2017

New Hampshire Statewide Energy Efficiency Plan

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

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New Hampshire Electric Cooperative, Inc.
Public Service Company of New Hampshire d/b/a Eversource Energy
Unitil Energy Systems, Inc.
Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
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This filing is being made jointly by Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire d/b/a Eversource Energy and Unitil Energy Systems, Inc. (NH Electric Utilities) as well as Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities and Northern Utilities, Inc. (NH Gas Utilities) or collectively as the "NH Utilities".

I. PROLOGUE

Since 2002, the NH Utilities have partnered to deliver energy efficiency programs, also known as NHSaves, to their customers[1] throughout the state. Energy efficiency is a central mission for the state's utilities, and a key strategy for building a modern and sustainable energy future. Whether it is by helping homeowners to retrofit and reinsulate their homes, helping businesses install technologically advanced, high efficiency lighting systems, or helping school districts and municipalities install more efficient heating systems, NHSaves is making a difference. Since program inauguration, customers have saved over 12 billion electric kilowatt-hours and 24.5 million natural gas MMBtu over the life of the measures, resulting in customer savings of more than $1.9 billion. NHSaves offers a suite of efficiency solutions designed to meet the varied needs of the diverse energy customers in the state. Through partnerships with the private sector and well-designed rebates and incentives, NHSaves provides highly successful, award winning efficiency options for New Hampshire residents, businesses and municipalities.

The Value of Energy Efficiency

Energy efficiency is a core part of the NH Utilities business. The NH Utilities are proud of the trust that regulators, legislators and customers have placed in the companies to deliver successful and effective energy efficiency solutions. The coordinated and integrated planning of the NHSaves programs among the NH Utilities allows for consistent programs statewide, while enhancing and building upon the long-term relationships each company has developed with its customers. Ensuring customers reap rewards from energy efficiency investments through lower bills is a central business objective for all the NH Utilities, as the long-term success and overall satisfaction of customers is a key driver to the NH Utilities' long-term success.

The NHSaves programs provide value to all customers. Energy efficiency saves energy at a cost significantly lower than current retail prices. The NHSaves programs save electricity at an average cost of approximately $0.0366 per lifetime kWh, compared to the retail price of $0.1629[2] and save natural gas at an average cost of $0.336 per therm, compared to the retail price of $0.81[3] per therm.

Those who participate in the NHSaves programs receive incentives to help reduce up-front costs of energy efficient measures and can quickly see the savings from lower energy bills, as well as experience other benefits such as improved air quality, increased comfort, improved performance and productivity, reduced maintenance, improved building value, and healthier and more enjoyable buildings in which to live and work. Energy efficiency programs also have an overall impact of reducing energy usage across the distribution system, which lowers energy costs for all

[1] Hereinafter, the word "customer" will be understood to mean both customers and New Hampshire Electric Cooperative members.
[2] New Hampshire Office of Energy and Planning (2016, September). Average Fuel Prices, September 2016, Electricity. Retrieved at: https://www.nh.gov/oep/energy/energy-nh/fuel-prices/
[3] New Hampshire Office of Energy and Planning (2016, September). Average Fuel Prices, September 2016, Natural Gas, Tier 2, >20 therms. Retrieved at: https://www.nh.gov/oep/energy/energy-nh/fuel-prices/

customers. This is especially notable on "peak" usage days in the summer and winter when additional, and more expensive, power sources are needed to meet demand. Energy efficiency helps lowers the system peak and the need for more expensive power sources, and thus lowers overall energy prices.

The savings and value of the NHSaves programs are reviewed and confirmed under high standards of accountability. Annual financial audits of the NH Utilities by the NH Public Utilities Commission (NHPUC), annual third-party certification of savings results to the Independent System Operator of New England (ISO-NE), and quarterly reporting to the NHPUC and stakeholders on actual program results ensure accountability and transparency. The programs include quality assurance and post installation inspections to verify installation of measures. Program process and impact evaluations are conducted on a regular basis by third-party evaluators to verify energy savings.

New Opportunities

2017 is the launch of an exciting new opportunity for energy efficiency in New Hampshire. In August of 2016, the NHPUC approved an Energy Efficiency Resource Standard (EERS) that defines energy savings targets that increase over time and a framework that will allow New Hampshire to achieve those goals.

A wide variety of stakeholders, multiple New Hampshire state agencies and the NH Utilities have been discussing opportunities for increased energy efficiency for a number of years. There have been numerous studies and reports focused on energy efficiency that suggest ways to achieve more, including, the Office of Energy and Planning's 2014 Ten Year State Energy Strategy[4], an Independent Study on Energy Policy Issues[5] commissioned by the NHPUC, and several others. After significant informal stakeholder discussions in 2014 and early 2015, the NHPUC opened a proceeding to consider the establishment of an EERS. A year-long collaborative effort led to a Settlement Agreement signed by 19 parties that participated in the proceeding.

The NHPUC's Order of August 2, 2016 defines energy savings goals as a percentage of the NH Utilities 2014 delivery sales, with transition targets of 0.60 percent for electric savings and 0.66 percent for natural gas savings in 2017. The initial three-year period of the EERS will be calendar years 2018 through 2020, where the cumulative annual savings goals are 3.1 percent of the NH Electric Utilities 2014 kWh delivery sales, and 2.25 percent of the NH Gas Utilities 2014 MMBtu delivery sales.

The Order also establishes a framework to achieve the energy savings goals by supporting necessary funding to achieve the goals, continued utility administration of the NHSaves programs, a mechanism for recovery of lost utility revenues resulting from energy efficiency programs, utility performance incentives, enhanced evaluation, measurement and verification, and significant stakeholder involvement.

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[4]New Hampshire Office of Energy & Planning (2014, September). New Hampshire 10-Year State Energy Strategy. Retrieved at: https://www.nh.gov/oep/energy/programs/documents/energy-strategy.pdf

[5] Vermont Energy Investment Corporation, Jeffrey H. Taylor & Associates, Inc., Optimal Energy, Inc. (2011, September 30). Independent Study of Energy Policy Issues. Retrieved at: https://www.puc.nh.gov/Sustainable%20Energy/Reports/New%20Hampshire%20Independent%20Study%20of%20Energy%20Policy%20Issues%20Final%20Report_9-30-2011.pdf

The NH Utilities were involved in all of the technical sessions related to the development of the EERS and engaged with stakeholders to understand perspectives on each issue raised during the process. The NH Utilities are proud of this collaborative effort and the EERS Order is a positive culmination of that work.

Planning for the Future

Development of the first three year plan under the EERS will happen in 2017. As the NH Utilities implement the 2017 Plan, work will simultaneously take place to draft, revise and submit the three-year plan for 2018-2020. An increased stakeholder review process will inform the content and development of that plan. Input from stakeholders will help to shape the future direction of the programs and ensure successful achievement of the energy savings goals outlined in the NHPUC EERS order.

Looking to 2018 and beyond, it is clear that changes are occurring in the energy efficiency marketplace. There will be new challenges to overcome, such as reduced program savings from the residential lighting sector as the federal Energy Independence and Security Act of 2007 standards come into full effect. There will also be new opportunities as technologies, such as cold climate heat pumps and home energy management systems, improve and evolve. Efforts will be needed to balance investment in current measures and processes that can dependably achieve energy savings with the need to innovate and include new elements, allowing NHSaves to continue successful efficiency programs in the future. The planning process to occur in 2017 will help identify these new opportunities and will drive the development of a suite of program offerings that will work effectively in New Hampshire and will ensure successful implementation of the EERS.

The NH Utilities look forward to in-depth conversations with the NHPUC's staff and stakeholders in 2017 as the 2018 through 2020 EERS Plan is developed to achieve increased energy savings in New Hampshire. The remainder of this document will focus on the details of the 2017 Statewide Energy Efficiency Plan.

The 2017 Statewide Energy Efficiency Plan

It is with the new framework of the EERS in mind that the NH Utilities submit the 2017 Statewide Energy Efficiency Plan (2017 Plan). The 2017 Plan largely builds off of the 2015/2016 Statewide Plan. The programs and measures are designed with several goals in mind:

- To achieve savings equivalent to 0.60 percent of 2014 delivered electric sales and 0.66 percent of 2014 delivered gas sales,
- To maintain and build upon the success of the current NHSaves programs,
- To offer programs that provide cost-effective value to residents, businesses, non-profits and municipalities across the state and that create the potential for increased participation in the future,
- To achieve high standards of accountability and verification of results,
- To maintain and develop collaborations that leverage funding sources and are poised to scale up.

Achieving Savings

The NH Utilities have reviewed and updated program measures and savings estimates in order to develop a joint NHSaves program that will achieve savings of 0.60 percent of the NH Electric Utilities 2014 delivered sales and 0.66 percent of the NH Gas Utilities 2014 delivered sales with an overall cost to achieve of $0.45 per kwh for the electric program and $50.19 per MMBtu for the natural gas program.

Program Elements

All of the current NHSaves program offerings will continue in 2017. The programs provide a broad offering to customers and are designed to achieve the energy savings and other goals of the Plan. Examples of successful program elements include:

- Working with Home Energy Raters and building contractors, to incent the construction of highly efficient homes that use 15-30 percent less energy than a standard new home.
- Incentivizing insulation, air-sealing and other weatherization measures performed by qualified private contractors to reduce a homeowner's heating fuel use by more than 15 percent on average.
- Providing insulation, air-sealing and other weatherization measures to low-income families, saving them hundreds of dollars per year on energy costs, though a collaboration with the NH Office of Energy and Planning's Weatherization Assistance Program and New Hampshire's six Community Action Agencies.
- Partnering with over 100 New Hampshire appliance retailers and suppliers across the state to help customers purchase highly efficient appliances such as refrigerators, clothes washers and room air conditioners, saving 10-20 percent of the energy they would have used if they had purchased standard efficiency models.
- Partnering with over 100 lighting retailers and suppliers across the state to reduce the barriers for New Hampshire customers to purchase energy efficient lighting measures that can save between $30 to $80 over the lifetime of a single product.
- Working with qualified private contractors to help businesses and non-profits identify and install more efficient lighting, controls, motors, HVAC equipment, air compressors and industrial process equipment.
- Focusing on municipalities to help save energy in public buildings, reducing overall costs to taxpayers and making public spaces a model for efficiency improvements.

Collaborations Ensure Success

The NH Utilities have a proven track record of cost-effectively scaling up the NHSaves Programs through partnerships and leveraging available energy efficiency funding to deliver even greater value to customers. Several key collaborations will continue in 2017 and serve as a base for additional program expansion in future years.

- **Federal Weatherization Assistance**: The NH Utilities have an existing long-term, effective partnership with the New Hampshire Community Action Agencies and the New Hampshire Office of Energy and Planning to weatherize the homes of New Hampshire's income eligible residents using a combination of Department of Energy Federal Weatherization Assistance Program funding and NHSaves program funding.

- **ISO-NE Forward Capacity Market Revenue**: The four NH Electric Utilities are the only energy efficiency service providers in New Hampshire participating in ISO-NE's forward capacity market, bringing an additional $16.3 million in funding for energy efficiency services to New Hampshire's residents and businesses from 2007 through 2016, and an additional $4.3 million projected for 2017.

- **Third-Party Financing for Residential Projects:** Five local banks and credit unions, with offices covering every area of the state have partnered with the utilities to offer low-interest loans for residential energy efficiency projects. To encourage customers to perform recommended measures, the program reduces the applicable interest rate for unsecured loans to 2 percent for qualified measures. These loans provide value and incentive for customers, enabling them to move forward with efficiency projects. The partnership with local lending institutions provides the capital and lending expertise needed as programs scale up and also helps lenders gain a better understanding of efficiency measures while ensuring the loan funds are invested within New Hampshire communities.

- **Regional Greenhouse Gas Initiative Grant - Fuel Neutral Commercial Projects** The NH Utilities were awarded a $1.2 million grant to be used over three years from the Sustainable Energy Division of the NHPUC to deliver fuel neutral energy efficiency measures to retail and commercial locations around the state. This program partners with a group of highly skilled efficiency contractors and energy auditors to identify and implement projects. Initial funding was received in 2016 and the NH Utilities will continue building the momentum for this program in 2017.

Transitions

The 2017 Plan is a transitional document, meant to provide a bridge from where the NHSaves programs have been and where they are going. The plan builds upon the NH Utilities' past successes while setting the stage for new achievements in the future. In 2017, the NH Utilities will remain focused on achieving energy savings results through the NHSaves programs, while also undertaking the exciting and important work of planning for increased savings in 2018 and beyond.

II. EXECUTIVE SUMMARY

The Statewide Energy Efficiency Plan for 2017 is a one year plan designed to achieve defined electric and natural gas energy savings goals, to continue the popular NHSaves programs and to provide a base for future achievements. As the NH Utilities anticipate a planning process to develop a three-year plan to meet increased energy savings goals under NHPUC Order No. 25.932, the 2017 Plan is intended to meet the transition year goals established in that order.

The 2017 Plan is structured to help New Hampshire residents, businesses, non-profits and municipalities achieve the following energy savings:

- Electric Programs: Annual electric savings of 65,100,715 kWh achieves the 2017 goal of 0.60 percent of the NH Electric Utilities 2014 kWh delivery sales.

- Gas Programs: Annual natural gas savings of 154,129 MMBtu achieves the goal of 0.66 percent of the NH Gas Utilities 2014 MMBtu delivery sales.

ELECTRIC PROGRAMS	**2016**	**2017**
Lifetime kWh Savings	726,931,054	799,341,344
Annual kWh Savings	53,087,627	65,100,715
Annual Savings as a % of 2014 Delivery Sales	0.49 %	0.60 %
Program Funding	$26 million	$29 million
Program Cost per Lifetime kWh Savings	$0.0357	$0.0366

NATURAL GAS PROGRAMS	**2016**	**2017**
Lifetime MMBtu Savings	2,372,948	2,298,663
Annual MMBtu Savings	152,492	154,129
Annual Savings as a % of 2014 Delivery Sales	0.65%	0.66%
Program Funding	$7.5 million	$7.7 million
Program Cost per Lifetime MMBtu Savings	$3.17	$3.36

The 2017 Plan provides various benefits to customers. The measures implemented will reduce peak demand by 8 MW, which in turn will reduce costs for all electric customers. The NHSaves programs will save customers $148 Million in energy costs over the life of the measures. These savings can then be used for other necessities and investments, helping to keep more dollars in the local economy. Emissions reductions resulting from the 2017 Plan are equivalent to taking 144,406 cars of the road for a year. Other benefits include improved air quality, increased comfort, improved performance and productivity, reduced maintenance, improved building value, and healthier and more enjoyable buildings in which to live and work.

The NH Utilities use a Total Resource Cost (TRC) test to estimate both the value of program impacts over the life of the measures, as well as the total cost. The TRC test relies on a regional study of estimated avoided costs related to the reduction of electricity, natural gas and other fossil fuels resulting from energy efficiency programs. This regional study includes Demand Reduction Induced Price Effects (DRIPE) for both electricity and natural gas. Beginning in 2017, the NH Utilities are including applicable electric and natural gas DRIPE avoided costs in their benefit-cost calculations, as is the practice throughout New England.

The 2017 Plan also includes program changes that will allow the NHSaves programs to remain current in the marketplace while positioning them for additional growth in the future. Changes described in the 2017 Plan include:

- A Net Zero Home Challenge which will highlight super high efficiency zero net energy homes and the building contractors who construct them.
- Additional ENERGY STAR® products offered for residential appliances and the addition of primary refrigerators for appliance recycling.
- Increased budgets for the Home Energy Assistance Program, from 15.5 percent of total program budget to 17 percent.
- A focus on LED technology for both the residential and commercial & industrial lighting programs.
- Continued third party financing options in the residential sector, including a modification for Liberty Utilities Gas to create a trial that will allow customers to choose between receiving a rebate for qualifying heating, water heating and control systems or receiving a low interest third party financing incentive for those systems.
- Continued outreach to increase awareness of the programs through NHSaves.com, social media marketing, and educational events and trainings.
- A continuation of the Eversource Home Energy Reports Program and implementation of the Customer Engagement Platform.
- An expansion of the Home Energy Reports program for Liberty Utilities Gas from 25,000 to 38,000 customers.

Independent third parties conduct evaluation, monitoring and verification (EM&V) activities for the NHSaves programs. EM&V activities are supervised by the Commission, and the NH Utilities help to facilitate and support the implementation of specific studies and analysis. A number of EM&V studies are planned or are under consideration for 2017, including;

- An evaluation of the ENERGY STAR Homes Program that was started in 2016 and will complete in 2017.
- A process evaluation for the Municipal Program
- Market assessments and energy savings verifications for the ENERGY STAR Products Program
- An impact evaluation for the Small Business Energy Solutions Program.

In accordance with NHPUC Order No. 25,932, the 2017 Plan includes Base Revenue (LBR) to restore the relationship between utility volumetric sales levels and the revenue requirements that were used in setting rates in each regulated utility's last rate case.

The performance incentive for the 2017 plan is lower than previous plans with a target of 5.5 percent of program expenditures with a cap of 6.875 percent. This compares to the previous performance incentive target of 7.5 percent with a cap of 10 percent for the NH Electric Utilities, and 8 percent of program spending capped at 12 percent for NH Gas Utilities.

The NH Utilities are excited to be a part of New Hampshire's energy future. The 2017 Plan provides a successful suite of energy efficiency offerings that will help customers save money and energy. The 2017 Plan also provides a solid launching point for future programs and increased savings.

III. INTRODUCTION

A. Background

On September 12, 2014, in Docket DE 14-216, the NH Utilities submitted a two-year plan entitled "2015-2016 New Hampshire Statewide Energy Efficiency Plan" ("two year plan") with the Commission for approval. On December 31, 2014, the Commission issued Order No. 25,747 approving the Statewide Energy Efficiency Programs for 2015 and 2016, as amended by the Settlement Agreement reached in the proceeding. On December 24, 2015, the Commission issued Order No. 25,856 approving an update filing for program changes in 2016.

Per Order No. 25,932, the Energy Efficiency Resource Standard (EERS), the current Statewide Energy Efficiency programs are extended for an additional year through 2017. Accordingly, 2017 is a transition year to the first three year Plan under the Energy Efficiency Resource Standard, which will become effective January 1, 2018. The sections contained in the original 2015-2016 New Hampshire Statewide Energy Efficiency Plan and the 2016 Update Plan remain in their original form as approved by the Commission, unless specifically updated in this plan.

This plan is separated into the following major categories:

- Annual Program Savings Goals
- Overall Program Benefits and Cost Effectiveness
- Program Funding
- Program Budgets
- Program Funding and Budget Comparison
- NHSaves Program Changes
- Utility-specific Program Changes
- Monitoring and Evaluation
- Performance Incentive
- Attachments (All Attachments included in the 2015-2016 Programs Plan updated for 2017 and additional attachments required under the EERS)

B. Annual Program Savings Goals

Commission Order No. 25,932 set statewide energy savings goals for the 2017 program based on a percentage of the NH Utilities 2014 delivery sales. The specific energy savings goals are 0.60 percent of 2014 delivery sales for the NH Electric Utilities and 0.66 percent of 2014 delivery sales for the NH Gas Utilities.

When undertaking program development, the NH Utilities work together to design and deliver programs that achieve the energy savings goals in a cost effective manner while meeting the energy efficiency needs of a diverse customer base. In addition to jointly achieving the statewide goal, each utility must take into account the unique characteristics of its own service area and customers.

The 2017 Program Plan includes Residential programs that achieve annual electric savings of 16,441,934 kWh and annual natural gas savings of 41,283 MMBtu, as well as 48,019 MMBtu savings from other fuels. The Commercial & Industrial programs, which include the Municipal Program, achieve annual electric savings of 48,658,781 kWh, natural gas savings of 112,846 MMBtu and 4,013 MMBtu savings from other fuels.

While they do not contribute to the specific 0.60 percent electric savings goal, the additional MMBtu savings from other fuels are an important part of the comprehensive energy savings programs that particularly help low-income customers, other residential customers, and municipal customers reduce their total energy bills. A program design that includes significant cost-effective electric savings in all sectors helps to ensure that the electric programs can meet the 0.60 percent electric sales reduction savings goal and still continue to offer these important fuel-neutral programs. The NH Utilities also recognized the need to offer additional fuel-neutral programs that will help encourage weatherization projects in retail and large commercial buildings and were awarded a $1.2 million, 3-year RGGI Grant through the Commission's Sustainable Energy Division. This grant will be implemented in addition to the 2017 Plan in order to help those customers save on their heating bills.

Tables III.1 and III.2 show the statewide goals for the electric and natural gas programs respectively and the estimated savings that will be met by each utility in order to achieve those goals.

Table III.1 Electric Program Savings

2014 Delivery Sales (MWHs)	Savings Goal	Statewide Target (MWHs)
10,782,973	0.60%	64,698

Company	Company Annual Savings (MWHs)	Percent of Statewide Savings
Eversource	49,938	77%
Liberty	5,129	8%
NHEC	3,332	5%
Unitil	6,702	10%
Total	65,101	100%

Table III.2 Gas Program Savings

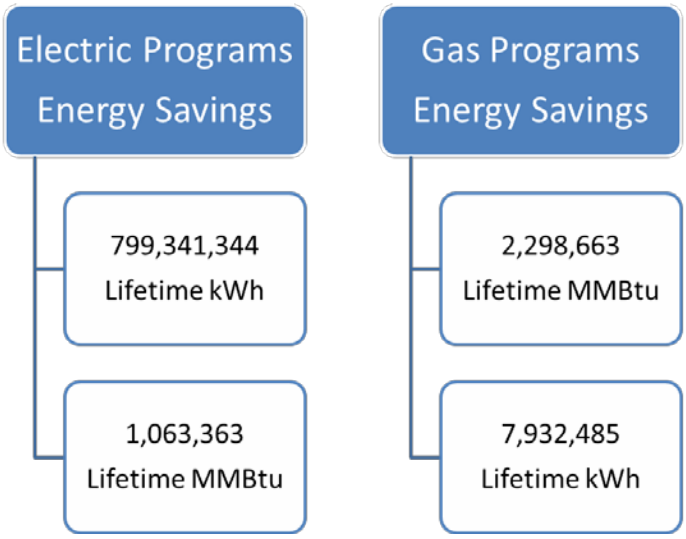
2014 Delivery Sales (MMBtu)	Savings Goal	Statewide Target (MMBtu)
23,352,672	0.66%	154,128

Company	Company Annual Savings (MMBtu)	Percent of Statewide Savings
Liberty	123,554	80%
Unitil	30,576	20%
Total	154,130	100%

C. Overall Program Benefits and Cost Effectiveness

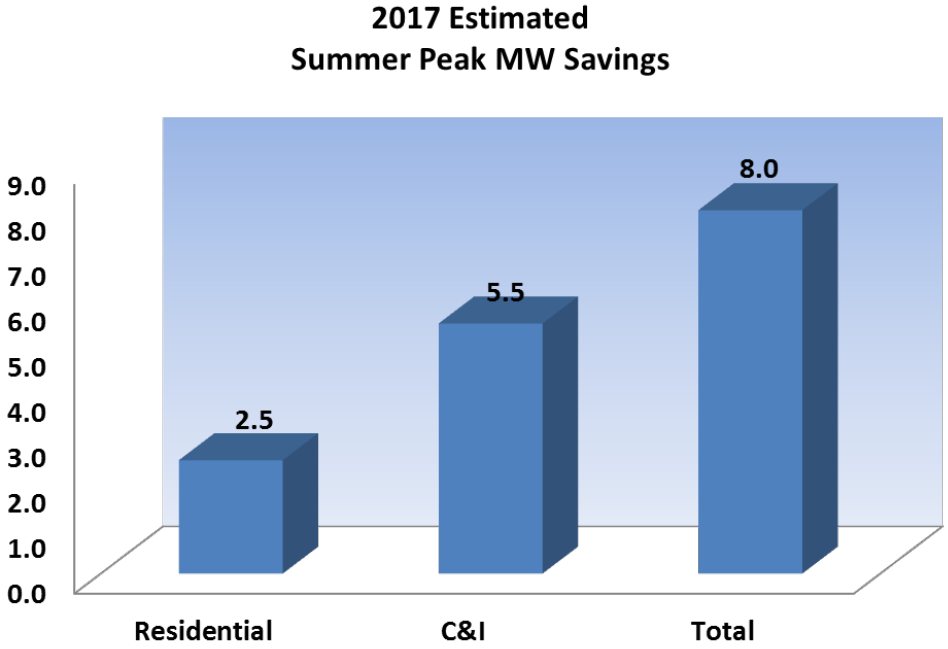
1. Lifetime Energy Savings

The annual savings achieved by meeting these goals remain in place over the lifetime of the energy efficiency measures installed. The lifetime savings resulting from the NHSaves programs provide significant long-term energy and non-energy benefits to customers and to the state.



2. Peak Reduction

The energy savings resulting from the NHSaves Programs will also lower the ISO-NE system peak, reducing the need to invest in additional energy sources and reducing reliance on the most expensive sources of energy during times of peak usage. Lowering peak demand helps reduce overall costs and benefits all customers.



3. Benefits

Over 215,994 participating customers will receive direct benefits from lower energy bills, while all customers will receive environmental benefits from reduced emissions and benefits from reduced load.

NH Saves will serve 172,575 electric customers and 43,419 natural gas customers in 2017.

NHSaves will save customers $148 million over the lifetime of the measures from the 2017 Plan, which can be reinvested in the New Hampshire economy.

NHSaves will reduce lifetime emissions equivalent to taking 144,406 cars off the road for a year.

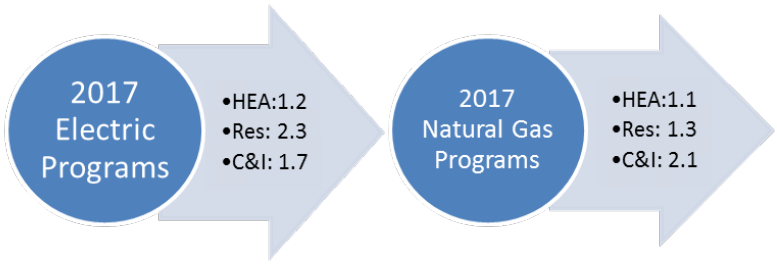
NHSaves saves energy at a cost significantly lower than current retail prices:

- $0.0366 per lifetime kWh vs. $0.1629
- $0.336 per lifetime therm vs. $0.81

NHSaves will improve air quality, increase comfort, improve operating performance and productivity, reduce maintenance, increase building value, and make healthier and more enjoyable buildings in which to live and work.

4. Cost Effectiveness

Programs undergo rigorous cost-effectiveness screening to ensure the implementation of cost-effective programs with benefit-cost ratios equal to or greater than 1.0.



A. Program Funding

1. Electric Energy Efficiency Program Funding

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

The SBC revenue is estimated based on a forecast of each utility's 2017 sales and a SBC energy efficiency rate of $0.00198 per kilowatt-hour. The proposed SBC rate is a $0.00018 increase from the current SBC energy efficiency rate of $0.0018 per kilowatt-hour, but is approximately 12.4 percent lower than SBC energy efficiency rate of $0.00226 estimated and included in the Settlement Agreement that led to the Commission's Order No. 25, 932 in the EERS proceeding.

The estimated RGGI proceeds were provided to the NH Electric Utilities by the NHPUC's staff. The ISO-NE FCM proceeds are estimated based on forecasted prices for the energy efficiency demand assets. All ISO-NE capacity payments from demand reductions resulting from the energy efficiency programs are used to support the NHSaves Electric Programs and provide additional energy efficiency opportunities to NH's residents, businesses and municipalities.

Table III.3 summarizes the estimated program funding by source for 2017.

Table III.3 –Electric Program Funding 2017

New Hampshire Statewide Energy Efficiency Programs Electric Programs 2017 Estimated Program Funding ($000's)					
	LU-Electric	NHEC	Eversource	Unitil	Total
System Benefits Charge (SBC)	1,874	1,510	15,895	2,362	21,640
Carryforward & Interest	132	6	-	564	702
RGGI	221	202	1,898	289	2,610
ISO-NE Forward Capacity Market (FCM)	218	65	3,617	400	4,300
Total Electric Energy Efficiency Funding	**2,445**	**1,782**	**21,410**	**3,614**	**29,252**

2. Natural Gas Energy Efficiency Program Funding

The NHSaves programs offered by the NH Gas Utilities are funded by a portion of the Local Distribution Adjustment Charge (LDAC), which is applied to bills of natural gas customers in New Hampshire. As with the electric programs, any unspent funds from prior program years are carried forward to future years, including interest earned at the prime rate.

The NH Gas Utilities determine the overall budget requirements to deliver their respective NHSaves programs to customers that will meet the required energy savings targets. LDAC rates are then set individually for each natural gas utility and by customer class based on a forecast of each utility's 2017 sales. Energy efficiency rates for 2017 can be found in Attachment OG p.26 and Attachment RG p.12 for the NH Gas Utilities.

Table III.4 below summarizes estimated program funding by source for 2017[6].

Table III.4 –Natural Gas Program Funding 2017

New Hampshire Statewide Energy Efficiency Programs Natural Gas Programs 2017 Estimated Program Funding ($000's)			
	LU-Gas	Unitil-Gas	Total
Local Distribution Adjustment Charge (LDAC)	5,436	1,376	6,812
Carryforward & Interest	803	120	923
Total Natural Gas Energy Efficiency Funding	**6,239**	**1,496**	**7,735**

E. Program Budgets

1. Electric Energy Efficiency Program Budgets

Table III.5 below summarizes the 2017 budget by sector and utility for the NHSaves electric programs. The program budget figures in Table III.5 do not include the estimated performance incentive, which is summarized in Attachment H2 for each utility, along with individual program budgets. As shown, the HEA program budget is equal to 17 percent of each utility's total program budget, excluding any funds carried forward from the Municipal Program, where applicable. This exclusion is made to avoid applying the low-income set aside to the previously

[6] The energy efficiency program year is based on a calendar year, while the LDAC is set to collect revenues for twelve months beginning November 1. As a result, the revenues from LDAC on Attachments OG and RG differ slightly from those listed in Table III.4

budgeted, but unspent, funds for a second time.

Table III.5 –Electric Program Budgets 2017

New Hampshire Statewide Energy Efficiency Programs Electric Programs 2017 Program Budgets ($000's)					
	LU-Electric	NHEC	Eversource	Unitil	Total
Residential - Income Eligible (HEA Program)	392	284	3,450	539	4,666
Residential - All Other	546	729	5,793	833	7,901
C&I and Municipal	1,352	665	10,841	2,012	14,871
Smart Start & FCM	29	10	212	42	292
Total Program Budget	**2,318**	**1,689**	**20,296**	**3,426**	**27,729**
Less Carryforward (Municipal)	11	17	-	256	284
Total Budget to Base HEA Allocation	**2,307**	**1,672**	**20,296**	**3,170**	**27,445**
HEA Program % of Total Budget	**17%**	**17%**	**17%**	**17%**	**17%**

2. Natural Gas Energy Efficiency Program Budgets

Table III.6 below summarizes the 2017 budget by sector and utility for the NHSaves natural gas programs. The program budget figures in Table III.6 do not include the estimated performance incentive, which is summarized in Attachment H2 for each utility, along with individual program budgets. As shown, the HEA Program budget is at least 17 percent of each utility's total program

Table III.6 – Natural Gas Program Budgets 2017

New Hampshire Statewide Energy Efficiency Programs Natural Gas Programs 2017 Program Budgets ($000's)			
	LU-Gas	Unitil -Gas	Total
Residential - Income Eligible (HEA Program)	1,006	241	1,247
Residential - All Other	1,907	507	2,415
Commercial & Industrial	3,001	670	3,670
Total Budget	**5,914**	**1,418**	**7,332**
HEA Program % of Total Budget	**17%**	**17%**	**17%**

F. Program Funding and Budget Comparison

1. Electric Program Funding Comparison

Funding estimates have changed slightly since the NH Electric Utilities provided illustrative examples for the EERS Settlement Agreement. Table III.7 below summarizes funding estimates for the 2017 Plan, for the 2016 Plan and from the EERS Settlement for comparison. As the NH Electric Utilities developed the 2017 Plan, several factors, including cost-to-achieve estimates, FCM revenue estimates and carryforward amounts were finalized. Estimated RGGI proceeds have slightly decreased from the 2016 Plan and the EERS Settlement. Estimated FCM proceeds have increased $1.9 million from the 2016 Plan, but decreased slightly from the $4.5 million estimated in the EERS Settlement.

In 2016, total estimated statewide SBC funding was $19.8 million. The EERS Settlement anticipated statewide SBC funding of $24.3 million based on an estimated cost-to-achieve the 0.60 percent energy savings target. The NH Electric Utilities planning process resulted in a lower statewide estimated cost-to-achieve savings than was included in the illustration. The lower cost-to-achieve, combined with the new estimates for RGGI, FCM and Carryforward funds led to the need for statewide SBC energy efficiency funds of $21.6 million and total statewide energy efficiency funding of $29.3 million for 2017.

Table III.7 – Electric Program Funding Comparison

New Hampshire Statewide Energy Efficiency Programs Electric Programs 2017 Program Funding Comparison ($000's)			
	2017 Plan	2016 Plan	EERS Settlement
System Benefits Charge (SBC)	21,640	19,779	24,370
Carryforward & Interest	702	1,203	-
RGGI	2,610	2,626	2,623
ISO-NE Forward Capacity Market (FCM)	4,300	2,411	4,518
Total Electric Energy Efficiency Funding	**29,252**	**26,019**	**31,511**

2. Natural Gas Program Funding Comparison

Funding estimates have also changed for the NH Gas Utilities compared to the EERS Settlement Agreement. Table III.8 below summarizes funding estimates for the 2017 Plan, for the 2016 Plan and the EERS Settlement proposal for 2017. As the NH Gas Utilities developed the 2017 Plan, cost-to-achieve estimates were refined and carryforward amounts were finalized.

The EERS Settlement anticipated Local Distribution Adjustment Clause (LDAC) energy efficiency program revenues of $8.0 million based on an estimated cost-to-achieve for the 0.66 percent energy savings target. During the planning process for 2017, the NH Gas Utilities were each able to lower the estimated cost-to-achieve, necessitating total revenues of $7.7 million, of which $6.8 million will come from the energy efficiency charge included in the LDAC. This is a 15.2 percent decrease in required new LDAC revenues, and 3.7 percent less total funding overall than what was estimated in the EERS Settlement.

Table III.8 Natural Gas Program Funding Comparison

New Hampshire Statewide Energy Efficiency Programs Natural Gas Programs 2017 Estimated Program Funding ($000's)			
	2017 Plan	2016 Plan	EERS Settlement
Local Distribution Adjustment Charge (LDAC)	6,812	7,247	8,034
Carryforward & Interest	923	280	-
Total Natural Gas Energy Efficiency Funding	**7,735**	**7,527**	**8,034**

3. Electric Program Budget Comparison

Table III.9 below summarizes the 2017 Program budget, the 2016 Program budget and the difference by sector for the electric programs. Budgets for all sectors will increase in 2017. The HEA program will experience a 23 percent increase in budget.

Table III.9 Electric Program Budget Comparison

New Hampshire Statewide Energy Efficiency Programs Electric Programs 2017 Program Budget Comparison ($000's)			
	2017 Plan	**2016 Plan**	**Change from 2016**
Residential - Income Eligible (HEA Program)	4,666	3,793	873
Residential - All Other	7,901	7,431	469
C&I and Municipal	14,871	12,693	2,177
Smart Start & FCM	292	287	5
Total Program Budget	**27,729**	**24,204**	**3,525**
Less Carryforward	284	555	(271)
Total Budget to Base HEA Allocation	**27,445**	**23,649**	**3,796**
HEA Program % of Total Budget	**17.0%**	**15.5%**	**1.5%**

4. Natural Gas Program Budget Comparison

Table III.10 below summarizes the 2017 Program budget, the 2016 Program budget and the difference by sector for the natural gas programs.

Unlike the system benefits charge applied to electric customers' bills, the energy efficiency charge component of the LDAC is set separately for residential versus commercial and industrial customers. This allows the NH Gas Utilities to set different energy efficiency charge rates and plan for different program budgets by sector. In order to meet the savings target, budgeted funding for the commercial and industrial sector has increased by 12 percent compared to the 2016 budget.

The percent of total funding dedicated to the income eligible program increased from 15.8 percent to 17 percent per the Settlement Agreement. Taken as a whole, the residential sector inclusive of the income eligible programs has a proposed 2017 budget that is less than 1 percent lower than was proposed for 2016. However, because the budget for income eligible residential programs is increasing to 17 percent, the budget for residential non-low income programs is slightly lower in 2017 than it was for 2016.

Table III.10 Natural Gas Program Budget Comparison

New Hampshire Statewide Energy Efficiency Programs Natural Gas Programs 2017 Program Budget Comparison ($000's)			
	2017 Plan	**2016 Plan**	**Change from 2016**
Residential - Income Eligible (HEA Program)	1,247	1,104	143
Residential - All Other	2,415	2,593	(178)
Commercial & Industrial	3,670	3,273	397
Total Budget	**7,332**	**6,969**	**362**
HEA Program % of Total Budget	**17.0%**	**15.8%**	**1.17%**

IV. PROGRAM CHANGES

A. Residential Programs

1. ENERGY STAR Homes Program

The ENERGY STAR Homes program is designed to incentivize residential new construction homes to exceed building code and meet ENERGY STAR efficiency standards. In 2017, the NH Utilities will encourage builders and homeowners to look even further to zero net energy homes by creating the 'Drive to Net Zero Challenge' (Challenge). The Challenge will be a design and build competition for single family homes that are completed by November 2017. The Challenge will identify, encourage and promote residential building contractors to build super high efficiency, zero net energy homes in New Hampshire. The Challenge will demonstrate to builders and to the average homeowner that building to this higher standard of efficiency is achievable and affordable in today's market.

Completed, newly constructed homes will be rated on four technical achievements; 1) lowest overall HERS Index, 2) lowest HERS index prior to renewable installations, 3) most affordable per square foot, 4) estimated total annual net operating cost. A fifth metric will be included relating to technological innovation. The home with the best aggregate score of the five categories will be the overall winner. Participating builders will compete for a cash incentive. Additional benefits for Challenge participants will include peer recognition and exposure to media and other promotional opportunities.

2. ENERGY STAR Products Program

Lighting

As described in the 2016 Update Plan, the program design for promoting energy efficient lighting measures is centered on offering product markdowns with certain major retailers as well as in-store coupons, online and mail-in rebate incentives aimed at encouraging consumers to make purchases of qualifying, ENERGY STAR lighting products. The use of product markdowns has been successful in 2016 and allows for greater control over program expenditures and more strategic promotion of efficient measures. Product markdowns allow for the program to be more seamlessly scaled up or down, as needed and are also becoming the preferred delivery method for large retailers. Program implementation tactics for promoting lighting measures in 2017 will include expansion of product markdowns to at least two of the largest lighting retailers in the state, as well as retaining product coupons in some retail stores.

