0	64.8	64.8	8	8	8	20	108.0%	93.5%	11,868.0	0.0	2,126.8	5,635.4
Retail LED Fixtures	0	144	87.7	93.0	0.0	47.0	26.3	26.3	8	8	20	20	100.0%	95.0%	0.0	54,374.0	43,796.4	46,418.6
Retail LED Bulbs	13	0	877.0	929.5	47.0	0.0	26.3	26.3	8	8	20	20	100.0%	95.0%	4,960.0	0.0	437,964.5	464,186.4

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					
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011		2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan		
					Actual	Plan																					Actual	Plan
Clothes Washer Tier 1 Electric DHW	19.0	9.0			104.0	104.0			11	11			100.0%	100.0%	21,736.0	10,296.0			0	0			0.0	0.0			0.0	0.0
Clothes Washer Tier 1 Gas DHW	7.0	2.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.3	0.3			22.0	5.5			22.0	5.5
Clothes Washer Tier 1 Oil DHW	24.0	18.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.0	0.2			0.0	0.0			0.0	39.6
Clothes Washer Tier 1 Electric Dryer	49.0	25.0			57.0	57.0			11	11			100.0%	100.0%	30,723.0	15,675.0			0.0	0			0.0	0.0			0.0	0.0
Clothes Washer Tier 1 Other Dryer	2.0	5.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.0	0.1			0.0	0.0			0.0	7.2
Clothes Washer Tier 2 Electric DHW	12.0	21.0			137.0	137.0			11	11			100.0%	100.0%	18,084.0	31,647.0			0.0	0.0			0.0	0.0			0.0	0.0
Clothes Washer Tier 2 Gas DHW	4.0	9.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.3	0.3			11.0	31.7			11.0	31.7
Clothes Washer Tier 2 Oil DHW	15.0	42.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.0	0.3			0.0	0.0			0.0	129.4
Clothes Washer Tier 2 Electric Dryer	31.0	66.0			103.0	103.0			11	11			100.0%	100.0%	35,123.0	74,778.0			0.0	0.0			0.0	0.0			0.0	0.0
Clothes Washer Tier 2 Other Dryer	1.0	7.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.0	0.2			0.0	0.0			0.0	18.5
Clothes Washer Tier 3 Electric DHW	84.0	74.0	323.1	365.9	172.0	172.0	260.7	260.7	11	11	11	11	100.0%	100.0%	158,928.0	140,008.0	926,431.0	1,049,246.0	0.0	0.0	0.7	1.0	0.0	0.0	2,618.0	4,169.0	2,618.0	4,169.0
Clothes Washer Tier 3 Gas DHW	30.0	37.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.4	0.4			132.0	166.9			132.0	166.9
Clothes Washer Tier 3 Oil DHW	105.0	272.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.0	0.4			0.0	0.0			1,077.1	0.0
Clothes Washer Tier 3 Electric Dryer	210.0	333.0			104.0	104.0			11	11			100.0%	100.0%	240,240.0	380,952.0			0.0	0.0			0.0	0.0			0.0	0.0
Clothes Washer Tier 3 Other Dryer	7.0	54.0			0.0	0.0			11	11			100.0%	100.0%	0.0	0.0			0.3	0.2			22.0	143.0			22.0	143.0
Energy Star Room A/C	85.0	189.0	105.6	119.6	20.0	20.0	16.2	16.2	9	9	9	9	100.0%	100.0%	15,003.0	34,020.0	15,354.0	17,397.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Energy Star Refrigerator	300.0	249.0	161.5	183.0	107.0	107.0	107.0	107.0	12	12	12	12	100.0%	100.0%	385,200.0	319,716.0	207,420.0	234,912.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Energy Star Room Air Purifiers	25.0	1.0	3.7	4.2	58.0	58.0	390.6	390.6	9	9	9	9	100.0%	100.0%	13,050.0	522.0	13,104.0	14,841.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Energy Star Dehumidifiers	0.0	0.0			0.0	213.0			12	12			100.0%	100.0%	0.0	0.0			0.0	0.0			0.0	0.0			0.0	0.0
Energy Star Water Coolers	0.0	0.0			0.0	361.0			10	10			100.0%	100.0%	0.0	0.0			0.0	0.0			0.0	0.0			0.0	0.0
Smartstrip Power Strip	85.0	16.0	8.1	9.1	57.0	57.0	75.0	75.0	5	5	5	5	100.0%	100.0%	24,225.0	4,560.0	3,030.0	3,430.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
2nd Refrigerator Pickup/Turnin	80.0	56.0	12.4	14.1	413.0	413.0	835.0	834.9	8	8	8	8	100.0%	100.0%	264,320.0	185,024.0	83,008.0	94,008.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
2nd Freezer Pickup/Turnin	0.0	0.0	6.2	7.0	0.0	0.0	234.3	662.9	8	8	8	8	100.0%	100.0%	0.0	0.0	11,648.0	37,320.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Room AC Pickup/Turnin	0.0	0.0	0.6	0.7	0.0	0.0	17.7	18.5	5	5	5	5	100.0%	100.0%	0.0	0.0	55.0	65.0	0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Neutral Heating, Hot Water and Controls																												