The program will also cease offering incentives for compact fluorescent lighting (CFL) products in 2017 and offer incentives only for light emitting diode (LED) technology. LED lighting has emerged as a superior technology and a number of manufacturers are ending their production of CFL bulbs. LED's offer superior energy savings, do not contain mercury and declining prices allow the NHSaves incentives to make them more financially accessible to consumers.

Appliances

The program design for promoting energy efficient appliances is centered on offering mail-in or online submission for incentives on certain ENERGY STAR-rated appliances,

encouraging consumers to choose more efficient options than the federal standard efficiency baseline.

In 2017 the NH Electric Utilities will include three new qualifying energy efficient appliance measures: ENERGY STAR-rated clothes dryers, dehumidifiers and pool pumps. The inclusion of these additional offerings will help keep the appliance program robust and better positioned to scale up in the future.

The program also includes a second refrigerator, and freezer, pickup and recycling offer, helping to ensure the responsible disposal of potentially hazardous materials as well as reducing plug load from inefficient consumer appliances. The recycling offer will expand to include primary refrigerator recycling along with the current secondary refrigerator recycling. This change will better encourage recycling of inefficient refrigerators that might otherwise remain in use as well as better position the program to be scaled up in the future.

3. **Home Energy Assistance**

There are no major program changes to the Home Energy Assistance Program for 2017. However, the budgets for this program will increase from 15.5 percent to 17 percent of the total program budget. The additional program funds will be used to weatherize a greater volume of low-income homes throughout the state. The NH Utilities will work with the Community Action Agencies and their contractors to accomplish this increased workload.

4. **Home Performance with ENERGY STAR**

There are no major program changes to the Home Performance with ENERGY STAR Program for 2017. Going forward, Liberty Utilities Gas will be serving residential tenant, commercially-metered, five unit and greater multifamily properties as part of the Commercial & Industrial programs.

5. **Third-Party Financing**

In 2015, the NH Electric Utilities began to offer a third-party financing option through local financial institutions, which was based on the third party financing option initiated by the NH Gas Utilities in 2014. The offering provides customers access to a two percent interest loan for up to seven years with a maximum loan amount of $15,000 to cover the costs of weatherization and other approved efficiency measures. The utilities approve the efficiency measures and buy down the interest rate for qualified customers. Local banks and credit unions underwrite, process and service the loans. This financing option will continue in 2017.

Previously this program was funded with NHSaves Program funds, as well as funds through an agreement with the Community Development Finance Authority (CDFA) with funds from the federal Better Buildings Program. The CDFA has decided not to renew the initial two year funding agreement for 2017 and will instead use the Better Buildings funds in a revolving loan fund operated by CDFA. The NH Utilities will continue to offer the third party financing program using NHSaves program funds. These loans provide value and incentive for customers, enabling them to move forward with efficiency projects. The partnership with local lending institutions provides the capital and lending expertise needed as programs scale up and also helps lenders gain a better understanding of efficiency measures while ensuring the loan funds are invested within NH communities.

B. Commercial & Industrial Programs

1. Lighting

The Commercial & Industrial Programs will eliminate prescriptive incentives for fluorescent lighting in 2017. With the exception of certain custom applications, fluorescent lighting incentives are no longer needed to encourage customers to move forward with efficient lighting projects. Prescriptive incentives will be provided for LED products in 2017.

2. Municipal Program

On July 24, 2013, Senate Bill 123 (SB 123) was signed into law. This bill amended RSA 125-O:23, II-III[7] (Multiple Pollutant Reduction Program) effective January 1, 2014, and requires that certain proceeds from the Regional Greenhouse Gas Initiative (RGGI) Program be allocated to municipal and local government energy efficiency projects.

The NH Electric Utilities began offering the Municipal Program in 2014. The Program is available to all municipal and local government customers of the NH Electric Utilities and to the five communities in New Hampshire that have their own municipal utilities. Based on the input received from several municipalities of differing sizes throughout New Hampshire, the New Hampshire Energy Efficiency and Sustainable Energy Board, and the New Hampshire Local Energy Working Group, the NH Electric Utilities proposed a program that:

- Leverages the NH Electric Utilities' existing Commercial & Industrial Programs;
- Incorporates a fuel blind component; and
- Encompasses a flexible approach for technical assistance.

The program has been well received by municipal customers, and during 2014 and 2015 426 municipal projects were completed throughout the state. It is expected that approximately 110 additional projects will be completed by the end of 2016.

Beginning in 2017, the law stipulates that funds allocated to the Municipal Program for municipal and local government projects shall be offered to those customers for no less than 4 full calendar months. If municipal and local governments have not submitted requests for eligible projects, the funds shall be offered to business and municipal customers that fund the system benefits charge. Specifically, the law states:

> *"Beginning in calendar year 2017, and all subsequent years, funds allocated to municipal and local government projects under this paragraph shall be offered first to municipal and local governments as described in this paragraph for no less than 4 full calendar months. If, at the end of this time, municipal and local governments have not submitted requests for eligible projects that will expend the funds allocated to municipal and local government projects under this paragraph within that program year, the funds shall be offered on a first-come, first-serve basis to business and municipal customers who fund the system benefits charge."*

The NH Electric Utilities will continue working with municipal representatives to identify projects and guide them through the participation process. If after the first four calendar

[7] New Hampshire Statutes, (2016, September). RSA 125-O:23, II-III. Retrieved at: http://www.gencourt.state.nh.us/rsa/html/X/125-O/125-O-23.htm

months, the Municipal Program funding is not fully encumbered, it will be offered to other business customers as described in the law; however, the NH Electric Utilities will continue to prioritize assistance to municipal customers as much as possible.

C. NHSaves Online Presence

The NH Utilities will continue to make enhancements to NHSaves.com to facilitate customer usage of the site and deliver value-added energy efficiency education, marketing and information to customers and stakeholders. Additional content and changes to increase usability have been added in 2016. In 2017, the NH Utilities will continue to deploy new and updated energy efficiency content throughout the site and increase awareness and exposure through social media and other program marketing activities.

D. UTILITY-SPECIFIC PROGRAM CHANGES

1) Eversource

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

A. 2017 Budget Development

The following process and assumptions were used to develop Eversource's 2017 budget.

1. 2017 Energy Efficiency Program Funding

   The total 2017 funding available to Eversource's energy efficiency programs was estimated based on the following:

   a) Eversource's System Benefits Charge (SBC) energy efficiency revenue is based on a forecast of 2017 MWH sales and an SBC energy efficiency rate of 1.98 mills per kilowatt-hour.

	Forecasted MWH Sales	SBC Rate (mills/kWh)	Total SBC Revenue ($000's)
2017	8,027,604	1.98	$ 15,894.66

   b) The estimated 2017 RGGI proceeds allocated to the NHSaves Programs of $2.61 million was provided to the NH Electric Utilities by the NHPUC's staff and allocated to programs in accordance with RSA 125:O:23.

   Of these amounts, $2.11 million of the RGGI proceeds were allocated to the NH Electric Utilities for municipal and local government energy efficiency projects, including projects by local governments that have their own municipal utilities. In addition, $499,681 was allocated to the Home Energy Assistance (HEA) Program. As shown in Table 1, the $2.11 million was allocated to each NH Electric Utility based on each utility's proportional share of the total 2015 kWh sales, including the 2015 kWh sales of the NH municipal electric utilities. The kWh sales of the municipal electric utilities were assigned to Eversource and the NHEC based on their geographic location. As shown in Table 2, the HEA Program funds were allocated to each NH Electric Utility based on each utility's proportional share of the total 2015 kWh sales delivered by each utility. The final RGGI funds allocated to each NH Electric Utility is the summation of the municipal program funds and the HEA program funds.

Table 1:

Utility	2015 kWh Sales	Allocated to:	Total Allocated kWh Sales	% Allocation	2017 Municipal Allocation ($000's)
LU-Electric	931,779,575		931,779,575	8.46%	$178.42
NHEC	760,915,990		870,787,761	7.90%	$166.74
Eversource	7,926,556,000		8,002,248,591	72.62%	$1,532.33
Unitil	1,214,203,081		1,214,203,081	11.02%	$232.50
Ashland	18,408,807	NHEC			
Littleton	72,504,376	Eversource			
New Hampton	3,188,215	Eversource			
Wolfeboro	68,466,051	NHEC			
Woodsville	22,996,913	NHEC			
Total	11,019,019,008		11,019,019,008	100.00%	$2,110.00

Table 2:

Utility	2015 mWh Sales	Percent Allocation	Municipal Program Allocation ($000's)	2017 HEA Program Allocation ($000's)	2017 Final RGGI Funds Allocation ($000's)
LU-Electric	931,780	8.60%	$ 178.42	$ 42.98	$ 221.40
NHEC	760,916	7.02%	$ 166.74	$ 35.10	$ 201.84
Eversource	7,926,556	73.17%	$ 1,532.33	$ 365.60	$ 1,897.93
Unitil	1,214,203	11.21%	$ 232.50	$ 56.00	$ 288.51
Total	10,833,455	100.00%	$2,110.00	$ 499.68	$ 2,609.68

c) The ISO-NE Forward Capacity Market (FCM) proceeds for the period January through December 2017 are estimated to be $3.617 million.

d) The total carryforward and interest balance from the 2015 program year was $0.

e) The total 2017 funding of $21.410 million is the summation of the SBC revenue, and the RGGI and FCM proceeds.

Source	2017 Amount ($000's)
System Benefits Charge	$15,894.66
RGGI	$ 1,897.93
Forward Capacity Market	$3,617.10
Carryforward	$0.00
Total	$21,409.69

2. Performance Incentive Budget

A portion of the total 2017 funding is reserved for the performance incentive. The first portion relates to the performance incentive associated with Eversource's Smart Start Program and is calculated based on 6% of the loans repaid[8]. The second portion relates to the performance incentive associated with the remaining NHSaves programs. Reference Attachment F, page 3 for the total 2017 planned performance incentive budget and the Commercial & Industrial Program sector and the Residential Program sector performance incentive budgets.

3. Total Program Budget and Allocation to the Residential and Commercial &Industrial Sectors

a) The total program budget is equal to the total 2017 program funding less the performance incentive budget and the Smart Start Program expenses.
b) The Residential Home Energy Assistance (HEA) Program is first allocated 17.0% of the total program budget.
c) The remaining budget amount is allocated to the Residential Program sector and the Commercial & Industrial Program sector based on the funding source.
    a. The SBC, RGGI and carryforward and interest funds are allocated based on each sector's proportional share of the forecasted 2017 total kWh sales (Residential – 39.91%; Commercial & Industrial – 60.09%). Of the Commercial &Industrial funds, $1.45 million was allocated to the Municipal Program.
    b. Seventy percent (70%) of the FCM budget is allocated to the Commercial & Industrial Program sector and thirty percent (30%) is allocated to the Residential Program sector. (As stated in Order No. 24,719 dated December 22, 2006, the Commission stated "We also believe that it is appropriate, as a preliminary matter, to contribute any payments received by utilities for Core program peak load reduction back to the Core programs.")
d) Of the Residential and Commercial & Industrial Program sector budgets, approximately 2% is allocated to marketing activities and approximately 5% is allocated to monitoring and evaluation activities.

[8] Docket DE 01-080, Order No. 23,851, November 29, 2001, Section III, page 19.

4. Factors Influencing Budget Level

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

a) Eversource will monitor spending in each of the programs and propose adjustments as necessary (e.g. in response to customer demand) in accordance with the guidelines contained in Section IV.C of the 2015-2016 New Hampshire Statewide CORE Energy Efficiency Plan.
b) Eversource will accrue interest[9] monthly at the prime rate[10] on the average net balance of the total of the SBC revenue and RGGI and FCM proceeds received less funds expended for programs and services.
c) Eversource's SBC revenue is based on sales projections. Actual sales may differ resulting in proportionately more or less SBC revenue available for energy efficiency programs. In addition, RGGI and FCM proceeds are estimated and are subject to change. The budget will be adjusted to reflect actual sales and actual RGGI and FCM proceeds.
d) Any unspent dollars at the end of the year will be allocated to future year budgets.

The 2017 program budget detail is presented in Attachments H1 and H2.

B. Home Energy Reports Program

In February 2014, Eversource successfully launched its Home Energy Reports Pilot Program with 25,000 residential participants. Half of the participants received normative (neighbor comparison) messaging whereas the other half earned rewards from saving energy. The one-year pilot program ended in February 2015 with cumulative electric savings of 1.5% for the normative messaging versus 0.31% for rewards messaging. An independent evaluation of the pilot program was completed in March 2016. The electric savings estimated by the independent program evaluator were similar to, and not statistically distinguishable from, the reported savings calculated by the Home Energy Reports Program vendor.

Eversource began to send home energy reports with normative messaging to a new cohort of 25,000 high-use residential customers in April 2015. An informational letter on the 2015-2016 Home Energy Reports Program was filed with the Commission on March 27, 2015 in Docket DE 14-216, which provided detailed information on the new program for 2015-2016. Actual savings were higher than anticipated in 2015. Although the participants received 1-2 fewer reports compared to similar programs implemented in other states, the Eversource participants' savings were on the high-end of the savings scale (1.05% as compared to a scale of 0.3% - 1.3% for similar programs). The program continues to have robust savings into program year 2016.

Additionally in 2016, due to a three-state contract negotiation with the program implementation vendor, Eversource's program cost declined. This reduction created an opportunity for Eversource to re-engage with the 25,000 original pilot program participants that stopped receiving reports in February 2015. Two program reports will be sent to the pilot program cohort in 2016.

In 2017, Eversource will continue to send reports to both sets of program participants: the high-use residential customers (25,000) and the original pilot program customers (25,000).

[9] DE 96-150, Order 23,574, November 1, 2000, page 25.
[10] http://www.moneycafe.com/library/primerate.htm

C. Customer Engagement Platform (CEP)

Implementation of the CEP is making great progress at Eversource. The CEP was implemented in both Connecticut and Massachusetts during 2015 and was implemented in New Hampshire in March 2016, for Eversource's residential, small and medium business customers. Energy usage information, including half-hourly usage information, for Eversource's large business customers is also projected to be implemented in 2016. By year-end 2016, all of Eversource's New Hampshire customers will have access to the CEP tool.

This is an exciting step forward that marks Eversource's commitment to increasing participation in energy efficiency across its service areas by providing a personalized experience for each of its customers. The CEP is an interactive tool that allows Eversource to reach all of its customers with energy usage information that is tailored to the customer and their situation. The platform includes self-service assessments where applicable, as well as benchmarking, which will allow business and residential customers to track energy use over time and compare their usage with similar customers in their geographic area and customer segment. For additional details on Eversource's CEP, please reference the 2015/2016 New Hampshire Statewide CORE Energy Efficiency Plan, pages 66-70.

Eversource has introduced the CEP tool to its customers through articles in its Customer Update hard-copy newsletter and its eNewsletter included with customers' bills, and plans to conduct an email campaign in 2016, as well as to begin meeting with large business customers individually to introduce the product.

2) Liberty Utilities

A. Building Practices & Demonstration Program

Liberty Utilities Gas will eliminate its Building Practices & Demonstration Program category. The Building Practices & Demonstration Program currently consists of budgets for offering low interest third party financing to its Home Performance with ENERGY STAR Program and ENERGY STAR Products Program participants, as well as the budget for offering its Home Energy Reports Pilot Program. Liberty Utilities will be moving the low interest third party financing budgets to its respective Home Performance with ENERGY STAR and ENERGY STAR Products Programs. Also, Liberty Utilities will create a dedicated program category for its Home Energy Reports Pilot Program, where the budget, program savings and cost effectiveness will be tracked. These program changes will align Liberty Utilities Gas program categorization and budget planning with the NH Electric Utilities.

B. Home Energy Reports

Liberty Utilities Gas will expand the participant count of its Home Energy Reports (HER) Behavioral Pilot Program from 25,000 to 38,000 residential gas customers. The HER Pilot Program is designed to engage residential natural gas customers into a long term conversation about how they can save energy and money on their utility bills. The program consists of sending paper and Web-based reports to a randomly selected group of residential customers. Liberty Utilities Gas has seen encouraging impacts from its pilot program to date,

including measured savings in-line with projections and also spillover leads into the Home Performance with ENERGY STAR Program. Because of these impacts, Liberty Utilities Gas is interested in increasing the program's customer base in order to capture additional natural gas savings and better positioning the program for achieving increased savings in 2018.

C. Third Party Financing for ENERGY STAR Products Participants

Liberty Utilities Gas will be modifying its low interest third party financing offer for its ENERGY STAR Products Program to create an either/or option for customers as a trial. Specifically, customers must choose between receiving a rebate for qualifying energy efficient space heating, water heating and thermostat systems, or receiving a low interest third party financing incentive for such systems; customers will no longer have the option of receiving both a rebate and the low interest third party financing incentive. Liberty Utilities is interested to see whether customers choose the low interest third party financing incentive on its own without also receiving the rebate offer, and to what degree.

An exception to this program change will be customers participating in the Early Boiler Replacement pilot measure. Early Boiler Replacement pilot measure participants will continue to be eligible for both a rebate and a low interest third party financing incentive. Since Early Boiler Replacement participants are not replacing end-of-life systems, the incentive required to motivate customers to participate is generally much higher. Similarly, the cost to replace old, aging, but still working condition boilers is significant. For these reasons, both the customer rebate and low-interest third party financing option will continue to be available in tandem.

V. MONITORING & EVALUATION

Under a Settlement Agreement reached in Docket DE 05-137 (Energy Efficiency Resource Standard) and subsequently approved by the NHPUC, the Settling Parties agree that evaluation, monitoring, and verification (EM&V) activities shall be conducted by independent third-parties supervised by the Commission with advice and participation from the Settling Parties, including the NH Utilities, and the Energy Efficiency & Sustainable Energy (EESE) Board. The NH Utilities will continue to facilitate and support the implementation of EM&V studies.

In addition, a separate independent expert will be hired and supervised by the NHPUC to assist staff, the Settling Parties, the EESE Board and others in participating in EM&V activities. The EM&V independent expert shall be paid from the EM&V budget, and shall provide advice on issues relating to, scope, methods, scheduling, how EM&V results inform program improvement, ISO-NE's forward capacity market evaluation requirements, and standardization of EM&V recording and reporting.

The NH Utilities look forward to working with the NHPUC's staff and stakeholders on the development of a comprehensive, rigorous and transparent EM&V framework.

The NH Utilities have included a budget for EM&V activities of approximately five percent of the 2017 total program budget.

Update on EM&V Activities

Non-Energy Impacts

During 2016, the NH Utilities provided an overview to the NHPUC's staff and the EESE Board regarding the Total Resource Cost (TRC) test, which is used to quantify the costs and the benefits associated with each of the NHSaves programs. New Hampshire has an opportunity to more accurately quantify the value of energy efficiency by incorporating Non Energy Impacts (NEIs) into the benefit-cost calculation in the TRC test. As the name implies, NEIs are "non-energy" impacts that result from energy efficiency measures (e.g. increased property values from weatherization). NEI's can be positive or negative. NEIs are widely recognized and often used in benefit-cost testing in recognition that energy efficiency programs deliver significant benefits that go beyond just avoided costs and customer bill savings. In 2017, the NH Utilities will continue to work with the NHPUC's staff and stakeholders to identify and quantify NEIs that can potentially be incorporated into benefit-cost screening beginning in 2018. Initially, NEI values can be identified through a review of existing regional evaluation studies, and could then be refined and updated by incorporating them into future New Hampshire EM&V activities.

EM&V Studies

From January to August 2016, the following EM&V studies were completed:

- A study was completed to determine the value of demand that is offset by energy efficiency programs during 'super peak' summer and winter hours, or those times during which the electric grid is under the most stress. This work was conducted by Tabors Caramanis Rudkevich, Inc. (TCR), the consultant that completed the 2015 Avoided Cost Study, in conjunction with the multistate avoided cost study group.

- Eversource's Home Energy Reports ("HER") Pilot Program's evaluation of the first year results was completed in March 2016, by Navigant Consulting, Inc. Based on the report, the evaluated estimate of savings was not statistically distinguishable from the program vendor's reported savings.

The following market assessment, impact and process evaluation studies have been initiated or are planned or under consideration for 2017:

- Avoided Energy Supply Cost Limited Update: NH is participating in a limited update of the Avoided Cost Study with Maine, Rhode Island and Vermont for 2018. This update will be looking at costs associated with crude oil / fuel oil prices, natural gas commodity costs, electric load forecasts, electric generating capacity retirements, additions and Forward Capacity Market results; new ISO-NE zone; and wood and wood pellets. It is scheduled to be complete by early 2017.

- ENERGY STAR Homes Program: A process and impact evaluation was started in 2016 and is expected to be completed during the first half of 2017.

- Municipal Program: A process evaluation to examine the effectiveness of program delivery, including review of marketing and promotional activities, project intake and management, technical assistance/audit performance, measure installation, quality assurance processes and customer satisfaction.

- ENERGY STAR Products Program (Appliances): A market assessment of the current penetration of ENERGY STAR appliances; measurement and verification of energy savings associated with low temperature ductless mini-splits, heat pump water heaters and possibly fossil fuel heating systems; program participant survey to assess customer satisfaction and purchasing behavior.

- ENERGY STAR Products Program (Lighting): A focused study to review the adoption, use and program participant satisfaction with LEDs, including measurement and verification of the installation, hours of use and delta watts of LEDs.

- Small Business Energy Solutions Program: An impact evaluation to measure and verify energy savings and update hours of use for certain segments; assess the impact of EISA requirements on linear fluorescent lamp savings baseline. Will include municipal projects.

New Hampshire has elected to participate in the Northeast Energy Efficiency Partnership (NEEP) Regional EM&V Forum. Under the Forum, New Hampshire is currently participating in the following initiatives:

- Steering Committee Facilitation and Info Exchange
- EM&V Protocols, Reporting Tools and Training
- EM&V 2.0 – Advanced Data collection and Data Analytics
- EM&V for EE & Demand Side Energy Resources Integration
- EM&V for New Technologies & Program Models
- State EE Data Analysis & Trends (REED database)

NEEP project details are available at http://www.neep.org/initiatives/emv-forum.

VI. PERFORMANCE INCENTIVE

Background
On August 2, 2016, the Commission issued Order No. 25,932 approving a Settlement Agreement establishing an EERS. As part of the Settlement Agreement, the Settling Parties agreed that the Performance Incentive levels shall be identical for the NH Utilities. In addition, the maximum performance incentive percentage is capped at 6.875%, with a target of 5.5% for effect beginning with the 2017 program year, through at least the first triennium of the EERS (2018 – 2020). The updates to the performance incentive contemplated under the Settlement Agreement have been incorporated into the performance incentive formula below.

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

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

The formula is as follows:

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

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

Electric Lifetime Savings % = Electric Lifetime Savings / Total Lifetime Energy Savings

Where:
Total Lifetime Energy Savings = Electric Lifetime Savings (in kWh) + (Lifetime MMBTU Savings x 293)
Lifetime Electric Savings = Actual lifetime kilowatt-hour savings achieved by all CORE programs offered by each electric utility
Lifetime MMBTU Savings =Actual lifetime MMBTU savings achieved by all CORE programs offered by each electric utility

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

$$PI = [2.75\% \times ACTUAL] \times [(BC_{ACT} / BC_{PRE}) + (kWh_{ACT} / kWh_{PRE})]$$

Where:
PI =Performance Incentive in dollars
ACTUAL= Total dollars spent less the performance incentive
$\mathbf{BC_{ACT}}$ = Actual Benefit-to-Cost ratio achieved
$\mathbf{BC_{PRE}}$ = Predicted Benefit-to-Cost ratio
$\mathbf{kWh_{ACT}}$ = Actual Lifetime Kilowatt-hour savings achieved
$\mathbf{kWh_{PRE}}$ = Predicted Lifetime Kilowatt-hour savings

This formula is used to calculate the PI for the Residential and the Commercial & Industrial Program sectors separately; the overall PI is determined by adding the sector PIs.

The Residential and Commercial & Industrial Program sector PIs are each capped at 6.875% of actual expenditures. In addition, the kWh savings ratio component and the B/C ratio component are each capped at 3.4375% of actual expenditures.

iii. If the Electric Lifetime Savings % < 55%, then the PI formula for both electric and non-electric measures is of the form shown in A.ii. above with the 2.75% multiplier replaced by 2.2%.

The formula is used to calculate the PI for the Residential and the Commercial & Industrial Program sectors separately; the overall PI is determined by adding the sector PIs.

The Residential and Commercial &Industrial Program sector PIs are each capped at 5.5% of actual expenditures. In addition, the kWh savings ratio component and the B/C ratio component are each capped at 2.75% of actual expenditures.

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

The formula is:

$$PI = [2.75\% \times ACTUAL] \times [(BC_{ACT}/BC_{PRE}) + (MMBTU_{ACT}/MMBTU_{PRE})]$$

Where:
PI =Performance Incentive in dollars
ACTUAL = Total dollars spent less the performance incentive
$\mathbf{BC_{ACT}}$ = Actual Benefit-to-Cost ratio achieved
$\mathbf{BC_{PRE}}$ = Predicted Benefit-to-Cost ratio
$\mathbf{MMBTU_{ACT}}$ = Actual Lifetime MMBTU savings achieved
$\mathbf{MMBTU_{PRE}}$ = Predicted Lifetime MMBTU savings

The Residential and Commercial & Industrial Program sector PIs are calculated separately and are independent of one another. The Residential Program sector PI is capped at 6.875% of the actual residential expenditures. In addition, the Commercial & Industrial Program

sector PI is capped at 6.875% of the actual Commercial &Industrial expenditures. The overall PI is determined by adding the sector PIs.

C. The following threshold conditions are applicable:
   i. For the programs offered by the NH Electric Utilities and NH Gas Utilities, the combined benefit-to-cost ratio for the Residential Program sector must be 1.0 or greater. If not, there is no incentive associated with the program cost effectiveness performance metric. The Commercial &Industrial Program sector component is calculated similarly.
   ii. For the programs offered by the NH Electric Utilities, the actual lifetime kWh savings for the Residential Program sector programs must be 65% or greater than the predicted lifetime kWh savings. If not, there is no incentive associated with the kWh savings performance metric. The Commercial & Industrial Program sector component is calculated similarly.
   iii. For the programs offered by the NH Gas Utilities, the actual lifetime MMBTU savings for the Residential Program sector must be 65% or greater than the predicted lifetime MMBTU savings. If not, there is no incentive associated with the MMBTU savings performance metric. The Commercial & Industrial Program sector component is calculated similarly.

Performance Incentive Budget

Each NH Electric Utility and NH Gas Utility budgets for a 5.5% PI as follows:

Electric Utility PI Budget

$PI = 5.5\% \times [BUDGET_{TOT} - PI]$

$PI = 0.0521327 \times BUDGET_{TOT}$

Where:
PI = Performance incentive in dollars
$BUDGET_{TOT}$ = Total budget in dollars, including the performance incentive

Smart Start Program Performance Incentive
Eversource's Smart Start Program performance incentive is 6% of the loans repaid.

Benefit-to-Cost Ratio Avoided Costs and Assumptions
Refer to Attachment C for information on avoided costs and assumptions used to calculate the benefit-to-cost ratios.

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

Attachment A

2017 HEA Quarterly Production Schedule

Utility	Total Jobs	1st. Qtr. 25%	2nd. Qtr. 30%	3rd. Qtr. 30%	4th. Qtr. 15%
LU-Electric	42	11	11	15	5
NHEC	35	7	12	14	2
Eversource	500	125	154	149	72
Unitil	71	18	18	18	17
LU-Gas	198	51	61	55	31
Unitil-Gas	42	11	11	11	9
TOTAL Electric	**648**	**161**	**195**	**196**	**96**
TOTAL Gas	**240**	**62**	**72**	**66**	**40**
Cumulative TOTAL		223	490	752	888

2017 HEA Job Distribution By County and By Utility

BY COUNTY	LU-Electric	NHEC	Eversource	Unitil	LU-Gas	Unitil-Gas	Grand Total
Belknap		6	50		22		**78**
Carroll		4	30				**34**
Cheshire	1		18				**19**
Coos		3	37		0		**40**
Grafton	19	11	20				**50**
Hillsborough	5		209		150		**364**
Merrimack		4	43	25	22		**94**
Rockingham	13	3	47	46	4	27	**140**
Strafford		0	28			15	**43**
Sullivan	4	4	18				**26**
Program Totals	42	35	500	71	198	42	**888**

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

Attachment B: Completed Monitoring & Evaluation Studies

For a complete list of the monitoring and evaluation studies, please refer to the New Hampshire Public Utilities Commission's website at:

http://www.puc.state.nh.us/Electric/Monitoring%20and%20Evaluation%20Reports/Monitoring_Evaluation_Report_List.htm

ATTACHMENT C: AVOIDED COSTS

Summary of Avoided Costs

In accordance with Commission Order No. 23,850, in DE 01-057, dated November 29, 2001, the NH Utilities use common avoided costs to ensure that all New Hampshire customers will have access to the programs and services that result in the same calculated avoided cost, regardless of their utility. These avoided costs are incorporated into the Total Resource Cost ("TRC") test consistent with Order No. 22,875 in DR 96-150: Electric Utility Restructuring on Requests for Rehearing, Reconsideration and Clarification. The TRC test estimates the present value of energy and non-energy impacts over the life of program measures and compares that to the program cost plus any out-of-pockets costs that customers pay for energy efficiency measures. For 2017, the New Hampshire TRC test uses a nominal discount rate of 3.5 percent [1] and a general inflation rate of 1.18 percent[2] within the TRC test

The avoided costs used in the TRC test are largely based on the 2015 *Avoided Energy Supply Costs in New England: 2015 Final Report* ("2015 AESC"). The 2015 AESC is a regional study sponsored by the New England States' energy efficiency program administrators. The 2015 AESC provides avoided costs for electricity including energy and capacity as well as avoided costs for fossil fuels and wood. The NH Utilities have opted to not use the optional retail adders for electricity or natural gas avoided costs provided in the study, as each utility considers the avoided costs excluding the adder to be a better approximation of the energy service costs avoided by their customers.

Demand Reduction Induced Price Effect

The 2015 AESC includes Demand Reduction Induced Price Effects ("DRIPE") for both electricity and natural gas. DRIPE refers to the reduction in wholesale market prices resulting from reduced demand from energy efficiency. DRIPE effects on wholesale prices are typically very small. However, their impact when multiplied across the entire wholesale market may be significant.

Because the region relies heavily upon natural gas generation, electric conservation results in both "own-fuel" DRIPE (reductions in electricity costs) and "cross-fuel" DRIPE (reductions in gas costs from reduced electricity consumption). Likewise with natural gas, DRIPE includes an "own-fuel" component and a "cross-fuel" component (a reduction in electricity costs resulting from reduced natural gas consumption).

Beginning in 2017, the NH Utilities are counting all applicable New Hampshire electric and natural gas DRIPE avoided costs from the 2015 AESC into their benefit-cost calculations. Including the avoided cost of DRIPE increased the statewide electric program benefits by 1.6% and the statewide natural gas program benefits by 17.4%. The DRIPE values are included in the Present Value Benefits table of this Plan (reference Attachments D, DG, E, F, G and GG).

[1] Based on June, 2016 Prime Rate in accordance with the Final Energy Efficiency Working Group Report, dated July 6, 1999 in DR 96-150. http://www.moneycafe.com/library/primerate.htm
[2] Based on inflation from January 2015 to January 2016, http://research.stlouisfed.org//fred2/data/GDPDEF.txt

Avoided Transmission and Distribution Costs

In accordance with Commission Order No. 23,850, in DE 01-057, dated November 29, 2001, the NH Utilities have based their avoided transmission and distribution costs on the weighted average of New Hampshire utility costs and escalated for inflation and reflected in 2016 dollars.

The following table also includes an adjustment to reduce the energy and capacity line loss multipliers by the estimated losses that are accounted for in the 2016 forecast of energy prices.

Marginal T&D Costs and Line Loss Factors ($2016)

	MDC ($/kW-yr)		MTC	Line Loss Multipliers				
	Res.(1)	C&I(2)	($/kW-yr)	Transmission Capacity	Summer Capacity	Winter Capacity	On-Peak Energy	Off-Peak Energy
NHEC	$139.39	$139.39	$114.40	1.0207	1.0916	1.0916	1.0916	1.0916
Liberty	$123.35	$89.77	$51.58	1.1220	1.1500	1.1350	1.0630	1.0890
PSNH	$67.83	$67.83	$4.17	1.0000	1.0820	1.0820	1.0820	1.0840
Unitil	$79.07	$79.07	$31.41	1.0000	1.1217	1.1217	1.1217	1.0152

MWh Sales to Ultimate Customers in 2015

NHEC	760,916	7.02%
Liberty	931,780	8.60%
Eversource	7,926,556	73.17%
Unitil	1,214,203	11.21%
Total	10,833,455	100.00%

Weighted Average Marginal T&D Costs and Line Loss Factors
(Energy Line Loss Multipliers have been reduced by estimated transmission losses.)

	MDC ($/kW-yr)		MTC	Line Loss Multipliers				
	Res.(1)	C&I(2)	($/kW-yr)	Transmission Capacity	Summer Capacity	Winter Capacity	On-Peak Energy	Off-Peak Energy
2016$	$79.82	$76.91	$19.26	1.012	1.069	1.068	1.061	1.053

Non-Energy Impacts

By definition, the TRC test[3] includes non-energy impacts ("NEIs"). These NEIs may include resource savings (e.g. water) as well as non-resource impacts (e.g. environmental) and may account for 50-300 percent of household energy savings.[4] Currently, the NH Utilities claim avoided water and sewer costs in the TRC test. However, the NH Utilities are aware that there are a number of other NEIs that customers may receive as a result of participating in energy-efficiency programs. For example, customers who build energy-efficient homes, or who have

[3] Final Energy Efficiency Working Group Report, dated July 6, 1999 in DR 96-150.
[4] Valuation of Non-Energy Benefits to Determine Cost-Effectiveness of Whole House Retrofit Programs: A Literature Review. Jennifer Thorne Amann, May 2006

their homes weatherized, often cite improved comfort or better health as ancillary benefits of energy-efficiency program participation. Many jurisdictions across the United States have quantified numerous NEIs, and have included them in their Total Resource Cost Tests. The NH Utilities recommend establishing a working group to identify and quantify additional NEIs that may be included prospectively into benefit-cost testing. Additional information on NEIs can be found in the Monitoring & Evaluation Section of this plan.

Program Cost-Effectiveness - 2017 PLAN

	Total Resource Benefit / Cost Ratio	Benefits ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential											
Home Energy Assistance	1.16	$ 455.1	$ 392.2	$ -	42.4	530.5	5.5	4.9	42	966.9	21,427.2
ENERGY STAR Homes	3.48	$ 496.4	$ 120.0	$ 22.5	49.1	1,016.0	11.2	0.9	37	1,105.6	27,621.7
Home Performance with ENERGY STAR	1.80	$ 587.3	$ 185.5	$ 141.2	110.9	1,919.1	25.9	9.9	61	1,224.5	26,425.4
ENERGY STAR Products[1]	2.86	$ 789.4	$ 240.1	$ 35.9	959.6	7,897.0	275.4	147.6	10,704	22.4	246.1
ISO-NE FCM Expenses		$ -	$ 8.6	$ -	-	-	-	-	-	-	-
Sub-Total Residential	**2.03**	**$ 2,328.2**	**$ 946.3**	**$ 199.6**	**1,162.0**	**11,362.6**	**318.0**	**163.3**	**10,844**	**3,319.4**	**75,720.4**
Commercial & Industrial											
Large Business Energy Solutions	2.43	$ 2,928.3	$ 703.0	$ 504.1	2,378.1	34,390.5	169.2	250.4	44	-	-
Small Business Energy Solutions	1.97	$ 1,303.2	$ 445.3	$ 217.2	1,259.3	16,697.1	60.2	106.8	512	-	-
Municipal Energy Solutions	1.23	$ 415.4	$ 180.0	$ 156.9	329.1	4,364.0	29.5	49.7	41	-	-
Education	-	$ -	$ 23.4	$ -	-	-	-	-	-	-	-
ISO-NE FCM Expenses	-	$ -	$ 20.0	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**2.07**	**$ 4,646.9**	**$ 1,371.7**	**$ 878.2**	**3,966.5**	**55,451.5**	**258.9**	**406.9**	**598**	**-**	**-**
Total	**2.05**	**$ 6,975.2**	**$ 2,318.0**	**$ 1,077.8**	**5,128.6**	**66,814.1**	**576.9**	**570.3**	**11,442**	**3,319.4**	**75,720.4**

Note 1: Plan includes 10,704 customers purchasing a total of 40,606 ENERGY STAR lighting products (estimated at 4/customer) and 553 ENERGY STAR appliances.