Energy Star Central AC (385 Hours ON in NH)			3.3	3.3			110.2	110.2	14	14			100.0%				5,068.0	5,068.0			0.0	0.0			-	-	-	-
Energy Star Mini Split Heat Pump			5.9	5.9			122.8	122.8	12	12			100.0%				8,712.0	8,712.0			0.0	0.0			-	-	-	-
Energy Star Mini Split Heat Pump (+ Gas)									12	12			100.0%				0.0	0.0			0.0	0.0			-	-	-	-
Energy Star Mini Split Heat Pump (+ Oil)			4.3	4.3			(2,158.1)	(2,158.1)	12	12			100.0%				-110,460.0	-110,460.0			73.0	73.0			3,736.4	3,736.4	3,736.4	3,736.4
Energy Star Mini Split Heat Pump (+ LP)			1.6	1.6			(2,158.4)	(2,158.4)	12	12			100.0%				-42,648.0	-42,648.0			25.0	25.0			494.0	494.0	494.0	494.0
ES Furnace w/ECM (LP), AFUE >=95%			7.9	7.9			168.0	168.0	18	18			100.0%				23,832.0	23,832.0			35.0	35.0			4,966.0	4,966.0	4,966.0	4,966.0
ES Furnace w/ECM (LP), AFUE >=96%			3.9	3.9			168.0	168.0	18	18			100.0%				11,916.0	11,916.0			22.0	22.0			1,560.7	1,560.7	1,560.7	1,560.7
ES Furnace w/ECM (LP), AFUE >=97%			1.3	1.3			168.2	168.2	18	18			100.0%				3,978.0	3,978.0			8.0	8.0			189.2	189.2	189.2	189.2
ES Furnace w/ECM (Oil), AFUE >=85%			3.9	3.9			168.0	168.0	18	18			100.0%				11,916.0	11,916.0			71.0	71.0			5,036.9	5,036.9	5,036.9	5,036.9
ES Furnace w/ECM (Oil), AFUE >=90%			1.3	1.3			168.8	168.2	18	18			100.0%				3,992.4	3,978.0			27.0	27.0			638.5	638.5	638.5	638.5
ES Boiler (LP), AFUE>=90%			7.9	7.9			-	-	20	20			100.0%				0.0	0.0			82.0	82.0			12,927.3	12,927.3	12,927.3	12,927.3
ES Boiler (LP), AFUE>=96%			2.6	2.6			-	-	20	20			100.0%				0.0	0.0			34.0	34.0			1,786.7	1,786.7	1,786.7	1,786.7
ES Boiler (Oil), AFUE>=85%			49.9	49.9			-	-	20	20			100.0%				0.0	0.0			268.0	268.0			267,584.7	267,584.3	267,584.3	267,584.3
ES Boiler (Oil), AFUE>=90%			6.6	6.6			-	-	20	20			100.0%				0.0	0.0			71.0	71.0			9,327.6	9,327.6	9,327.6	9,327.6
Boil: LP, Combo condensing boiler w/ On-Demand DWH 90%			0.7	0.7			-	-	20	20			100.0%				0.0	0.0			12.0	12.0			157.7	157.7	157.7	157.7
Boil: Oil, Combo condensing boiler w/ On-Demand DWH 90%			0.7	0.7			-	-	20	20			100.0%				0.0	0.0			12.0	12.0			157.7	157.7	157.7	157.7
Water Heater: LP Tankless, EF>=0.82 (1/1/09 Criteria)			15.8	15.8			-	-	20	20			100.0%				0.0	0.0			153.0	153.0			48,240.9	48,240.8	48,240.8	48,240.8
DHW: LP, Indirect Water Heater (attached to LP Energy Star FHW boiler)			0.7	0.7			-	-	20	20			100.0%				0.0	0.0			5.0	5.0			65.7	65.7	65.7	65.7
DHW: Oil, Indirect Water Heater (attached to oil Energy Star FHW boiler)			0.7	0.7			-	-	20	20			100.0%				0.0	0.0			5.0	5.0			65.7	65.7	65.7	65.7
DHW: LP, Stand Alone Storage Water Heater (EF>=0.67)			0.7	0.7			-	-	13	13			100.0%				0.0	0.0			2.0	2.0			17.1	17.1	17.1	17.1
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (ES=EF>=2.0)			0.7	0.7			1,775.1	1,775.1	10	10			100.0%				11,660.0	11,660.0			0.0	0.0			-	-	-	-
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (ES=EF>=2.0)			0.7	0.7			2,671.7	2,671.8	10	10			100.0%				17,550.0	17,550.0			0.0	0.0			-	-	-	-
BRC: Gas, Boiler Reset Controls			0.0	0.0			-	-	15	15			100.0%				0.0	0.0			0.0	0.0			-	-	-	-
BRC: LP, Boiler Reset Controls			5.9	5.9			-	-	15	15			100.0%				0.0	0.0			57.0	57.0			5,054.7	5,054.6	5,054.6	5,054.6
BRC: Oil, Boiler Reset Controls			7.9	7.9			-	-	15	15			100.0%				0.0	0.0			76.0	76.0			8,986.1	8,986.0	8,986.0	8,986.0
TSTAT: LP, 7-Day Programmable Thermostats			0.7	0.7			13.7	13.7	15	15			100.0%				135.0	135.0			5.0	5.0			49.3	49.3	49.3	49.3
TSTAT: Oil, 7-Day Programmable Thermostats			0.7	0.7			13.7	13.7	15	15			100.0%				135.0	135.0			5.0	5.0			49.3	49.3	49.3	49.3
TSTAT: LP, WiFi Enabled 7-Day Programmable Thermostats			0.7	0.7			13.7	13.7	15	15			100.0%				135.0	135.0			4.0	4.0			39.4	39.4	39.4	39.4
TSTAT: Oil, WiFi Enabled 7-Day Programmable Thermostats			0.7	0.7			13.7	13.7	15	15			100.0%				135.0	135.0			4.0	4.0			39.4	39.4	39.4	39.4

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									
	2011		2013 Plan		2011		2013 Plan		2011		2013		2013		2011 Plan		2011 Actual		2013 Plan		2014 Plan		2011 Plan		2011 Actual		2013 Plan		2014 Plan			
	2011 Plan	Actual	2013 Plan	2014 Plan	2011 Plan	Actual	2013 Plan	2014 Plan	2011 Plan	Actual	2013 Plan	2014 Plan	2011	2013	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	Actual	2013 Plan	2014 Plan	2011 Plan	Actual	2013 Plan	2014 Plan	2011 Plan	Actual	2013 Plan	2014 Plan		
Large New Equipment and Construction 2011*																																
D2 CAIR	86,319	3			86,319				15	15			103%		1,334,000.0	180,139							0.0	0.0			0.0	0.0				
D2 Cool Choice	32,641	4			32,641				13	15			106%		0.4370	1,438,670							0.0	0.0			0.0	0.0				
D2 Custom	238,114	5			238,114				16	15			92%		4.0380	6,853,897							0.0	0.0			0.0	0.0				
D2 Lights	87,400	11			87,400				15	15			104%		1.4030	6,090,590							0.0	0.0			0.0	0.0				
D2 VSD	32,124	1			32,124				15	15			102%		0.4910	238,411							0.0	0.0			0.0	0.0				
D2 MotorUp	0	1							15	15			62%			163,017							0.0	0.0			0.0	0.0				
NEW EQUIPMENT TRACK																																
Cooling			3.4	3.6			32,180.77	32,209.72		15	15	15	92.5%	94.0%			1,533,671.1	1,634,965.5					0.0	0.0			0.0	0.0				
Heating			0.3	0.4			49,654.55	49,908.57		15	15	15	92.5%	94.0%			231,042.6	246,298.8					0.0	0.0			0.0	0.0				
Lighting			1.0	1.1			61,522.00	61,902.83		15	15	15	92.5%	94.0%			867,460.2	925,199.7					0.0	0.0			0.0	0.0				
Lighting LED			0.0				0.00			15	15	15	92.5%	94.0%			0.0	0.0					0.0	0.0			0.0	0.0				
Lighting (Occ Sensors Only)			0.3	0.3			22,762.07	22,700.00		10	10	10	92.5%	94.0%			62,049.4	66,147.8					0.0	0.0			0.0	0.0				
Other			0.7	0.3			121,041.5	270,554.8		15	15	15	92.5%	94.0%			1,109,345.7	1,182,595.2					0.0	0.0			0.0	0.0				
Process			2.4	2.6			50,779.5	50,606.9		15	15	15	92.5%	94.0%			1,747,018.2	1,862,384.4					0.0	0.0			0.0	0.0				
Lighting - Parking Lot Lights			0.0	0.0			0.00	0.00									0.0	0.0					0.0	0.0			0.0	0.0				
RETROFIT TRACK																																
EI HVAC	39,148.0	3.0			0.0	52,119.1			13.0	13.0			102.0%			2,032,644.0						0.0	0.0			0.0	0.0					
EI CAIR	460,771.0	6.0			0.0	49,902.6			13.0	13.0			109.2%			3,831,163.0						0.0	0.0			0.0	0.0					
EI Custom	2,248,275.0	14.0			0.0	117,446.5			13.0	13.0			111.7%			21,104,034.0						0.0	0.0			0.0	0.0					
EI Light	59,856.0	2.0			0.0	215,127.8			13.0	13.0			103.0%			5,593,322.0						0.0	0.0			0.0	0.0					
EI VSD	0.0	0.0			0.0	0.0			0.0	0.0			0.0%			0.0						0.0	0.0			0.0	0.0					
Cooling			2.6	2.7			61,197.7		12.4	12.6	12.6	94.0%	94.0%			0	1,983,343					0.0	0.0			0.0	0.0			0.0	0.0	
Heating			1.3	1.4			16,326.4		13.1	20.1	20.1	94.0%	94.0%			0	426,259					0.0	0.0			0.0	0.0			0.0	0.0	
Lighting			11.6	12.3			49,079.6		12.9	13.0	13.0	94.0%	94.0%			0	7,376,925					0.0	0.0			0.0	0.0			0.0	0.0	
Lighting - LED			1.2	1.3			83,041.1		13.0	13.0	13.0	94.0%	94.0%			0	1,337,141					0.0	0.0			0.0	0.0			0.0	0.0	
Lighting - Occ Sensors only			2.3	2.5			28,437.8		9.1	9.4	9.4	94.0%	94.0%			0	626,106					0.0	0.0			0.0	0.0			0.0	0.0	
Other			0.8	0.9			26,121.0		13.0	13.6	13.6	94.0%	94.0%			0	301,286					0.0	0.0			0.0	0.0			0.0	0.0	
Lighting - Parking Lot Lights			1.2	1.2			48,062.0		13.0	13.0	13.0	94.0%	94.0%			0	732,726					0.0	0.0			0.0	0.0			0.0	0.0	
Process			7.0	7.5			61,457.0		11.8	11.7	11.7	94.0%	94.0%			0	5,044,159					0.0	0.0			0.0	0.0			0.0	0.0	
Fuel Neutral Heating, Hot Water and Controls																																
1 Energy Star Central Air Conditioner			0.0	0.0			0.0	0.0			14.0	14.0	100%				0.0	0.0					0.00	0.00			0.0	0.0				
2 Energy Star Mini Split Heat Pump			0.6	0.6			0.1	0.1			12.0	12.0	100%				0.4	0.0					0.00	0.00			0.0	0.0				
3 Energy Star Mini Split Heat Pump (for homes w/Gas heat)			0.0	0.0			0.0	0.0			12.0	12.0	100%				0.0	0.0					0.00	0.00			0.0	0.0				
4 Energy Star Mini Split Heat Pump (for homes w/LP heat)			0.1	0.1			0.0	0.0			12.0	12.0	100%				16.16	17.26					16.16	17.26			11	12				
5 Energy Star Mini Split Heat Pump (for homes w/Oil heat)			0.2	0.2			0.0	0.0			12.0	12.0	100%				0.0	0.0					17.19	17.30			48	48				
40 Boilers, LP ≥ 90% thermal efficiency (500 to 999 MBH), Condensing			0.0	0.1			0.0	0.0			25	25	100.0%				0.0	0.0					68.78	6.90			25	25				
41 Boilers, Oil ≥ 85% thermal efficiency (500 to 999 MBH)			0.0	0.0			0.0	0.0			25	25	100.0%				0.0	0.0					0.00	0.00			0	0				
42 Boilers, Gas ≥ 90% thermal efficiency (1000 to 1700 MBH), Condensing			0.0	0.0			0.0	0.0			25	25	100.0%				0.0	0.0					0.00	0.00			0	0				
43 Boilers, LP ≥ 90% thermal efficiency (1000 to 1700 MBH), Condensing			0.9	0.9			0.0	0.0			25	25	100.0%				0.0	0.0					2.29	2.30			50	50				
44 Boilers, Oil ≥ 85% thermal efficiency (1000 to 1700 MBH)			0.0	0.0			0.0	0.0			25	25	100.0%				0.0	0.0					0.00	0.00			0	0				
45 Boilers, Gas ≥ 90% thermal efficiency (1701 to 2000 MBH), Condensing			0.0	0.0			0.0	0.0			25	25	100.0%				0.0	0.0					0.00	0.00			0	0				
46 Boilers, LP ≥ 90% thermal efficiency (1701 to 2000 MBH), Condensing			1.4	1.4			0.0	0.0			25	25	100.0%				0.0	0.0					248.41	249.32			8,850	8,850				
47 Boilers, Oil ≥ 85% thermal efficiency (1701 to 2000 MBH)			0.0	0.0			0.0	0.0			25	25	100.0%				0.0	0.0					0.00	0.00			0	0				