Annual kWh Savings	5,128,578.0	84%	**kWh > 55%**	Lifetime kWh Savings	66,814,094.8	75.1%	**kWh > 55%**
Annual MMBTU Savings (in kWh)	972,809.8	16%		Lifetime MMBTU Savings (in kWh)	22,191,460.3	24.9%	
	6,101,387.8	100%			**89,005,555.1**	100.0%	

Present Value Benefits - 2017 PLAN

	Total Benefits ($000)	CAPACITY				ENERGY				Electric DRIPE	Gas Benefits	Gas DRIPE	Other Fuels Benefits	Non-Fuels Benefits
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak					
Residential														
Home Energy Assistance	$ 455.1	$ 9.5	$ -	$ 1.0	$ 4.2	$ 8.9	$ 12.3	$ 4.1	$ 5.1	$ 0.8	$ -	$ -	$ 409.1	$ -
ENERGY STAR Homes	$ 496.4	$ 1.7	$ -	$ 0.2	$ 0.8	$ 19.6	$ 40.6	$ 1.2	$ 1.3	$ 1.1	$ -	$ -	$ 428.6	$ 1.4
Home Performance with ENERGY STAR	$ 587.3	$ 25.3	$ -	$ 2.7	$ 11.1	$ 35.7	$ 70.8	$ 3.7	$ 4.6	$ 2.4	$ -	$ -	$ 431.0	$ -
ENERGY STAR Products	$ 789.4	$ 197.3	$ -	$ 22.3	$ 90.6	$ 128.8	$ 180.2	$ 58.5	$ 71.4	$ 18.3	$ 1.2	$ 0.3	$ 1.8	$ 18.7
ISO-NE FCM Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Residential	**$ 2,328.2**	**$ 233.8**	**$ -**	**$ 26.3**	**$ 106.6**	**$ 193.0**	**$ 303.9**	**$ 67.4**	**$ 82.4**	**$ 22.6**	**$ 1.2**	**$ 0.3**	**$ 1,270.5**	**$ 20.1**
Commercial & Industrial														
Large Business Energy Solutions	$ 2,928.3	$ 574.6	$ -	$ 62.5	$ 253.4	$ 696.5	$ 633.8	$ 373.0	$ 285.3	$ 49.1	$ -	$ -	$ -	$ -
Small Business Energy Solutions	$ 1,303.2	$ 219.3	$ -	$ 24.1	$ 97.6	$ 245.5	$ 204.5	$ 268.9	$ 219.0	$ 24.4	$ -	$ -	$ -	$ -
Municipal Energy Solutions	$ 415.4	$ 102.0	$ -	$ 11.2	$ 45.4	$ 94.3	$ 78.1	$ 45.2	$ 32.5	$ 6.8	$ -	$ -	$ -	$ -
Education	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ISO-NE FCM Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 4,646.9**	**$ 895.9**	**$ -**	**$ 97.8**	**$ 396.4**	**$ 1,036.3**	**$ 916.4**	**$ 687.0**	**$ 536.8**	**$ 80.3**	**$ -**	**$ -**	**$ -**	**$ -**
Total	**$ 6,975.2**	**$ 1,129.7**	**$ -**	**$ 124.1**	**$ 503.0**	**$ 1,229.3**	**$ 1,220.3**	**$ 754.5**	**$ 619.2**	**$ 102.9**	**$ 1.2**	**$ 0.3**	**$ 1,270.5**	**$ 20.1**

Performance Incentive Calculation
2017

	Planned	Actual
Commercial & Industrial		
1. Benefit/Cost Ratio	**2.00**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime kWh Savings	**55,451,541**	
4. Threshold Lifetime kWh Savings (65%) [2]	36,043,502	
5. Implementation Expenses	$1,371,690	
6. Benefit / Cost Percentage of Implementation Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$75,443	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$94,304	
Residential		
10. Benefit / Cost Ratio	**1.94**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime kWh Savings	**11,362,553**	
13. Threshold Lifetime kWh Savings (65%) [2]	7,385,660	
14. Implementation Expenses	$946,314	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$52,047	
18. Maximum Residential Performance Incentive (6.875%)	$65,059	
19. TOTAL PLANNED / EARNED INCENTIVE	**$127,490**	

Notes

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

Planned Versus Actual Benefit / Cost Ratio by Sector
2017

		Planned	Actual
Commercial & Industrial			
1. Benefits (Value) From Eligible Programs	$	4,646,920	
2. Implementation Expenses	$	1,371,690	
3. Customer Contribution	$	878,213	
4. Performance Incentive	$	75,443	
5. Total Costs	$	2,325,346	
6. Benefit/Cost Ratio - Commercial & Industrial Sector		**2.00**	
Residential			
7. Benefits (Value) From Eligible Programs	$	2,328,250	
8. Implementation Expenses	$	946,314	
9. Customer Contribution	$	199,557	
10. Performance Incentive	$	52,047	
11. Total Costs	$	1,197,918	
12. Benefit/Cost Ratio - Residential Sector		**1.94**	

Lifetime Energy Savings by Sector and Program
2017

	Lifetime kWh Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	34,390,514	
Small Business Energy Solutions	16,697,063	
Municipal Energy Solutions	4,363,964	
Total Commercial & Industrial	**55,451,541**	
Residential		
Home Energy Assistance	530,488	
ENERGY STAR Homes	1,015,973	
Home Performance with ENERGY STAR	1,919,084	
ENERGY STAR Products	7,897,008	
Total Residential	**11,362,553**	

Program Cost-Effectiveness - 2017 PLAN

	Total Resource Benefit / Cost Ratio	Benefits ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential											
Home Energy Assistance	1.07	$ 1,075.2	$ 1,005.7	$ -	50.7	1,014.9	-	-	198	5,302.0	106,032.4
ENERGY STAR Homes	2.11	$ 468.1	$ 136.0	$ 85.4	28.7	718.1	-	-	44	1,828.7	45,716.3
Home Performance with ENERGY STAR	1.36	$ 1,705.0	$ 729.2	$ 526.8	185.4	3,707.4	-	-	207	7,369.3	156,463.3
ENERGY STAR Products	1.06	$ 1,762.0	$ 815.2	$ 851.6	39.5	671.2	4.7	-	1,322	10,383.6	178,692.9
Home Energy Reports	1.84	$ 416.7	$ 227.0	$ -	-	-	-	-	38,000	9,700.0	32,600.0
Sub-Total Residential	**1.24**	**$ 5,427.0**	**$ 2,913.1**	**$ 1,463.9**	**304.3**	**6,111.5**	**4.7**	**-**	**39,771**	**34,583.6**	**519,504.8**
Commercial & Industrial											
Large Business Energy Solutions	2.07	$ 5,755.4	$ 1,563.1	$ 1,221.5	-	-	-	-	225	50,253.0	654,549.7
Small Business Energy Solutions	2.15	$ 4,557.2	$ 1,373.0	$ 749.8	1.3	24.2	-	-	2,797	38,717.4	517,573.3
Education	0.00	$ -	$ 64.5	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**2.07**	**$ 10,312.5**	**$ 3,000.6**	**$ 1,971.3**	**1.3**	**24.2**	**-**	**-**	**3,022**	**88,970.4**	**1,172,123.0**
Total	**1.68**	**$ 15,739.6**	**$ 5,913.7**	**$ 3,435.1**	**305.6**	**6,135.7**	**4.7**	**-**	**42,793**	**123,554.0**	**1,691,627.8**

Present Value Benefits - 2017 PLAN

	Total Benefits ($000)	Gas Benefits	Gas DRIPE	Electric Benefits	Electric DRIPE	Non-Fuels Benefits
Residential						
Home Energy Assistance	$ 1,075.2	$ 901.1	$ 111.2	$ 61.8	$ 1.2	$ -
ENERGY STAR Homes	$ 468.1	$ 381.2	$ 40.8	$ 45.3	$ 0.7	$ -
Home Performance with ENERGY STAR	$ 1,705.0	$ 1,323.8	$ 157.1	$ 220.3	$ 3.9	$ -
ENERGY STAR Products	$ 1,762.0	$ 1,509.6	$ 211.1	$ 40.4	$ 0.9	$ -
Home Energy Reports	$ 416.7	$ 279.7	$ 137.1	$ -	$ -	$ -
Sub-Total Residential	**$ 5,427.0**	**$ 4,395.3**	**$ 657.3**	**$ 367.8**	**$ 6.6**	**$ -**
Commercial & Industrial						
Large Business Energy Solutions	$ 5,755.4	$ 4,731.5	$ 1,023.8	$ -	$ -	$ -
Small Business Energy Solutions	$ 4,557.2	$ 3,739.0	$ 791.0	$ 1.5	$ 0.0	$ 25.7
Education	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 10,312.5**	**$ 8,470.5**	**$ 1,814.8**	**$ 1.5**	**$ 0.0**	**$ 25.7**
Total	**$ 15,739.6**	**$ 12,865.8**	**$ 2,472.2**	**$ 369.3**	**$ 6.6**	**$ 25.7**

Performance Incentive Calculation
2017

	Planned	Actual
Commercial & Industrial		
1. Benefit/Cost Ratio	**2.01**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime MMBtu Savings	**1,172,123**	
4. Threshold Lifetime MMBtu Savings (65%) [2]	761,880	
5. Implementation Expenses	$3,000,600	
6. Benefit / Cost Percentage of Budget	2.75%	
7. Lifetime MMBtu Percentage of Budget	2.75%	
8. Commercial & Industrial Performance Incentive	$165,033	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$206,291	
Residential		
10. Benefit / Cost Ratio	**1.20**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime MMBtu Savings	**519,505**	
13. Threshold Lifetime MMBtu Savings (65%) [2]	337,678	
14. Implementation Expenses	$2,913,120	
15. Benefit / Cost Percentage of Budget	2.75%	
16. Lifetime MMBtu Percentage of Budget	2.75%	
17. Residential Performance Incentive	$160,222	
18. Maximum Residential Performance Incentive (6.875%)	$200,277	
19. TOTAL PLANNED / EARNED INCENTIVE	**$325,255**	

Notes

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

Planned Versus Actual Benefit / Cost Ratio by Sector
2017

		Planned	Actual
Commercial & Industrial			
1. Benefits (Value) From Eligible Programs	$	10,312,524	
2. Implementation Expenses	$	3,000,600	
3. Customer Contribution	$	1,971,268	
4. Performance Incentive	$	165,033	
5. Total Costs	$	5,136,901	
6. Benefit/Cost Ratio - Commercial & Industrial Sector		**2.01**	
Residential			
7. Benefits (Value) From Eligible Programs	$	5,427,042	
8. Implementation Expenses	$	2,913,120	
9. Customer Contribution	$	1,463,879	
10. Performance Incentive	$	160,222	
11. Total Costs	$	4,537,221	
12. Benefit/Cost Ratio - Residential Sector		**1.20**	

Lifetime Energy Savings by Sector and Program
2017

	Lifetime MMBtu Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	654,550	
Small Business Energy Solutions	517,573	
Education	0	
Total Commercial & Industrial	**1,172,123**	
Residential		
Home Energy Assistance	106,032	
ENERGY STAR Homes	45,716	
Home Performance with ENERGY STAR	156,463	
ENERGY STAR Products	178,693	
Home Energy Reports	32,600	
Total Residential	**519,505**	

Program Cost-Effectiveness - 2017 PLAN

	Total Resource Benefit / Cost Ratio	Benefit ($000)	Utility Costs ($000)	Member Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Members Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential											
Home Energy Assistance	1.15	$ 327.4	$ 284.3	$ -	41.3	500.1	7.0	2.4	35	965.7	18,637.6
ENERGY STAR Homes	2.54	$ 720.7	$ 172.8	$ 111.3	228.6	5,607.2	60.2	2.0	22	916.8	22,869.2
Home Performance with ENERGY STAR	1.33	$ 458.9	$ 218.5	$ 127.0	100.2	1,725.7	22.9	1.8	61	1,214.4	24,287.5
ENERGY STAR Products[1]	2.33	$ 874.9	$ 338.2	$ 37.9	1,008.7	8,361.4	278.6	161.1	11,582	50.4	553.9
ISO-NE FCM Expenses	0.00	$ -	$ 3.0	$ -	-	-	-	-	-	-	-
Sub-Total Residential	**1.84**	**$ 2,381.9**	**$ 1,016.8**	**$ 276.2**	**1,378.8**	**16,194.3**	**368.7**	**167.4**	**11,700**	**3,147.2**	**66,348.2**
Commercial &Industrial											
Large Business Energy Solutions	2.57	$ 1,363.0	$ 209.7	$ 321.3	1,056.6	13,736.4	173.5	175.6	19	-	-
Small Business Energy Solutions	2.28	$ 1,098.2	$ 241.3	$ 240.5	718.0	9,334.0	273.8	175.1	50	-	-
Municipal Energy Solutions	1.01	$ 282.8	$ 175.0	$ 104.6	178.6	2,322.3	14.9	25.8	23	280.0	3,640.4
Smart Start	0.00	$ -	$ -	$ -	-	-	-	-	-	-	-
Education	0.00	$ -	$ 39.4	$ -	-	-	-	-	-	-	-
ISO-NE FCM Expenses	0.00	$ -	$ 7.0	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**2.05**	**$ 2,744.0**	**$ 672.3**	**$ 666.3**	**1,953.3**	**25,392.7**	**462.2**	**376.5**	**92**	**280.0**	**3,640.4**
Total	**1.95**	**$ 5,125.8**	**$ 1,689.1**	**$ 942.5**	**3,332.1**	**41,587.1**	**830.9**	**543.9**	**11,792**	**3,427.2**	**69,988.6**

Note 1: Plan includes 11,582 members purchasing a total of 41,457 ENERGY STAR lighting products (estimated at 4/member) and 1,218 Energy Star appliances.

Annual kWh Savings	3,332,083	76.8%	**kWh > 55%**	**Lifetime** kWh Savings	41,587,069	67.0%	**kWh > 55%**
Annual MMBTU Savings (in kWh)	1,004,411	23.2%		**Lifetime** MMBTU Savings (in kWh)	20,511,638	33.0%	
	4,336,494	100.0%			**62,098,707**	100.0%	

Present Value Benefits - 2017 PLAN

	Total Benefits ($000)	CAPACITY				ENERGY								Other Resource
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Gas Benefit	Gas DRIPE	Other Fuels Benefit	
Residential Programs														
Home Energy Assistance	$ 327.4	$ 3.6	$ -	$ 0.4	$ 1.7	$ 8.9	$ 15.7	$ 2.0	$ 2.5	$ 0.8	$ -	$ -	$ 291.7	$ -
ENERGY STAR Homes	$ 720.7	$ 6.2	$ -	$ 0.7	$ 2.7	$ 109.7	$ 228.4	$ 4.6	$ 6.2	$ 5.4	$ 0.1	$ 0.0	$ 354.6	$ 2.1
Home Performance with ENERGY STAR	$ 458.9	$ 2.6	$ -	$ 0.3	$ 1.2	$ 32.8	$ 68.0	$ 1.7	$ 2.1	$ 2.2	$ -	$ -	$ 348.0	$ -
ENERGY STAR Products	$ 874.9	$ 217.8	$ -	$ 24.6	$ 99.9	$ 131.8	$ 180.8	$ 72.4	$ 79.0	$ 19.2	$ 2.7	$ 0.6	$ 4.0	$ 42.1
ISO-NE FCM Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Residential	**$ 2,381.9**	**$ 230.3**	**$ -**	**$ 26.0**	**$ 105.4**	**$ 283.2**	**$ 493.0**	**$ 80.6**	**$ 89.8**	**$ 27.6**	**$ 2.8**	**$ 0.6**	**$ 998.4**	$ 44.2
Commercial/Industrial Programs														
Large Business Energy Solutions	$ 1,363.0	$ 354.8	$ -	$ 39.0	$ 158.1	$ 301.3	$ 279.1	$ 125.9	$ 82.8	$ 22.1	$ -	$ -	$ -	$ -
Small Business Energy Solutions	$ 1,098.2	$ 353.7	$ -	$ 38.9	$ 157.6	$ 201.0	$ 174.7	$ 87.6	$ 70.1	$ 14.7	$ -	$ -	$ -	$ -
Municipal Energy Solutions	$ 282.8	$ 52.1	$ -	$ 5.7	$ 23.2	$ 50.9	$ 41.7	$ 23.1	$ 17.1	$ 3.7	$ -	$ -	$ 65.2	$ -
Smart Start	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Education	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ISO FCM Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-total Commercial & Industrial	**$ 2,744.0**	**$ 760.6**	**$ -**	**$ 83.6**	**$ 338.9**	**$ 553.2**	**$ 495.5**	**$ 236.5**	**$ 170.0**	**$ 40.4**	**$ -**	**$ -**	**$ 65.2**	**$ -**
Total	**$ 5,125.8**	**$ 990.9**	**$ -**	**$ 109.6**	**$ 444.3**	**$ 836.3**	**$ 988.4**	**$ 317.1**	**$ 259.8**	**$ 68.0**	**$ 2.8**	**$ 0.6**	**$ 1,063.6**	**$ 44.2**

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Performance Incentive Calculation
2017

	Planned	Actual
Commercial & Industrial		
1. Benefit/Cost Ratio	**2.0**	
2. Threshold Benefit / Cost Ratio [1]	1.0	
3. Lifetime kWh Savings	**25,392,728**	
4. Threshold Lifetime kWh Savings (65%) [2]	16,505,273	
5. Implementation Expenses	$672,347	
6. Benefit / Cost Percentage of Implementation Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$36,979	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$46,224	
Residential		
10. Benefit / Cost Ratio	**1.8**	
11. Threshold Benefit / Cost Ratio [1]	1.0	
12. Lifetime kWh Savings	**16,194,341**	
13. Threshold Lifetime kWh Savings (65%) [2]	10,526,322	
14. Implementation Expenses	$1,016,776	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$55,923	
18. Maximum Residential Performance Incentive (6.875%)	$69,903	
19. TOTAL PLANNED / EARNED INCENTIVE	**$92,902**	

Notes

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

Planned Versus Actual Benefit / Cost Ratio by Sector
2017

		Planned	Actual
Commercial & Industrial			
1. Benefits (Value) From Eligible Programs	$	2,743,957	
2. Implementation Expenses	$	672,347	
3. Member Contribution	$	666,333	
4. Performance Incentive	$	36,979	
5. Total Costs	$	1,375,659	
6. Benefit/Cost Ratio - Commercial & Industrial Sector		**2.0**	
Residential			
7. Benefits (Value) From Eligible Programs	$	2,381,856	
8. Implementation Expenses	$	1,016,776	
9. Member Contribution	$	276,185	
10. Performance Incentive	$	55,923	
11. Total Costs	$	1,348,883	
12. Benefit/Cost Ratio - Residential Sector		**1.8**	

Lifetime Energy Savings by Sector and Program
2017

	Lifetime kWh Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	13,736,351	
Small Business Energy Solutions	9,334,031	
Municipal Energy Solutions	2,322,346	
Total Commercial & Industrial	**25,392,728**	
Residential		
Home Energy Assistance	500,121	
ENERGY STAR Homes	5,607,177	
Home Performance with ENERGY STAR	1,725,672	
ENERGY STAR Products	8,361,371	
Total Residential	**16,194,341**	

Program Cost-Effectiveness - 2017 PLAN

	Total Resource Benefit / Cost Ratio	Benefit ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
Home Energy Assistance	1.21	$ 4,191.3	$ 3,450.4	$ (0.0)	429.2	5,979.9	61.6	40.3	500	11,489.3	235,517.2
ENERGY STAR Homes	3.52	$ 4,893.0	$ 1,147.2	$ 241.0	986.3	22,488.5	197.5	75.8	377	9,335.7	233,057.3
Home Performance w/ ENERGY STAR	1.49	$ 5,569.5	$ 2,161.1	$ 1,575.1	578.1	6,843.3	66.2	76.0	1,070	15,376.1	306,920.5
ENERGY STAR Products [1]	3.46	$ 8,143.6	$ 2,044.3	$ 307.0	7,773.2	69,878.4	2,235.9	1,452.1	79,497	682.0	7,501.9
Home Energy Reports	1.85	$ 655.4	$ 355.1	$ -	2,600.0	7,131.2	273.1	296.8	50,000	-	-
Customer Engagement Platform	0.00	$ -	$ 85.1	$ -	-	-	-	-	-	-	-
ISO-NE Forward Capacity Market	0.00	$ -	$ 48.0	$ -	-	-	-	-	-	-	-
	0.00	$ -	$ -	$ -	-	-	-	-	-	-	-
Sub-Total Residential	**2.05**	**$ 23,452.9**	**$ 9,291.1**	**$ 2,123.0**	**12,366.9**	**112,321.2**	**2,834.2**	**1,940.9**	**131,444**	**36,883.0**	**782,996.8**
Commercial, Industrial & Municipal											
Large Business Energy Solutions	1.81	$ 23,670.0	$ 5,257.7	$ 7,791.0	20,649.1	284,362.9	1,616.4	2,076.7	282	-	-
Small Business Energy Solutions	1.44	$ 9,431.0	$ 3,104.6	$ 3,424.7	9,330.8	113,826.8	716.3	885.5	387	-	-
Municipal Energy Solutions	1.56	$ 5,990.8	$ 1,452.4	$ 2,378.8	4,419.7	58,769.7	348.5	614.4	325	3,433.1	33,710.1
C&I Customer Partnerships	0.00	$ -	$ 20.1	$ -	-	-	-	-	4	-	-
Energy Rewards RFP Program	2.02	$ 3,277.2	$ 668.7	$ 956.1	3,172.0	40,436.4	191.0	293.5	4	-	-
Customer Engagement Platform	0.00	$ -	$ 127.6	$ -	-	-	-	-	-	-	-
Education	0.00	$ -	$ 210.0	$ -	-	-	-	-	-	-	-
ISO-NE Forward Capacity Market	0.00	$ -	$ 112.0	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**1.66**	**$ 42,369.0**	**$ 10,953.1**	**$ 14,550.6**	**37,571.5**	**497,395.8**	**2,872.2**	**3,870.1**	**1,002**	**3,433.1**	**33,710.1**
Smart Start	0.00	$ -	$ 52.0	$ -	-	-	-	-	-	-	-
Total	**1.78**	**$ 65,821.9**	**$ 20,296.3**	**$ 16,673.6**	**49,938.4**	**609,717.0**	**5,706.4**	**5,811.0**	**132,446**	**40,316.1**	**816,706.9**

Note 1: Plan includes 62,139 purchasing a total of 248,557 ENERGY STAR lighting products (estimated at 4/customer) and 17,358 ENERGY STAR appliances.

Annual kWh Savings	49,938,422	80.9%	**kWh > 55%**	**Lifetime** kWh Savings	609,716,972	71.8%	**kWh > 55%**
Annual MMBTU Savings (in kWh)	11,815,484	19.1%		**Lifetime** MMBTU Savings (in kWh)	239,353,177	28.2%	
	61,753,907	100.0%			**849,070,149**	100.0%	

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Present Value Benefits - 2017 PLAN

		CAPACITY				ENERGY							
	Total Benefits ($000)	Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Gas Benefit	Gas DRIPE	Other Fuels Benefit	Other Resource
Residential Programs														
Home Energy Assistance	$ 4,191.3	$ 83.8	$ -	$ 9.2	$ 37.2	$ 102.1	$ 147.9	$ 43.4	$ 53.6	$ 8.6	$ 218.6	$ 25.4	$ 3,461.5	$ -
ENERGY STAR Homes	$ 4,893.0	$ 252.6	$ -	$ 27.0	$ 109.4	$ 422.5	$ 793.5	$ 82.0	$ 92.5	$ 22.1	$ 638.8	$ 68.5	$ 2,370.2	$ 13.9
Home Performance w/ ENERGY STAR	$ 5,569.5	$ 176.4	$ -	$ 19.2	$ 77.8	$ 115.0	$ 159.1	$ 52.5	$ 65.3	$ 11.3	$ -	$ -	$ 4,892.8	$ -
ENERGY STAR Products	$ 8,143.6	$ 2,187.6	$ -	$ 245.6	$ 995.5	$ 1,076.6	$ 1,564.8	$ 642.6	$ 612.0	$ 150.3	$ 36.1	$ 7.7	$ 54.1	$ 570.8
Home Energy Reports	$ 655.4	$ 127.8	$ -	$ 15.5	$ 62.7	$ 123.2	$ 169.8	$ 51.0	$ 64.0	$ 41.3	$ -	$ -	$ -	$ -
Customer Engagement Platform	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ISO-NE Forward Capacity Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Residential	**$ 23,452.9**	**$ 2,828.2**	**$ -**	**$ 316.5**	**$ 1,282.6**	**$ 1,839.4**	**$ 2,835.1**	**$ 871.6**	**$ 887.5**	**$ 233.6**	**$ 893.4**	**$ 101.6**	**$ 10,778.6**	$ 584.7
Commercial/Industrial Programs														
Large Business Energy Solutions	$ 23,670.0	$ 4,458.9	$ -	$ 487.5	$ 1,975.8	$ 5,703.9	$ 5,630.2	$ 2,759.5	$ 2,230.2	$ 423.8	$ -	$ -	$ -	$ -
Small Business Energy Solutions	$ 9,431.0	$ 1,781.9	$ -	$ 195.9	$ 793.8	$ 2,247.9	$ 2,209.3	$ 1,068.2	$ 947.1	$ 187.0	$ -	$ -	$ -	$ -
Municipal Energy Solutions	$ 5,990.8	$ 1,268.6	$ -	$ 139.2	$ 564.1	$ 1,224.0	$ 1,010.5	$ 640.4	$ 483.9	$ 90.1	$ -	$ -	$ 569.9	$ -
C&I Customer Partnerships	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Rewards RFP Program	$ 3,277.2	$ 595.3	$ -	$ 65.4	$ 265.1	$ 738.4	$ 728.7	$ 446.5	$ 374.4	$ 63.5	$ -	$ -	$ -	$ -
Customer Engagement Platform	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Education	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ISO-NE Forward Capacity Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 42,369.0**	**$ 8,104.7**	**$ -**	**$ 888.0**	**$ 3,598.8**	**$ 9,914.3**	**$ 9,578.7**	**$ 4,914.6**	**$ 4,035.6**	**$ 764.4**	**$ -**	**$ -**	**$ -**	**$ -**
Smart Start	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 65,821.9**	**$ 10,932.9**	**$ -**	**$ 1,204.5**	**$ 4,881.4**	**$ 11,753.7**	**$ 12,413.9**	**$ 5,786.2**	**$ 4,923.1**	**$ 998.0**	**$ 893.4**	**$ 101.6**	**$ 10,778.6**	**$ 584.7**

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Performance Incentive Calculation
2017

	Planned	Actual
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	**1.62**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime kWh Savings	**497,395,771**	
4. Threshold Lifetime kWh Savings (65%) [2]	323,307,251	
5. Implementation Expenses	$10,953,109	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$602,421	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$753,026	
Residential Incentive		
10. Benefit / Cost Ratio	**1.97**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime kWh Savings	**112,321,201**	
13. Threshold Lifetime kWh Savings (65%)	73,008,781	
14. Implementation Expenses	$9,291,146	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$511,013	
18. Maximum Residential Performance Incentive (6.875%)	$638,766	
19. TOTAL PLANNED / EARNED INCENTIVE	**$1,113,434**	

Notes

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

Planned Versus Actual Benefit / Cost Ratio by Sector
2017

		Planned		Actual
Commercial & Industrial				
1.	Benefits (Value) From Eligible Programs	$ 42,368,981	$	-
2.	Implementation Expenses	$ 10,953,109	$	-
3.	Customer Contribution	$ 14,550,561	$	-
4.	Performance Incentive	$ 602,421	$	-
5.	Total Costs	$ 26,106,091	$	-
6.	Benefit/Cost Ratio - Commercial & Industrial Sector	**1.62**		
Residential				
7.	Benefits (Value) From Eligible Programs	$ 23,452,896	$	-
8.	Implementation Expenses	$ 9,291,146	$	-
9.	Customer Contribution	$ 2,123,050	$	-
10.	Performance Incentive	$ 511,013	$	-
11.	Total Costs	$ 11,925,209	$	-
12.	Benefit/Cost Ratio - Residential Sector	**1.97**		

Lifetime Energy Savings by Sector and Program
2017

	Lifetime kWh Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	284,362,894	
Small Business Energy Solutions	113,826,834	
Municipal Energy Solutions	58,769,686	
Energy Rewards RFP Program	40,436,356	
Customer Engagement Platform	-	
Education	-	
ISO-NE Forward Capacity Market	-	
Total Commercial & Industrial	**497,395,771**	
Residential		
Home Energy Assistance	5,979,861	
ENERGY STAR Homes	22,488,505	
Home Performance w/ ENERGY STAR	6,843,259	
ENERGY STAR Products	69,878,393	
Home Energy Reports	7,131,184	
Customer Engagement Platform	-	
ISO-NE Forward Capacity Market	-	
Total Residential	**112,321,201**	

Program Cost-Effectiveness - 2017 PLAN

	Total Resource Benefit / Cost Ratio	Benefit ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
Home Energy Assistance	1.29	$ 693.0	$ 538.9	$ -	36.1	476	5.6	5.7	71	1,892.0	37,504.0
Energy Star Homes	1.69	$ 306.2	$ 130.0	$ 51.0	36.1	686	5.9	1.5	18	665.3	16,599.9
Home Performance with Energy Star	1.37	$ 637.9	$ 300.0	$ 165.0	55.5	875	15.4	2.0	61	1,717.6	36,502.0
Energy Star Products[1]	2.70	$ 1,274.8	$ 402.8	$ 69.5	1,406.5	11,833	397.5	212.5	16,661	394.6	4,341.0
ISO Forward Capacity Market Expenses		$ -	$ 23.0	$ -	-	-	-	-	-	-	-
Sub-Total Residential	**1.73**	**$ 2,912.0**	**$ 1,394.7**	**$ 285.5**	**1,534.2**	**13,869**	**424.4**	**221.7**	**16,811**	**4,669.5**	**94,946.9**
Commercial & Industrial Programs											
Large Business Energy Solutions	1.77	$ 3,559.6	$ 804.9	$ 1,205.7	2,851.1	37,064	264.0	439.1	11	-	-
Small Business Energy Solutions	1.39	$ 2,118.2	$ 686.1	$ 836.6	1,597.4	20,944	149.5	282.2	57	-	-
Municipal Energy Solutions	1.31	$ 1,040.9	$ 476.5	$ 320.0	718.9	9,346	67.0	126.9	15	300.0	6,000.0
Education		$ -	$ 45.0	$ -	-	-	-	-	-	-	-
ISO Forward Capacity Market Expenses		$ -	$ 18.8	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**1.53**	**$ 6,718.7**	**$ 2,031.3**	**$ 2,362.3**	**5,167.4**	**67,354**	**480.5**	**848.2**	**83**	**300.0**	**6,000.0**
Total	**1.59**	**$ 9,630.7**	**$ 3,426.0**	**$ 2,647.8**	**6,701.6**	**81,223**	**905.0**	**1,069.9**	**16,894**	**4,969.5**	**100,946.9**

[1] Plan includes 16,661 customers purchasing a total of 59,016 ENERGY STAR lighting products (estimated at 4/customer) and 1,907 ENERGY STAR appliances

Annual kWh Savings	6,701,632	82.1%	**kWh > 55%**	**Lifetime** kWh Savings	81,223,208	73.3%	**kWh > 55%**
Annual MMBTU Savings (in kWh)	1,456,417	17.9%		**Lifetime** MMBTU Savings (in kWh)	29,584,617	26.7%	
	8,158,049	100.0%			**110,807,825**	100.0%	

Revised December 12, 2016

Present Value Benefits - 2017 PLAN

	Total Benefits ($000)	CAPACITY				ENERGY									
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Gas Benefit	Gas DRIPE	Other Fuels Benefit	Non-Fuels Benefits
Residential Programs														
Home Energy Assistance	$ 693.0	$ 13.4	$ -	$ 1.5	$ 5.9	$ 8.1	$ 12.1	$ 3.3	$ 4.0	$ 0.7	$ -	$ -	$ 643.7	$ 0.3
Energy Star Homes	$ 306.2	$ 3.9	$ -	$ 0.4	$ 1.7	$ 11.4	$ 21.2	$ 5.3	$ 3.5	$ 0.8	$ 0.1	$ 0.0	$ 257.4	$ 0.5
Home Performance with Energy Star	$ 637.9	$ 3.7	$ -	$ 0.4	$ 1.7	$ 17.1	$ 28.9	$ 3.8	$ 2.6	$ 1.2	$ -	$ -	$ 578.4	$ -
Energy Star Products	$ 1,274.8	$ 282.8	$ -	$ 32.0	$ 129.9	$ 201.3	$ 263.4	$ 92.3	$ 102.7	$ 27.0	$ 14.2	$ 3.1	$ 46.2	$ 79.9
ISO-NE Forward Capacity Market Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Residential	**$ 2,912.0**	**$ 303.9**	**$ -**	**$ 34.3**	**$ 139.2**	**$ 237.9**	**$ 325.7**	**$ 104.6**	**$ 112.9**	**$ 29.7**	**$ 14.3**	**$ 3.1**	**$ 1,525.7**	**$ 80.7**
Commercial & Industrial Programs														
Large Business Energy Solutions	$ 3,559.6	$ 887.2	$ -	$ 97.5	$ 395.3	$ 812.7	$ 655.5	$ 384.8	$ 268.0	$ 58.7	$ -	$ -	$ -	$ -
Small Business Energy Solutions	$ 2,118.2	$ 574.9	$ -	$ 63.2	$ 255.9	$ 430.7	$ 314.1	$ 262.9	$ 184.2	$ 32.4	$ -	$ -	$ -	$ -
Municipal Energy Solutions	$ 1,040.9	$ 256.3	$ -	$ 28.2	$ 114.2	$ 191.1	$ 139.4	$ 117.7	$ 82.8	$ 14.5	$ -	$ -	$ 96.5	$ -
ISO Forward Capacity Market Expenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 6,718.7**	**$ 1,718.3**	**$ -**	**$ 188.9**	**$ 765.4**	**$ 1,434.5**	**$ 1,109.0**	**$ 765.4**	**$ 535.1**	**$ 105.6**	**$ -**	**$ -**	**$ 96.5**	**$ -**
Total	**$ 9,630.7**	**$ 2,022.2**	**$ -**	**$ 223.2**	**$ 904.6**	**$ 1,672.5**	**$ 1,434.7**	**$ 870.0**	**$ 648.0**	**$ 135.2**	**$ 14.3**	**$ 3.1**	**$ 1,622.2**	**$ 80.7**

Performance Incentive Calculation
2017

	Planned	Actual
Commercial & Industrial Incentive		
1. Benefit/Cost Ratio	**1.49**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime kWh Savings	**67,354,220**	
4. Threshold Lifetime kWh Savings (65%) [2]	43,780,243	
5. Implementation Expenses	$2,031,293	
6. Benefit / Cost Percentage of Implementation Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$111,721	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$139,651	
Residential Incentive		
10. Benefit / Cost Ratio	**1.66**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime kWh Savings	**13,868,988**	
13. Threshold Lifetime kWh Savings (65%) [2]	9,014,842	
14. Implementation Expenses	$1,394,700	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$76,708	
18. Maximum Residential Performance Incentive (6.875%)	$95,886	
19. TOTAL PLANNED / EARNED INCENTIVE	**$188,430**	

Notes

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

Planned Versus Actual Benefit / Cost Ratio by Sector
2017

		Planned	Actual
Commercial & Industrial			
1. Benefits (Value) From Eligible Programs	$	6,718,683	
2. Implementation Expenses	$	2,031,293	
3. Customer Contribution	$	2,362,286	
4. Performance Incentive	$	111,721	
5. Total Costs	$	4,505,299	
6. Benefit/Cost Ratio - Commercial & Industrial		**1.49**	
Residential			
7. Benefits (Value) From Eligible Programs	$	2,911,975	
8. Implementation Expenses	$	1,394,700	
9. Customer Contribution	$	285,490	
10. Performance Incentive	$	76,708	
11. Total Costs	$	1,756,899	
12. Benefit/Cost Ratio - Residential Sector		**1.66**	

Lifetime Energy Savings by Sector and Program
2017

	Lifetime kWh Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	37,063,830	
Small Business Energy Solutions	20,944,074	
Municipal Energy Solutions	9,346,316	
Total Commercial & Industrial	**67,354,220**	
Residential		
Home Energy Assistance	476,109	
Energy Star Homes	685,521	
Home Performance with Energy Star	874,567	
Energy Star Products	11,832,790	
Total Residential	**13,868,988**	

Program Cost-Effectiveness - 2017 PLAN

	Total Resource Benefit / Cost Ratio	Benefits ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
Home Energy Assistance	1.03	$ 249.5	$ 241.1	$ -	19.5	354	4.3	0.3	42	1,206.6	23,672.0
Energy Star Homes	1.71	$ 357.9	$ 160.5	$ 49.1	42.5	970	10.0	0.7	42	1,276.5	31,681.5
Home Performance with Energy Star	1.23	$ 253.0	$ 136.8	$ 69.4	10.8	184	1.9	0.2	30	1,228.8	25,504.0
Energy Star Products	1.15	$ 499.5	$ 210.0	$ 224.0	18.5	289	5.2	-	397	2,987.7	50,524.9
Sub-Total Residential	**1.25**	**$ 1,359.8**	**$ 748.5**	**$ 342.4**	**91.4**	**1,797**	**21.4**	**1.2**	**511**	**6,699.6**	**131,382.4**
Commercial & Industrial Programs											
Large Business Energy Solutions	2.24	$ 3,291.8	$ 413.8	$ 1,058.4	-	-	-	-	43	19,472.3	385,820.2
Small Business Energy Solutions	1.58	$ 781.8	$ 241.5	$ 252.7	-	-	-	-	72	4,403.6	89,832.3
Education		$ -	$ 14.4	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**2.06**	**$ 4,073.6**	**$ 669.7**	**$ 1,311.0**	**-**	**-**	**-**	**-**	**115**	**23,875.9**	**475,652.5**
Total	**1.77**	**$ 5,433.4**	**$ 1,418.2**	**$ 1,653.5**	**91.4**	**1,797**	**21.4**	**1.2**	**626**	**30,575.5**	**607,034.9**

Present Value Benefits - 2017 PLAN

	Total Benefits ($000)	Gas Benefit	Gas DRIPE	Electic Benefits	Electric DRIPE	Non-Fuels Benefits
Residential Programs						
Home Energy Assistance	$ 249.5	$ 201.4	$ 25.2	$ 22.4	$ 0.4	$ 0.2
Energy Star Homes	$ 357.9	$ 264.1	$ 28.4	$ 62.8	$ 1.0	$ 1.6
Home Performance with Energy Star	$ 253.0	$ 214.9	$ 25.9	$ 11.8	$ 0.2	$ 0.1
Energy Star Products	$ 499.5	$ 421.0	$ 61.0	$ 17.1	$ 0.4	$ -
Sub-Total Residential	**$ 1,359.8**	**$ 1,101.3**	**$ 140.6**	**$ 114.1**	**$ 2.0**	**$ 1.9**
Commercial & Industrial Programs						
Large Business Energy Solutions	$ 3,291.8	$ 2,866.8	$ 423.2	$ -	$ -	$ 1.7
Small Business Energy Solutions	$ 781.8	$ 675.5	$ 97.8	$ -	$ -	$ 8.5
Sub-Total Commercial & Industrial	**$ 4,073.6**	**$ 3,542.3**	**$ 521.1**	$ -	**$ -**	**$ 10.2**
Total	**$ 5,433.4**	**$ 4,643.7**	**$ 661.6**	**$ 114.1**	**$ 2.0**	**$ 12.0**

Performance Incentive Calculation
2017

	Planned	Actual
Commercial & Industrial Incentive		
1. Benefit/Cost Ratio	**2.02**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime MMBtu Savings	**475,653**	
4. Threshold Lifetime MMBtu Savings (65%) [2]	309,174	
5. Implementation Expenses	$669,697	
6. Benefit / Cost Percentage of Implementation Expenses	2.75%	
7. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	**$36,833**	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$46,042	
Residential Incentive		
10. Benefit / Cost Ratio	**1.20**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime MMBtu Savings	**131,382**	
13. Threshold Lifetime MMBtu Savings (65%) [2]	85,399	
14. Implementation Expenses	$748,478	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	**$41,166**	
18. Maximum Residential Performance Incentive (6.875%)	$51,458	
19. TOTAL PLANNED / EARNED INCENTIVE	**$78,000**	