Notes:
 1. 2011 Large Business Actual Participant Data unavailable

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			
	2011		2011		2011		2011		2011		2011		2011		2011		2011		2011		2011		2011					
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual				
Small Business Energy Solutions (2011 NG)	536,796.0				536,796.0	0.0			11.0	0.0			0.0%		6,082,000.0	0.0				0.0	0.0			0.0	0.0			
D2 CAIR	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			
D2 Cool Choice	0.0	4.0			0.0	46,104.4			0.0	10.7			104.0%		0.0	495,030.7				0.0	0.0			0.0	0.0			
D2 Custom	0.0	3.0			0.0	68,792.5			0.0	13.0			105.7%		0.0	894,302.1				0.0	0.0			0.0	0.0			
D2 Lights	0.0	86.0			0.0	602,380.6			0.0	11.1			97.5%		0.0	6,670,138.8				0.0	0.0			0.0	0.0			
D2 VSD	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			
Vendor Miser	0.0	1.0			0.0	356.7			0.0	5.0			104.0%		0.0	1,783.6				0.0	0.0			0.0	0.0			
NEW EQUIPMENT TRACK																												
Cooling			1.0	1.3		38,769.7		32,167.9			15.0	15.0		92.5%		537,929.2		537,929.2		571,927.5		0.0	0.0		0.0	0.0		
Heating			0.1	0.1		49,291.1		49,285.7			15.0	15.0		92.5%		81,043.9		81,043.9		86,163.8		0.0	0.0		0.0	0.0		
Lighting			0.4	0.4		61,782.6		61,774.4			15.0	15.0		92.5%		304,403.6		304,403.6		323,648.3		0.0	0.0		0.0	0.0		
Lighting LED			0.0	0.0		0.0		0.0			15.0	15.0		92.5%		0.0		0.0		0.0		0.0	0.0		0.0			
Lighting (Occ Sensors Only)			0.1	0.1		22,778.3		22,777.8			10.0	10.0		92.5%		21,765.3		21,765.3		23,134.3		0.0	0.0		0.0	0.0		
Other			0.2	0.2		121,503.5		121,495.5			15.0	15.0		92.5%		389,096.6		389,096.6		413,683.1		0.0	0.0		0.0	0.0		
Process			0.9	0.9		50,703.8		50,700.8			15.0	15.0		92.5%		612,761.6		612,761.6		651,486.8		0.0	0.0		0.0	0.0		
RETROFIT TRACK																												
Lighting - New Construction			15.7	16.7		13,787.6		13,787.6			15.9	15.9		100.0%				3,432,068.4		3,648,984.8		0.0	0.0		0.0	0.0		
Lighting - Retrofit			18.3	19.5		19,981.5		19,981.5			12.8	12.8		100.0%				4,692,832.2		4,989,446.0		0.0	0.0		0.0	0.0		
Lighting - Direct Install			21.0	22.3		14,488.6		14,488.5			12.9	12.9		100.0%				3,906,001.7		4,152,875.9		0.0	0.0		0.0	0.0		
Cooling			0.0	0.0		0.0		0.0			12.9	13.0		100.0%				0.0		0.0		0.0	0.0		0.0	0.0		
Lighting - Catalog Sales			72.9	77.5		46.3		46.3			6.0	6.0		100.0%				20,256.0		21,534.0		0.0	0.0		0.0	0.0		
Smart Strips			8.8	9.4		75.0		75.0			5.0	5.0		100.0%				3,305.0		3,515.0		0.0	0.0		0.0	0.0		
Fuel Neutral Heating, Hot Water and Controls																												
Energy Star Central Air Conditioner			2.3	2.3		110.4		110.4			14.0	14.0	1.0	100.0%				3,514.0		3,514.0		0.0	0.0		0.0	0.0		
Energy Star Mini Split Heat Pump			17.7	17.7		61.4		61.4			12.0	12.0	1.0	100.0%				13,032.0		13,032.0		0.0	0.0		0.0	0.0		
Energy Star Mini Split Heat Pump (for homes w/Gas heat)			0.0	0.0		0.0		0.0			12.0	12.0	1.0	100.0%				0.0		0.0		0.0	0.0		0.0			
Energy Star Mini Split Heat Pump (for homes w/LP heat)			2.5	2.5		0.0		0.0			12.0	12.0	1.0	100.0%				0.0		0.0		15.4	15.4		468.0	468.0		
Energy Star Mini Split Heat Pump (for homes w/Oil heat)			6.3	6.3		0.0		0.0			12.0	12.0	1.0	100.0%				0.0		0.0		17.1	17.1		1,296.0	1,296.0		
11 On Demand Tankless Water Heater, LP, >= .82 EF w/Electronic Ignition			2.5	2.5		0.0		0.0			20.0	20.0	1.0	100%				0.0		0.0		7.1	7.1		0.0	0.0		
12 On Demand Tankless Water Heater, Oil, >= .82 EF w/Electronic Ignition			0.0	0.0		0.0		0.0			20.0	20.0	1.0	100%				0.0		0.0		0.0	0.0		0.0	0.0		
13 On Demand Tankless Water Heater, Gas, >= .95 EF w/Electronic Ignition			0.0	0.0		0.0		0.0			20.0	20.0	1.0	100%				0.0		0.0		0.0	0.0		0.0	0.0		
14 On Demand Tankless Water Heater, LP, >= .95 EF w/Electronic Ignition			1.5	1.5		0.0		0.0			20.0	20.0	1.0	100%				0.0		0.0		9.9	9.9		0.0	0.0		
26 Boilers, LP >= 90% AFUE (up to 300 MBH), Condensing			1.3	1.3		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		23.0	23.0		0.0	0.0		
27 Boilers, Oil >= 85% AFUE (up to 300 MBH)			2.5	2.5		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		23.0	23.0		0.0	0.0		
28 Boilers, Gas >= 96% AFUE (up to 300 MBH), Condensing			0.0	0.0		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		0.0	0.0		0.0	0.0		
29 Boilers, LP >= 96% AFUE (up to 300 MBH), Condensing			0.0	0.0		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		0.0	0.0		0.0	0.0		
30 Boilers, Oil >= 87% AFUE (up to 300 MBH)			0.0	0.0		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		0.0	0.0		0.0	0.0		
31 Boilers, Gas >= 90% thermal efficiency (301 to 499 MBH), Condensing			0.0	0.0		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		0.0	0.0		0.0	0.0		
32 Boilers, LP >= 90% thermal efficiency (301 to 499 MBH), Condensing			1.3	1.3		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		42.0	42.0		0.0	0.0		
33 Boilers, Oil >= 85% thermal efficiency (301 to 499 MBH)			2.5	2.5		0.0		0.0			25.0	25.0	1.0	100%				0.0		0.0		42.4	42.4		0.0	0.0		
48 Boiler Reset Controls, Oil, After Market, 1 shift operation			1.3	1.3		0.0		0.0			15.0	15.0	1.0	100%				0.0		0.0		19.0	19.0		0.0	0.0		
49 Boiler Reset Controls, Gas, After Market, >1 shift operation			1.3	1.3		0.0		0.0			15.0	15.0	1.0	100%				0.0		0.0		19.0	19.0		0.0	0.0		

Notes:

Liberty Utilities Gas Home Energy Assistance Program

Measure	Quantity				Annual Savings per Unit (mmbtu)				Measure Life				Installation or Realization Rate			Total Lifetime Savings (mmbtu)			
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013 Plan	2014 Plan	2011			
																	2011 Plan	Actual	2013 Plan
Low Income	260.0	271.0	156.0	164.1	31.8	11.7	17.2	28.5	20.0	20.0	20.0	20.0	1.0	1.0	1.0	165,360.0	63,648.0	89,172.0	93,540.0

Liberty Utilities Gas ENERGY STAR® Appliance Program

Measure	Quantity				Annual Savings per Unit (mmbtu)				Measure Life				In-Service / Realization Rate			Total Lifetime Savings (mmbtu)			
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan
High Efficiency Gas Steam Boiler	0.0	21.0			0.0	12.9			0.0	25.0			100%			0.0	6,772.5		
Tankless Water Heaters (EF 0.82)	232.0	2.0	90.0	94.0	8.0	1.9	8.0	9.7	20.0	13.0	20.0	20.0	100%	100%	100%	37,120.0	49.4	14,400.0	18,240.0
Indirect Water Heater (attached to gas Energy Star FHW boiler)	27.0	53.0	175.0	180.0	3.7	8.0	3.7	8.0	20.0	20.0	20.0	20.0	100%	100%	100%	2,000.0	8,480.0	12,960.0	28,800.0
Stand Alone Storage Water Heater (EF 0.67)	162.0	6.0	62.0	65.0	3.7	3.7	3.7	3.7	13.0	13.0	13.0	13.0	100%	100%	100%	7,787.0	286.0	2,982.2	3,133.0
Combo condensing boiler w/ On-Demand DWH 90%	104.0	45.0	40.0	45.0	21.1	21.1	17.8	17.8	20.0	20.0	20.0	20.0	100%	100%	100%	43,880.0	18,990.0	14,240.0	16,020.0
Furnace (forced hot air) 92% AFUE	0.0	19.0			0.0	21.1			0.0	18.0			100%			0.0	7,216.2		
Furnace (forced hot air) 92% AFUE w/ECM	0.0	23.0			0.0	11.8			0.0	18.0			100%			0.0	4,885.2		
Furnace (forced hot air) 94% AFUE w/ECM	25.0	168.0			18.0	14.2			18.0	18.0			100%			8,100.0	42,940.8		
Furnace (forced hot air) 95% AFUE w/ECM			192.0	208.0			4.5	4.5	18.0	18.0	18.0	18.0	100%	100%	100%			15,552.0	16,848.0
Furnace (forced hot air) 96% AFUE w/ECM	76.0	1.0	30.0	32.0	20.7	20.7	5.9	5.9	18.0	18.0	18.0	18.0	100%	100%	100%	28,314.0	373.1	3,186.0	3,402.0
Furnace 97+AFUE (<150) w/ECM Motor			17.0	17.0			18.5	18.5			18.0	18.0	100%	100%	100%			5,670.0	5,670.0
Boiler (forced hot water) 85% AFUE	0.0	56.0			0.0	7.2			0.0	20.0			100%			0.0	8,064.0		
Boiler (forced hot water) 96% AFUE	200.0	0.0	12.0	12.0	21.3	0.0	13.1	13.1	20.0	20.0	20.0	20.0	100%	100%	100%	85,200.0	0.0	3,144.0	3,140.0
Boiler (forced hot water) 90% AFUE	7.0	146.0	99.0	102.0	13.7	14.2	10.4	10.4	20.0	20.0	20.0	20.0	100%	100%	100%	1,920.0	41,464.0	20,600.0	21,220.0
Early Retirement Steam Boiler (Retire)			0.0	0.0			0.0	0.0			10.0	10.0						0.0	0.0
Boiler Reset Controls	20.0	2.0	18.0	19.0	7.9	7.9	4.5	4.5	15.0	15.0	15.0	15.0	100%	100%	100%	2,370.0	237.0	1,215.0	1,290.0
Tankless Water Heater (EF 0.95)	15.0	93.0			10.3	7.8	0.0	0.0	20.0	20.0			100%	100%	100%	3,100.0	14,508.0		
Condensing Gas Water Heater (EF 0.94)	15.0	0.0			25.0	0.0			15.0	15.0			100%			5,625.0	10,881.0		
Tankless Water Heater (EF 0.94)			30.0	32.0			10.1	9.9			20.0	20.0						6,060.0	6,360.0
7-Day Programmable Thermostats	1,130.0	393.0	1,410.0	1,470.0	7.7	8.0	3.2	3.2	15.0	15.0	15.0	15.0	100%	100%	100%	130,515.0	29,475.0	67,680.0	70,560.0
WiFiThermostats (controls gas heat only)			81.0	84.0			6.6	6.6			15.0	15.0						8,025.0	8,310.0
WiFiThermostats (controls elec cooling & gas heat only)			322.0	337.0			6.6	6.6			15.0	15.0						31,875.0	33,360.0