Notes

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

Planned Versus Actual Benefit / Cost Ratio by Sector
2017

		Planned	Actual
Commercial & Industrial			
1. Benefits (Value) From Eligible Programs	$	4,073,586	
2. Implementation Expenses	$	669,697	
3. Customer Contribution	$	1,311,049	
4. Performance Incentive	$	36,833	
5. Total Costs	$	2,017,580	
6. Benefit/Cost Ratio - Commercial & Industrial Sector		**2.02**	
Residential			
7. Benefits (Value) From Eligible Programs	$	1,359,827	
8. Implementation Expenses	$	748,478	
9. Customer Contribution	$	342,416	
10. Performance Incentive	$	41,166	
11. Total Costs	$	1,132,060	
12. Benefit/Cost Ratio - Residential Sector		**1.20**	

Lifetime Energy Savings by Sector and Program
2017

	Lifetime MMBtu Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	385,820	
Small Business Energy Solutions	89,832	
Total Commercial & Industrial	**475,653**	
Residential		
Home Energy Assistance	23,672	
Energy Star Homes	31,682	
Home Performance with Energy Star	25,504	
Energy Star Products	50,525	
Total Residential	**131,382**	

NHSAVES ENERGY EFFICIENCY PROGRAM - 2017 UTILITY BUDGETS BY ACTIVITY
Residential Programs

Description		Electric Utilities					Gas Utilities			
		LU Electric	NHEC	Eversource	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	Grand Total
Home Energy	Internal Admin	$ 9,804	$ 16,316	$ 101,842	$ 25,657	$ 153,619	$ 22,100	$ 15,280	$ 37,380	$ 190,999
Assistance	External Admin	0	11,250	0	0	11,250	0	0	0	11,250
	Rebate/Services	296,087	213,623	3,029,370	421,537	3,960,617	820,000	173,500	993,500	4,954,117
	Implementation Services	47,060	28,518	141,662	64,000	281,240	60,000	36,569	96,569	377,810
	Marketing	19,608	3,964	5,000	2,956	31,528	53,000	3,200	56,200	87,728
	EM&V	19,608	10,637	172,520	24,724	227,489	50,600	12,537	63,137	290,625
	Total	$ 392,168	$ 284,308	$ 3,450,394	$ 538,874	$ 4,665,744	$ 1,005,700	$ 241,086	$ 1,246,786	$ 5,912,529
HP w/EnergyStar®	Internal Admin	$ 4,638	$ 19,942	$ 63,786	$ 13,985	$ 102,351	$ 11,200	$ 11,958	$ 23,158	$ 125,509
	External Admin	0	11,250	0	0	11,250	0	0	0	11,250
	Rebate/Services	140,054	137,807	1,747,600	214,315	2,239,777	600,000	88,050	688,050	2,927,827
	Implementation Services	22,260	34,856	216,638	52,000	325,754	45,000	28,091	73,091	398,845
	Marketing	9,275	3,964	25,000	4,950	43,189	36,000	2,500	38,500	81,689
	EM&V	9,275	10,637	108,054	14,750	142,716	37,000	6,250	43,250	185,966
	Total	$ 185,503	$ 218,456	$ 2,161,079	$ 300,000	$ 2,865,037	$ 729,200	$ 136,849	$ 866,049	$ 3,731,086
EnergyStar® Homes	Internal Admin	$ 3,001	$ 26,356	$ 33,861	$ 6,210	$ 69,428	$ 5,000	$ 9,751	$ 14,751	$ 84,179
	External Admin	0	11,250	0	0	11,250	0	0	0	11,250
	Rebate/Services	90,623	74,490	919,555	95,850	1,180,518	68,000	115,000	183,000	1,363,518
	Implementation Services	14,404	46,067	121,434	20,000	201,905	33,000	24,545	57,545	259,450
	Marketing	6,002	3,964	15,000	1,390	26,356	16,000	3,200	19,200	45,556
	EM&V	6,002	10,637	57,361	6,550	80,549	14,000	8,000	22,000	102,549
	Total	$ 120,031	$ 172,764	$ 1,147,211	$ 130,000	$ 1,570,006	$ 136,000	$ 160,496	$ 296,496	$ 1,866,502
Energy Star® Products	Internal Admin	$ 6,002	$ 53,207	$ 60,338	$ 18,963	$ 138,510	$ 15,500	$ 11,684	$ 27,184	$ 165,694
	External Admin	0	11,250	0	0	11,250	0	0	0	11,250
	Rebate/Services	181,247	160,154	1,677,599	288,560	2,307,560	678,220	144,000	822,220	3,129,780
	Implementation Services	28,807	93,000	84,113	50,000	255,920	35,000	34,363	69,363	325,283
	Marketing	12,003	10,000	120,000	25,303	167,306	46,500	10,000	56,500	223,806
	EM&V	12,003	10,637	102,213	20,000	144,853	40,000	10,000	50,000	194,853
	Total	$ 240,062	$ 338,248	$ 2,044,264	$ 402,826	$ 3,025,399	$ 815,220	$ 210,047	$ 1,025,267	$ 4,050,667

NHSAVES ENERGY EFFICIENCY PROGRAM - 2017 UTILITY BUDGETS BY ACTIVITY
Residential Programs (Continued)

Description		Electric Utilities					Gas Utilities			Grand Total
		LU Electric	NHEC	Eversource	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	
Other*	Internal Admin	$ -	$ -	$ 14,410	$ 15,000	$ 29,410	$ 4,000	$ -	$ 4,000	$ 33,410
	External Admin	0	0	0	0	0	0	0	0	0
	Rebate/Services	0	0	397,819	0	397,819	194,000	0	194,000	591,819
	Implementation Services	0	0	51,560	0	51,560	8,000	0	8,000	59,560
	Marketing	0	0	0	0	0	10,000	0	10,000	10,000
	EM&V	8,550	3,000	24,410	8,000	43,960	11,000	0	11,000	54,960
	Total	$ 8,550	$ 3,000	$ 488,199	$ 23,000	$ 522,749	$ 227,000	$ -	$ 227,000	$ 749,749
Total Residential	Internal Admin	$ 23,444	$ 115,821	$ 274,237	$ 79,815	$ 493,317	$ 57,800	$ 48,673	$ 106,473	$ 599,790
	External Admin	0	45,000	0	0	45,000	0	0	0	45,000
	Rebate/Services	708,012	586,074	7,771,944	1,020,262	10,086,292	2,360,220	520,550	2,880,770	12,967,062
	Implementation Services	112,532	202,441	615,408	186,000	1,116,380	181,000	123,568	304,568	1,420,948
	Marketing	46,888	21,892	165,000	34,599	268,379	161,500	18,900	180,400	448,779
	EM&V	55,438	45,548	464,557	74,024	639,567	152,600	36,787	189,387	828,954
	Total	$ 946,314	$ 1,016,776	$ 9,291,146	$ 1,394,700	$ 12,648,935	$ 2,913,120	$ 748,478	$ 3,661,598	$ 16,310,533
Total %	Internal Admin	2.5%	11.4%	3.0%	5.7%	3.9%	2.0%	6.5%	2.9%	3.7%
	External Admin	0.0%	4.4%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.3%
	Rebate/Services	74.8%	57.6%	83.6%	73.2%	79.7%	81.0%	69.5%	78.7%	79.5%
	Implementation Services	11.9%	19.9%	6.6%	13.3%	8.8%	6.2%	16.5%	8.3%	8.7%
	Marketing	5.0%	2.2%	1.8%	2.5%	2.1%	5.5%	2.5%	4.9%	2.8%
	EM&V	5.9%	4.5%	5.0%	5.3%	5.1%	5.2%	4.9%	5.2%	5.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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

NHSAVES ENERGY EFFICIENCY PROGRAM - 2017 UTILITY BUDGETS BY ACTIVITY
C&I and Municipal Programs

		Electric Utilities					Gas Utilities			
		LU Electric	NHEC	Eversource	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	Grand Total
Large Business Energy Solutions	Internal Admin	$ 10,546	$ 21,261	$ 155,141	$ 37,925	$ 224,873	$ 29,500	$ 25,167	$ 54,667	$ 279,540
	External Admin	0	10,000	0	0	10,000	0	0	0	10,000
	Rebate/Services	534,318	126,656	4,289,115	641,071	5,591,160	1,332,500	308,000	1,640,500	7,231,660
	Implementation Services	87,881	37,161	525,615	66,000	716,657	74,500	50,000	124,500	841,157
	Marketing	35,152	3,964	25,000	15,069	79,185	48,500	10,000	58,500	137,685
	EM&V	35,152	10,637	262,809	44,790	353,389	78,100	20,677	98,777	452,167
	Total	$ 703,050	$ 209,679	$ 5,257,680	$ 804,856	$ 6,975,265	$ 1,563,100	$ 413,844	$ 1,976,944	$ 8,952,209
Small Business Energy Solutions	Internal Admin	$ 6,679	$ 21,261	$ 91,636	$ 32,288	$ 151,864	$ 27,500	$ 16,179	$ 43,679	$ 195,543
	External Admin	0	10,000	0	0	10,000	0	0	0	10,000
	Rebate/Services	338,401	158,319	2,450,073	551,340	3,498,133	1,150,000	177,000	1,327,000	4,825,133
	Implementation Services	55,658	37,161	392,678	50,000	535,497	72,000	30,000	102,000	637,497
	Marketing	22,263	3,964	15,000	15,000	56,227	55,000	5,000	60,000	116,227
	EM&V	22,263	10,637	155,231	37,460	225,591	68,500	13,274	81,774	307,365
	Total	$ 445,265	$ 241,342	$ 3,104,617	$ 686,088	$ 4,477,313	$ 1,373,000	$ 241,453	$ 1,614,453	$ 6,091,766
Municipal	Internal Admin	$ 2,700	$ 21,261	$ 42,870	$ 22,591	$ 89,422	$ -	$ -	$ -	$ 89,422
	External Admin	0	10,000	0	0	10,000	0	0	0	10,000
	Rebate/Services	136,793	91,945	1,277,423	378,000	1,884,161	0	0	0	1,884,161
	Implementation Services	22,499	37,161	54,527	40,000	154,187	0	0	0	154,187
	Marketing	9,000	3,964	5,000	14,565	32,529	0	0	0	32,529
	EM&V	9,000	10,637	72,622	21,373	113,632	0	0	0	113,632
	Total	$ 179,990	$ 174,968	$ 1,452,443	$ 476,529	$ 2,283,930	$ -	$ -	$ -	$ 2,283,930
Other*	Internal Admin	$ 352	$ 2,800	$ 35,179	$ 10,820	$ 49,151	$ 2,000	$ -	$ 2,000	$ 51,151
	External Admin	0	0	0	0	0	0	0	0	0
	Rebate/Services	17,811	31,664	938,577	40,000	1,028,052	42,000	8,000	50,000	1,078,052
	Implementation Services	2,929	4,894	149,019	5,000	161,843	6,500	3,000	9,500	171,343
	Marketing	1,172	0	8,000	0	9,172	14,000	3,000	17,000	26,172
	EM&V	21,122	7,000	59,593	8,000	95,715	0	400	400	96,115
	Total	$ 43,385	$ 46,358	$ 1,190,369	$ 63,820	$ 1,343,932	$ 64,500	$ 14,400	$ 78,900	$ 1,422,832

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

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

		Electric Utilities					Gas Utilities			
		LU Electric	NHEC	Eversource	Unitil	Sub-total Electric	LU Gas	Unitil Gas	Sub-total Gas	Grand Total
Total C&I and Municipal	Internal Admin	$ 20,276	$ 66,583	$ 324,826	$ 103,624	$ 515,310	$ 59,000	$ 41,346	$ 100,346	$ 615,656
	External Admin	0	30,000	0	0	30,000	0	0	0	30,000
	Rebate/Services	1,027,322	408,584	8,955,188	1,610,411	12,001,506	2,524,500	493,000	3,017,500	15,019,006
	Implementation Services	168,967	116,377	1,121,839	161,000	1,568,184	153,000	83,000	236,000	1,804,184
	Marketing	67,587	11,892	53,000	44,634	177,113	117,500	18,000	135,500	312,613
	EM&V	87,537	38,911	550,255	111,623	788,327	146,600	34,351	180,951	969,278
	Total	$ 1,371,690	$ 672,347	$ 11,005,109	$ 2,031,293	$ 15,080,439	$ 3,000,600	$ 669,697	$ 3,670,297	$ 18,750,736
Total C&I and Municipal %	Internal Admin	1.5%	9.9%	3.0%	5.1%	3.4%	2.0%	6.2%	2.7%	3.3%
	External Admin	0.0%	4.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%
	Rebate/Services	74.9%	60.8%	81.4%	79.3%	79.6%	84.1%	73.6%	82.2%	80.1%
	Implementation Services	12.3%	17.3%	10.2%	7.9%	10.4%	5.1%	12.4%	6.4%	9.6%
	Marketing	4.9%	1.8%	0.5%	2.2%	1.2%	3.9%	2.7%	3.7%	1.7%
	EM&V	6.4%	5.8%	5.0%	5.5%	5.2%	4.9%	5.1%	4.9%	5.2%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Grand Total (Residential, C&I and Municipal)	Internal Admin	$ 43,720	$ 182,404	$ 599,063	$ 183,439	$ 1,008,627	$ 116,800	$ 90,019	$ 206,819	$ 1,215,446
	External Admin	0	75,000	0	0	$ 75,000	0	0	0	75,000
	Rebate/Services	1,735,334	994,658	16,727,132	2,630,673	$ 22,087,797	4,884,720	1,013,550	5,898,270	27,986,067
	Implementation Services	281,499	318,818	1,737,247	347,000	$ 2,684,564	334,000	206,568	540,568	3,225,132
	Marketing	114,475	33,784	218,000	79,233	$ 445,492	279,000	36,900	315,900	761,392
	EM&V	142,975	84,459	1,014,813	185,647	$ 1,427,894	299,200	71,138	370,338	1,798,232
	Total	$ 2,318,004	$ 1,689,123	$ 20,296,255	$ 3,425,992	$ 27,729,374	$ 5,913,720	$ 1,418,175	$ 7,331,895	$ 35,061,268
Grand Total % (Residential, C&I and Municipal)	Internal Admin	1.9%	10.8%	3.0%	5.4%	3.6%	2.0%	6.3%	2.8%	3.5%
	External Admin	0.0%	4.4%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.2%
	Rebate/Services	74.9%	58.9%	82.4%	76.8%	79.7%	82.6%	71.5%	80.4%	79.8%
	Implementation Services	12.1%	18.9%	8.6%	10.1%	9.7%	5.6%	14.6%	7.4%	9.2%
	Marketing	4.9%	2.0%	1.1%	2.3%	1.6%	4.7%	2.6%	4.3%	2.2%
	EM&V	6.2%	5.0%	5.0%	5.4%	5.1%	5.1%	5.0%	5.1%	5.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NHSAVES ELECTRIC PROGRAMS - 2017 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

	LU Electric		NHEC		Eversource		Unitil Electric		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	42	530,488	35	500,121	500	5,979,861	71	476,109	648	7,486,579
B/C Ratio / Planned Budget	1.16	$392,168	1.15	$284,308	1.21	$3,450,394	1.29	$538,874		$4,665,744
/ Lifetime MMBtu Savings		21,427		18,638		235,517		37,504		313,086
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	61	1,919,084	61	1,725,672	1,070	6,843,259	61	874,567	1,253	11,362,582
B/C Ratio / Planned Budget	1.80	$185,503	1.33	$218,456	1.49	$2,161,079	1.37	$300,000		$2,865,037
/ Lifetime MMBtu Savings		26,425		24,288		306,920		36,502		394,135
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	37	1,015,973	22	5,607,177	377	22,488,505	18	685,521	454	29,797,177
B/C Ratio / Planned Budget	3.48	$120,031	2.54	$172,764	3.52	$1,147,211	1.69	$130,000		$1,570,006
/ Lifetime MMBtu Savings		27,622		22,869		233,057		16,600		300,148
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	10,704	7,897,008	11,582	8,361,371	79,497	69,878,393	16,661	11,832,790	118,444	97,969,563
B/C Ratio / Planned Budget	2.86	$240,062	2.33	$338,248	3.46	$2,044,264	2.70	$402,826		$3,025,399
/ Lifetime MMBtu Savings		246		554		7,502		4,341		12,643
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	44	34,390,514	19	13,736,351	282	284,362,894	11	37,063,830	356	369,553,589
B/C Ratio / Planned Budget	2.43	$703,050	2.57	$209,679	1.81	$5,257,680	1.77	$804,856		$6,975,265
/ Lifetime MMBtu Savings		0		0		0		0		0
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	512	16,697,063	50	9,334,031	387	113,826,834	57	20,944,074	1,006	160,802,002
B/C Ratio / Planned Budget	1.97	$445,265	2.28	$241,342	1.44	$3,104,617	1.39	$686,088		$4,477,313
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	41	4,363,964	23	2,322,346	325	58,769,686	15	9,346,316	405	74,802,312
B/C Ratio / Planned Budget	1.23	$179,990	1.01	$174,968	1.56	$1,452,443	1.31	$476,529		$2,283,930
/ Lifetime MMBtu Savings		0		3,640		33,710		6,000		43,351
Educational Programs										
Number of Participants / Planned Budget	0	$23,435	0	$39,358	0	$210,000	0	$45,000	0	$317,793
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	0	0	0	0	50,008	47,567,540	0	0	50,008	47,567,540
B/C Ratio / Planned Budget		$28,500		$10,000		$1,416,568		$41,820		$1,496,888
/ Lifetime MMBtu Savings		0		0		0		0		
Smart Start (Eversource)										
Number of Participants / Planned Budget	0	$0	0	$0	0	$52,000	0	$0	0	$52,000
Utility Performance Incentive										
Planned Budget		$127,490		$92,902		$1,113,434		$188,430		$1,522,256
TOTAL PLANNED BUDGET		**$2,445,494**		**$1,782,025**		**$21,409,689**		**$3,614,422**		**$29,251,630**

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NHSAVES ELECTRIC PROGRAMS

SBC[1] and RGGI Funding Allocation

2017 Budget

Program Allocation Summary

Program	RGGI	SBC[1]	TOTAL
HEA[2]			
LU-Electric	10.38765%	89.61235%	100.00000%
NHEC	11.70104%	88.29896%	100.00000%
Eversource	10.04361%	89.95639%	100.00000%
Unitil	9.85091%	90.14909%	100.00000%
Municipal			
LU-Electric	100.00000%	0.00000%	100.00000%
NHEC	100.00000%	0.00000%	100.00000%
Eversource	100.00000%	0.00000%	100.00000%
Unitil	100.00000%	0.00000%	100.00000%

A	B	C	D
Utility	**HEA Budget**	**RGGI HEA[3]**	**SBC HEA[4]**
LU-Electric	$ 392,168	$40,737	$351,431
NHEC	$ 284,308	$33,267	$251,041
Eversource	$ 3,450,394	$346,544	$3,103,850
Unitil	$ 538,874	$53,084	$485,790
Total	$ 4,665,744	$473,632	$4,192,112

Notes:

[1] SBC = System Benefits Charge, Forward Capacity Market and Carryforward/Interest

[2] HEA Allocation

RGGI HEA = RGGI HEA (C) /Total HEA Funds (B)

SBC HEA = SBC HEA (D) /Total HEA Funds (B)

[3] 17.0% of Total RGGI Funds including SB 268 funding less RGGI HEA Performance Incentive (($2,939,302 x .17) - ($473,632 x .055))

[4] SBC HEA = Utility's total HEA program budget (B) less RGGI HEA (C)

NHSAVES ELECTRIC PROGRAMS - 2017 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

(System Benefits Charge, Forward Capacity Market and Interest Funds Only)

	LU Electric		NHEC		Eversource		Unitil Electric		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	38	475,383	31	441,602	450	5,379,267	64	429,208	583	6,725,460
B/C Ratio / Planned Budget	1.04	$351,431	1.02	$251,041	1.09	$3,103,850	1.16	$485,790		$4,192,112
/ Lifetime MMBtu Savings		19,201		16,457		211,863		33,810		281,330
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	61	1,919,084	61	1,725,672	1,070	6,843,259	61	874,567	1,253	11,362,582
B/C Ratio / Planned Budget	1.80	$185,503	1.33	$218,456	1.49	$2,161,079	1.37	$300,000		$2,865,037
/ Lifetime MMBtu Savings		26,425		24,288		306,920		36,502		394,135
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	37	1,015,973	22	5,607,177	377	22,488,505	18	685,521	454	29,797,177
B/C Ratio / Planned Budget	3.48	$120,031	2.54	$172,764	3.52	$1,147,211	1.69	$130,000		$1,570,006
/ Lifetime MMBtu Savings		27,622		22,869		233,057		16,600		300,148
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	10,704	7,897,008	11,582	8,361,371	79,497	69,878,393	16,661	11,832,790	118,444	97,969,563
B/C Ratio / Planned Budget	2.86	$240,062	2.33	$338,248	3.46	$2,044,264	2.70	$402,826		$3,025,399
/ Lifetime MMBtu Savings		246		554		7,502		4,341		12,643
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	44	34,390,514	19	13,736,351	282	284,362,894	11	37,063,830	356	369,553,589
B/C Ratio / Planned Budget	2.43	$703,050	2.57	$209,679	1.81	$5,257,680	1.77	$804,856		$6,975,265
/ Lifetime MMBtu Savings		0		0		0		0		0
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	512	16,697,063	50	9,334,031	387	113,826,834	57	20,944,074	1,006	160,802,002
B/C Ratio / Planned Budget	1.97	$445,265	2.28	$241,342	1.44	$3,104,617	1.39	$686,088		$4,477,313
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	$0	0.00	$0	0.00	$0	0.00	$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Educational Programs										
Number of Participants / Planned Budget	0	$23,435	0	$39,358	0	$210,000	0	$45,000	0	$317,793
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	0	0	0	0	50,008	47,567,540	0	0	50,008	47,567,540
B/C Ratio / Planned Budget		$28,500		$10,000		$1,416,568		$41,820		$1,496,888
/ Lifetime MMBtu Savings		0		0		0		0		
Smart Start (NHEC/PSNH), RLF (UES)										
Number of Participants / Planned Budget	0	$0	0	$0	0	$52,000	0	$0	0	$52,000
Utility Performance Incentive										
Planned Budget		$115,350		$81,449		$1,014,490		$159,301		$1,370,590
TOTAL PLANNED BUDGET		**$2,212,627**		**$1,562,337**		**$19,511,758**		**$3,055,681**		**$26,342,402**

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NHSAVES ELECTRIC PROGRAMS - 2017 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

(Energy Efficiency Fund Only - Regional Greenhouse Gas Initiative)

	LU Electric		NHEC		Eversource		Unitil Electric		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	4	55,105	4	58,519	50	600,594	7	46,901	66	761,119
B/C Ratio / Planned Budget	0.12	$40,737	0.13	$33,267	0.12	$346,544	0.13	$53,084		$473,632
/ Lifetime MMBtu Savings		2,226		2,181		23,654		3,694		31,755
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	$0	0.00	$0	0.00	$0	0.00	$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	$0	0.00	$0	0.00	$0	0.00	$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	$0	0.00	$0	0.00	$0	0.00	$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	$0	0.00	$0	0.00	$0	0.00	$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	$0	0.00	$0	0.00	$0	0.00	$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	41	4,363,964	23	2,322,346	325	58,769,686	15	9,346,316	405	74,802,312
B/C Ratio / Planned Budget	1.23	$179,990	1.01	$174,968	1.56	$1,452,443	1.31	$476,529		$2,283,930
/ Lifetime MMBtu Savings		0		3,640		33,710		6,000		43,351
Educational Programs										
Number of Participants / Planned Budget		$0		$0		$0		$0		$0
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget		$0		$0		$0		$0		$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (NHEC/PSNH), RLF (UES)										
Number of Participants / Planned Budget	0	$0	0	$0	0	$0	0	$0	0	$0
Utility Performance Incentive										
Planned Budget		$12,140		$11,453		$98,944		$29,129		$151,666
TOTAL PLANNED BUDGET		**$232,867**		**$219,688**		**$1,897,931**		**$558,741**		**$2,909,228**

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NHSAVES GAS PROGRAMS - 2017 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets and Lifetime MMBtu Savings

	LU Gas		Unitil Gas		Total	
Home Energy Assistance						
Number of Units / Lifetime MMBtu Savings	198	106,032	42	23,672	240	129,704
B/C Ratio / Planned Budget	1.07	$1,005,700	1.03	$241,086		$1,246,786
Home Performance w/ENERGY STAR						
Number of Participants / Lifetime MMBtu Savings	207	156,463	30	25,504	237	181,967
B/C Ratio / Planned Budget	1.36	$729,200	1.23	$136,849		$866,049
ENERGY STAR Homes						
Number of Homes / Lifetime MMBtu Savings	44	45,716	42	31,682	86	77,398
B/C Ratio / Planned Budget	2.11	$136,000	1.71	$160,496		$296,496
ENERGY STAR Products						
Number of Participants / Lifetime kWh Savings	1,322	178,693	397	50,525	1,719	229,218
B/C Ratio / Planned Budget	1.06	$815,220	1.15	$210,047		$1,025,267
/ Lifetime MMBtu Savings						
Large Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	225	654,550	43	385,820	268	1,040,370
B/C Ratio / Planned Budget	2.07	$1,563,100	2.24	$413,844		$1,976,944
Small Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	2,797	517,573	72	89,832	2,869	607,406
B/C Ratio / Planned Budget	2.15	$1,373,000	1.58	$241,453		$1,614,453
Education						
B/C Ratio / Planned Budget		$64,500		$14,400		$78,900
Company Specific Programs						
Number of Participants / Lifetime MMBtu Savings	38,000	32,600	0	0	38,000	32,600
B/C Ratio / Planned Budget	1.84	$227,000	0.00	$0		$227,000
Utility Performance Incentive						
Planned Budget		$325,255		$78,000		$403,254
Total Program Expenses		**$6,238,975**		**$1,496,174**		**$7,735,149**

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Liberty Utilities Electric Home Energy Assistance Program

	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			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Baseload (Lighting)	0	555			640.0	67.1			5	20		5	86%		0.0	633,056.2			0.0	(0.1)			0	(825.4)		
Baseload (Refrigerators)	0	54			640.0	410.3			19	19		19	86%		0.0	362,838.2			0.0	(0.1)			0	(102.7)		
Baseload-SF: Lights, Refrigerators, DHW				5				1,122.3				10		86%				45,953.1				0.0				0.0
Weatherization SF Electric Heat (Includes insulation, water, etc.)	1	81	1	1	5,417.8	683.5	5,417.8	5,417.8	13	17	13	13	86%	86%	59,488.6	937,190.4	59,488.6	59,488.6	0.0	(0.4)	0.0	0.0	0.0	(3.7)	0.0	0.0
Weatherization SF Kerosene heat (Includes insulation, water, etc.)	3	5	2	2	0.0	108.8	0.0	0.0	20	20	19	19	86%	86%	0.0	9,191.1	0.0	0.0	19.7	4.7	24.0	20.1	1,034.7	397.4	783.5	760.7
Weatherization SF Propane heat (Includes insulation, water, etc.)	6	40	3	3	0.0	70.7	0.0	0.0	20	24	21.62	22	86%	86%	0.0	59,024.5	0.0	0.0	30.0	3.7	12.4	20.9	3,080.1	3,570.9	693.3	1,355.6
Weatherization SF Cordwood Heat (Includes insulation, water, etc.)	4	1	2	2	0.0	1,407.0	0.0	0.0	21	25	21	21	86%	86%	0.0	30,320.9	0.0	0.0	38.4	3.4	38.4	20.5	2,793.7	74.1	1,396.9	865.1
Weatherization SF Oil heat (Includes insulation, water, etc.)	32	51	29	34	0.0	21.2	0.0	0.0	21	25	23	23	86%	86%	0.0	23,196.4	0.0	0.0	28.0	17.9	29.7	20.7	16,319.8	19,516.5	16,703.7	16,162.7
Electric Svgs on Fossil Heated Homes (Ref, DHW, Lighting)	45	36	36		1,181.6	90.9	1,730.2		12	4	17		86%		539,277.4	11,288.8	884,566.3		0.0	0.2	0.0		0.0	29.7	0.0	
Elec Savings on Fossil Homes (Lighting)				37				369.1				8		86%				94,681.4				0.0				0.0
Elec Savings on Fossil Homes (Refrigerators)				17				586.0				12		86%				100,207.0				0.0				0.0
Elec Savings on Fossil Homes (Elec Shell, secondary heat)				29				382.2				21		86%				197,587.7				0.0				0.0
Elec Savings on Baseload Homes (Lighting)				5				369.1				8		86%				12,727.4				0.0				0.0
Elec Savings on Baseload Homes (Refrigerators)				3				586.0				12		86%				15,154.0				0.0				0.0
Thermostat - Standard, 7-Day Programmable	0	73			0.0	298.8			0	10			86%		0.0	188,010.8			0.0	0.5				290.9		0.0
AS = Ancillary Savings on Weatherized Homes																										
Ancilary Savings: Boiler Circulator Pump Savings	0	0			9.0	0.0			20	20			86%		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Ancilary Savings: Furnace Fan Savings	0	1			86.0	10.9			20	18			86%		0.0	169.1			0.0	0.0			0.0	0.0		0.0
Ancilary Savings: Furnace w/new ECM Motor	0	2			733.0	0.0			20	18			86%		0.0	0.0			0.0	17.3			0.0	535.3		0.0
Mobile Home Furnaces, Kerosene	4	0	3		102.4	0.0	102.4		17	17	17.0		100%		6,963.2	0.0	5,222.4		8.8	0.0	8.8		599.8	0.0	449.8	0.0
Furnaces, LP	2	0	2		529.6	0.0	529.6		18	18	18.0		100%		19,066.3	0.0	19,066.3		5.9	0.0	5.9		213.5	0.0	213.5	0.0
Oil Boiler Replacement AFUE>=85%	5	3	3	3	282.8	0.0	282.8	40.2	25	20	25.0	20	100%	98%	35,345.0	0.0	21,207.0	2,365.1	16.7	18.0	16.7	15.9	2,088.8	1,077.1	1,253.3	951.4
LP Boiler Replacement AFUE>=85%	0	0		2	109.3	0.0		57.0	20	20		20	100%	98%	0.0	0.0		2,236.7	0.0			23.7	0.0	0.0		947.8
Kerosene Boiler Replacement AFUE>=85%				3				0.0				20	100%	98%				0.0				6.4				384.0

Notes:

Liberty Utilities Electric Home Performance with ENERGY STAR® Program

	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			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Baseload SF	3	84	3		221.5	303.4	221.5		20	20	20		100.0%	100.0%		15,161.2	509,752.8	14,247		0.0	0.1	0.0		0.0	245.0	0.0	
Baseload MF	14	29	13		221.5	45.8	221.5		20	4	20		100.0%	100.0%		62,810.8	5,314.2	59,025		0.0	0.0	0.0		0.0	0.0	0.0	
Light Fixtures	2	0	2		24.6	0.0	24.6		20	20	20		100.0%	100.0%		1,203.4	0.0	1,131		0.0	0.0	0.0		0.0	0.0	0.0	
Refrigerator	5	0	5		586.2	0.0	586.2		7	7	7		100.0%	100.0%		20,063.4	0.0	18,854		0.0	0.0	0.0		0.0	0.0	0.0	
Hot Water Saving Measures	9	0	9		80.4	0.0	80.4		4	4	7		100.0%	100.0%		2,988.5	0.0	4,915		0.0	0.0	0.0		0.0	0.0	0.0	
Fuel Neutral, SF, Electric, CFLs	49	4	46		221.5	52.5	221.5		20	8	20		100.0%	100.0%		216,589.0	1,680.0	203,533		0.0	0.0	0.0		0.0	0.0	0.0	
SF Fuel Neutral (Oil)	37	66	36		0.0	0.0	0.0		21	21	21		100.0%	100.0%		0.0	0.0	-		28.0	8.6	23.1		21,735.3	12,052.2	17,297.9	
SF Fuel Neutral (LP)	9	18	8		0.0	1,116.6	510.8		21	22	23		100.0%	100.0%		0.0	449,597.7	92,434		30.00	7.7	23.6		5,471.7	3,090.2	4,276.1	
SF Fuel Neutral (Wood)	1	8	1		0.0	818.4	3,114.5		21	18	18		100.0%	100.0%		0.0	119,273.3	57,525		38.4	2.7	9.8		787.2	397.1	181.7	
SF Fuel Neutral (Kerosene)	1	0	0		0.0	0.0	0.0		21	21	21		100.0%	100.0%		0.0	0.0	-		19.7	0.0	19.7		413.7	0.0	0.0	
SF Fuel Neutral (Electric)	1	80	1		4,803.4	1,919.5	4,865.8		18	23	20		100.0%	100.0%		86,583.9	3,497,692.8	97,998		0.0	0.0	0.0		0.0	0.0	0.0	
Air Sealing & Insulation, Oil (includes insulation, water, etc.)				30				580.4				21			100.0%				362,717				23.1				14,435
Air Sealing & Insulation, Propane (includes insulation, water, etc)				22				510.8				23			100.0%				250,244				23.6				11,576
Air Sealing & Insulation, Kerosene (includes insulation, water, etc)				1				2,107.9				21			100.0%				44,267				19.7				414
Air Sealing & Insulation, Electric heat				8				4,865.8				20			100.0%				783,983				0.0				0.0
Elec Savings on Fossil Homes (Lighting)				32				369.1				8			100.0%				93,299				0.0				0.0
Elec Savings on Fossil Homes (Refrigerators)				8				586.0				12			100.0%				55,544				0.0				0.0
Elec Savings on Fossil Homes (Elec Shell, Secondary Heating)				8				1,500.0				18			100.0%				215,689				0.0				0.0
Elec Savings on Baseload Homes (Lighting)				31				369.1				8			100.0%				91,543				0.0				0.0
Elec Savings on Baseload Homes (Refrigerators)				3				586.0				12			100.0%				21,799				0.0				0.0
AS: Boiler Circulator Pump Savings	41	0	39		9.0	0.0	9.0		20	20	20		100.0%	100.0%	100.0%	7,363.1	0.0	6,948		0.0	0.0	0.0		0.0	0.0	0.0	
AS: Furnace Fan Savings	3	0	3		86.0	0.0	86.0		20	20	20		100.0%	100.0%	100.0%	5,025.6	0.0	4,742		0.0	0.0	0.0		0.0	0.0	0.0	
AS: Furnace w/new ECM Motor	0	0	0		733.0	0.0	733.0		20	20	20		100.0%	100.0%	100.0%	2,070.3	0.0	1,953		0.0	0.0	0.0		0.0	0.0	0.0	
AS: Central AC	0	0	0		77.0	0.0	77.0		20	20	20		100.0%	100.0%	100.0%	217.5	0.0	205		0.0	0.0	0.0		0.0	0.0	0.0	
AS: Room AC (per unit)	18	0	17		23.0	0.0	23.0		20	20	20		100.0%	100.0%	100.0%	8,288.4	0.0	7,821		0.0	0.0	0.0		0.0	0.0	0.0	
ES Furnace w/ECM (LP), AFUE >=95%	15	0			0.0	0			18	18	18		100.0%	100.0%	100.0%	0.0	0.0	-		0.0	0.0			0.0	0.0	0.0	
ES Furnace w/ECM (LP), AFUE >=97%	2.00	0	0		168.00	0.0	168.0		18	18	18		100.0%	100.0%	100.0%	6,048.0	0.0	-		5.9	0.0	5.9		212.4	0.0	0.0	
ES Boiler (LP), AFUE>=90%	-	0	0		0.0	0.0	0.0		20	20	20		100.0%	100.0%	100.0%	0.0	0.0	-		0.0	0.0	10.4		0.0	0.0	0.0	
ES Boiler (Oil), AFUE>=85%	4.00	0			0.0	0.0	0.0		20	20	20		100.0%	100.0%	100.0%	0.0	0.0	-		5.4	0.0	5.4		430.2	0.0	0.0	

Notes:

Liberty Utilities Electric ENERGY STAR® Homes Program

	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			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
ASHP Heated Home	2	0	2		5,355.0	0.0	5,355.0		25	25	25		100%		267,750.0	0.0	267,750.0		0.0	0.0	0.0		0.0	0.0	0.0	
Central AC	0	0	0		110.3	0.0	110.3		14	14	14		100%		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Clothes washer	4	2	3	5	181.8	181.8	181.8	123.9	11	11	11	11	100%	100%	7,666.4	3,998.7	5,901.1	7,008.0	0.7	0.7	0.7	0.3	31.1	16.2	23.9	15.2
Refrigerator	25	66	0	33	31.4	31.4	31.4	41.4	10	10	10	12	100%	100%	7,826.0	20,724.0	0.0	16,405.9	0.2	0.2	0.2	0.0	47.1	124.6	0.0	0.0
Elec Baseboard Heated Home (5%)	0	0	0		7,935.8	66.5	7,935.8		25	25	25		100%		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Gas Heated Home (55%)	0	0	0		98.3	0.0	98.3		25	25	25		100%		0.0	0.0	0.0		23.1	0.0	23.1		0.0	0.0	0.0	
Interior hard-wired fixtures	38	2	30	73	24.6	24.6	24.6	24.6	20	20	20	8	100%	100%	18,872.9	984.3	14,527.2	14,477.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LED Bulbs (Installed by Builder or HERS Rater)	383	75	295	367	24.6	24.6	24.6	24.6	20	20	20	8	100%	100%	188,716.3	36,915.0	145,261.5	72,385.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Heated Home	34	67	27	35	462.6	66.5	462.6	462.6	25	25	25	25	100%	100%	397,188.9	111,465.0	306,643.0	401,596.7	31.8	15.0	31.8	31.8	27,303.5	25,099.3	21,079.2	27,606.5
Oil Heated Home (5%)	2	0	1		410.8	0.0	410.8		25	25	25		100%		20,540.0	0.0	10,270.0		43.6	0.0	43.6		2,180.0	0.0	1,090.0	
Refrigerator	35	66	27		107.0	107.0	107.0		12	12	12		100%		44,310.4	84,744.0	34,107.2		0.0	0.0	0.0		0.0	0.0	0.0	
Thermostat (Programmable/WiFi)	29	0	22	31	0.0	0.0	0.0	0.0	15	15	15	15	100%	100%	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split System ASHP-SF Heated Home (heating)				2				9,570.0				25		100%				478,500.0				0.0				0.0
Split System ASHP-SF Heated Home (cooling)				2				71.0				25		100%				3,550.0				0.0				0.0
Split System ASHP-SF Heated Home (water)				2				520.0				25		100%				26,000.0				0.0				0.0
Split System ASHP-Lights and Appliances				2				(79.0)				25		100%				(3,950.0)				0.0				0.0

Notes:

Liberty Utilities Electric ENERGY STAR® Products (Lighting) Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service & Realization Rate			Total Lifetime Savings (kWh)			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Catalog: CFLs	0	283			29.0	29.0			5	5			62%			0.0	25,548.1		
Catalog: Interior Fixtures (Lamps and HW Fixtures)	0	0			29.0	29.0			8	8			100%			0.0	0.0		
Catalog: Exterior Fixtures	0	2			29.0	29.0			5	5			94%			0.0	271.0		
Catalog: Torchieres	0	0			29.0	29.0			8	8			95%			0.0	0.0		
Catalog: LED Single Bulbs (Rebate)	4,498	322	299	157	24.6	24.6	24.6	24.6	20	20	20	8	95%	95%	95%	2,103,074.5	150,553.6	139,799.8	29,362.6
Catalog: LED Multi-Packs (per bulb, Rebate)	284	0	0	1,416	24.6	-	24.6	24.6	20	20	20	8	95%	95%	62%	132,786.4	0.0	0.0	173,699.2
Catalog: LED Interior Fixture	0	8	0	133	24.6	24.6	24.6	24.6	8	8	8	8	62%	96%	96%	0.0	981.2	0.0	25,240.6
Catalog: LED Exterior Fixture	0	0	0	44	24.6	-	24.6	24.6	5	5	5	5	62%	100%	100%	0.0	0.0	0.0	5,413.8
Catalog: LED Globe/Candelabra (Per bulb)				472				24.6				8			95%				88,274.9
Catalog: LED Reflector (per bulb)				276				24.6				8			95%				51,618.4
Retail: CFLs	0	24	0		29.0	29.0	29.0		5	5	5		100%	62%		0.0	3,477.7	0.0	
Retail: CFLs (Multipack Bulbs)	20,500	1,004	370		29.0	29.0	29.0		5	5	5		94%	62%		2,777,466.6	136,028.1	33,402.1	
Retail: Interior Fixtures (Lamps and HW Fixtures)	0	23	0		29.0	29.0	29.0		8	8	8		95%	95%		0.0	5,065.9	0.0	
Retail: Exterior Fixtures	0	0	0		29.0	29.0	29.0		5	5	5		100%	100%		0.0	0.0	0.0	
Retail: Torchieres	0	0	0		29.0	29.0	29.0		8	8	8		100%	100%		0.0	0.0	0.0	
Coupon: LED Single Bulbs	25,363	8,508	460	87	24.6	24.6	24.6	24.6	20	20	20	8	100%	95%	95%	12,482,802.2	4,187,348.3	215,076.5	16,271.0
Coupon: LED Multi-Packs (per bulb)	1,900	0	225	1,102	24.6	24.6	24.6	24.6	20	20	20	8	100%	95%	62%	935,115.4	0.0	105,200.5	135,157.8
Coupon: LED Globe/Candelabra (Per bulb)				1,467				24.6				8			95%				274,362.9
Coupon: LED Reflector (per bulb)				173				24.6				8			95%				32,355.0
Coupon: LED Interior Fixture	1,550	0	100	208	24.6	24.6	24.6	24.6	8	8	8	8	100%	96%	96%	305,142.9	0.0	18,977.9	39,474.1
Coupon: LED Exterior Fixture				70				24.6				5			100%				8,612.9
Markdown: CFLs (Multipack Bulbs)	900	41,701	20,554		29.0	29.0	29.0		5	5	5		100%	62%		130,414.5	6,042,683.4	1,855,529.1	
Markdowns: LED Single Bulbs	900	11,753	11,037	6,570	24.6	24.6	24.6	24.6	20	20	20	8	100%	95%	95%	442,949.4	5,784,427.0	5,160,640.1	1,228,741.6
Markdowns: LED Multi-Packs (per bulb)	750	21,664	10,000	15,461	24.6	24.6	24.6	24.6	20	20	20	8	100%	95%	62%	369,124.5	10,662,284.2	4,675,577.0	1,896,257.1
Markdowns: LED Interior Fixture				1,868				24.6				8			96%				354,507.6
Markdowns: LED Exterior Fixture				623				24.6				5			100%				76,654.9
Markdowns: LED Globe/Candelabra				6,609				24.6				8			95%				1,236,035.5
Markdowns: LED Reflector				3,870				24.6				8			95%				723,779.3

Notes:

Liberty Utilities Electric ENERGY STAR® Products (Appliance) Program

	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			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Energy Star Clothes Dryer				20				160.2				12		100%				38,443.3				0.0				0.0
Energy Star Clothes Washers	315	299	190	204	181.8	181.8	181.8	123.9	11	11	11	11	100%	100%	629,798.4	17,449.0	379,878.4	277,768.2	0.5	0.5	0.5	0.1	1,571.7	1,491.9	948.0	246.1
Energy Star Room Air Conditioners	150	120	50	55	16.2	16.2	16.2	16.2	9	9	9	9	100%	100%	21,811.2	17,449.0	7,270.4	7,997.4	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Advanced Power Strip	14	30	2		79.1	79.1	79.1		5	5	5		100%		5,535.4	11,861.6	790.8		0.0	0.0	-		0.0	0.0	0.0	
Energy Star Refrigerators	315	185	190	110	107.0	107.0	39.6	41.4	12	12	12	12	100%	100%	404,460.0	237,540.0	90,356.4	54,599.2	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Primary Refrigerator Recycling/Pickup/Turnin				5			39.6	491.6			12	8		100%				19,665.5				0.0				0.0
2nd Refrigerator Pickup/Turnin	75	71	60	70	835.0	835.0	755.0	755.0	8	8	8	8	100%	100%	502,079.8	474,280.0	363,302.7	422,800.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2nd Freezer Pickup/Turnin	25	9	5	5	663.0	663.0	658.0	658.0	8	8	8	8	100%	100%	132,600.0	47,736.0	26,320.0	26,320.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Energy Star Dehumidifiers			0	5			0.0	162.3			12	12		100%			0.0	9,736.1			-	0.0			0.0	0.0
Energy Star Room Air Purifier	0	8	3	5	390.6	390.6	390.6	390.4	9	9	9	9	100%	100%	0.0	28,125.2	10,547.0	17,569.5	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Energy Star Pool Pumps (2 Speed)			1	2			16.2	781.7			5	10		100%			0.0	15,633.6			-	0.0			0.0	0.0
Energy Star Pool Pumps (Variable Speed)			0	3			79.1	945.9			5	10		100%			0.0	28,376.3			-	0.0			0.0	0.0
Room AC Pickup/Turnin	2	0	1		16.2	16.2	16.2		5	5	5		100%		161.6	0.0	80.8		0.0	0.0	-		0.0	0.0	0.0	
Central Air 16 SEER 3 ton ($250 default)	4	7	1	1	110.3	110.3	142.2	199.9	14	14	14	12	100%	100%	6,176.3	10,808.6	1,990.2	2,398.8	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Energy Star Ductless Mini Split (Cooling Only)	2	0	2		30.6	30.6	47.4		14	14	12		100%		857.8	0.0	1,137.2		0.0	0.0	-		0.0	0.0	0.0	
Energy Star Air Source Heat Pumps (SEER >=14.5/ EER >=12, Cooling)	5	5	2		92.0	92.0	77.0		12	12	12		100%		5,519.0	5,519.0	1,846.9		0.0	0.0	-		0.0	0.0	0.0	
Energy Star Air Source Heat Pumps (HSPF >=8.2, Heating)	5	6	2		627.9	627.9	477.2		12	12	12		100%		37,675.0	45,210.0	11,451.7		0.0	0.0	-		0.0	0.0	0.0	
Energy Star Wifi TSTAT for ASHP	2	3	1		23.4	23.4	13.1		15	15	12		100%		526.4	1,052.7	157.3		0.0	0.0	-		0.0	0.0	0.0	
Energy Star DMSHP (Any, SEER >=20, HSPF >=10, Cooling)	64	56	24		124.4	124.4	73.3		12	12	12		100%		95,527.7	83,586.7	21,120.0		0.0	0.0	-		0.0	0.0	0.0	
Energy Star DMSHP (Oil, SEER >=20, HSPF >=10, Heating)	32	0	12		536.4	536.4	394.2		12	12	12		100%		205,989.9	0.0	56,767.3		0.0	0.0	-		0.0	0.0	0.0	
Energy Star DMSHP (LP, SEER >=20, HSPF >=10, Heating)	32	0	12		536.4	536.4	394.2		12	12	12		100%		205,989.9	0.0	56,767.3		0.0	0.0	-		0.0	0.0	0.0	
Energy Star Wifi TSTAT for DMSHP	32	2	12		109.7	109.7	38.8		15	15	12		100%		52,654.1	3,290.9	5,588.2		0.0	0.0	-		0.0	0.0	0.0	
DHPMS 16 SEER 1 ton (Cooling Only Unit)				1				66.6				12		100%				799.6				0.0				0.0
Wifi Thermostat on Central Air and/or Cooling-Only DHPMS				1				32.7				12		100%				392.4				0.0				0.0
ASHP 16.0 SEER Heating/Cooling 3 ton ($250 default), Cooling Portion				2				123.8				12		100%				2,970.0				0.0				0.0
ASHP 18.0 SEER Heating/Cooling 3 ton ($500 default), Cooling Portion				1				220.0				12		100%				2,640.0				0.0				0.0
Wifi Thermostats on ASHP Heating/Cooling, Cooling Portion				1				32.0				12		100%				391.6				0.0				0.0
ASHP 9.0 HSPF Heating/Cooling 3 ton ($250 default), Heating Portion				2				1,030.6				12		100%				24,735.2				0.0				0.0
ASHP 10 HSPF Heating/Cooling 3 ton ($500 default), Heating Portion				1				2,087.0				12		100%				25,044.4				0.0				0.0
Wifi Thermostats on ASHP Heating/Cooling, Heating Portion				2				296.7				12		100%				5,341.4				0.0				0.0
DHPMS Heating/Cooling (per ton) 16 SEER ($250 default), Cooling Portion				20				66.6				12		100%				15,992.3				0.0				0.0
DHPMS Heating/Cooling (per ton) 18 SEER ($500 default), Cooling Portion				10				98.7				12		100%				11,846.2				0.0				0.0
Wifi Thermostat on DHPMS Heating/Cooling, Cooling Portion				15				15.6				12		100%				2,810.7				0.0				0.0
DHPMS Heating/Cooling (per ton) 9.0 HSPF ($250 default), Heating Portion				20				343.5				12		100%				82,450.7				0.0				0.0
DHPMS Heating/Cooling (per ton) 10 HSPF ($500 default), Heating Portion				10				695.7				12		100%				83,481.4				0.0				0.0
Wifi Thermostat on DHPMS Heating/Cooling, Heating Portion				15				57.0				12		100%				10,265.1				0.0				0.0
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	11	17	4	16	1,775.0	1,775.0	1,775.0	1,775.0	10	10	10	10	100%	100%	195,250.0	301,750.0	71,000.0	284,000.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	3	1	1	1	2,672.0	2,672.0	2,672.0	2,672.0	10	10	10	10	100%	100%	80,160.0	26,720.0	26,720.0	26,720.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Notes:

Liberty Utilities Electric Large Business Energy Solutions Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service or Realizaton Rate			Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
NEW EQUIPMENT TRACK																											
NC - Chiller	0	4	0		120,658.0	65,169.6	120,658.0		20	23	20		100%	100%		0.0	5,995,599.8	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
NC - Air Compressor and Controls	5	1	3	2	13,095.0	5,962.5	13,095.0	2,981.3	15	13	15	13	100%	100%	100%	953,747.3	77,512.5	588,450.0	71,945.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Custom: Other	3	1	2	3	66,102.3	392,010.0	66,102.3	279,007.5	15	15	15	15	100%	100%	100%	2,543,326.1	5,880,150.0	1,893,186.1	11,135,904.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - HVAC	1	3	1	2	43,612.6	8,778.2	43,612.6	8,778.2	15	15	15	15	100%	100%	100%	953,747.3	395,019.4	653,272.7	262,977.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Lighting	1	30	1	4	71,150.0	28,691.5	71,150.0	21,948.7	15	4	15	10	100%	100%	100%	1,271,663.0	3,814,128.2	1,065,755.5	876,720.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - VFD	2	0	1		26,922.0	-	26,922.0		15	15	15		100%	100%		635,831.5	0.0	403,264.5		0.0	0.0	0.0		0.0	0.0	0.0	
NC - Lighting - Fixtures				10				6,742.8				15			100%				1,009,999.5				0.0				0.0
NC - Cooling				1				65,169.6				23			100%				1,496,801.9				0.0				0.0
RETROFIT TRACK																											
Retro - Compressed Air	3	0	2		32,960.0	32,960.0	32,960.0		13	13	13		100%	100%		1,102,108.0	0.0	641,820.2		0.0	0.0	0.0		0.0	0.0	0.0	
Retrofit - Custom: Other	4	3	2	4	117,570.0	204,727.0	117,570.0	144,545.3	13	15	13	15	100%	100%	100%	5,510,539.9	9,212,715.0	3,052,540.5	8,660,573.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retrofit - Lighting	7	40	5	14	143,712.7	51,536.6	143,712.7	49,536.6	13	13	13	13	100%	100%	100%	13,776,349.7	26,799,030.7	9,328,247.1	8,793,945.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retro - Motor	0	0	0		23,730.0	23,730.0	23,730.0		15	15	15		100%	100%		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Retrofit - VFDs	2	18	1	5	65,791.4	29,794.2	65,791.4	27,794.2	13	15	13	15	100%	100%	100%	1,653,162.0	8,044,431.3	854,090.1	2,081,647.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Liberty Utilities Electric Small Business Energy Solutions Program

	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			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
RETROFIT TRACK																										
Retro - Compressed Air	0.3	0.0	1.0		65,755.2	0.0	65,755.2		13	13	13		100%		284,504.0	0.0	854,817.6		0.0	0.0	0.0		0.0	0.0	0.0	
Retrofit Custom	2.9	11.0	2.0	5.8	19,087.6	12,234.6	19,087.6	12,234.6	13	14	13	14	100%	100%	711,260.0	1,848,891.2	496,277.6	976,095.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retrofit Lighting	60.2	220.0	38.6	6.0	12,713.3	5,281.3	12,713.3	23,495.5	13	13	13	13	100%	100%	9,957,639.5	15,104,536.9	6,387,553.7	1,832,651.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retrofit Lighting (Fixtures)				104.9				4,791.9				13		94%				6,145,392.1				0.0				0.0
Retro - Motor	0.9	0.0	1.0		11,865.0	0.0	11,865.0		15	15	15		100%		164,136.9	0.0	177,975.0		0.0	0.0	0.0		0.0	0.0	0.0	
Retro - VFD	0.7	0.0	1.0		77,887.0	0.0	77,887.0		13	13	13		100%		711,260.0	0.0	1,012,531.0		0.0	0.0	0.0		0.0	0.0	0.0	
NEW EQUIPMENT TRACK																										
NC - Chiller	0.0	0.0	0.0		30,164.5	0.0	30,164.5		20	20	20		100%		0.0	0.0	0.0						0.0	0.0	0.0	
NC - Air Compressor and Controls	0.3	3.0	1.0	3.0	32,877.6	14,098.0	32,877.6	7,049.0	15	13	15	13	100%	100%	167,324.1	549,822.0	493,164.0	274,911.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Custom	11.7	0.0	8.0		4,771.9	0.0	4,771.9		15	15	15		100%		836,620.4	0.0	572,628.0		0.0	0.0	0.0		0.0	0.0	0.0	
NC - HVAC	4.1	14.0	3.0	12.7	13,594.0	27,939.3	13,594.0	27,939.3	15	15	15	15	100%	100%	836,620.4	5,867,248.5	611,728.9	5,326,791.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Lighting	17.5	4.0	12.0	3.0	3,178.3	14,981.3	3,178.3	14,981.3	15	15	15	15	100%	100%	836,620.4	898,876.5	572,099.4	674,157.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - VFD	0.4	0.0	1.0		25,953.9	0.0	25,953.9		15	15	15		100%		167,324.1	0.0	389,307.8		0.0	0.0	0.0		0.0	0.0	0.0	
NC - Aerator - Low Flow Faucet	0.0	191.0	0.0	150.0	332.0	332.0	332.0	332.0	10	10	10	10	94%	94.00%	0.0	596,072.8	0.0	468,120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - LED - 100 Watt Bulb	0.0	77.0	0.0	60.0	220.0	220.0	220.0	220.0	13	13	13	13	94%	94.00%	0.0	207,006.8	0.0	161,304.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - LED - 17 Watt Bulb	0.0	51.0	0.0	40.0	192.0	192.0	192.0	192.0	13	13	13	13	94%	94.00%	0.0	119,658.2	0.0	93,849.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - LED - 7.5 Watt Bulb	0.0	80.0	0.0	40.0	168.0	168.0	168.0	168.0	13	13	13	13	94%	94.00%	0.0	164,236.8	0.0	82,118.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Lighting - Control	0.0	2.0	0.0	2.0	107.9	107.9	107.9	107.9	10	10	10	10	94%	94.00%	0.0	2,027.6	0.0	2,027.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Pipe Insulation	0.0	40.0	0.0	30.0	67.0	67.0	67.0	67.0	15	15	15	15	94%	94.00%	0.0	37,788.0	0.0	28,341.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Shower Head Fixture	0.0	38.0	0.0	30.0	1,016.0	1,016.0	1,016.0	1,016.0	10	10	10	10	94%	94.00%	0.0	362,915.2	0.0	286,512.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Shower Head Hand Held	0.0	29.0	0.0	20.0	1,016.0	1,016.0	1,016.0	1,016.0	10	10	10	10	94%	94.00%	0.0	276,961.6	0.0	191,008.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC - Spray Valve	0.0	10.0	0.0	5.0	6,544.0	6,544.0	6,544.0	6,544.0	5	5	5	5	94%	94.00%	0.0	307,568.0	0.0	153,784.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Liberty Utilities Electric Municipal Energy Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service or		Total Lifetime Savings (kWh)					Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings			
Measure*	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan		2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Custom - New	5	1	3	3	4,771.9	11,925.0	4,771.9	4,771.9	15	15	15	15	100%	100%	345,271.9	178,875.0	214,622.5	214,622.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom - Retrofit	2	0	1	1	19,087.6	19,087.6	19,087.6	19,087.6	13	13	13	13	100%	100%	598,471.3	0.0	248,138.8	248,138.8		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HVAC - New	0	1	0		13,594.0	12,199.5	13,594.0		15	15	15		100%		0.0	182,992.5	0.0			0.00	0.00	0.00		0.00	0.00	0.00	
Muni New - Lighting	7	13	7	9	3,178.3	4,683.3	3,178.3	3,178.3	15	15	15	15	100%	100%	345,271.9	913,237.5	333,724.7	429,074.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Muni Retrofit - Lighting	14	19	12	11	20,526.3	6,519.5	20,526.3	20,526.3	13	13	13	13	100%	100%	3,735,782.1	1,610,328.2	3,202,098.9	2,921,514.2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VFDs	0	0	1	1	77,887.0	77,887.0	77,887.0	77,887.0	13	13	13	13	100%	100%	59,847.1	0.0	506,265.5	506,265.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boiler Reset Controls	0	1	0		0.0	0.0	0.0		15	15	15		100%		0.0	0.0	0.0			0.00	35.50	0.00		0.00	532.50	0.00	
DMSHP (any, SEER >= 20, HSPF >= 10, Cooling)	4	0	4	4	124.4	124.4	124.4	124.4	12	12	12	12	100%	100%	5,970.5	0.0	5,970.5	5,970.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DMSHP (oil, SEER >= 20, HSPF >= 10, Heating)	2	0	2	2	536.4	536.4	536.4	536.4	12	12	12	12	100%	100%	12,874.4	0.0	12,874.4	12,874.4		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DMSHP (LP, SEER >= 20, HSPF >= 10, Heating)	2	0	2	2	536.4	536.4	536.4	536.4	12	12	12	12	100%	100%	12,874.4	0.0	12,874.4	12,874.4		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Star Wifi Thermostat (DMSHP)	4	0	4	4	109.7	109.7	109.7	109.7	15	15	15	15	100%	100%	6,581.7	0.0	6,581.7	6,581.7		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furnace: Oil, w/ ECM. 85% AFUE, up to 150 MBH	1	0	1	1	168.0	168.0	168.0	168.0	18	18	18	18	100%	100%	3,024.0	0.0	3,024.0	3,024.0		7.95	0.00	7.95	0.00	143.10	0.00	143.10	0.00
Furnace: Oil, w/ ECM. 87% AFUE, up to 150 MBH	1	0	1	1	168.0	168.0	168.0	168.0	18	18	18	18	100%	100%	3,024.0	0.0	3,024.0	3,024.0		8.75	0.00	8.75	0.00	157.41	0.00	157.41	0.00
Bolier: LP Condensing AFUE >= 90%. up to 301 - 499 MBH	1	0	1	1	0.0	0.0	0.0	0.0	25	25	25	25	100%	100%	0.0	0.0	0.0	0.0		58.40	0.00	58.40	0.00	1,659.29	0.00	1,460.00	0.00
Bolier: Oil AFUE >= 85%. up to 301 - 499 MBH	2	0	2	2	0.0	0.0	0.0	0.0	25	25	25	25	100%	100%	0.0	0.0	0.0	0.0		42.20	0.00	42.20	0.00	2,110.00	0.00	2,110.00	0.00
Boiler: LP, Condensing, AFUE >= 90%, up to 1000-1700 MBH	0	1	0		0.0	0.0	0.0		25	25	25		100%		0.0	0.0	0.0			197.20	188.90	197.20		0.00	4,722.50	0.00	

Notes:

Liberty Utilities Gas Home Energy Assistance Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				Installation or Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Low Income - Single Family	108	99	83	80				367.8	20	20	21	20	100.0%	100.0%				577,898.7	27.7	32.9	31.9	39.1	59,875.6	65,706.8	54,228.7	61,431.8
Low Income - Multifamily	216	128	223	118				179.3	20	22	19	21	100.0%	100.0%				436,988.5	16.9	7.4	16.6	18.3	73,137.6	20,798.4	69,038.7	44,600.6

Notes:

Liberty Utilities Gas Home Performance with ENERGY STAR®

	Quantity				Annual Savings per Unit (kWh)				Measure Life				Installation or Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Single Family (1-4 Units)	92	81	121	207				895.0	20	21	20	20	100%	100%				3,707,398.4	33	36	28	36	60,536.0	61,190.1	66,547.1	156,463.3
Multi-Family (5+ Units)	376	625	450						20	21	20		100%	100%					23	26	27		173,087.8	349,330.2	238,606.9	

Notes:

Liberty Utilities Gas ENERGY STAR® Homes Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service / Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Energy Star Homes	15	34	41	44				655.8	25	25	25	25	100%	100%				718,062.4	65	42	39	42	24,741.5	35,487.5	39,983.6	45,716.3

Notes:

Liberty Utilities Gas ENERGY STAR® Products Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service / Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Water Heater - Tankless, On-Demand >=.82	60	30	0						19	19	19		100%						10.2	10.2	10.2		11,628.0	5,814.0	0.0	
Water Heater - Tankless, On-Demand >=.94	47	69	86	111				0.0	19	19	19	19	100%	100%				0.0	10.5	10.5	10.5	9.9	9,376.5	13,765.5	17,157.0	20,879.1
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	65	60	66	66				0.0	20	20	20	20	100%	100%				0.0	8.0	8.0	8.0	8.0	10,400.0	9,600.0	10,560.0	10,560.0
Water Heater - Condensing (EF 0.95)	2	1	2						15	15	15		100%	100%					8.5	8.5	8.5		255.0	127.5	255.0	
Water Heater - Stand Alone Storage Tank (EF 0.67)	25	14	0						13	13	13		100%	100%					4.2	4.2	4.2		1,365.0	764.4	0.0	
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	155	284	156	115				0.0	17	17	17	19	100%	100%				0.0	23.8	23.8	23.8	10.3	62,713.0	114,906.4	63,228.4	22,480.8
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	19	0	20	5				0.0	20	20	20	19	100%	100%				0.0	23.8	23.8	23.8	12.8	9,044.0	0.0	9,520.0	1,216.0
Furnace 95+ AFUE (<150) w/ECM Motor	155	149	156	145				168.0	17	17	17	17	100%	100%				414,120.0	15.9	15.9	15.9	8.1	41,896.5	40,274.7	42,166.8	19,966.5
Furnace 97+ AFUE (<150) w/ECM Motor	88	55	89	90				168.0	17	17	17	17	100%	100%				257,040.0	17.3	17.3	17.3	9.2	25,880.8	16,175.5	26,174.9	14,076.0
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	69	29	70	50				0.0	18	18	18	20	100%	100%				0.0	12.0	12.0	12.0	11.4	14,817.4	6,264.0	15,120.0	11,400.0
Condensing Boiler >= 95% AFUE (Up to 300 MBH)	63	99	64	45				0.0	19	19	19	20	100%	100%				0.0	13.9	13.9	13.9	14.1	16,638.3	26,145.9	16,902.4	12,690.0
Boiler Reset Controls	4	2	4	5				0.0	15	15	15	15	100%	100%				0.0	4.5	4.5	4.5	4.5	270.0	135.0	270.0	337.5
Thermostat - Standard, 7-Day Programmable	380	397	342	170				0.0	15	15	15	15	100%	100%				0.0	3.2	3.2	3.2	2.3	18,240.0	19,056.0	16,416.0	5,865.0
Thermostat - WiFi (Heating Only)	65	0	310	480				0.0	15	15	15	15	100%	100%				0.0	6.9	6.9	6.9	6.6	6,727.5	0.0	32,085.0	47,520.0
Thermostat - WiFI (Cooling & Heating)	0	314	0						15	15	15		100%	100%					6.9	6.9	6.9		0.0	32,499.0	0.0	
Heat Recovery Ventilator (-133 kWh penalty)	2	0	2						20	20	20		100%	100%					7.7	7.7	7.7		308.0	0.0	308.0	
Boiler - Early Replacement, Steam - Retirement: 82%+ AFUE	4	1	6	2				0.0	10	10	10	10	100%	100%				0.0	43.9	43.9	43.9	2.9	1,756.0	439.0	2,634.0	58.0
Boiler - Early Replacement, Steam - EE: 82%+ AFUE	4	1	6	2				0.0	20	20	20	20	100%	100%				0.0	3.5	3.5	3.5	8.0	280.0	70.0	420.0	320.0
Boiler - Early Replacement, FHW - Retirement: 90 AFUE (65%-90%)	16	14	19	38				0.0	10	10	10	10	100%	100%				0.0	23.6	23.6	23.6	7.0	3,776.0	3,304.0	4,484.0	2,660.0
Boiler - Early Replacement, FHW - EE 90 AFUE (80%-90%)	16	14	19	38				0.0	20	20	20	20	100%	100%				0.0	10.4	10.4	10.4	11.4	3,328.0	2,912.0	3,952.0	8,664.0

Notes:

Liberty Utilities Gas Home Energy Reports Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service / Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Home Energy Reports	25,000	25,000	25,000	38,000					3	3	3	3	100%	100%					0.738	0.889	0.738	0.255	55,320	58,430	55,320	32,600

Notes:

Liberty Utilities Gas Large Business Energy Solutions Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				Installation or Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Large Retrofit Custom	6	18	13						9	18	16		100%						2,338.7	630.7	2,787.0		131,903.6	198,684.1	561,580.5	
Large New Equipment Custom	21	21	10						21	11	18		100%						777.0	1,051.0	463.0		341,084.0	244,093.5	84,266.0	
Large Business Custom				39				0.0				13		100%				0				1,133.0				572,221.7
Furnace 95+ AFUE (<150) w/ECM Motor	0	37	0						18	10	18		100%						9.0	0.0	9.0		0.0	0.0	0.0	
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	1		12	3				0.0	25	25	25	25	100%	100%				0	30.6	30.6	30.6	30.6	765.0	0.0	9,180.0	2,295.0
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	2	2	3	2				0.0	25	25	25	25	100%	100%				0	58.4	58.4	58.4	58.4	2,920.0	2,920.0	4,380.0	2,920.0
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	0	5	0	5				0.0	25	25	25	25	100%	100%				0	107.3	107.3	107.3	107.3	0.0	13,412.5	0.0	13,412.5
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	0	1	0	3				0.0	25	25	25	25	100%	100%				0	197.2	197.2	197.2	197.2	0.0	4,930.0	0.0	14,790.0
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	2	0	3	3				0.0	25	25	25	25	100%	100%				0	345.1	345.1	345.1	345.1	17,255.0	0.0	25,882.5	25,882.5
Infrared Heater, Low Intensity (all sizes)	0	38	0						17	17	17		100%						12.0	12.0	12.0		0.0	7,752.0	0.0	
Water Heater - Stand Alone Storage Tank (EF 0.67)	3	0	0						13	13	13		100%						3.0	3.0	3.0		117.0	0.0	0.0	
Boiler Reset Controls	2	0	4						15	15	15		100%						35.5	35.5	35.5		1,065.0	0.0	2,130.0	
Steam Trap	129	103	134	140				0.0	3	3	3	6	100%	100%				0	25.7	51.6	25.7	25.7	9,945.9	15,947.7	10,331.4	21,588.0
Thermostat - Standard, 7-Day Programmable	48	17	52	30				0.0	15	15	15	15	100%	100%				0	7.7	7.7	7.7	3.2	5,544.0	1,963.5	6,006.0	1,440.0

Notes:
Steam trap savings vary based on size and type of trap

Liberty Utilities Gas Small Business Energy Solutions Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service & Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (mmbtu)				Total Lifetime Savings (mmbtu)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 / 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Small Retrofit Custom	5	18	45						19	15	19		100%						230.3	76.2	55.0		21,531.6	21,101.5	46,777.5	
Small New Equipment Custom	24	90	38						22	12	16		100%						276.7	266.3	191.0		148,098.4	283,734.4	119,031.2	
Small Business Custom				39				0.0				12		100%				0.0				639.0				309,237.9
Furnace 95+ AFUE (<150) w/ECM Motor	3	11	4	5				168.0	18	18	18	18	100%	100%				15,120.0	9.0	7.2	9.0	5.7	486.0	1,416.6	648.0	513.0
Furnace 97+ AFUE (<150) w/ECM Motor	9	1	10	3				168.0	18	18	18	18	100%	100%				9,072.0	9.9	9.9	9.9	6.7	1,603.8	178.2	1,782.0	361.8
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	60	20	62	31				0.0	25	25	25	25	100%	100%				0.0	30.6	30.6	30.6	30.6	45,900.0	15,300.0	47,430.0	23,715.0
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	3	1	11	6				0.0	25	25	25	25	100%	100%				0.0	27.8	27.8	27.8	27.8	2,085.0	695.0	7,645.0	4,170.0
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	5	28	6	5				0.0	25	25	25	25	100%	100%				0.0	58.4	58.4	58.4	58.4	7,300.0	40,880.0	8,760.0	7,300.0
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	43	5	7	5				0.0	25	25	25	25	100%	100%				0.0	107.3	107.3	107.3	107.3	114,736.9	13,412.5	18,777.5	13,412.5
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	2	0	3	7				0.0	25	25	25	25	100%	100%				0.0	197.2	197.2	197.2	197.2	9,860.0	0.0	14,790.0	34,510.0
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	1	2	3	5				0.0	25	25	25	25	100%	100%				0.0	345.1	345.1	345.1	345.1	8,627.5	17,255.0	25,882.5	43,137.5
Infrared Heater, Low Intensity (all sizes)	5	13	4						17	17	17		100%						12.0	12.0	12.0		1,020.0	2,652.0	816.0	
Water Heater - Tankless, On-Demand >=.82	1	1	0						20	20	20		100%						7.1	7.1	7.1		142.0	142.0	0.0	
Water Heater - Tankless, On-Demand >=.94	2	4	2						20	20	20		100%						9.4	9.4	9.4		376.0	752.0	376.0	
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	16	30	18						15	15	15		100%						19.0	19.0	19.0		4,560.0	8,550.0	5,130.0	
Water Heater - Condensing (EF 0.95)	0	1	0						15	15	15		100%						25.0	25.0	25.0		0.0	375.0	0.0	
Water Heater - Stand Alone Storage Tank (EF 0.67)	3	0	0						13	13	13		100%						3.0	3.0	3.0		117.0	0.0	0.0	
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	0	0	0	7				0.0	20	20	20	20	100%	100%				0.0	24.6	24.6	24.6	24.6	0.0	0.0	0.0	3,444.0
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	0	1	0	2				0.0	20	20	20	20	100%	100%				0.0	24.6	24.6	24.6	31.8	0.0	492.0	0.0	1,272.0
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)	2	0	2						18	18	18		100%						40.9	40.9	40.9		1,472.4	0.0	1,472.4	
Kitchen - Fryer	5	0	5						12	12	12		100%						58.6	58.6	58.6		3,516.0	0.0	3,516.0	
Kitchen - Convection Oven (>= 44% efficiency)	10	5	10	2				0.0	12	12	12	12	100%	100%				0.0	30.6	30.6	30.6	12.9	3,672.0	1,836.0	3,672.0	309.6
Kitchen - Pre Rinse Sprayers	141	12	14	75				0.0	5	5	5	5	100%	100%				0.0	12.6	12.6	12.6	11.4	8,883.0	756.0	882.0	4,275.0
Hair Salon - Rinse Sprayers				20				0.0				8		100%				0.0				11.4				1,824.0
Boiler Reset Controls	5	0	8	4				0.0	15	15	15	15	100%	100%				0.0	35.5	35.5	35.5	35.5	2,662.5	0.0	4,260.0	2,130.0
Steam Trap	25	57	29	60				0.0	3	3	3	6	100%	100%				0.0	25.7	7.6	25.7	25.7	1,927.5	1,291.8	2,235.9	9,252.0
Thermostat - Standard, 7-Day Programmable	9	19	15	200				0.0	15	15	15	15	100%	100%				0.0	7.7	7.7	7.7	3.2	1,039.5	2,194.5	1,732.5	9,600.0
Aerator	0	1,907	257	1,305				0.0	10	10	10	10	100%	100%				0.0	1.7	1.7	1.7	1.7	0.0	32,215.0	4,369.0	22,185.0
Shower Head	0	1,165	0	1,000				0.0	10	10	10	10	100%	100%				0.0	5.2	5.2	5.2	2.7	0.0	60,528.0	0.0	26,500.0
Shower Head Hand Handle	0	2	0	16				0.0	10	10	10	10	100%	100%				0.0	5.2	7.8	5.2	2.7	0.0	156.0	0.0	424.0

Notes:
Steam trap savings vary based on size and type of trap

NHEC Home Energy Assistance Program

	Quantity				Annual Savings per Unit (kWh)				Measure Life				Installation or Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				NEB Realization Rate		Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Baseload (Lighting) CFL	13	6			232	465	232		5	5	20		89%		54,321	13,946												
Baseload (Lighting) LED		34	13	31		543	232	499	20	20	20	8	89%	87%		369,103	51,567	123,658										
Baseload (Lighting) LED Fixtures		1				282				8						2,259												
Baseload (Lighting) CFL Fixtures		15				56				8						6,713												
Baseload (Refrigerators)	15	17	14	14	776	770	776	646	12	12	12	12	89%	87%	121,130	157,155	114,989	108,562										
Baseload (HW Measures)	25	31	24	30	269	221	269	182	7	7	7	7	89%	87%	41,640	48,056	39,529	38,282										
Weatherization - Kerosene Heated				11								19	89%	87%								21	89%	98.1%				4,388
Weatherization - Propane Heated				9								21	89%	87%								17	89%	98.1%				3,143
Weatherization - Wood Heated		39		7		296				10		21	89%	87%		115,512						22	89%	98.1%				3,243
Weatherization - Oil Heated				17								18	89%	87%								21	89%	98.1%	6,437			6,437
Weatherization for Fossil Heated Homes	29	42	28		605		605		21	19	20		89%		330,532		298,834		27	23	27		89%		13,809	18,486	13,109	
Insulation				32				188				25	89%	87%				150,146										
Air Sealing				31				142				15	89%	87%				65,921										
Energy Efficient Doors		1				56				15			89%			839												
Custom Repair		6				188				21						23,904												
Thermostat		22		20		36		45		10		15	89%	87%		7,965		13,552										
AS: Boiler Circulator Pump Savings	9		8		9		9		20		20		89%		1,386		1,316						89%					
AS: Furnace Fan Savings	4		3		86		86		20		20		89%		5,370		5,097						89%					
AS: Furnace w/new ECM Motor	0		0		733		733		20		20		89%		2,288		2,172						89%					
AS: Room AC (per unit)	7		7		23		23		20		20		89%		2,992		2,840						89%					
Heating System Replacements:																							89%					
- Mobile Home Furnaces, Kerosene		2								17			100%							12			100%			407		
- Furnaces, LP				2	18								100%									8	100%	100%				303
-Boilers, Kerosene		1								18			100%							8						139		
- Boilers, Oil	7	1	5	3	20				25	25	25		100%						15	11	15	19	100%	100%	2,832	264	1,933	1,125

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			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
CFL Lighting		3				228				5			100%			3,415										
LED Lighting	52	51	43	41	221	628	221	567	20	20	20	8	100%	100%	228,651	640,417	191,922	185,974								
Hot Water Measures	32	20	27	22	52	172	80	144	4	4	4	4	100%	100%	6,667	13,772	8,604	12,627								
Refrigerators		6		7		675		351		7		12	100%	100%		28,357		29,450								
Air Sealing		61		59		528		382		15		15	100%	100%		483,303		338,065								
Insulation		64		58		945		737		25		25	100%	100%		1,512,480		1,068,796								
Weatherizaton: LP Heat			53	15							20	20	100%	100%							8	14			8,652	4,066
Weatherizaton: Oil Heat			53	26							20	20	100%	100%							12	27			12,567	14,050
Weatherizaton: Kerosene			53								20		100%								0				531	
Weatherization: Wood Heat			53	18							20	20	100%	100%							3	17			3,112	6,172
Electric Savings for Fossil Heated Homes	47		39		499		499		20		20		100%		453,804		380,907									
Fuel Neutral Weatherization	64	78				21			20		20		100%						23	18	23		29,620	29,124		
Thermostat		8		15		1,200		403		10		15	100%	100%		96,030		90,761								
AS: Boiler Circulator Pump Savings	19	28	16		9	9	9		20	20	20		100%		3,350	5,040	2,812									
AS: Furnace Fan Savings	3	9	3		86	86	86		20	20	20		100%		5,601	15,480	4,701									
AS: Furnace w/New ECM Motor	0		0		733		733		20		20		100%		2,387		2,004									
AS: Room AC (per unit)	16	16	13		23	23	23		20	20	20		100%		7,329	7,360	6,152									
Central AC		1				77				20			100%			1,540										
													100%													
Heating System Replacements:													100%													
ES Furnace w/ECM (LP), AFUE >=95%	3		1		168		168		18		18		100%		8,591		2,749		5		5		230		74	
ES Furnace w/ECM (LP), AFUE >=96%	0		0		168		168		18		18		100%						6		6					
ES Furnace w/ECM (LP), AFUE >=97%	1	2	0		168		168		18	20	18		100%		4,127		1,321		6	13	6		145	524	46	
ES Furnace w/ECM (Oil), AFUE >=85%	1		0		168		168		18		18		100%		3,682		1,178		18		18		394		126	
ES Furnace w/ECM (Oil), AFUE >=90%	1		0		168		168		18		18		100%		1,651		528		21		21		203		65	
ES Boiler (LP), AFUE>=90%	3		1						20		20		100%						10		10		645		206	
ES Boiler (LP), AFUE>=96%	1		0						20		20		100%						13		13		217		69	
ES Boiler (Oil), AFUE>=85%	10		3						20		20		100%						5		5		1,058		339	
ES Boiler (Oil), AFUE>=90%	1		0						20		20		100%						11		11		133		43	
BRC: Oil, Boiler Reset Controls	2		1						15		15		100%						10		10		233		74	