Liberty Utilities Gas Large Business Energy Solutions Program

Measure	Quantity				Annual Savings per Unit (mmbtu)				Measure Life				Installation or Realization Rate		Total Lifetime Savings (mmbtu)			
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013 & 2014	2011 Plan	2011 Actual	2013 Plan	2014 Plan
CEEP	0.0	5.0			0.0	351.0			15.0	21.0			100%		-	36,121.0		
Large Business Retrofit	174.0	113.0	25.0	26.0	266.2	286.0	414.4	414.4	15.0	12.0	15.0	15.0	100%	100%	694,665.0	384,727.0	155,400.0	161,610.0
Large Business New Equipment	8.0	1.0	4.0	4.0	634.1	2375.2	634.3	634.3	18.0	20.0	18.0	18.0	100%	100%	91,314.0	44,469.0	45,666.0	45,666.0
Furnace (forced hot air) 92% AFUE	0.0	2.0			0.0	21.1			18.0	18.0			100%		-	759.6		
Furnace 92+ AFUE (<150) w/ECM Motor	0.0	1.0			0.0	19.6			18.0	18.0			100%	100%	-	352.8		
Furnace 94+ AFUE (<150) w/ECM Motor	0.0	2.0			0.0	23.6			18.0	18.0			100%	100%	-	849.6		
Furnace 95+ AFUE (<150) w/ECM Motor			9.0	11.0			16.1	16.1					100%				2,610.0	3,186.0
Furnace 96+ AFUE (<150) w/ECM Motor			1.0	3.0			21.0	20.7					100%	100%			378.0	1,116.0
Infrared	10.0	20.0	12.0	13.0	223.2	74.4	48.3	48.3	17.0	17.0	17.0	17.0	100%	100%	37,944.0	25,296.0	9,860.0	10,676.0
On demand, Tankless Water Heater >=.82,	60.0	4.0	0.0	0.0	17.8	30.4	0.0	0.0	20.0	20.0	0.0	0.0	100%	100%	21,300.0	2,432.0	-	-
Indirect Water Heaters (Combined appliance efficiency rating >=.85% (EF=.82)	37.0	15.0	12.0	13.0	75.0	30.4	20.7	20.7	15.0	15.0	15.0	15.0	100%	100%	41,625.0	6,840.0	3,720.0	4,035.0
Condensing Stand Alone >95% TE, >75000 btu	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	15.0	15.0	15.0	100%	100%	-	-	-	-
Integrated water heater/condensing boiler (0.9 EF, 0.9 AFUE)	2.0	45.0	0.0	0.0	1.1	21.1	0.0	0.0	20.0	20.0	25.0	25.0	100%	100%	43.6	18,990.0	-	-
Boiler >=96% AFUE, <= 300 mbh	5.0	3.0	0.0	0.0	37.0	16.8	0.0	0.0	25.0	25.0	25.0	25.0	100%	100%	4,625.0	1,260.0	-	-
Condensing boiler <= 300 mbh	45.0	21.0	0.0	0.0	47.4	32.3	0.0	0.0	25.0	25.0	25.0	25.0	100%	100%	53,303.6	16,957.5	-	-
Condensing boiler 301-499 mbh	42.0	8.0	7.0	10.0	222.1	78.3	56.1	56.1	25.0	25.0	25.0	25.0	100%	100%	233,231.3	15,660.0	9,825.0	14,025.0
Condensing boiler 500-999 mbh	15.0	13.0	2.0	2.0	89.0	146.7	103.0	103.0	25.0	25.0	25.0	25.0	100%	100%	33,375.0	47,677.5	5,150.0	5,150.0
Condensing boiler 1000-1700 mbh	7.0	12.0	2.9	3.0	83.2	264.1	189.3	189.3	25.0	25.0	25.0	25.0	100%	100%	14,554.2	79,230.0	13,525.0	14,200.0
Condensing boiler 1701+ mbh	4.0	4.0	3.0	4.0	249.0	332.6	331.3	331.3	25.0	25.0	25.0	25.0	100%	100%	24,900.0	33,260.0	24,850.0	33,125.0
Condensing Unit Heaters	0.0	0.0	6.0	7.0	0.0	0.0	41.0	40.9	18.0	18.0	18.0	18.0	100%	100%	-	-	4,428.0	5,148.0
Hydronic boiler <= 300mbh	10.0	1.0			16.8	16.8			25.0	25.0			100%		4,200.0	420.0		
Hydronic boiler 301-499 mbh	2.0	0.0			0.0	3.5			25.0	25.0			100%	100%				
Hydronic boiler 500-999 mbh	2.0	0.0			0.0	6.5			25.0	25.0			100%	100%				
Hydronic boiler 1000-1700 mbh	1.0	0.0			0.0	12.0			25.0	25.0			100%	100%				
Hydronic boiler 1701+ mbh	1.0	0.0			0.0	15.0			25.0	25.0			100%	100%				
Fryers	2.0	0.0	2.0	2.0	293.0	0.0	58.5	58.5	12.0	12.0	12.0	12.0	100%	100%	7,032.0	-	1,404.0	1,404.0
High Efficiency Gas Steamer (Energy Star >=38% efficiency)	2.0	0.0	1.0	1.0	153.5	0.0	107.0	107.0	10.0	10.0	12.0	12.0	100%	100%	3,070.0	-	1,284.0	1,284.0
High Efficiency Gas Convection Oven (>=40% efficiency)	3.0	4.0	1.0	1.0	16.7	24.8	31.0	31.0	12.0	12.0	12.0	12.0	100%	100%	600.0	1,190.4	372.0	372.0
High Efficiency Gas Combination Oven (>=40% efficiency)	2.0	0.0	1.0	1.0	60.5	0.0	110.0	110.0	12.0	12.0	12.0	12.0	100%	100%	1,452.0	-	1,320.0	1,320.0
High Efficiency Gas Conveyer Oven (>=40% efficiency)	1.0	0.0	1.0	1.0	169.0	0.0	85.0	85.0	12.0	12.0	12.0	12.0	100%	100%	2,028.0	-	1,020.0	1,020.0
High Efficiency Gas Rack Oven (>=50% efficiency)	1.0	11.0	1.0	1.0	211.0	0.0	211.0	211.0	12.0	12.0	12.0	12.0	100%	100%	2,532.0	-	2,532.0	2,532.0
High Efficiency Gas Griddle	1.0	0.0	1.0	1.0	19.0	0.0	19.0	19.0	12.0	12.0	12.0	12.0	100%	100%	228.0	-	228.0	228.0
Pre Rinse Spray Valve	10.0	125.0	30.0	34.0	33.6	33.6	32.6	33.7	5.0	5.0	5.0	5.0	100%	100%	1,680.0	21,000.0	4,888.2	5,725.0
Boiler Reset Controls (retrofit only)	2.0	9.0	8.0	8.0	35.5	1.0	35.5	35.5	20.0	20.0	15.0	15.0	100%	100%	1,420.0	180.0	4,260.0	4,260.0
Steam Traps	20.0	17.0	33.0	36.0	25.3	25.3	23.6	25.7	1.0	1.0	3.0	3.0	100%	100%	506.0	430.1	2,332.0	2,775.0
Thermostat	20.0	64.0	15.0	16.0	2.5	9.7	2.4	2.5	15.0	15.0	15.0	15.0	100%	100%	750.0	9,276.0	534.4	600.0