NHEC Energy Star® Homes Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life			In-Service / Realization Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015	2016	2017	2015/2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
LED Bulbs	128	22	103	202	25	25	25	25	20	20	8	100%	100%	63,091	10,828	50,529	39,899								
ES Light Fixture (Interior)		8				25			20	20		100%			3,937										
ES Clothes Washer	11	4	9	8	182	182	182	124	11	11	11	100%	100%	21,358	7,997	17,106	10,730	0.738	0.74	0.74	0.45	87	33	69	39
ES Dishwasher	20	9			31	31			10	10		100%		6,239	2,826			0.189	0.19	0.19		38	17		
ES Refrigerator	17	8	14	19	107	107	40	41	12	12	12	100%	100%	21,672	10,272	6,429	9,490								
ES Central AC		6				(59)			14	14		100%			(4,928)										
GSHP (Heating)	5	5	4	7	11,029	15,568	11,029	15,166	25	25	25	100%	100%	1,472,716	1,945,975	1,179,496	2,558,409								
GSHP (Cooling)	5		4	7	90		90	(39)	25	25	25	100%	100%	12,018		9,625	(6,579)								
GSHP (Hot Water)	5		4	7	1,627		1,627	1,969	25	25	25	100%	100%	217,255		174,000	332,158								
GSHP (Lights & Appliances)	5		4		(533)		(533)		25	25		100%		(71,172)		(57,002)									
Propane Home (Heating)	9	1	7	8	129	370	129		25	25	25	100%	100%	27,561	9,250	22,073		80	215.81	80.38	108.00	46,108	5,395	13,754	21,255
Propane Home (Cooling)	9		7	4				(59)	25	25	25	100%	100%				(5,806)								
Propane Home (Hot Water)	9		7	8					25	25	25	100%	100%					4.57		4.57	8.00	975		781	1,574
Propane Home (Lights & Appliances)	9		7		(236)		(236)		25	25		100%		(50,421)		(40,382)									
Split Sys HP (Heating)	7	3	6	8	10,937	19,137	10,937	12,397	25	25	25	100%	100%	2,044,604	1,435,275	1,637,520	2,439,846								
Split Sys HP (Cooling)	7		6	8	(42)		(42)	(48)	25	25	25	100%	100%	(7,852)		(6,288)	(9,447)								
Split Sys HP (Hot Water)	7		6	8	1,792		1,792	2,206	25	25	25	100%	100%	335,003		268,304	434,161								
Split Sys HP (Lights & Appliances)	7		6		(197)		(197)		25	25		100%		(36,828)		(29,495)									
Hot Water		9				1,690			25			100%			380,201								356		
Ventilation		9		22		(443)		(348)	25		25	100%	100%		(99,725)		(195,685)								

NHEC Energy Star® Products Program - Lighting

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life			In-Service & Realization Rate			Total Lifetime Savings (kWh)			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015	2016	2017	2015	2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Catalog Sales: LED Bulbs		308				25			20			95%				144,018		
Retail Sales: CFLs		2,873				29			5			62%				259,353		
Retail Sales: Multipacks	9,243		1,597		29		29		5	5		62%	62%		834,399	0	144,151	
Retail Sales: Interior Fixture		27				29			8	8		62%	62%			3,900		
Retail Sales: LED Bulbs	5,135	9,964	6,615	328	25	25	25	25	20	20	8	94%	95%	95%	2,362,942	4,585,503	3,093,010	61,344
Retail Sales: LED Interior Fixtures	2,054	1,880	1,141	449	25	25	25	25	8	8	8	90%	96%	96%	363,918	333,121	216,455	85,211
Retail Sales: LED Exterior Fixtures				151				25			5			100%				18,579
Retail Sales: LED Multipacks	3,081	1,696	456	3,221	25	25	25	25	20	20	8	95%	95%	62%	1,440,510	793,033	213,311	395,048
Retail Sales: LED Globe/Candelabra				1,991				25			8			95%		0		372,363
Retail Sales: LED Reflector				773				25			8			95%		0		144,569
Markdown: CFLs		900				29			5	5		62%	62%			81,245		
Markdown: CFLs (Multipack Bulbs)	8,000	6,174	2,509		29	29	29		5	5		96%	96%		1,117,507	862,407	350,511	
Markdown: LEDs		7,783	11,634	6,088		25	25	25	20	20	8	90%	95%	95%		3,447,713	5,153,145	1,138,597
Markdown: LEDs (Multipack Bulbs)		108	684	14,886		25	25	25	20	20	8	96%	95%	62%		51,244	324,682	1,825,735
Markdown: LED Globe/Candelabra				6,292				25			8			95%				1,176,749
Markdown: LED Reflector				4,737				25			8			95%				885,928
Markdowns: LED Interior Fixture				1,907				25			8			96%				361,909
Markdowns: LED Exterior Fixture				636				25			5			100%				78,254

NHEC Energy Star® Products Program - Appliance

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			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015	2016	2017	2015 2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Energy Star Clothes Washer	803	625	662	459	182	182	182	124	11	11	11	100%	100%	1,605,029	1,249,600	1,323,056	625,076	0.45	0.45	0.45	0.11	4,006	3,119	3,302	554
Energy Star Clothes Dryer				21				160			12		100%				40,654								
Energy Star Room A/C	468	271	339	157	16	16	16	16	9	9	9	100%	100%	68,092	39,406	49,285	22,777								
Smartstrip Power Strip		10	10			79			5			100%	100%		3,954										
Energy Star Refrigerator	780	420	484	294	107	107	40	41	12	12	12	100%	100%	1,002,126	539,280	230,266	145,744								
Primary Refrigerator Recycle				26				492			8		100%				103,756								
2nd Refrigerator/Freezer Pickup	111	104	81	75	835	835	755	755	8	8	8	100%	100%	744,793	694,720	487,428	455,235								
2nd Freezer Pickup	62	39	32	8	663	663	658	658	8	8	8	100%	100%	331,170	206,856	169,922	39,691								
Energy Star Room Air Purifiers	4	21	16	12	391	391	391	390	9	9	9	100%	100%	15,679	73,829	56,743	43,713								
Room AC Pickup				2				16			5		100%				170								
Energy Star Dehumidifiers				161				162			12		100%				314,304								
Energy Star Pool Pumps (2 Speed)				2				782			10		100%				17,666								
Energy Star Pool Pumps (Variable Speed)				1				946			10		100%				8,608								

NHEC Large Business Energy Solutions Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life			In-Service or Realizaton Rate			Total Lifetime Savings (kWh)			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015	2016	2017	2015	2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Snowmaking-Retrofit	1	3	2	2	150,767	168,106	150,767	89,099	13	13	13	89%	99.86%	99.86%	2,429,826	5,834,970	3,594,115	2,176,185
Lighting-Retrofit	15		6		18,812		18,812		13	13		89%	99.86%		3,335,005		1,345,370	
VFD - Retrofit	1	2	2		25,544	24,469	25,544		13	13		89%	99.86%		411,686	566,201	608,951	
VFD - New		1				144,294			15			100%				2,164,410		
Motors - Retrofit		1				10,651			13	13		89%				123,232		
Motors - New		1				2,183			15			100%				32,745		
Lighting - New	1	3	2		5,497	86,603	5,497		15	15		100%	99.86%		114,856	3,762,150	151,203	
Lighting Retrofit -LED	8	5	26	13	21,088	66,599	21,088	66,599	13	13	13	89%	99.86%	99.86%	2,039,225	3,852,775	7,038,154	11,386,460
Exterior Lighting - Retrofit		3		4		12,978		3,556	13		13	89%		99.86%		450,466		173,706
Exterior Lighting - New		2				24,208			15			100%				726,240		
Air Source Heat Pump - New		2				22,840			15			100%				685,185		
Chiller - New		1				194,772			15			100%				2,921,580		

NHEC Small Business Energy Solutions Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life			In-Service or Installation Rate		Total Lifetime Savings (kWh)			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015	2016	2017	2015 2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan
Lighting-Retrofit	19		25		7,884		7,884		13	13		100%		1,950,076		2,604,703	
Refrigeration-Retrofit	3		4		2,462		2,462		13	13		100%		101,493		135,563	
Interior Lighting LED-New		4				2,038			15			100%			122,265		
HVAC		1				2,632			15	15		100%			39,480		
Interior Lighting LED - Retrofit	25	15	34	30	9,299	14,092	9,299	16,391	13	13	13	100%		3,066,720	2,747,915	4,096,197	6,344,355
Lighting Controls - Retrofit																	
Exterior Lighting - Retrofit	6	13	8	20	9,251	12,492	9,251	11,586	13	13	13	100%	100%	762,741	2,111,084	1,018,787	2,989,677
Exterior Lighting - New		2				14,069			15			100%			422,070		
EMS New		1				137,463			15			100%			2,061,945		
Motors - Retrofit		1				486			13			100%			6,318		
Energy Star Mini Split Heat Pump (SEER>=19, HSPF>=10)	6		8		105		105		12	12		100%		7,986		10,667	
Energy Star Mini Split Heat Pump (SEER>=19, HSPF>=10)	6		8		751		751		12	12		100%		57,155		76,342	
Energy Star Mini Split Heat Pump (SEER>=14.5, HSPF>=8.2)	3		4		34		34		12	12		100%		1,308		1,747	
Energy Star Mini Split Heat Pump (SEER>=14.5, HSPF>=8.2)	3		4		142		142		12	12		100%		5,412		7,228	
Energy Star Wifi TSTAT for ASHP	10		13		142		142		15	15		100%		20,275		27,082	

NHEC Municipal Program

Measure	Quantity				Annual Savings per Unit (kWh)				Measure Life			In-Service or Installation Rate		Total Lifetime Savings (kWh)				Annual Savings per Unit (MMBTU)				Total Lifetime MMBTU Savings			
	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015	2016	2017	2015 2016	2017	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan	2015 Plan	2015 Actual	2016 Plan	2017 Plan
SCI Interior Lighting LED - Retrofit	12	13	13	13	9,299	14,135	9,299	11,083	13	13	13	100%	100%	1,473,197	2,388,829	1,561,841	1,833,955								
SCI Exterior Lighting LED - Retrofit	6	13	6	8	14,233	4,761	14,233	4,638	13	13	13	100%	100%	1,127,394	804,595	1,195,231	488,391								
SCI Interior Lighting LED - New		3				10,572			15			100%			475,755										
SCI Exterior Lighting LED - New		2				556			15			100%			16,680										
SCI Lighting Controls - Retrofit		4				9,285			13			100%			482,794										
SCI Lighting Controls - New		1				6,112			15			100%			91,680										
LCI Interior Lighting LED - Retrofit	8	2	8		8,687	43,396	8,687		13	13		100%		765,563	1,004,172	911,941									
LCI Interior Lighting LED - New		1				5,055			15			100%			75,825										
LCI Lighting Controls - Retrofit		1				3,490			13			100%			40,379										
LCI Exterior Lighting - Retrofit		1				9,385			13			100%			108,584										
LCI Exterior Lighting - New		1				3,580			15			100%			53,700										
Refrigeration	3		3		1,799		1,799		13	13		100%		71,257		75,544									
Refrigeration Controls	2		2		8,752		8,752		13	13		100%		173,316		183,744									
Cooling		5				6013			15			100%			450960				5				347		
Motor - New		1				1,791			15			100%			26,865										
Insulation - Retrofit		1		2					13			100%							133		121		1,727		3,640
Insulation - New		1							15			100%							34				510		
BRC: Oil, Boiler Reset Controls		1							15			100%							71				1,063		
Boilers, Oil ≥ 85% AFUE (up to 300 MBH)	2	1	2						25	25		100%						47	47	47	47	2,345	1,172	2,350	
Boilers, LP >= 90% thermal efficiency (301 to 499 MBH), Condensing		1							20	20		100%							33				664		
TSTAT: Oil, 7-Day Programmable Thermostats		3				14			15			100%			648				3				144		
Energy Star Mini Split Heat Pump (SEER>=19, HSPF>=10)	5		5		105		105		12	12		100%		6,296		6,296									
Energy Star Mini Split Heat Pump (SEER>=19, HSPF>=10)	5		5		751		751		12	12		100%		45,060		45,060									
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (ES=EF>=2.0)		1				1775			10			100%			17750										

Eversource Home Energy Assistance Program

	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			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 kWH	2017 MMBTU	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
Baseload (Lighting & Appliances-Refs)	0.0												86.20%	86.90%	98.10%	0								0			
Baseload-SF (Lighting & Appliances-Refs)		77.0				948.0		1,122.3		19		17.1	86.20%	86.90%	98.10%		1,188,050								0		
Baseload-MF (Lighting & Appliances-Refs)		157.0				910.6				20			86.20%	86.90%	98.10%		2,421,880								0		
Elec Savings on Baseload Homes (Lighting)				92.0				369.1				8.0		86.90%	98.10%				236,092								0
Elec Savings on Baseload Homes (Refrigerators)				46.0				586.0				12.0		86.90%	98.10%				281,104								0
Elec Savings on Baseload Homes (Elec Shell, secondary heat)				0.0				382.2				20.7		86.90%	98.10%				0								0
														86.90%	98.10%												
Electric Savings for Fossil Heated Homes	21.2	345.0	89.1		1,181.6	1,285.0	1,400.0		12	18	18		86.20%	86.90%	98.10%	253,373	6,937,383	1,936,543		0.0		0.0		0	0	0	
Elec Savings on Fossil Homes (Lighting)				356.0				369.1				8.0		86.90%	98.10%				913,437								0
Elec Savings on Fossil Homes (Refrigerators)				158.2				586.0				12.0		86.90%	98.10%				966,745								0
Elec Savings on Fossil Homes (Elec Shell, secondary heat)				276.9				382.2				20.7		86.90%	98.10%				1,906,222								0
Weatherization - Oil Heated	193.2	127.0	126.6	151.7					21	20	21	20.7	86.20%	86.90%	98.10%	0	0	0	0	28.0	28.6	27.2	30.6	98,543	63,738	61,206	94,038
Weatherization - LP Heated	22.4	40.0	44.0	54.4					20	20	20	20.9	86.20%	86.90%	98.10%	0	0	0	0	28.0	19.0	21.4	20.8	10,659	13,150	16,215	23,253
Weatherization - NG Heated	21.2	90.0	72.5	59.9					20	23	22	21.9	86.20%	86.90%	98.10%	0	0	0	0	9.2	14.3	21.9	20.1	3,435	25,209	29,563	25,906
Weatherization - Wood Heated (Cord)	21.5	9.0	20.1	12.9					21	21	22	20.5	86.20%	86.90%	98.10%	0	0	0	0	38.4	91.2	31.8	47.4	15,043	15,104	12,116	12,312
Weatherization - Wood Heated (Pellet)	21.5	9.0	20.1	8.6					21	21	22	21.5	86.20%	86.90%	98.10%	0	0	0	0	38.4	91.2	31.8	47.4	15,043	15,104	12,116	8,609
Weatherization - Kerosene Heated	14.3	79.0	73.1	107.9					20	20	18	20.1	86.20%	86.90%	98.10%	0	0	0	0	19.7	21.7	22.4	23.1	4,921	28,966	26,016	49,109
Weatherization - Electric Heat	6.9	11.0	16.0	12.6	5,417.8	4,660.5	4,506.8	5,611.4	13	19	19	18.9	86.20%	86.90%	98.10%	410,302	825,006	1,199,156	1,164,201					0	0	0	0
														86.90%	98.10%												
Heating System Replacements														86.90%	98.10%												
- Kerosene Mobile Home Furnaces	34.3	10.0	20.1	18.9	102.4	87.9	117.0	98.6	17	18	18	18.0	100.00%	86.90%	98.10%	59,696	15,822	42,343	29,126	8.8	9.4	9.2	9.7	5,140	1,695	3,332	3,226
- LP Furnace/Boiler	13.5		10.3		529.6		105.6		18		18		100.00%	86.90%	98.10%	129,120		19,839		5.9		21.2		1,445		3,986	
- LP Furnace		9.0		11.4		2,053.3		2,147.6		18		18.0	100.00%	86.90%	98.10%		332,640		381,543		14.0		17.4		2,266		3,488
- LP Boiler		3.0		3.0		132.7		399.0		20		20.0	100.00%	86.90%	98.10%		7,960		20,529		8.9		20.1		534		1,167
- Oil Furnace/Boiler	39.8		55.6		282.8		272.6		25		19		100.00%	86.90%	98.10%	281,498		284,923		16.7		14.3		16,635		14,956	
- Oil Furnace		21.0		24.6		231.0		75.9		18		18.0	100.00%	86.90%	98.10%		87,310		29,205		15.7		16.7		5,945		7,266
- Oil Boiler		13.0		22.9		111.3		129.8		20		20.0	100.00%	86.90%	98.10%		28,941		51,657		12.0		15.9		3,111		7,144
- NG Furnace/Boiler	8.0		4.4		109.3		217.9		20		18		100.00%	86.90%	98.10%	17,514		17,554		18.9		15.8		3,025		1,271	
- NG Furnace													100.00%	86.90%	98.10%												
- NG Boiler		1.0				0.0				20			100.00%	86.90%	98.10%		0				27.3				545		

Planning Assumptions

1. All Annual Energy Savings and Measure Lives were updated for 2017 to reflect more current information based on Jan - Jul 2016 participation results. LED Measure Life updated to 8 years.
2. US DOE WAP Collaboration: The federal Weatherization Assistance Program is expected to fund additional work and achieve additional MMBTU Savings.
3. For gas heated homes, customer may be served by both gas and electric utilities in this program, but gas companies will pay for the weatherization project up to their cap first and will claim associated MMBTU savings.

Eversource Home Performance with ENERGY STAR®

	Quantity				Annual Savings per Unit (kWh)				Measure Life				Installation or		Total Lifetime Savings (kWh)				Annual Savings Per Unit (MMBTU)				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
Electric Baseload: Multi-Family	111.5	1319.0		549.1	221.5	376.3	369.1		20	20	20	20	100.00%	100.00%	493,817	9,928,080		0	0.0		0.0		0	0		0
Electric Baseload: Single Family	27.9	95.0	103.5	92.0	221.5	359.0	369.1		20	18	20	18	100.00%	100.00%	123,454	600,201	763,992	0	0.0		0.0		0	0	0	0
Elec Savings on Baseload Homes (Lighting)				641.1				369.1				8	100.00%	100.00%				1,893,200								
Elec Savings on Baseload Homes (Refrigerators)				64.1				586.0				12	100.00%	100.00%				450,830								
Elec Savings on Baseload Homes (Elec Shell, secondary heat)				0.0				1,500.0				18	100.00%	100.00%				0								
Light Fixtures	19.4		19.5		24.6		36.9		20		20		100.00%		9,535		14,431		0.0		0.0		0		0	
Refrigerator	38.7		39.1		586.2		586.2		7		7		100.00%		158,982		160,415		0.0		0.0		0		0	
Hot Water Saving Measures	77.5		78.2		80.4		80.4		4		7		100.00%		24,928		44,018		0.0		0.0		0		0	
Fuel Neutral, SF, Electric, LEDs	399.0	448.0	403.0		221.5	532.1	369.1		20	19	20		100.00%		1,767,522	4,500,398	2,975,485		0.0		0.0		0	0	0	
SF Fuel Neutral (Electric) Primary fuel	11.6	112.0	12.1	13.5	4,803.4	4,720.3	4,803.4	5,729.6	18	19	18	20	100.00%	100.00%	1,002,205	10,046,428	1,047,187	1,546,383	0.0		0.0		0	0	0	0
SF Fuel Neutral (Kerosene) Primary fuel	8.0	2.0	2.0	4.4			0.0		21	21	21	19	100.00%	100.00%	0	0	0	0	19.7	11.9	19.7	25.1	3,363	497	864	2,168
SF Fuel Neutral (NG) Primary fuel	2.0	21.0	2.0				0.0		21	22	21		100.00%	100.00%	0	0	0		9.2	45.6	9.2	35.5	377	20,733	382	
SF Fuel Neutral (Oil) Primary fuel	290.9	296.0	287.2	264.3			0.0		19	21	19	20	100.00%	100.00%	0	0	0	0	28.0	33.3	29.6	37.4	158,666	206,099	165,312	199,536
SF Fuel Neutral (LP) Primary fuel	30.7	76.0	62.2	106.8			0.0		19	20	19	19	100.00%	100.00%	0	0	0	0	30.0	31.6	30.0	30.6	17,836	49,028	36,087	62,822
SF Fuel Neutral (Wood-Cord) Primary fuel	55.9	53.0	37.6	22.2			0.0		21	20	21	21	100.00%	100.00%	0	0	0	0	38.4	41.1	26.5	41.5	44,535	44,239	20,666	19,015
SF Fuel Neutral (Wood-Pellets) Primary fuel	55.9	53.0	37.6	17.8			0.0		21	20	21	21	100.00%	100.00%	0	0	0	0	38.4	41.1	26.5	41.5	44,535	44,239	20,666	15,212
												8	100.00%	100.00%												
Elec Savings on Fossil Homes (Lighting)				249.3				369.1				8	100.00%	100.00%				736,154								
Elec Savings on Fossil Homes (Refrigerators)				62.3				586.0				12	100.00%	100.00%				438,253								
Elec Savings on Fossil Homes (Elec Shell, secondary heat)				62.3				1,500.0				18	100.00%	100.00%				1,701,831								
AS = Ancillary Energy Savings																										
AS: Boiler Circulator Pump Savings	271.2		254.1		9.0		9.0		20		20		100.00%		48,820		45,742		0.0		0.0		0		0	
AS: Furnace Fan Savings	38.7		97.7		86.0		86.0		20		20		100.00%		66,644		168,111		0.0		0.0		0		0	
AS: Furnace w/new ECM Motor	1.9		4.9		733.0		733.0		20		20		100.00%		28,401		71,642		0.0		0.0		0		0	
AS: Central AC	1.9		9.8		77.0		77.0		20		20		100.00%		2,983		15,052		0.0		0.0		0		0	
AS: Room AC (per unit)	127.8		141.7		23.0		23.0		20		20		100.00%		58,807		65,169		0.0		0.0		0		0	
ES Furnace w/ECM (LP), AFUE >=95%	3.6		3.3	10.0	168.0		168.0	168.0	18		18	18	100.00%	100.00%	11,023		10,080	30,240	4.5		4.5	4.5	295		270	810
ES Furnace w/ECM (LP), AFUE >=96%					168.0		168.0		18		18		100.00%						5.6		5.6					
ES Furnace w/ECM (LP), AFUE >=97%	1.8		1.1	0.9	168.0		168.0	168.0	18		18	18	100.00%	100.00%	5,295		3,360	2,688	5.9		5.9	5.9	186		118	94
ES Furnace w/ECM (Oil), AFUE >=85%	1.6		6.7	10.0	168.0		168.0	168.0	18		18	18	100.00%	100.00%	4,724		20,160	30,240	18.0		18.0	18.0	506		2,160	3,240
ES Furnace w/ECM (Oil), AFUE >=90%	0.7		2.2	4.4	168.0		168.0	168.0	18		18	18	100.00%	100.00%	2,118		6,720	13,440	20.7		20.7	20.7	261		828	1,656
ES Boiler (LP), AFUE>=90%	4.0		1.0	1.0	0.0		168.0		20		20	20	100.00%	100.00%	0		3,360	0	10.4		10.4	10.4	827		208	208
ES Boiler (LP), AFUE>=95%	1.1		0.7	2.0	0.0		0.0		20		20	20	100.00%	100.00%	0		0	0	13.1		13.1	13.1	279		175	524
ES Boiler (Oil), AFUE>=85%	12.6		5.0	9.2	0.0		0.0		20		20	20	100.00%	100.00%	0		0	0	5.4		5.4	5.4	1,358		538	990
ES Boiler (Oil), AFUE>=90%	0.8		1.0	3.0	0.0		0.0		20		20	20	100.00%	100.00%	0		0	0	10.8		10.8	10.8	171		215	645
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	0.0		0.0		1,775.0		1,775.0		10		10		100.00%		0		0		0.0		0.0		0		0	
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	0.0		0.0		2,672.0		2,672.0		10		10		100.00%		0		0		0.0		0.0		0		0	
BRC: Gas, Boiler Reset Controls	0.0		0.0		0.0		0.0		15		15		100.00%		0		0		9.6		9.6		0		0	
BRC: LP, Boiler Reset Controls	0.0		0.0		0.0		0.0		15		15		100.00%		0		0		9.6		9.6		0		0	
BRC: Oil, Boiler Reset Controls	2.1				0.0		0.0		15		15		100.00%		0				9.6		9.6		299			
3rd Party Loan Buydown	100.0				0.0		0.0		1		1		100.00%		0								0			

Planning Assumptions

1. For LED Annual kWh savings, we assumed the same weighted average energy savings as the lighting program but longer hours use (3 hours/day vs. 2 hours/day as the program requires retrofit lights to be on 3 or more hours/day). The measure life for LEDs has been updated to 8 years (the regional average).
2. Ancillary kWh Savings are no longer separated as they are included in the watherization measure savings as approporiate.
3. Fossil (LP and Oil) heating system replacements are included here (rather than in the ESAppliance Program) and will be incented when a new system is recommended by auditor and installed by customer.

Eversource ENERGY STAR® Homes Program

	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			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
ES CFLs	0.0		0.0		0.0	24.6	24.6			8	8		100.00%		0		0		0.00		0.00		0		0	
ES LEDs		1,327.0		3,771.1		24.6		24.6		20		8	100.00%	100.00%		653,104		743,280						0		0
ES Light Fixture (Interior)	243.8	763.0	303.3	754.2	24.6	24.6	24.6	24.6	20	20	20	8	100.00%	100.00%	120,004	375,523	149,286	148,656	0.00		0.00		0	0	0	0
ES Light Fixture (Exterior)		36.0				29.0				8			100.00%			8,347								0		
ES Clothes Washer	43.9	42.0	54.6	52.8	181.8	181.8	181.8	123.9	11	11	11	11	100.00%	100.00%	87,750	83,973	109,162	71,960	0.74	0.74	0.74	0.45	356	341	443	263
ES Dishwasher	195.1	291.0	0.0		31.4	31.4	31.4		10	10	10		100.00%		61,250	91,374	0		0.19	0.19	0.19		368	549	0	
ES Refrigerator	231.6	271.0	288.2	339.4	107.0	107.0	39.6	41.4	12	12	12	12	100.00%	100.00%	297,421	347,964	137,037	168,462	0.00		0.00		0	0	0	0
ES Thermostats	207.3	23.0	257.8		0.0		0.0		15	15	15		100.00%		0	0	0		0.00		0.00		0	0	0	
ESHome - Natural Gas Heated Home (MF)				132.0				347.0				25		100.00%				1,144,994				16.33				53,884
ESHome - Oil Heated	4.9	1.0	3.0	1.9	410.8	45.0	410.8	342.0	25	25	25	25	100.00%	100.00%	50,082	1,125	31,151	16,121	43.60	67.12	43.60	47.31	5,315	1,678	3,306	2,230
ESHome - Natural Gas Heated	36.6	204.0	78.9	18.9	98.3	469.1	98.3	1,436.0	25	25	25	25	100.00%	100.00%	89,881	2,392,375	193,809	676,909	23.10	25.55	23.10	47.97	21,122	130,305	45,544	22,612
ESHome - Liquid Propane Heated [1]	126.8	65.0	100.1	86.7	462.6	1,276.5	462.6	1,276.5	25	25	25	25	100.00%	100.00%	1,466,331	2,074,250	1,157,623	2,767,842	31.80	61.18	31.80	57.26	100,798	99,413	79,577	124,161
ESHome - Wood Heated				5.7				1,074.0		25		25	100.00%	100.00%				151,880				49.88				7,054
ESHome - Electric Baseboard Heated	14.6		0.0		7,935.8	7,935.8	7,935.8	0.0	25	25	25	25	100.00%	100.00%	2,902,451		0		0.00		0.00		0		0	
ESHome - Liquid Propane Heated (MF)				37.7				1,660.0				25		100.00%				1,564,998				24.24				22,853
ESHome - ASHP Heated Home (MF) [1]	61.0		75.8	56.6	5,355.0		5,355.0	2,033.0	25	25	25	25	100.00%	100.00%	8,160,606		10,151,892	2,874,976	0.00		0.00		0		0	0
ESHome - ASHP Heated Home (SF)		14.0				13,917.4				25			100.00%			4,871,075				0.32				112		
ESHome - GSHP Heated Home (SF)		13.0				15,603.4				25			100.00%			5,071,100				1.42				463		
LEDs	2,438.3		3,033.2		24.6		24.6		20		20		100.00%		1,200,037		1,492,860						0		0	
Ground Source Heat Pump (Geothermal, GSHP)																										
GSHP (Heating)	30.4		30.3	18.9	12,250.0		12,250.0	13,750.0	25		25	25	100.00%	100.00%	9,296,821		9,289,313	6,481,541	0.00		0.00		0		0	0
GSHP (Cooling)	30.4		30.3	18.9	69.0		69.0	169.0	25		25	25	100.00%	100.00%	52,366		52,323	79,664	0.00		0.00		0		0	0
GSHP (Hot Water)	30.4		30.3	18.9	1,819.0		1,819.0	1,954.0	25		25	25	100.00%	100.00%	1,380,483		1,379,368	921,086	0.00		0.00		0		0	0
GSHP (Lights & Appliances)	30.4		30.3	18.9	-162.0		-162.0	-162.0	25		25	25	100.00%	100.00%	-122,946		-122,846	-76,364	0.00		0.00		0		0	0
Air Source Heat Pump (ASHP)																										
ASHP (Heating)	9.0		15.2	18.9	9,671.0		9,671.0	9,570.0	25		25	25	100.00%	100.00%	2,182,030		3,666,814	4,511,153	0.00		0.00		0		0	0
ASHP (Cooling)	9.0		15.2	18.9	71.0		71.0	71.0	25		25	25	100.00%	100.00%	16,019		26,920	33,468	0.00		0.00		0		0	0
ASHP (Hot Water)	9.0		15.2	18.9	520.0		520.0	520.0	25		25	25	100.00%	100.00%	117,326		197,161	245,120	0.00		0.00		0		0	0
ASHP (Lights & Appliances)	9.0		15.2	18.9	-79.0		-79.0	-79.0	25		25	25	100.00%	100.00%	-17,824		-29,953	-37,239	0.00		0.00		0		0	0

Notes:

1. Includes savings from secondary heating source - wood.

Planning Assumptions

1. The Energy Star Homes Heat Pump Program was merged in to the Energy Star Homes program for 2015-2016. The new single family homes with heat pumps are listed at the bottom of the table, broken down by savings type (heating, cooling, hot water, lights & applainces
2. Measure Life Changes:
   > LEDs measure life changed to 8 years.
3. Lighting & Appliance Energy Savings have been updated per the EPA Energy Star Appliance Calculators and NH evaluation results.

Eversource ENERGY STAR® Products Program - Lighting

	Quantity				Annual Savings per Unit (kWh)				Measure Life				In-Service & Realization Rate			Total Lifetime Savings (kWh)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
Catalog CFLs		954				29.0				5			62.30%				86,123		
Catalog Interior Fixtures (Lamps and HW Fixtures)		55				29.0				8			96.40%				12,293		
Catalog Exterior Fixtures		5				29.0				5			100.00%				725		
Catalog Torchieres													93.50%						
Catalog LED Bulbs	13,144	4,364	7,001	468	24.6	24.6	24.6	24.6	20	20	20	8	95.00%	95.00%	95.00%	6,145,597	2,040,422	3,273,190	87,452
Catalog LED Multi-packs	830			4,208	24.6	24.6	24.6	24.6	20		20	8	90.00%	95.00%	62.30%	367,714			516,150
Catalog LED Globe/Candelabra				1,403				24.6				8			95.00%				262,355
Catalog LED Reflector				1,052				24.6				8			95.00%				196,767
Catalog LED Interior Fixtures		10	138	421		24.6	24.6	24.6	8	8	8	8	95.00%	96.40%	96.40%		1,870	26,222	79,867
Catalog LED Exterior Fixtures				140.28				24.6				5			100.00%				17,260
Retail CFLs		574				29.0				5			62.30%				51,818		
Retail CFL Multi-packs	77,397	46,101	13,155		29.0	29.0	29.0		5	5	5	5	62.30%	62.30%		6,987,039	4,161,805	1,187,551	
Retail Interior Fixtures (Lamps and HW Fixtures)		216				29.0				8			96.40%				48,276		
Retail Exterior Fixtures		5				29.0				5			100.00%				725		
Retail Torchieres						29.0				8			93.50%						
Retail LED Bulbs Labeled as Retail CFLs																			
Retail LED Fixtures						24.6				8			95.00%						
Retail LED Bulbs (Single Packs)	71,473	133,041	31,034	378	24.6	24.6	24.6	24.6	20	20	20	8	95.00%	95.00%	95.00%	33,417,924	62,204,344	14,510,122	70,659
Retail LED Bulbs Multi-Packs	5,507	4,804	4,223	4,808	24.6	24.6	24.6	24.6	20	20	20	8	95.00%	95.00%	62.30%	2,574,651	2,246,147	1,974,641	589,748
Retail LED Globe/Candelabra				6,406				24.6				8			95.00%				1,197,989
Retail LED Reflector				1,019				24.6				8			95.00%				190,665
Retail LED Interior Fixtures	13,342	11,404	6,259	1,129	24.6	24.6	24.6	24.6	8	8	8	8	95.00%	96.40%	96.40%	2,495,205	2,132,811	1,187,795	214,320
Retail LED Exterior Fixtures				380				24.6				5			100.00%				46,813
Discount Store LED Bulbs (Single Packs)				459				24.6				8			95.00%				85,821
Discount Store LED Bulbs Multi-Packs				4,130				24.6				8			62.30%				506,526
Discount Store LED Globe/Candelabra				1,377				24.6				8			95.00%				257,464
Discount Store LED Reflector				1,036				24.6				8			95.00%				193,811
Discount Store LED Interior Fixtures				417				24.6				8			96.40%				79,193
Discount Store LED Exterior Fixtures				139				24.6				5			100.00%				17,115
Markdown: CFLs (Multipack Bulbs)	605	6,014	25,756		29.0	29.0	29.0		5	5	5		62.30%	62.30%		54,623	542,919	2,325,140	
Markdown: LED Bulbs (Single)	2,531	16,907	95,512	38,087	24.6	24.6	24.6	24.6	20	20	20	8	95.00%	95.00%	95.00%	1,183,363	7,904,998	44,657,221	7,123,161
Markdown: LED Bulbs (Multipack Bulbs)	561		6,132	94,988	24.6		24.6	24.6	20		20	8	96.40%	95.00%	62.30%	266,124		2,867,237	11,650,094
Markdown: LED Globe/Candelabra				39,923				24.6				8			95.00%				7,466,445
Markdown: LED Reflector				30,053				24.6				8			95.00%				5,620,518
Markdown: LED Interior Fixtures				12,101				24.6				8			96.40%				2,296,608
Markdown: LED Exterior Fixtures				4,034				24.6				5			100.00%				496,328

Notes

Plan to utilize lighting product markdowns rather than rebate forms for large retailers who no longer allow coupons.

Planning Assumptions

1. The Annual kWH Savings for both CFLs and LEDs were adjusted to reflect the weighted average of bulbs they are intended to replace (using halogen wattages, per the Energy Security & Independence Act of 2007).
   > kWH Savings = (Delta Watts) * (2 hours/days * 386 days/year) / 1000 to convert from watt hours to kWH
2. Incentives provided for ENERGY STAR LEDs in 2017 (eliminated CFL incentives).
3. Updated "In-service and realization rates" to reflect those identified in the NH CORE Residential Energy Star Lighting Program Impact and Process Evaluation.
   - See page 1-6 in http://www.puc.state.nh.us/Electric/Monitoring%20and%20Evaluation%20Reports/NH-RESLFinal%20Delivered%2010252012.pdf
   - Used the 62.3% Multi-pack CFL in-service rate for Multi-pack LEDs.