NHEC Home Energy Assistance Program

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					
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013	2011		2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan				
	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	2011	2013	2011 Plan	Actual	2013 Plan	2014 Plan	Plan	Actual	Plan	Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan		
Electric Savings for Fossil Heated Homes	85	85	57	57	1,360	1,246	1,747	1,747	11.0	10.69	10.79	10.79	86.20%	88.80%	1,095,797	975,831	956,047	956,047										
Weatherization - Electric Heat		0																										
Weatherization - Kerosene Heated	85	6	23	23					11.0	15.68	13.85	13.85	86.20%	88.80%							5.3	10.4	24.6	24.6	4,288	839	6,912	6,912
Weatherization - LP Heated	85	5							11.0	15.55			86.20%	88.80%							4.1	4.9			3,272	328		
Weatherization - NG Heated																												
Weatherization - Wood Heated	85	3							11.0	12.61			86.20%	88.80%							3.1	22.9			2,507	748		
Weatherization - Oil Heated	85	15	34	34					11.0	10.98	10.99	10.99	86.20%	88.80%							10.4	19.4	17.3	17.3	8,366	2,749	5,799	5,799
Weatherization - Other																												
Weatherization - Baseload																												
Heating System Replacements											20.00	20.00	100.00%	100.00%														

Planning Assumptions

1. MMBTU savings for 2013 only include savings resulting from SBC funded weatherization, projected to be 15-17 MMBTUs per home (WAP collaboration funding is expected to pay for other additional MMBTU Savings). For gas heated homes, it is expected that the gas companies will pay for most of the weatherization project and will claim associated MMBTU savings.

NHEC Home Performance with Energy Star Program

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					
	2011		2013		2011		2013		2011		2013		2013		2011		2011		2013		2011		2013		2011		2013	
	2011 Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	2011	2014	2011 Plan	Actual	2013 Plan	2014 Plan	Plan	Actual	Plan	Plan	Plan	Actual	Plan	Plan	Actual	Plan
Weatherization: Electric Heat	39	15	9	10	5,787	5,238	4,388	4,388	10.9	16.34	10.9	10.9	100.00%	100.00%	2,480,854	1,283,858	421,887	457,874	6	12	23	23	2,705	2,929				
Weatherization: LP Heat			11	11							22.3	22.3	100.00%	100.00%												5,360	5,818	
Weatherization: Oil Heat			45	49							20.6	20.6	100.00%	100.00%											26,582	28,850		
Weatherization: Kerosene			3	3							19.6	19.6	100.00%	100.00%											1,082	1,175		
Weatherization: Wood Heat			4	5							18.9	18.9	100.00%	100.00%											1,200	1,303		
Electric Baseload: Single Family			17	18			369	369			7.8	7.8	100.00%	100.00%			48,173	52,282										

Planning Assumptions

1. For CFL savings, we assumed EISA was fully in place for 2012 and our contractors installed 6 CFLs per home audited/weatherized (2.7 hrs/day x 365 days/year x (49.9-18.4)/1,000) x 6 = 186.3 kWh/year.

2. Plan to audit and install electric measures (Light Fixtures, CFLs, and Refrigerator Replacement) at 17 SF homes in 2013, and provide weatherization & electric measures at 63 fuel neutral homes and 9 electrically heated homes. Used average energy savings from the 2011 Cadmus Impact Evaluation, Table 16, page 30, adjusted based on actual 2012 results through Aug 6, 2012.