Eversource ENERGY STAR® Products Program - Appliances

	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			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
Energy Star Clothes Washer	6,259.5	4,290.0	4,405.7	6,211.2	181.8	181.8	181.8	123.9	11	11	11	11	100.00%	100.00%	12,515,022	8,577,254	8,808,508	8,465,906	0.5	0.5	0.5	0.1	31,232	21,405	21,982	7,502
Energy Star Clothes Dryer				607.0				160.2				12		100.00%				1,166,684								
Energy Star Dishwasher (w/Oil DHW)								13.7	10	10	10	10	100.00%	100.00%					0.2	0.2	0.2					
Energy Star Room A/C	3,698.2	1,987.0	2,348.0	2,247.7	16.2	16.2	16.2	16.2	9	9	9	9	100.00%	100.00%	537,752	288,926	341,424	326,829	0.0		0.0		0	0	0	0
Energy Star Room Air Purifiers	88.1	173.0	185.4	142.8	390.6	390.6	390.6	390.4	9	9	9	9	100.00%	100.00%	309,564	608,208	651,702	501,715	0.0		0.0		0	0	0	0
Energy Star Refrigerator	4,754.9	2,831.0	3,027.7	4,495.3	107.0	107.0	39.6	41.4	12	12	12	12	100.00%	100.00%	6,105,245	3,635,004	1,439,870	2,231,287	0.0		0.0		0	0	0	0
Energy Star Dehumidifiers				1,853.1				162.3	12	12	12	12	100.00%	100.00%				3,608,496	0.0		0.0					0
Energy Star Pool Pumps (2 Speed)				25.9				781.7				10		100.00%				202,785								
Energy Star Pool Pumps (Variable Speed)				10.5				945.9				10		100.00%				99,172								
Energy Star Freezers					114.0	114.0	114.0	30.3	12	12	12		100.00%	100.00%					0.0		0.0					
Energy Star Dishwasher (CEE Tier 2)									10	10	10		100.00%						0.0	0.2	0.0					
Smartstrip Power Strip	352.2	194.0	61.8		79.1	79.1	79.1	79.1	5	5	5		100.00%		139,260	76,705	24,431		0.0		0.0		0	0	0	
Energy Star Set-top Boxes & Cable Boxes									5	5	5								0.0							
Energy Star Water Coolers	0.0		0.0		0.0		0.0		10	10	10				0		0		0.0		0.0		0		0	
Primary Refrigerator Recycling/Pickup				86.5				491.6				8		100.00%				340,333								
2nd Refrigerator Recycling/Pickup	528.3	318.0	432.5	389.4	835.0	835.0	755.0	755.0	8	8	8	8	100.00%	100.00%	3,529,165	2,124,240	2,612,503	2,351,902	0.0		0.0		0	0	0	0
2nd Freezer Recycling/Pickup	176.1	109.0	123.6	86.5	663.0	663.0	658.0	658.0	8	8	8	8	100.00%	100.00%	934,067	578,136	650,531	455,497	0.0		0.0		0	0	0	0
Room AC Recycling/Pickup	17.6	4.0	12.4	24.1	16.2	16.2	16.2	16.2	5	5	5	5	100.00%	100.00%	1,423	323	998	1,946	0.0		0.0		0	0	0	0
Energy Star Central AC (3 ton)	70.4	254.9	86.5	153.1	110.3	110.3	142.2	199.9	14	14	14	12	100.00%	100.00%	108,768	393,587	172,162	367,153	0.0		0.0		0	0	0	0
Energy Star Ductless Mini Split (Cooling Only)	17.6	15.5	12.4	6.7	30.6		47.4	66.6	14	14	12	12	100.00%	100.00%	7,554	0	7,027	5,364	0.0		0.0		0	0	0	0
Energy Star Wifi TSTAT for Ductless mini-split cooling + ES CAC			49.4	9.6			21.6	32.3			12	12	100.00%	100.00%			12,831	3,719							0	0
Energy Star Air Source Heat Pumps (Cooling, SEER >=14.5/ EER >=12)	52.8	100.6			92.0	30.7			12	12			100.00%		58,316	37,025			0.0		0.0		0	0		
Energy Star Air Source Heat Pumps (Cooling, SEER >=15, EER >=12.5)			24.7				77.0				12		100.00%			22,825									0	
Energy Star Air Source Heat Pumps (Heating, HSPF >=8.2)	52.8	100.6			627.9	209.3			12	12			100.00%		398,089	252,749			0.0		0.0		0	0		
Energy Star Air Source Heat Pumps (Heating, HSPF >=8.5)			24.7				477.2				12		100.00%				141,521								0	
Energy Star Wifi TSTAT for ASHP																										
Energy Star Air Source Heat Pumps (Cooling, SEER >=16, EER)				4.0				123.8				12		100.00%				5,900								
Energy Star Air Source Heat Pumps (Heating, HSPF >=9.0)				4.0				1,030.6				12		100.00%				49,133								
Energy Star Air Source Heat Pumps (Heating, HSPF >=9.0)																										
Energy Star Air Source Heat Pumps (Cooling, SEER >=18, EER >=12.5)			12.4	10.0			256.5	220.0			12	12	100.00%	100.00%			38,041	26,517							0	0
Energy Star Air Source Heat Pumps (Heating, HSPF >=10)			12.4	10.0			2,433.5	2,087.0			12	12	100.00%	100.00%			360,879	251,554							0	0
Energy Star Wifi TSTAT for ASHP (Cooling)	38.0			4.8	23.4			32.0	15	15		12	100.00%	100.00%	13,348			1,844	0.0		0.0		0			0
Energy Star Wifi TSTAT for ASHP (Heating)				4.8				296.7				12		100.00%				17,109								
Energy Star Air Source Heat Pumps (Cooling, SEER >=20/ EER >=12)		45.1				103.7				12			100.00%			56,093				5.9				3,190		
Energy Star Air Source Heat Pumps (Heating, HSPF >=10)		45.1				789.5				12			100.00%			426,899				4.5				2,433		
													100.00%													
Energy Star DMSHP (Any, SEER >=20, HSPF >=10, Cooling)	792.5	710.4			124.4	124.4			12	12			100.00%		1,182,863	1,060,309			0.0		0.0		0	0		
Energy Star DMSHP (Oil, SEER >=20, HSPF >=10, Heating)	396.2	710.4			536.4	536.4			12	12			100.00%		2,550,662	4,572,780			0.0		0.0		0	0		
Energy Star DMSHP (LP, SEER >=20, HSPF >=10, Heating)	396.2				536.4				12	12			100.00%		2,550,662				0.0		0.0		0			
Energy Star DMSHP (Gas, SEER >=20, HSPF >=10, Heating)					536.4				12	12			100.00%						0.0		0.0					
Energy Star DMSHP (Any, Cooling, HSPF >=8.5, SEER >=15, EER>=12.5)			86.5				22.0			12	12		100.00%				22,838				0.0				0	
Energy Star DMSHP (Oil, Heating, HSPF >=8.5, SEER >=15, EER>=12.5)			43.3			142.2	77.3			12	12		100.00%				40,121			17.8	8.0				4,152	
Energy Star DMSHP (LP, Heating, HSPF >=8.5, SEER >=15, EER>=12.5)			43.3			142.2	77.3			12	12		100.00%				40,121			17.8	0.0				0	
Energy Star DMSHP (Gas, Heating, HSPF >=8.5, SEER >=15, EER>=12.5)			0.0			142.2	77.3			12	12		100.00%				0				0.0				0	
Energy Star Wifi TSTAT for DMSHP			43.3			23.6	8.2			15	12		100.00%				4,278			4.5	0.0				0	
Energy Star DMSHP (Any, Cooling, HSPF >=8.2, SEER >=14.5)		163.7				36.8										0										
Energy Star DMSHP (Oil, Heating, HSPF >=8.2, SEER >=14.5)		81.9				142.2	77.3			12	12		100.00%			139,700				17.8	8.0			17,485		
Energy Star DMSHP (LP, Heating, HSPF >=8.2, SEER >=14.5)		81.9				142.2	77.3			12	12		100.00%			139,700				17.8	0.0			17,485		
Energy Star DMSHP (Gas, Heating, HSPF >=8.2, SEER >=14.5)						142.2	77.3			12	12		100.00%								0.0					
Energy Star Wifi TSTAT for DMSHP		44.0				23.6	8.2			15	12		100.00%			15,587				4.5	0.0			2,971		
Energy Star DMSHP (Any, Cooling, HSPF >=9, SEER >=16)				119.2				66.6				12		100.00%				95,300								
Energy Star DMSHP (Oil, Heating, HSPF >=9, SEER >=16)				119.2				343.5				12		100.00%				491,333								
Energy Star DMSHP (LP, Heating, HSPF >=9, SEER >=16)																										
Energy Star Wifi TSTAT for DMSHP				9.6				15.6				12		100.00%				1,801								
Energy Star DMSHP (Any, Cooling, HSPF >=10, SEER >=18, EER>=12.5)			494.3	703.1			73.3	98.7		12	12	12	100.00%	100.00%			435,005	832,905			0.0				0	0
Energy Star DMSHP (Oil, Heating, HSPF >=10, SEER >=18, EER>=12.5)			247.2	703.1			394.2	695.7		12	12	12	100.00%	100.00%			1,169,227	5,869,591			17.8				52,794	0
Energy Star DMSHP (LP, Heating, HSPF >=10, SEER >=18, EER>=12.5)			247.2				394.2			12	12		100.00%				1,169,227				17.8				52,794	
Energy Star DMSHP (Gas, Heating, HSPF >=10, SEER >=18, EER>=12.5)			0.0				394.2			12	12		100.00%				0				0.0				0	
Energy Star Wifi TSTAT for DMSHP	570.6		247.2	9.6	109.7		38.8	107.0	15	15	12	12	100.00%	100.00%	938,858		115,099	12,339	0.0		4.5		0		13,347	0
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	176.1	81.0	74.1	150.7	1,775.0		1,775.0	1,775.0	10	10	10	10	100.00%	100.00%	3,125,828	0	1,316,138	2,674,298	0.0		4.5		0	0	3,337	0
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	17.6	12.0	12.4	5.9	2,672.0		2,672.0	2,672.0	10	10	10	10	100.00%	100.00%	470,566	0	330,209	156,853	0.0		5.6		0	0	686	0

Planning Assumptions

1. All Energy Star Appliance savings were updated based on review of the EnergyStar.gov Savings Calculator and/or recent evaluations.
2. Central air conditioner and Mini Split Heat Pump Annual kWh savings were updated via the EnergyStar.gov calculator, and conservatively assumed 50% of heat provided by heat pump, 50% provided by existing fossil system.
3. As part of the Statewide CORE Energy Efficiency Plan, we will provide two tiers for the Ductless Mini Split and Air Source Heat Pumps: $250/ton for Energy Star certified models and $500/ton for higher efficiency "cold climate" models
   - Annual kWH savings adjusted based on the efficiency of each of the tiers.
4. Oil/LP heating system incentives are not provided via this mass market program. Heating Systems will be incented if recommended by auditors as part of the HEA or HPwES programs.

Eversource Large Business Energy Solutions Program

	Quantity				Annual Savings per Unit/Project (kWh)				Measure Life				In-Service or Realization Rate			Total Lifetime Savings (kWh)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
New Equipment & Construction Track																			
Cooling	28.2	23.0	39.6	29.9	39,908.4	23,087.3	30,273.5	22,256.2	15	13.2	15	14.1	92.50%	99.86%	99.86%	15,993,461	6,487,982	18,391,058	9,360,923
Heating	14.3	9.0	14.8	5.3	94,862.4	255,388.4	71,190.5	171,326.8	14.8	15.0	14.8	11.6	92.50%	99.86%	99.86%	18,680,114	31,891,632	15,658,436	10,602,401
Lighting	17.7	5.0	6.5	0.0	59,831.5	57,604.2	24,539.5	57,197.5	15.0	15.0	15.0	15.0	92.50%	99.86%	99.86%	14,714,089	3,996,291	2,407,416	
Lighting LED		22.0	22.4	18.2	45,441.8	67,098.3	45,441.8	104,524.9	15.0	15.0	15.0	15.0	92.50%	99.86%	99.86%		20,479,544	15,241,933	28,525,751
Lighting OS		6.0	4.5	8.2	15,758.3	28,244.3	15,758.3	22,102.0	10.0	10.0	10.0	10.0	92.50%	99.86%	99.86%		1,567,561	701,551	1,812,892
Other			1.7		131,253.0		131,253.0		15.0		15.0		92.50%	99.86%	99.86%			3,439,777	
Parking Lot Lighting	43.9	6.0	8.0	10.4	2,250.0	95,687.0	80,296.5	90,031.9	15.0	15.0	15.0	15.0	92.50%	99.86%	99.86%	1,371,507	7,965,943	9,647,735	13,962,345
Process	20.5	27.0	20.2	22.2	117,825.5	148,036.9	117,825.5	130,092.6	14.7	14.6	14.7	15.4	92.50%	99.86%	99.86%	32,973,324	53,854,785	35,023,382	44,602,402
Retrofit Track																			
Cooling	8.5	4.0	18.6	5.5	93,521.4	16,576.3	64,463.9	36,254.4	13.2	13.1	13.2	13.0	94.00%	99.86%	99.86%	9,844,960	814,456	15,834,104	2,591,558
Heating	5.3	5.0	8.5	7.0	52,904.1	63,655.6	40,632.3	58,411.5	13.0	13.0	13.0	13.0	94.00%	99.86%	99.86%	3,426,090	3,889,357	4,492,313	5,287,742
Lighting	93.5	8.0	6.9	1.0	69,199.6	93,184.9	51,898.3	97,774.5	13.0	13.0	13.0	13.0	94.00%	99.86%	99.86%	78,892,908	9,109,753	4,610,601	1,324,580
Lighting-LED	0.0	58.0	74.1	88.0		69,442.7	49,884.3	56,327.1	13.0	13.0	13.0	13.0	94.00%	99.86%	99.86%		49,218,225	47,969,880	64,315,994
Lighting-OS Only	0.0	7.0	14.9	10.5		19,451.7	5,131.4	19,451.7	9.1	9.0	9.1	9.0	94.00%	99.86%	99.86%		1,151,928	694,573	1,840,893
Other	15.3		3.6		30,062.7		30,062.7		13.3		13.3		94.00%	99.86%	99.86%	5,746,144		1,448,285	
Parking Lot Lights	36.2	31.0	40.7	36.4	21,950.7	53,768.2	36,589.0	57,026.4	13.0	13.0	13.0	13.0	94.00%	99.86%	99.86%	9,702,149	20,293,496	19,313,475	26,934,461
Process	67.3	40.0	34.7	39.4	91,880.3	152,879.0	123,052.5	133,196.5	12.4	13.0	12.4	14.0	94.00%	99.86%	99.86%	71,833,817	74,823,289	52,640,455	73,200,951

Planning Assumptions

1. Annual Savings were updated based on recent trends and reflect expected project sizes.
2. Prescriptive lighting incentives for 2017 will be for LED technology only.

Eversource Small Business Energy Solutions Program

	Quantity				Annual Savings per Project (kWh)				Measure Life				In-Service or Installation Rate		Total Lifetime Savings (kWh)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
New Equipment & Construction Track																		
Cooling				5.8				12,771				15.0		100.00%				1,102,306
Exterior Lighting (including Parking Lots)				19.3				23,214				14.7		100.00%				6,597,900
Lighting	62.3	39.0	39.3	34.5	18,194	104,008	18,194	23,214	15	13.4	15	14.7	100.00%	100.00%	17,025,896	54,174,355	10,746,945	11,788,537
Process				18.2				16,445				15.0		100.00%				4,478,604
Retrofit Track																		
Cooling				4.3				20,474				10.0		100.00%				882,342
Exterior Lighting (including Parking Lots)		40.0		18.3		40,792		40,400		13.0		13.0	100.00%	100.00%		21,204,338		9,594,122
Lighting - Retrofit	138.4	336.0	161.5	126.3	23,570	18,294	23,570	25,421	13	13.6	13	10.0	100.00%	100.00%	42,233,041	83,476,847	49,294,302	32,115,239
Process				14.0				30,226				13.0		100.00%				5,496,693
Refrigeration				1.5				30,247				13.0		100.00%				591,947
Turnkey / Direct Install Track																		
Exterior Lighting (including Parking Lots)				31.5				31,427				12.8		100.00%				12,679,713
Lighting	187.6	118.0	175.1	107.5	16,169	16,624	16,169	19,765	13	12.9	13	12.9	100.00%	100.00%	38,258,064	25,220,892	35,723,774	27,475,487
Refrigeration				5.5				16,068				11.7		100.00%				1,023,943
Other																		
Lighting - Catalog Sales	120.4	142.0	112.4		1,618	67	1,618		13	6.0	13	13	100.00%		2,533,108	57,442	2,365,310	
SmartStrips	57.8		0.0		75	67	75		5		5	5	100.00%		21,689			

Planning Assumptions

1. Expanded New, Retrofit and Direct Install into detailed measures for 2017 and beyond. Used data from past years to develop 2017 plan by measure type.
2. Other Sales: Customer may still purchase bulbs through catalog, but the quantities have been very small so did not plan for any in 2017.

Eversource Municipal Program

	Quantity				Annual Savings per Unit/Project (kWh)				Measure Life				In-Service or Installation Rate		Total Lifetime Savings (kWh)				Annual Savings Per Unit/Project (MMBTU)				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
New Equipment & Construction Track																										
Cooling		6.0		4.1		3,230.50		3,431.00		14.2		14.7	100.00%	100.00%		275,432		208,477						0		0
Custom				0.5				70,943.50				15.0		100.00%				493,395								0
Exterior Lighting	31.8	22.0	44.7	0.5	14,392.9	18,186.8	14,392.9	22,932.0	15	15	15	15.0	100.00%	100.00%	6,866,580	6,001,650	9,646,727	159,438	0.0		0.0		0	0	0	0
Lighting				17.7				29,852.4				14.9		100.00%				7,859,494								0
Parking Lot Lights				10.4				20,092.0				13.0		100.00%				2,724,004								0
Process				0.3				44,837.8				15.3		100.00%				223,774								0
Retrofit Track																										
Cooling				3.3				54,666.3				14.1		100.00%				2,548,127								0
Custom				6.1				19,268.5				13.0		100.00%				1,532,330								0
Exterior Lighting				8.0				15,163.9				13.0		100.00%				1,586,820								0
Lighting	44.0	41.0	71.7		23,714.9	41,614.7	23,714.9	25,667.2	13	13	13	13.0	100.00%	100.00%	13,559,009	22,180,652	22,114,561		0.0		0.0		0	0	0	
Lighting LED				71.2				23,129.7				13.0		100.00%				21,423,514								0
Lighting OS Only		4.0		1.8		11,294.0		26,556.0		9		9.0	100.00%	100.00%		406,584		428,747						0		0
Parking Lot Lighting		22.0		2.4		39,864.0		118,861.6		13.9		14.0	100.00%	100.00%		12,207,951		4,052,886						0		0
Process		3.0		2.1		792,740.0		131,614.4		13		13.0	100.00%	100.00%		30,916,860		3,529,609						0		0
Direct Install Track																										
Lighting	35.5	57.0	25.3	42.2	37,457.3	20,379.6	37,457.3	21,741.9	13	13	13	12.9	100.00%	100.00%	17,034,410	14,873,314	12,149,021	11,820,108	0.0		0.0		0	0	0	
Energy Star Mini Split Heat Pump (SEER>=14.5, HSPF>=8.2)		3.0				36.8				12			100.00%			1,324								0		
Energy Star Mini Split Heat Pump (SEER>=14.5, HSPF>=8.2)		3.0				142.2				12			100.00%			5,120								0		
Indirect Water Heater (attached to LP Energy Star FHW boiler)		3.0								20			100.00%			0				20.7				1,242		
Indirect Water Heater (attached to Oil Energy Star FHW boiler)													100.00%													
On Demand Tankless Water Heater, LP, >=.82 EF w/Electronic Ignition		1.0								20			100.00%			0				7.1				142		
Boiler Reset Control (LP Boiler)		5.0								15			100.00%			0				19.3				1,448		
													100.00%													
Infrared Heater, AFUE >= 90		2.0								17			100.00%			0				48.3				1,642		
Wxn (Oil Heat)	5.0	10.0	5.2	5.0	0.0	7,065.4	0.0	0.0	20	12	20	20	100.00%	100.00%	0	850,645	0	0	28.0	28.0	28.0	28.0	2,802	3,371	2,892	2,800
Wxn (LP Heat)	5.0	6.0	5.2	5.0	0.0	731.3	0.0	0.0	20	17	20	20	100.00%	100.00%	0	76,330	0	0	28.0	28.0	28.0	28.0	2,802	2,922	2,892	2,800
Energy Star DMSHP (Any, SEER >=20, HSPF >=10, Cooling)	11.7		12.1	10.1	124.4		124.4	124.4	12		12	12	100.00%	100.00%	17,424		17,986	15,046	0.0		0.0		0		0	0
Energy Star DMSHP (Oil, SEER >=20, HSPF >=10, Heating)	5.8		6.0	5.0	536.4		536.4	536.4	12		12	12	100.00%	100.00%	37,572		38,785	32,443	0.0		0.0		0		0	0
Energy Star DMSHP (LP, SEER >=20, HSPF >=10, Heating)	5.8		6.0	5.0	536.4		536.4	536.4	12		12	12	100.00%	100.00%	37,572		38,785	32,443	0.0		0.0		0		0	0
Energy Star Wifi TSTAT for DMSHP	11.7		12.1	10.0	109.7		109.7	109.7	15		15	15	100.00%	100.00%	19,208		19,828	16,454	0.0		0.0		0		0	0
Heat Pump Water Heater (50 gallons)	2.1		2.2	1.6	1,775.0		1,775.0	1,775.0	10		10	10	100.00%	100.00%	37,297		38,501	28,400	0.0		0.0		0		0	0
Heat Pump Water Heater (80 gallons)	2.1		2.2	1.6	2,672.0		2,672.0	2,672.0	10		10	10	100.00%	100.00%	57,185		59,030	42,752	0.0		0.0		0		0	0
Furnace: LP, w/ECM, AFUE >= 95%, up to 150 MBH	1.6		1.6	2.0	168.0		168.0	168.0	18		18	18	100.00%	100.00%	4,707		4,859	6,048	9.0		9.0	9.0	252		260	324
Furnace: LP, w/ECM, AFUE >= 97%, up to 150 MBH	1.0		1.1	1.8	168.0		168.0	168.0	18		18	18	100.00%	100.00%	3,138		3,239	5,376	9.9		9.9	9.0	185		191	288
Furnace: Oil, w/ECM, AFUE >= 85%, up to 150 MBH	0.0		0.0		168.0		168.0	168.0	18		18	18	100.00%	100.00%					8.0		8.0	7.9	0		0	
Furnace: Oil, w/ECM, AFUE >= 87%, up to 150 MBH	0.0		0.0		168.0		168.0	168.0	18		18	18	100.00%	100.00%					8.7		8.7	8.8	0		0	
Boiler: LP, Condensing, AFUE >= 90%, up to 300 MBH	1.1		1.1	0.8	0.0		0.0		25		25	20	100.00%	100.00%	0		0	0	30.6		30.6	30.6	804		830	490
Boiler: Oil, AFUE >= 85%, up to 300 MBH	1.1		1.1	0.8	0.0		0.0		25		25	20	100.00%	100.00%	0		0	0	22.1		22.1	22.1	580		599	354
Boiler: LP, Condensing, AFUE >= 95%, up to 300 MBH	1.1	3.0	1.1	0.8	0.0	3.0	0.0		25	25	25	20	100.00%	100.00%	0	225	0	0	27.8	27.8	27.8	27.8	757	2,085	782	445
Boiler: Oil, AFUE >= 87%, up to 300 MBH	1.6		1.7	0.8	0.0		0.0		25		25	20	100.00%	100.00%	0		0	0	22.1		22.1	22.1	903		932	354
Boiler: LP, Condensing, AFUE >= 90%, up to 301-499 MBH	5.8		6.0	0.8	0.0		0.0		25		25	20	100.00%	100.00%	0		0	0	58.4		58.4	58.4	8,522		8,797	934
Boiler: Oil, AFUE >= 85%, up to 301-499 MBH	5.8		6.0	0.8	0.00		0.00		25		25	20	100.00%	100.00%	0		0	0	42.20		42.20	42.2	6,158		6,357	675
Boiler: LP, Condensing, AFUE >= 90%, up to 500-999 MBH	1.0	1.0	1.1	0.8	0.00		0.00		25	25	25	20	100.00%	100.00%	0	0	0	0	107.30	107.30	107.30	107.3	2,740	2,683	2,828	1,717
Boiler: Oil, AFUE >= 85%, up to 500-999 MBH	1.0	5.0	1.1	0.8	0.00		0.00		25	25	25	20	100.00%	100.00%	0	0	0	0	79.10	79.10	79.10	79.1	2,020	9,888	2,085	1,266
Boiler: LP, Condensing, AFUE >= 90%, up to 1000-1700 MBH				0.8	0.00			0.0	25			20	100.00%	100.00%				0	197.20			197.2				3,155
Boiler: Oil, AFUE >= 85%, up to 1000-1700 MBH				0.8	0.00			0.0	25			20	100.00%	100.00%				0	142.30			142.3				2,277
Steam Trap (Oil)				48.0								6		100.00%				0				25.7				7,402
Steam Trap (LP)				48.0								6		100.00%				0				25.7				7,402
Boiler Reset Control (Oil)				1.8								15		100.00%				0				19.3				515
Boiler Reset Control (LP)				1.8								15		100.00%				0				19.3				515

Planning Assumptions

1. Expanded New, Retrofit and Direct Install into detailed measures for 2017 and beyond. Used data from past years to develop 2017 plan by measure type.
2. Incentives for the Energy Star Ductless Heat Pump Mini Split Systems are for those with SEER=> 20.0, HSPF=> 10.0).
3. Since this is funded by RGGI, the 2017 Plan includes some Weatherization Projects and as well as incentives for customers replacing heating systems to upgrade to more efficient models
4. For Oil and LP boilers and furnaces, average energy savings were updated with the Gas Networks changes.
5. Annual kWH Savings for the WIFI Thermostat for Ductless Mini-split Heat Pumps comes from the Energystar.gov calculator and assumes an additional 16.6% heating and cooling savings

Eversource Company Specific Programs

A. C&I RFP Program

B. Home Energy Reports

	Quantity				Annual Savings per Unit/Project (kWh)				Measure Life				In-Service or Realization Rate		Total Lifetime Savings (kWh)			
Measure	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update	2015 2016	2017 Update	2015 Plan	2015 Actual	2016 Plan	2017 Update
A. C&I RFP: Cooling	9.3	4.0	3.1	1.7	119,692.5	180,399.3	191,396.1	191,396.1	13.0	13.4	13.0	13.2	100.00%	100.00%	14,528,177	9,681,719	7,671,843	4,251,844
A. C&I RFP: Heating		1.0				110,216.0				13.0			100.00%	100.00%		1,432,808		
A. C&I RFP: Lighting	13.8	3.0	2.0	1.9	35,918.8	146,135.7	168,249.3	146,135.7	13.0	13.0	13.0	13.0	100.00%	100.00%	6,451,384	5,699,291	4,297,441	3,603,138
A. C&I RFP: Lighting (Occ Sensors Only)	10.4		2.7		31,799.2		50,599.6		9.0		9.0		100.00%	100.00%	2,978,515		1,223,827	
A. C&I RFP: Parking Lot Lights		1.0	1.7	1.9		212,926.0	37,675.0	99,007.5		13.0	13.0	8.0	100.00%	100.00%		2,768,038	812,208	1,529,655
A. C&I RFP: Process	3.5	6.0	3.4	9.8	293,068.7	114,428.0	244,267.9	242,964.0	12.5	13.6	13.0	13.0	100.00%	100.00%	12,639,655	9,310,886	10,777,143	31,051,720
B. Home Energy Reports	25,000	25,000	25,000	50,000	61.2	80.6	70.2	52.0	3.0	3.0	3.0	2.7	100.00%	100.00%	4,589,501	6,041,616	5,267,042	7,131,184

Planning Assumptions

A. C&I RFP Program

1. Estimated project mix based on trends seen in projects completed 2013 - 2016.

B. Home Energy Reports Program

1. Annual kWh Savings were developed with contractor based on 25,000 current "high use" participants plus an additional 25,000 "average use" customers from pilot initiative.
2. Average annual kWh savings per participant reflect incremental savings from existing 25,000 high use plus the additional 25,000 customers.

Unitil Home Energy Assistance Program

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh				Annual Saving per Unit MMBtu				Lifetime Savings MMBtu			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
CFLs		6				43				5			91%			1,295				-				-		
LEDs	231	299	384	426	37	54	37	37	20	20	20	8	91%	89%	155,768	323,012	283,488	112,093		-		-		-		-
MF LEDs				-				37				8		89%				-				-				-
Refrigerator - SF	10	23	2	9	939	722	762	762	12	12	12	12	91%	100%	99,063	199,159	18,288	77,724		-		-		-		-
Refrigerator - MF			3	-			645	762			12	12		100%			23,220	-				-				-
Total weatherization	39	38	48	71	1,806	183	519	169	20	20	20	20	98%	98%	1,374,954	311,500	462,917	219,840	-	8	27		-		25,656	33,880
Total DHW	27	54	-	15	49	94	-	49	7	7	-	7	97%	88%	9,261	7,700	-	4,528	1	0	-	-	94	27	-	-
Thermostats	10	14	5	10	126	101	126	171	15	15	15	12	100%	99%	16,616	21,150	9,979	20,224	1	0	1	-	142	88	84	-
Furnace Replacement	6	12	8	14	90	168	248	168	18	18	18	18	100%	99%	9,145	36,288	35,661	41,701	23	7	12	12	2,320	1,493	1,673	3,624
Boiler Replacement	3		1	2	132		132	-	15		20	20	100%	99%	5,797		2,640	-	17		18		729		368	
Heating Ancillary Savings		39	48			35	55			20	20		100%			27,300	52,800			-				-		

Unitil Home Performance with ENERGY STAR®

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh				Annual Saving per Unit MMBtu				Lifetime Savings MMBtu			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
Air Sealing, Oil / Wood	45	32	81	15	-	-	-	80	15	15	15	15	100%	100%	-	-	-	18,000	10	13	10	11	7,045	6,078	12,568	2,363
Air Sealing, Electric	6	170	5	3	746	740	746	2,000	15	15	15	15	100%	100%	67,614	1,886,532	56,540	90,000	-	-	-	-	-	-	-	-
Air Sealing, Propane	6	9	15	43	-	-	-	80	15	15	15	15	100%	100%	-	-	-	51,600	9	21	9	11	847	2,840	2,125	6,773
Insulation, Oil / Wood	45	33	81	15	-	-	-	65	20	20	25	25	100%	100%	-	-	-	24,375	23	20	23	18	20,636	13,081	46,016	6,750
Insulation, Electric	6	170	5	3	1,693	176	1,693	3,500	20	20	25	25	100%	100%	204,525	599,080	213,783	262,500	-	-	-	-	-	-	-	-
Insulation, Propane	6	9	15	43	-	-	-	65	20	20	25	25	100%	100%	-	-	-	69,875	14	26	14	19	1,716	4,686	5,382	20,425
Thermostats	20	3		3	1,142	-		20	15	15		15	100%	100%	53,775	-		900	6	3		3	813	127		144
Refrigerators	3	1	3	5	714	714	155	714	7	7	12	12	100%	100%	14,994	4,998	5,574	42,840		-	3	-		-	-	-
LEDs	423	1,513	545	488	37	37	37	37	20	20	20	8	100%	100%	312,087	1,116,971	402,641	144,277	-	-	3	-				-
DHW measures	14	81	81	17	37	33	108	29	7	7	7	4	100%	100%	3,595	18,930	66,305	2,000	1		3	1	116	12	672	48
Boilers	3	4	2	-	-	-	-		20	20	20	20	100%	100%	-	-	-		11	8	11		423	627	423	
Furnaces	2	-	2	-	168		168		18		18	18	100%	100%	6,048	-	6,048		12		12		430		430	
Ancillary Savings	36	64	-	93	59	48		91	11	20	-	20	100%	100%	24,821	61,040	-	168,200	-	-	-	-	-	-	-	-
Duct Sealing (MF)																										-
Boiler Reset Control		1				-				1			100%			-				5				5		
CFLs					43		43		8		8		100%													

Note:In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Unitil ENERGY STAR® Homes Program

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh				Annual Saving per Unit MMBtu				Lifetime Savings MMBtu			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
																		-								-
E-STAR Homes - CFLs													100%													
E-STAR Homes - Lighting	415	162	312	253	25	3	25	40	20	20	20	8		100%	204,022	8,860	153,556	80,074								-
E-STAR Homes - Lights and Appliances				18				(100)				19		100%				(34,600)				-				-
E-STAR Homes - Dishwashers	7	64		-	33	-		100	11	11		11	100%	100%	2,508	-		-								-
E-STAR Homes - Refrigerators	14	25	8	5	107	-	168	40	12	12	12	12	100%	100%	17,742	-	16,128	2,378								-
E-STAR Homes - Clotheswashers	14	2	8	5	261	-	261	124	11	11	11	11	100%	100%	39,623	-	22,940	6,815								-
E-STAR Homes - Thermostats													100%													
E-STAR Homes - Heating and Cooling (ASHP)	7	39	3	7	536	2,194	10,025	2,230	12	12	17	25	100%	100%	45,060	1,026,920	511,262	390,250								
E-STAR Homes - Heating (GSHP)		1				38,688				25			100%			912,480										
E-STAR Homes Cooling (electric)	7		3		600		128		12		17		100%		50,400		6,517									
E-STAR Homes Heating (non-electric)	28	64	26	17	791	389	791	34	25	25	25	25	100%	100%	546,499	622,175	514,150	15,000	32	5	32	38	21,971	8,663	20,670	16,600
E-STAR Homes Cooling (non-electric)	28	5	26	17	58	102	58	165	25	25	25	18	100%	100%	39,934	12,725	37,570	46,905		-		-		-		-
E-STAR Homes Water Heating	28	26	26	11	152	448	152	400	15	15	15	20	100%	100%	62,902	174,585	59,179	91,200	3	1	3	-	1,086	556	1,022	-
E-STAR Homes - Water Heating (Elec, GS/ASHP)				7				500				25	100%	100%				87,500				-				-
E-STAR Homes - Water Heating (Oil)													100%													
E-STAR Homes - Water Heating (Nat Gas)													100%													
E-STAR Homes - Lighting and Appliances Ventilation		64				(43)				20			100%			(54,720)				-				-		

Unitil ENERGY STAR® Products Program - Lighting

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh			
Measure	2014 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
Catalog/Online: CFLs and Fixtures		145				18		25		5			62%			13,093		
Catalog/Online: LED Fixtures (interior and exterior)			17				25	25			8		96%				3,226	
Catalog/Online: LED Interior Fixtures				99				25				8		95%				18,515
Catalog/Online: LED Exterior Fixtures				33				25				5		95%				3,857
Catalog/Online: LED Bulbs		303	871	110		23	25	25		20	20	8	95%	95%		141,670	407,243	20,573
Catalog/Online: LED Multipacks				990			25	25			20	8	95%	62%			-	121,421
Catalog/Online: LED Globe/Candelabra				330				25				8		95%				61,718
Catalog/Online: LED Reflector				248				25				8		95%				46,382
Retail/Coupon: CFLs (incl Multipacks)	26,518		2,310		29		29		5		5		62%		1,169,356		208,590	
Retail/Coupon: CFLs		4,445	-			18	29			5	5		62%		-	401,377	-	
Retail/Coupon: LED Bulbs	5,821	15,238	10,138	97	25	23	25	25	20	20	20	8	95%	95%	7,265,783	7,125,136	4,740,100	18,141
Retail/Coupon: LED Multi-Packs				1,232				25				8		62%				151,102
Retail/Coupon: LED Globe/Candelabra				1,641				25				8		95%				306,905
Retail/Coupon: LED Reflector				240				25				8		95%				44,886
Retail/Coupon: LED Fixtures	194	1,945	1,011		25	23	25		20	20	8		96%		614,405	909,400	191,867	
Retail/Coupon: LED Interior Fixtures				235				25				8		95%				43,950
Retail/Coupon: LED Exterior Fixtures				79				25				5		95%				9,234
Retail/Coupon: CFL Fixtures (interior and exterior)	265	47				60				8			96%			22,570		
Markdown CFL Bulbs (negotiated)		7,820			29	18			5	5			62%		175,403	706,135		
Markdown CFL Multipacks (negotiated)			8,184				29	25	5		5		62%				739,003	
Markdown LED Multi-Packs			2,273	23,430			25	25			20	8	95%	62%			1,062,759	2,873,637
Markdown LEDs		7,245	30,349	9,203	25	23	25	25	20	20	20	8	95%	95%	302,741	3,387,456	14,189,909	1,721,173
Markdown LED Globe/Candelabra				9,790				25				8		95%				1,830,956
Markdown LED Reflector				7,343				25				8		95%				1,373,310
Markdown Exterior LED fixtures				979				25				5		95%				114,435
Markdown Interior LED fixtures		119		2,937	25	23	25	25	20	20	8	8	95%	95%		55,639	-	549,287

Unitil ENERGY STAR® Products Program - Appliances

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh				Annual Saving per Unit MMBtu				Lifetime Savings MMBtu			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
Energy Star Clothes Washer	764	686	430	870	182	182	182	124	11	11	11	11	100%	100%	1,530,117	1,373,372	860,860	1,185,819				0.5				4,341
Energy Star Room A/C	287	345	258	378	16	16	16	16	9	9	9	9	100%	100%	41,675	50,166	37,515	54,964				-				-
2nd Refrigerator Pickup (not replaced)	96	53	52	5	835	835	755	755	8	8	8	8	100%	100%	638,186	354,040	311,664	30,200				-				-
ary Refrigerator Recycling				20				533				8		100%				85,280				-				-
Energy Star Refrigerator	631	396	430	300	107	107	40	41	12	12	12	12	100%	100%	809,617	508,464	204,491	148,907				-				-
2nd Freezer Pickup	57	9	10	5	663	663	663	663	8	8	8	8	100%	100%	304,036	47,736	53,040	26,520				-				-
Mini Split Heat Pump Cooling	35	48		82	600	250		120	18	18		12	100%	100%	378,000	216,045		118,117				-				-
Mini Split Heat Pump Heating	35	48		71	536	1,239		601	18	18		12	100%	100%	337,680	1,070,811		512,225				-				-
Central Air	3	9	4	10	110	62	109	200	14	14	14	12	100%	100%	4,632	7,782	6,103	23,988	-	-	-	-		-		-
ASHP				-								12		100%												
Geothermal				-								10		100%												
DHW: Heat Pump Water Heater 50 Gallon Electric, EF>=2.3 (	10	11	7		1,775	1,775	1,775		10	10	10		100%		177,500	195,250	124,250									
DHW: Heat Pump Water Heater 80 Gallon Electric, EF>=2.3 (	1	2	1		2,672	2,672	2,672		10	10	10		100%		26,720	53,440	26,720									
Energy Star WiFi Thermostat for Mini Split and CAC	9	13	6	-	110	110	118	32	15	15	12	15	100%	100%	14,398	21,392	8,499	-				-				-
Energy Star WiFi Thermostat (not for Mini Split and CAC)				-				-				10		100%				-				-				-
Power Strips	29	25	-	50	79	79	79	79	5	5	5	5	100%	100%	11,321	9,875	-	19,769	-	-	-	-		-		-
Dehumdifiers				46				162				12		100%				89,573				-				-
Energy Star Clothes Dryers				30				160				12		100%				57,665				-				-
Energy Star Room Air Cleaners & Purifiers	-	34	-	35	390	390	390	390	9	9	9	9	100%	100%	-	119,371	-	122,987				-				-
Pool Pump				5				946				10		100%				47,294				-				-