NHEC Energy Star Appliance 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					
	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011	2013	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan	2011 Plan	2011 Actual	2013 Plan	2014 Plan		
Energy Star Clothes Washer	746	1,026	858	1,006	223	223	261	261	11.00	11.00	11.00	11.00	1.00	1.00	1,829,838	2,516,834	2,461,138	2,884,346		0.14	0.74	0.74			1,624	6,964	8,161	
Energy Star Room A/C	173	294	200	234	16	16	16	16	9.00	9.00	9.00	9.00	1.00	1.00	25,225	42,750	29,024	34,015										
Smartstrip Power Strip	52	25	60	70	75	75	75	75	5.00	5.00	5.00	5.00	1.00	1.00	19,527	9,381	22,469	26,332										
Energy Star Refrigerator	520	649	599	702	107	107	107	107	12.00	12.00	12.00	12.00	1.00	1.00	668,226	833,316	768,871	901,083										
2nd Refrigerator Pickup	226	194	200	234	413	413	835	835	8.00	8.00	8.00	8.00	1.00	1.00	745,110	640,976	1,333,348	1,562,626										
2nd Freezer Pickup			60	70	413	413	663	663	8.00	8.00	8.00	8.00	1.00	1.00			317,608	372,223										
Energy Star Room Air Purifiers	17	11	20	23	268	268	391	391	9.00	9.00	9.00	9.00	1.00	1.00	41,842	26,532	70,173	82,240										
Energy Star Central Air Conditioner			5	5	263	263	110	110	14.00	14.00	14.00	14.00	1.00	1.00			7,144	7,144										
Energy Star Mini Split Heat Pump			8	8			123	123									12,279	12,279										
Energy Star Mini Split Heat Pump (for homes w/Gas heat)							-2,158	-2,158													15.43	15.43						
Energy Star Mini Split Heat Pump (for homes w/Oil heat)			4	4			-2,158	-2,158													17.14	17.14				890	890	
Energy Star Mini Split Heat Pump (for homes w/LP heat)			4	4			-2,158	-2,158													15.43	15.43				741	741	
Furn: LP, Furnace, FHA, AFUE >=95% w/ECM			11	11			168	168				18.00	18.00	1.00	1.00		33,579	33,579			4.50	4.50				20,667	20,667	
Furn: LP, Furnace, FHA, AFUE >=96% w/ECM			6	6			168	168				18.00	18.00	1.00	1.00		16,789	16,789			5.55	5.55				5,167	5,167	
Furn: LP, Furnace, FHA, AFUE >=97% w/ECM			2	2			168	168				18.00	18.00	1.00	1.00		5,596	5,596			5.90	5.90				574	574	
Furn: Oil, Furnace, FHA, AFUE >=85% w/ECM			6	6			168	168				18.00	18.00	1.00	1.00		16,789	16,789			18.00	18.00				5,167	5,167	
Furn: Oil, Furnace, FHA, AFUE >=90 w/ECM			2	2			168	168				18.00	18.00	1.00	1.00		5,596	5,596			20.70	20.70				574	574	
Boil: LP Boiler, FHW, AFUE >= 90%			11	11								20.00	20.00	1.00	1.00						10.40	10.40				22,964	22,964	
Boil: LP Boiler, FHW, AFUE >=96%			4	4								20.00	20.00	1.00	1.00						13.10	13.10				2,552	2,552	
Boil: Oil Boiler, FHW, AFUE >=85%			70	70								20.00	20.00	1.00	1.00						5.38	5.38				921,092	921,092	
Boil: Oil Boiler, FHW, AFUE >=90%			9	9								20.00	20.00	1.00	1.00						10.75	10.75				15,947	15,947	
Boil: LP, Combo condensing boiler w/ On-Demand DWH 90%			1	1								20.00	20.00	1.00	1.00						17.80	17.80				159	159	
Boil: Oil, Combo condensing boiler w/ On-Demand DWH 90%			1	1								20.00	20.00	1.00	1.00						17.80	17.80				159	159	
DHW: LP, Tankless Water Heaters (EF>= 0.82)			22	22								20.00	20.00	1.00	1.00						9.70	9.70				91,854	91,854	
DHW: LP, Indirect Water Heater (attached to LP Energy Star FHW boiler)			1	1								20.00	20.00	1.00	1.00						8.00	8.00				159	159	
DHW: Oil, Indirect Water Heater (attached to oil Energy Star FHW boiler)			1	1								20.00	20.00	1.00	1.00						8.00	8.00				159	159	
DHW: LP, Stand Alone Storage Water Heater (EF>=0.67)			1	1								13.00	13.00	1.00	1.00						3.70	3.70				104	104	
DHW: Energy Star Heat Pump 50 Gal Water Heater, EF>=2.3 (ES=EF>=2.0)			1	1			1,775	1,775				10.00	10.00	1.00	1.00		16,425	16,425			0.00	0.00				80	80	
DHW: Energy Star Heat Pump 80 Gal Water Heater, EF>=2.3 (ES=EF>=2.0)			1	1			2,672	2,672				10.00	10.00	1.00	1.00		24,725	24,725			0.00	0.00				80	80	
BRC: Gas, Boiler Reset Controls			0	0								15.00	15.00	1.00	1.00						9.60	9.60				0	0	
BRC: LP, Boiler Reset Controls			8	8								15.00	15.00	1.00	1.00						9.60	9.60				9,688	9,688	
BRC: Oil, Boiler Reset Controls			11	11								15.00	15.00	1.00	1.00						9.60	9.60				17,223	17,223	
TSTAT: LP, 7-Day Programmable Thermostats			1	1				14				15.00	15.00	1.00	1.00		200	200			7.70	7.70				120	120	
TSTAT: Oil, 7-Day Programmable Thermostats			1	1				14				15.00	15.00	1.00	1.00		200	200			7.70	7.70				120	120	
TSTAT: LP, WiFi Enabled 7-Day Programmable Thermostats			1	1				14				15.00	15.00	1.00	1.00		200	200			6.60	6.60				120	120	
TSTAT: Oil, WiFi Enabled 7-Day Programmable Thermostats			1	1				14				15.00	15.00	1.00	1.00		200	200			6.60	6.60				120	120	

Planning Assumptions

1. Clothes Washer Annual kWh Savings updated based on mix of Electric Water Heating customer and per EnergyStar.gov Savings Calculator.
2. Room Air Purifier Annual kWh Savings updated per EnergyStar.gov Savings Calculator.
3. Central air conditioner and Mini Split Heat Pump Annual kWh savings added per EnergyStar.gov calculator, and conservatively assumed 50% of heat provided by heat pump, 50% provided by existing fossil system.
4. All Heating, Hot Water, Programmable Thermostats and Boiler Reset Control energy savings provided by U.S. Department of Energy during ARRA Program and adjusted with recent Gas Networks data if available.

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