Unitil Large Business Energy Solutions Program

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
Lighting LED				5				320,000				13		100%				20,800,000
Parking Lot Lights				4				100,000				13		100%				5,200,000
Process				2				425,532				13		100%				11,063,830
																		-
NEW EQUIPMENT TRACK																		-
Lighting - Fluorescents - New			-				120,150				15		104%				0	-
Lighting LEDs - New	1		2		32,832		32,832		15		15		104%		492,480		1,020,419	-
HVAC			3				30,224				15		104%				1,409,043	-
Non-Lighting (Rolled Up)													100%					-
Compressed Air		1				69,360				15			93%			1,040,403		-
Motors													100%					-
VFDs													100%					-
Process			-				36,000				15		100%				0	-
																		-
RETROFIT TRACK																		-
Non Lighting (Rolled Up Average)													100%					-
Lighting - Fluorescents - Retro	6	1	6		130,887	607,366	130,887		13	13	13		94%		10,677,249	7,895,757	9,984,560	-
Freezer/Cooler LEDs													100%					-
Lighting LEDs - Retro	3	6	4		109,080	111,067	109,080		13	13	13		94%		4,591,507	8,663,247	5,536,028	-
VFD - Retro	2		3		115,500		115,500		13		13		98%		3,241,163		4,405,401	-
CFL Bulbs													100%					-
Motors													100%					-
Custom - LED Outdoor Lights		1				261,158				13			94%			3,395,058		-
Custom - Process			-				36,000				15		100%				0	-
Custom - Other	5		4		246,500		246,500		15		15		100%		19,155,563		14,790,000	-
Custom - Refrigeration		1				4,077,733				15			100%			61,165,995		-
Custom - HVAC Control		1				22,770				7			100%			159,390		-

Note:In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Unitil Small Business Energy Solutions Program

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
External Lighting				20				17,593				13		100%				4,574,074
Lighting				30				33,556				13		100%				13,086,667
New Construction Lighting				4				22,222				15		100%				1,333,333
Retrofit Cooling				3				50,000				13		100%				1,950,000
Lighting Other													100%					
Lighting LEDs - Retro	33	36	18		19,662	20,064	31,000		13	13	13		100%		8,314,095	9,389,926	7,254,000	
Lighting - Fluorescents - Retro	26	15	15		14,760	11,443	7,500		13	13	13		97%		4,838,271	2,231,319	1,462,500	
Lighting CFLs		16				214				5			100%			17,145		
Freezer LEDs		3				2,177				13			100%			84,890		
Occupancy Sensors		2				7,429				9			100%			133,713		
Non-Lighting													100%					
Air Compressors		2				10,682	7,400			15	15		100%			320,445		
VFD							40,000				13		100%					
Energy Management System		5	0			15,645	10,000			15	15		100%			1,173,390		
Air Conditioning			2				10,000				15		100%				300,000	
ECM							34,000				15		100%					
Controls - Refrigeration		2				12,457				10			100%			249,140		
Unitary AC		9				6,087				15			100%			821,760		
Custom Refrigeration		1				22,669				13			100%			294,697		
Custom Process - Injection Molding		1				77,720				13			100%			1,010,360		
Custom - Other	6		6		4,276		4,000		13		13		100%		333,528		312,000	
													100%					
Fuel Neutral Heating, Hot Water and Controls													100%					
Mini Split HP SEER 14.5, EER 12 HSPF 8.2 (Heating)													100%					
Mini Split HP SEER 14.5, EER 12 HSPF 8.2 (Cooling)													100%					
Mini Split HP SEER 19, EER 12.83 HSPF 10 (Heating)							750				12		100%					
Mini Split HP SEER 19, EER 12.83 HSPF 10 (Cooling)							100				12		100%					
On Demand Tankless Water Heater, EF >=0.82 EF													100%					
On Demand Tankless Water Heater >=.95 EF													100%					

Note:In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Unitil C&I Municipal Program

	Quantity				Annual Savings per Unit kWh				Measure Life				In-Service / Realization Rate		Total Lifetime Savings kWh				Annual Saving per Unit MMBtu				Lifetime Savings MMBtu			
Measure	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan	2015 Plan	2015 Actual	2016 Plan Update	2017 Plan
ark Lot Lights				4				17,500				13		100%				910,000				-				-
ighting-LED	14	11	5	8	20,852	22,616	20,076	72,368	13	13	13	13	100%	100%	3,918,395	3,143,586	1,304,957	7,526,316				-				-
Custom Lighting	0	1	3		-	49,730	20,000		13	13	13		100%		-	646,490	780,000			-				-		
Mini Split Heat Pump Cooling SEER 20	6		4		600		66		18		18		100%		68,689		4,752									
Mini Split Heat Pump (+ Oil) SEER 20	3		4		536		409		18		18		100%		30,706		29,464									
Mini Split Heat Pump (+ LP) SEER 20	3				536				18				100%		30,706											
Boiler Replacement													100%													
Condensing Boiler <=300 MBH 90% AFUE	3		3		-		-		25		25		100%		-		-		31		31		2,295		2,295	
Indirect Water Heater											15		100%													
Cooling				3				23,333				13		100%				910,000				-				-
weatherization	2		4	2	188		188	-	18		18	20	100%	100%	6,768		13,536	-	35		35	150	1,253		2,506	6,000
VFDs	1		1		77,000		77,000		13		13		100%		964,618		1,001,000									
Energy Star WiFi Thermostat for Mini Split only	3		4		110		118		15		15		100%		4,937		7,082									
HPWH 50 Gallon Electric, EF>=2.3 (ES=EF>=2.0)	2		0		1,775		1,775		10		10		100%		35,500		-									

Note:In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Northern Utilities Home Energy Assistance Program

	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate		Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan
Air Sealing	45	37	19		7	6	9		15	15	15		100%		316	232	170		4,736	3,486	2,553	
Insulation	45	30	19		19	27	29		25	25	25		100%		857	800	557		21,437	20,010	13,920	
SF weatherization				25				28				20		100%				700				14,000
MF weatherization				17				23				20		100%				391				7,820
Heating Ancillary Savings				42				-				25		100%				-				-
Cooling Ancillary Savings				10				-				25		100%				-				-
DHW ISMs (aerators & pipewrap)	4	1	32	10	4	0	1	1	7	15	7	7	100%	100%	19	0	17	10	134	6	121	70
Furnace Replacement w/ECM Motor	1	4	4	3	23	18	23	22	18	18	18	18	100%	100%	23	71	92	66	413	1,276	1,650	1,188
Boiler Replacement	2	1	2		23	30	23		20	20	20		100%		46	30	46		921	600	921	
Thermostats	5	4	8	6	7	3	3	7	15	15	15	15	100%	100%	33	11	26	40	493	165	384	594
SF LED bulbs	268		-	150				-	20		20	8	100%	95%	-		-	-	-		-	-
MF LED bulbs				102				-				8		95%				-				-

Note: In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Northern Utilities Home Performance with ENERGY STAR®

	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate		Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan
HPwES Air Sealing	25	23	38	30	12	9	8	16	15	15	15	15	100%	100%	306	218	314	480	4,588	3,263	4,703	7,200
HPwES Insulation	25	24	38	30	26	19	32	24	25	25	25	25	100%	100%	636	448	1,197	720	15,893	11,206	29,925	18,000
HPwES Thermostats	5	1	2	4	3	3	3	3	15	15	15	15	100%	100%	16	3	6	13	239	40	96	192
HPwES DHW ISMs	12	2	24	8	1	0	1	2	7	7	7	7	100%	100%	15	0	9	16	105	3	28	112
HPwES Ancillary heating savings		19		30		-		-		25		25	100%	100%		-		-		-		-
HPwES Ancillary cooling savings		15		20		-		-		25		25	100%	100%		-		-		-		-
HPwES LED Bulbs				120				-				8		100%				-				-

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Northern Utilities ENERGY STAR® Homes

	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate		Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan
RNC ES Homes (Heating)	13	36	11	42	36	20	48	30	25	25	25	25	100%	100%	462	730	528	1,260	11,540	18,238	13,200	31,500
RNC ES Homes (Cooling)	6	36	11		0	0	0		25	25	25		100%		0	0	0		0	0	0	
RNC ES Homes (Water Heating)	13	36	11	42	5	6	5	0	15	15	15	20	100%	100%	58	202	52	-	868	3,024	776	-
RNC Clotheswashers	3	36	3	5	3	2	10	3	11	11	11	11	100%	100%	11	54	30	17	117	594	333	182
RNC Dishwashers	4	36	0		2	3	2		10	10	0		100%		6	120	0		63	1,199	0	
RNC Refrigerators	6		5						12		12		100%									
RNC LEDs and Fixtures	154		55	252				0	19		20	8	100%	100%				-				-
RNC Lights and Appliances				42				0				15		100%				-				-
RNC CFLs													100%									

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Northern Utilities ENERGY STAR Appliances

	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate		Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan
Boiler Reset Controls	4	3	4	3	5	5	5	5	15	15	15	15	100%	100%	18	14	18	14	275	203	275	203
Boiler (forced hot water) >= 95% AFUE	41	77	58	12	12	12	14	14	20	20	20	20	100%	100%	489	924	793	169	9,775	18,480	15,851	3,384
Boiler (forced hot water) 90% AFUE	61	32	45	5	14	14	11	11	20	20	20	20	100%	100%	849	445	490	57	16,985	8,896	9,790	1,140
Furnace (forced hot air) >=95% AFUE w/ECM	33	14	36	12	16	16	16	8	18	18	18	17	100%	100%	518	223	566	97	9,326	4,007	10,189	1,652
Furnace (forced hot air) >= 97% AFUE w/ECM	29	26	27	21	17	17	17	9	18	18	18	17	100%	100%	493	450	462	193	8,879	8,096	8,314	3,284
Combo water heater/condensing boiler >=90%	33	8	27	18	24	24	24	10	20	20	20	19	100%	100%	776	190	635	185	15,510	3,808	12,709	3,523
Combo water heater/condensing boiler >=95%	8	26	9	10	24	24	24	13	20	20	20	19	100%	100%	194	619	212	128	3,878	12,376	4,236	2,432
On-Demand Tankless Water Heaters (EF 0.94)	37	28	61	20	11	11	11	10	19	19	19	19	100%	100%	385	294	642	198	7,313	5,586	12,207	3,762
Indirect Water Heater (attached to EStar FHW boiler)	41	41	45	30	8	8	8	8	20	20	20	20	100%	100%	326	328	356	240	6,517	6,560	7,120	4,800
Programmable Thermostats (Energy Star)	57	44	150	31	3	3	3	3	15	15	15	15	100%	100%	182	141	480	99	2,737	2,112	7,200	1,488
Wi-Fi Thermostats (controls gas heat only)	41	59	35	90	7	7	7	7	15	15	15	15	100%	100%	269	389	231	594	4,032	5,841	3,465	8,910
Wi-Fi Thermostats (controls elec cooling & gas heat)	4	39	14	125	7	7	7	7	15	15	15	15	100%	100%	27	257	92	825	403	3,861	1,386	12,375
Heat Recovery Ventilator				-	8			8				20	100%	100%				-				-
Energy Star Storage Water Heater (0.67 EF)	2	5		-	4	4		4	12	12		11	100%	100%	9	21		-	103	252		-
On-Demand Tankless Water Heaters (EF 0.82)	61	26		20	10	10		9	19	19		19	100%	100%	623	265		188	11,840	5,039		3,572

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Northern Utilities Large Business Energy Solutions

	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate		Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan
RETROFIT TRACK																						
CUSTOM	4	5	8	5	4,948	3,818	798	4,068	14	16	6	20	95%	91%	17,012	18,219	6,090	18,490	236,149	295,151	38,061	369,800
NEW EQUIPMENT TRACK																						
Furnace 94+ AFUE w/ECM Motor													100%									
Furnace 95+ AFUE (<150) w/ECM Motor				-	9		9	6	18		18	18	100%	100%				-				-
Furnace 97+ AFUE (<150) w/ECM Motor				-	10		10	7	18		18	18	100%	100%			-	-			-	-
Condensing boiler <= 300 mbh 90% AFUE		1	2	-	31	26	31	31	25	25	25	25	100%	100%		26	62	-		660	1,562	-
Condensing boiler 301-499 mbh 90% AFUE				1	58		58	58	25		25	25	100%	100%			-	58			-	1,460
Condensing boiler 500-999 mbh 90% AFUE				1	107		107	107	25		25	25	100%	100%			-	107			-	2,683
Condensing boiler 1000-1700 mbh 90% AFUE	2	1		1	197	197	197	197	25	25	25	25	100%	100%	344	197	-	197	8,593	4,930	-	4,930
Condensing boiler 1701+ mbh 90% AFUE	2		1	-	345		345	345	25		25	25	100%	100%	752		352	-	18,798		8,809	-
Condensing Boiler <= 300 mbh >=96% AFUE		2	2	-	28	31	28	28	25	25	25	25	100%	100%		61	57	-		1,530	1,419	-
Infrared		12				12	48		17	17	17		100%			144	-			2,448	-	
On demand, Tankless Water Heater >=.82				-	7		7	7	20		20	20	100%	100%			-	-			-	-
On demand, Tankless Water Heater >=.94				-	9		9	9	20		20	20	100%	100%			-	-			-	-
Combo Boiler-Water Heater AFUE >=85% (EF=.82)	1	3	5	4	19	21	19	19	15	20	15	15	100%	100%	25	62	97	76	373	1,242	1,455	1,140
Condensing Stand Alone >95% TE, >75000 btu		3			25	25	25		15	15	15		100%			75	-			1,125	-	
Water Heater Tank 0.67 EF				-	3		3	3	13		13	13	100%	100%			-	-			-	-
Integrated water heater/condensing boiler (0.9 EF, 0.9 AFUE)				-	25		25	25	20	20	20	20	100%	100%			-	-			-	-
Condensing Unit Heaters		6		5	41	41	41	41	18	18	18	18	100%	100%		245	-	205		4,417	-	3,681
Boiler Reset Controls				-	36		36	36	15		15	15	100%	100%			-	-			-	-
Kitchen - Fryers				-	59		59	51	12		12	12	100%	100%			-	-			-	-
Kitchen - Gas Steamer (Energy Star >=38% efficiency)				-	107		107	105	12		12	12	100%	100%			-	-			-	-
Kitchen - Gas Convection Oven (>=44% efficiency)			1	-	31		31	13	12		12	12	100%	100%			31	-			375	-
Kitchen - Gas Combination Oven (>=44% efficiency)				-	110		110	112	12		12	12	100%	100%			-	-			-	-
Kitchen - Gas Conveyer Oven (>=44% efficiency)				-	85		85	88	12		12	12	100%	100%			-	-			-	-
Kitchen - Gas Rack Oven (>=50% efficiency)				-	211		211	211	12		12	12	100%	100%			-	-			-	-
Kitchen - Gas Griddle				-	19		19	13	12		12	12	100%	100%			-	-			-	-
Steam Trap			18	7	26		26	26	3		3	3	100%	100%			472	180			1,417	540
Kitchen - Pre Rinse Spray Valve	4		5	7	13		13	11	5		5	5	100%	100%	49		64	80	247		322	399
Thermostats - heating				12			8	7	15		15	15	100%	100%			-	79			-	1,188
Thermostats - heating & cooling				-				7				15		100%				-				-

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Northern Utilities Small Business Energy Solutions

	Quantity				Annual Savings per Unit (MMBTU)				Measure Life				Installation or Realization Rate		Total Annual MMBTU Savings				Total Lifetime MMBTU Savings			
Measure	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 2016	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan	2015 Plan	2015 Actual	2016 Update	2017 Plan
RETROFIT TRACK																						
CUSTOM	10	3	8	4	100	407	204	319	21	23	21	20	100%	100%	984	1,221	1,635	1,274	23,401	25,425	39,525	25,482
On demand, Tankless Water Heater >=.82					7				20		20		100%									
Furnace 95+ AFUE (<150) w/ECM Motor					9				18		18		100%									
Condensing boiler <= 300 mbh (90% AFUE)											20		100%									
Infrared											20		100%									
Fryers											20		100%									
Boiler >=96% AFUE, <= 300 mbh					29				25		20		100%									
High Efficiency Gas Convection Oven (>=44% efficiency)											20		100%									
Boiler Reset Controls (all now in Gas Networks)											20		100%									
NEW EQUIPMENT TRACK (Gas Networks)																						
Thermostat - Standard, 7-Day Programmable	22	1	22	-	8	8	8	26	15	15	15	15	100%	100%	171	8	171	-	2,561	116	2,561	-
Steam Trap	4		6	-	26		26	36	3		3	3	100%	100%	91		154	-	274		463	-
On demand, Tankless Water Heater >=.94	2	2	10	-	9	9	9	9	20	20	20	20	100%	100%	19	19	94	-	376	376	1,880	-
Kitchen - Pre Rinse Spray Valve	9			35	13		13	11	5		5	5	100%	100%	112			399	559			1,995
Kitchen - Gas Steamer (Energy Star >=38% efficiency)				-	107		107	105	12		12	12	100%	100%				-				-
Kitchen - Gas Griddle	1		1	-	19		19	13	12		12	12	100%	100%	19		19	-	222		222	-
Kitchen - Gas Conveyer Oven (>=44% efficiency)				1	85		85	88	12		12	12	100%	100%				88				1,061
Kitchen - Gas Convection Oven (>=44% efficiency)	4	4	2	-	31	31	31	13	12	12	12	12	100%	100%	109	122	61	-	1,303	1,469	734	-
Kitchen - Gas Combination Oven (>=44% efficiency)				1	110		110	112	12		12	12	100%	100%				112				1,344
Kitchen - Fryers	3	4	4	5	59	59	59	51	12	12	12	12	100%	100%	156	234	234	254	1,871	2,813	2,813	3,048
Integrated water heater/cond'g boiler (0.9 EF, 0.9 AFUE)							25				20		100%									
Infrared Heaters		19	2			12	48			17	17		100%			228	97			3,876	1,642	
Furnace 97+ AFUE (<150) w/ECM Motor				-	10		10	7	18		18	18	100%	100%				-				-
Furnace 95+ AFUE (<150) w/ECM Motor				-			9	6			18	18	100%	100%				-				-
Convection Oven													100%									
Condensing Unit Heaters					41		41		18		18		100%									
Condensing Stand Alone >95% TE, >75000 btu	11	1	12	-	25	25	25	25	15	15	15	15	100%	100%	266	25	300	-	3,991	375	4,500	-
Condensing boiler 500-999 mbh 90% AFUE	18	7	15	5	107	107	107	107	25	25	25	25	100%	100%	1,903	751	1,610	537	47,581	18,778	40,238	13,413
Condensing boiler 301-499 mbh 90% AFUE	2	2	8	10	58	58	58	58	25	25	25	25	100%	100%	117	117	467	584	2,920	2,920	11,680	14,600
Condensing boiler 1701+ mbh 90% AFUE	1			-	345		345	345	25		25	25	100%	100%	345			-	8,628			-
Condensing boiler 1000-1700 mbh 90% AFUE	2	5	1	5	197	197	197	197	25	25	25	25	100%	100%	394	986	197	986	9,860	24,650	4,930	24,650
Condensing boiler <= 300 mbh 90% AFUE	3		6	1	31		31	31	25		25	25	100%	100%	92		184	31	2,295		4,590	765
Condensing Boiler <= 300 mbh >=96% AFUE		19	2	5	28	28	28	28	25	25	25	25	100%	100%		528	56	139		13,205	1,390	3,475
Combo Boiler-Water Heater AFUE >=85% (EF=.82)	9	22	1		19	21	19		15	20	15		100%		169	455	19		2,528	9,108	285	
Boiler Reset Controls	4		-	-	36		36	11	15		15	15	100%	100%	157		-	-	2,361		-	-

Note: In an effort to better match planning, reporting, and modeling, the Company is adding, amending, and/or updating some measure names from previously filed versions of this attachment.

Attachment M: Summary of Material Changes

Topic	Description of Change
Program Design, Evolution, Measure and Incentive Changes	
ENERGY STAR Products Program (Lighting, Appliances and Electric Heating/Cooling and Hot Water Systems)	▪ Expanding lighting product markdowns with lighting retailers. ▪ Eliminating incentives on CFL's. Incentives will only be offered on LED technology. ▪ Adding three additional appliances: ENERGY STAR Clothes Dryers ($40 incentive), dehumidifiers ($25 incentive) and pool pumps ($200 for 2 speed, $500 for variable speed). ▪ Adding a recycling option for primary refrigerators. The past programs have included recycling for secondary refrigerators only. This option encourages recycling of inefficient refrigerators that might otherwise remain in use.
Home Energy Assistance	▪ Increasing budget from 15.5% to 17.0% of the total program budget.
ENERGY STAR Homes	▪ Implementing a Drive to Net Zero Competition to encourage and promote super high efficiency, zero net energy homes.
Home Performance with ENERGY STAR	▪ Liberty Utilities Gas will be serving residential tenant, commercially-metered, five unit and greater multifamily properties as part of the Commercial & Industrial programs.
Liberty Utilities (Gas) Home Energy Reports	▪ Liberty Utilities is increasing the number of participating gas customers from 25,000 to 38,000 customers.
Liberty Utilities (Gas) Third Party Financing	▪ Liberty Utilities to launch a trial that will allow customers to choose between a rebate for qualifying gas heating, water heating, and control systems or a low interest third party loan for those systems.

Topic	Description of Change
Commercial, Industrial and Municipal Programs	▪ Eliminating prescriptive incentives for fluorescent lighting. Prescriptive incentives will be provided for LED products only.
Changes in Savings Assumptions	
Home Energy Assistance Program	▪ Revised annual electric and MMBTU savings to reflect current projects modeled by the Community Action Agencies. ▪ Updated measure lives to reflect current projects/measure mix. ▪ Reduced the measure life of LEDs from 20 years to 8 years.
Home Performance with ENERGY STAR Program	▪ Revised annual electric and MMBTU savings to reflect current projects modeled in the program auditing software. ▪ Reduced the measure life of LEDs from 20 years to 8 years.
ENERGY STAR Homes Program	▪ Revised annual electric and MMBTU savings to reflect current projects modeled by Home Energy Raters in the program modeling software. ▪ Reduced the measure life of LEDs from 20 years to 8 years.
ENERGY STAR Products (Lighting & Appliances)	▪ Updated annual energy savings for appliances to reflect updates to minimum federal standards and/or any revisions to the ENERGY STAR calculators. ▪ Reduced the realization rate on markdown, multipack LEDs from 100% to 65%. ▪ Reduced the measure life of LEDs from 20 years to 8 years.
Large Business Energy Solutions Program	▪ Updated annual energy savings by measure to reflect current projects. ▪ Updated air compressor energy savings to reflect the standard practice identified in the 2015 Commercial and Industrial Impact Evaluation. Due to higher standards, the savings for variable speed drive air compressors is reduced by approximately 50%.

Topic	Description of Change
Small Business Energy Solutions Program	▪ Updated annual energy savings by measure to reflect current projects.
Municipal Program	▪ Updated annual energy savings by measure to reflect current projects.
Eversource's RFP Program	▪ Updated annual energy savings by measure to reflect current projects.
Changes in Funding Sources	
Third Party Financing	▪ CDFA Funds will no longer be available as a source of funding for the Third Party Financing program. All utilities will use program funds to continue this important financing option.
Other Changes	
Avoided Energy Supply Costs	▪ Incorporated applicable electric and natural gas Demand Reduction Induced Price Effects ("DRIPE") avoided costs from the 2015 Avoided Energy Costs in New England: 2015 Report, issued March 27, 2015 and revised April 3, 2015.
Performance Incentive	▪ The target Performance Incentive was reduced for electric and gas programs to 5.5% from 7.5% (Electric) and 8% (Gas). The maximum incentive was reduced to 6.875% from 10% (Electric) and 12% (Gas).
Lost Base Revenue	▪ Included a lost base revenue mechanism for the regulated utilities to restore the relationship between utility volumetric sales levels and the revenue requirements that were used in setting rates in each utility's last rate case. Lost base revenue is included in the System Benefits Charge for the electric utilities and the Local Distribution Adjustment Clause for the natural gas utilities.

NHSAVES PROGRAMS
2017 Statewide Goals
CORE & Company-Specific Programs

Description	Program Budget[1]	kWh Savings Annual	kWh Savings Lifetime	MMBtu Savings Annual	MMBtu Savings Lifetime	Customers Count
Electric Utilities						
CORE Programs						
Municipal Program	$ 2,283,930	5,646,360	74,802,312	4,013	43,351	405
All Other CORE Programs	23,578,764	53,682,381	676,971,491	48,019	1,020,012	122,162
Sub-total	$ 25,862,693	59,328,741	751,773,803	52,032	1,063,363	122,567
Company Specific Programs[2]	1,866,681	5,771,974	47,567,540	-	-	50,008
Total Electric	**$ 27,729,374**	**65,100,715**	**799,341,344**	**52,032**	**1,063,363**	**172,575**
Gas Utilities						
CORE Programs	$ 7,025,995	397,056	7,932,485	144,429	2,266,063	5,419
Company Specific Programs[2]	305,900	-	-	9,700	32,600	38,000
Total Gas	**$ 7,331,895**	**397,056**	**7,932,485**	**154,129**	**2,298,663**	**43,419**
Grand Total	**$ 35,061,269**	**65,497,771**	**807,273,829**	**206,161**	**3,362,025**	**215,994**

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

NHSAVES PROGRAMS
2017 Statewide Goals
CORE Programs [1]

Description	Program Budget	kWh Savings Annual	kWh Savings Lifetime	MMBtu Savings Annual	MMBtu Savings Lifetime	Customers Count
Electric Utilities						
Residential						
Home Energy Assistance	$ 4,665,744	549,022	7,486,579	15,314	313,086	648
NH Home Performance w/Energy Star	2,865,037	844,718	11,362,582	19,533	394,135	1,253
EnergyStar® Homes	1,570,006	1,300,180	29,797,177	12,023	300,148	454
EnergyStar® Products	3,025,399	11,148,014	97,969,563	1,149	12,643	118,444
Sub-total	$ 12,126,187	13,841,934	146,615,900	48,019	1,020,012	120,800
Commercial & Industrial						
Large Business Energy Solutions	$ 6,975,265	26,934,970	369,553,589	-	-	356
Small Business Energy Solutions	4,477,313	12,905,478	160,802,002	-	-	1,006
Municipal Program	2,283,930	5,646,360	74,802,312	4,013	43,351	405
Sub-total	$ 13,736,507	45,486,807	605,157,903	4,013	43,351	1,767
Total Electric	**$ 25,862,693**	**59,328,741**	**751,773,803**	**52,032**	**1,063,363**	**122,567**
Gas Utilities						
Residential						
Home Energy Assistance	$ 1,246,786	70,229	1,368,875	6,509	129,704	240
NH Home Performance w/Energy Star	866,049	196,208	3,890,964	8,598	181,967	237
EnergyStar® Homes	296,496	71,251	1,688,047	3,105	77,398	86
EnergyStar® Products	1,025,267	58,024	960,408	13,371	229,218	1,719
Sub-total	$ 3,434,598	395,712	7,908,293	31,583	618,287	2,282
Commercial & Industrial						
Large Business Energy Solutions	$ 1,976,944	-	-	69,725	1,040,370	268
Small Business Energy Solutions	1,614,453	1,344	24,192	43,121	607,406	2,869
Sub-total	$ 3,591,397	1,344	24,192	112,846	1,647,775	3,137
Total Gas	**$ 7,025,995**	**397,056**	**7,932,485**	**144,429**	**2,266,063**	**5,419**
Grand Total	**$ 32,888,688**	**59,725,797**	**759,706,289**	**196,461**	**3,329,425**	**127,986**

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

NHSAVES PROGRAMS
2017 Statewide Goals
Company-Specific Programs [1]

Description	Program Budget	kWh Savings Annual	kWh Savings Lifetime	MMBtu Savings Annual	MMBtu Savings Lifetime	Customers Count
Electric Utilities						
Residential						
Home Energy Reports	$ 355,118	2,600,000	7,131,184	-	-	50,000
Customer Engagement Platform	85,081	-	-	-	-	-
Education	-	-	-	-	-	-
Forward Capacity Market Expenses [2]	82,550	-	-	-	-	-
Sub-total	$ 522,749	2,600,000	7,131,184	-	-	50,000
Commercial & Industrial						
Smart Start	$ 52,000	-	-	-	-	-
C&I Customer Partnerships	20,061	-	-	-	-	4
C&I RFP Program	668,687	3,171,974	40,436,356	-	-	4
Customer Engagement Platform	127,622	-	-	-	-	-
Education	317,793	-	-	-	-	-
Forward Capacity Market Expenses [2]	157,770	-	-	-	-	-
Sub-total	$ 1,343,932	3,171,974	40,436,356	-	-	8
Total Residential and C&I	**$ 1,866,681**	**5,771,974**	**47,567,540**	**-**	**-**	**50,008**
Gas Utilities						
Residential						
Home Energy Reports	$ 227,000	-	-	9,700	32,600	38,000
Education	-	-	-	-	-	-
Sub-total	$ 227,000	-	-	9,700	32,600	38,000
Commercial & Industrial						
Education	78,900	-	-	-	-	-
Sub-total	$ 78,900	-	-	-	-	-
Total Residential and C&I	**$ 305,900**	**-**	**-**	**9,700**	**32,600**	**38,000**
Grand Total	**$ 2,172,581**	**5,771,974**	**47,567,540**	**9,700**	**32,600**	**88,008**

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

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
2017 System Benefits Charge ("SBC") Calculation

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Other Revenues	Carryforward with Interest	Current Year Interest	SBC Requirement	Forecasted Distribution (kWh)	SBC Rate EE Portion (cents/kWh)	SBC Rate EAP Portion (cents/kWh)	SBC Rate LBR Portion (cents/kWh)	2017 Total SBC Rate (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M
2017	$ 2,445,494	$ 221,401	$ 217,502	$ -	$ (132,282)	$ (2,462)	$ 1,876,771	946,620,592	0.198	0.150	0.006	0.354

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Budget per Attachment H2
Col. C: Budget per Attachment H2
Col. D: Budget per Attachment H2
Col. E: Budget per Attachment H2
Col. F: CORE Electric Program Budget 2017
Col. G: Page 2, Line 13, Col. O
Col. H: Col. B - Col. C - Col. D - Col. E + Col. F - Col. G
Col. I: Company Forecast
Col. J: (Col. H / Col. I) x 100
Col. K: EAP Portion of SBC Rate
Col. L: Page 3, Col. G
Col. M: Col. J + Col. K + Col. L

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Energy Efficiency Expense & SBC Revenue Reconcilliation
January 1, 2017 to December 31, 2017

Line	Description	Carryover 12/31/16	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Total
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	SBC Revenues		167,308	150,176	149,563	141,101	140,553	159,607	180,543	173,865	155,962	143,085	147,784	164,290	1,873,837
2	RGGI Revenues		18,450	18,450	18,450	18,450	18,450	18,450	18,450	18,450	18,450	18,450	18,450	18,450	221,401
3	FCM Revenues		18,125	18,125	18,125	18,125	18,125	18,125	18,125	18,125	18,125	18,125	18,125	18,125	217,502
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	**Total Revenues**		**203,884**	**186,752**	**186,138**	**177,676**	**177,128**	**196,182**	**217,118**	**210,440**	**192,537**	**179,660**	**184,359**	**200,866**	**2,312,740**
6	Program Expenses		203,791	203,791	203,791	203,791	203,791	203,791	203,791	203,791	203,791	203,791	203,791	203,791	2,445,494
7	**Total Program Expenses**		**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**203,791**	**2,445,494**
8	Current Month (Over)/Under Recovery		93	(17,040)	(17,653)	(26,115)	(26,663)	(7,609)	13,327	6,649	(11,254)	(24,131)	(19,432)	(2,925)	
9	Cummulative (Over)(Under Recovery		93	(16,947)	(34,600)	(60,715)	(87,378)	(94,987)	(81,660)	(75,011)	(86,265)	(110,396)	(129,828)	(132,754)	
10	Deferred Taxes @ 39.61%	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	Net EE SBC Deferral (Over)/Under Recovery	-	93	(16,947)	(34,600)	(60,715)	(87,378)	(94,987)	(81,660)	(75,011)	(86,265)	(110,396)	(129,828)	(132,754)	
12	Interest @ Prime Rate		0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	
13	**Interest on Deferral Balance**		**0**	**(25)**	**(75)**	**(139)**	**(216)**	**(266)**	**(258)**	**(228)**	**(235)**	**(287)**	**(350)**	**(383)**	**(2,462)**
14	**Monthly Sales (kWh)**		84,520,507	75,865,762	75,555,820	71,281,140	71,004,135	80,629,651	91,206,265	87,832,695	78,788,378	72,283,288	74,657,067	82,995,884	946,620,592
15	**EE SBC Rate (¢/kWh)**		0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	

Line 1: (Line 14 x Line 15) / 100
Line 2: Page 1, Col. C
Line 3: Page 1, Col. D
Line 4: Page 1, Col. E
Line 5: Sum of Lines 1 through Lines 4
Line 6: Page 1, Col. B
Line 7: Sum of Line 6
Line 8: Line 5 - Line 7
Line 9: Prior month Line 9 + Current month Line 8
Line 10: Line 9 x 39.61% per DE 13-063 Settlement
Line 11: Line 9 - Line 10
Line 12: Prime Rate / 12
Line 13: (Prior Month Line 11 + Current Month Line 11) / 2 x Line 12
Line 14: Company Forecast
Line 15: Page 1, Col. J

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
2017 System Benefits Charge Calculation (LBR Component)

Year	Forecasted LBR Revenue	Prior Year Deferral with Interest	Current Year Interest	Total LBR Revenue	Forecasted Distribution (MWH)	SBC Rate LBR Portion (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G
2017	$ 59,190	$ -	$ 426	$ 59,616	946,620,592	0.006

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Page 4, Line 12, Col. O
Col. C: Prior Year LBR Component (Over)/Under recovery, with interest
Col. D: Page 5, Col. O, Line 8
Col. E: Col. B + Col. C + Col. D
Col. F: Company Forecast
Col. G: (Col. E * 100) / Col. F

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Estimated Monthly and Cumulative Savings (kWh) and Lost Base Revenue
January 1, 2017 to December 31, 2017

Line	Description	12/31/2016	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Annual Savings
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	Residential Annualized Savings		38,734	38,734	38,734	77,469	77,469	77,469	77,469	77,469	77,469	193,672	193,672	193,672	1,162,032
2	C&I Annualized Savings		132,218	132,218	132,218	264,436	264,436	264,436	264,436	264,436	264,436	661,091	661,091	661,091	3,966,546
3	Total		170,953	170,953	170,953	341,905	341,905	341,905	341,905	341,905	341,905	854,763	854,763	854,763	5,128,578
			Jan 2017	**Feb 2017**	**Mar 2017**	**Apr 2017**	**May 2017**	**June 2017**	**Jul 2017**	**Aug 2017**	**Sep 2017**	**Oct 2017**	**Nov 2017**	**Dec 2017**	**Cumulative LBR Savings**
4	Monthly Residential Savings		3,228	3,228	3,228	6,456	6,456	6,456	6,456	6,456	6,456	16,139	16,139	16,139	
5	Cumulative Residential Savings	-	3,228	6,456	9,684	16,139	22,595	29,051	35,507	41,962	48,418	64,557	80,697	96,836	455,129
6	Average Residential Distribution Rate*		0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	0.04352	
7	Lost Residential Revenue		$ 140	$ 281	$ 421	$ 702	$ 983	$ 1,264	$ 1,545	$ 1,826	$ 2,107	$ 2,810	$ 3,512	$ 4,214	$ 19,807
8	Monthly C&I Savings		11,018	11,018	11,018	22,036	22,036	22,036	22,036	22,036	22,036	55,091	55,091	55,091	
9	Cumulative C&I Savings	-	11,018	22,036	33,055	55,091	77,127	99,164	121,200	143,236	165,273	220,364	275,455	330,546	1,553,564
10	Average C&I Distribution Rate*		0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	0.02535	
11	Lost C&I Revenue		$ 279	$ 559	$ 838	$ 1,397	$ 1,955	$ 2,514	$ 3,072	$ 3,631	$ 4,190	$ 5,586	$ 6,983	$ 8,379	$ 39,383
12	**Total Lost Revenue**		**$ 420**	**$ 840**	**$ 1,259**	**$ 2,099**	**$ 2,939**	**$ 3,778**	**$ 4,618**	**$ 5,457**	**$ 6,297**	**$ 8,396**	**$ 10,495**	**$ 12,594**	**59,190**

Line 1: Estimated Savings per 2017 Core Filing
Line 2: Estimated Savings per 2017 Core Filing
Line 3: Line 1 + Line 2
Line 4: Line 1 / 12
Line 5: Prior Month Line 5 + Current Month Line 4
Line 6: Page 6, Line 1, Col. D
Line 7: Line 5 x Line 6
Line 8: Line 2 / 12
Line 9: Prior Month Line 9 + Current Month Line 8
Line 10: Page 6, Line 5, Col. D
Line 11: Line 9 x Line 10
Line 12: Line 7 + Line 11

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Lost Base Revenue Reconcilliation
January 1, 2017 to December 31, 2017

Line	Description	Carryover 12/31/16	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Total
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	Revenue Recovery		$5,282	$4,741	$4,722	$4,455	$4,437	$5,039	$5,700	$5,489	$4,924	$4,517	$4,666	$5,187	$59,157
2	Lost Revenues		$420	$840	$1,259	$2,099	$2,939	$3,778	$4,618	$5,457	$6,297	$8,396	$10,495	$12,594	$59,190
3	Current Month (Over)/Under Recovery		$4,862	$3,902	$3,462	$2,356	$1,499	$1,261	$1,082	$32	($1,373)	($3,879)	($5,829)	($7,407)	
4	Cumulative (Over)/Under Recovery	-	$4,862	$8,764	$12,226	$14,582	$16,080	$17,341	$18,423	$18,455	$17,082	$13,203	$7,374	($33)	
5	Deferred Taxes @ 39.61%	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
6	Net EE SBC Deferral (Over)/Under Recovery	-	$4,862	$8,764	$12,226	$14,582	$16,080	$17,341	$18,423	$18,455	$17,082	$13,203	$7,374	($33)	
7	Interest @ Prime Rate		0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	
8	**Interest on Deferral Balance**			**$20**	**$31**	**$39**	**$45**	**$49**	**$52**	**$54**	**$52**	**$44**	**$30**	**$11**	**$426**
9	**Monthly Sales (kWh)**		84,520,507	75,865,762	75,555,820	71,281,140	71,004,135	80,629,651	91,206,265	87,832,695	78,788,378	72,283,288	74,657,067	82,995,884	946,620,592
10	**SBC Rate (LBR Component, ¢/kWh)**		0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	

Line 1: (Line 9 x Line 10) / 100
Line 2: Page 4, Line 12
Line 3: Line 1 - Line 2
Line 4: Prior month Line 4 + Current month Line 3
Line 5: Line 4 x 39.61% per DE 13-063 Settlement
Line 6: Line 4 - Line 5
Line 7: Prime Rate / 12
Line 8: (Prior Month Line 6 + Current Month Line 6) / 2 x Line 7
Line 9: Company Forecast
Line 10: Page 3, Col. G

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Calculation of Average Distribution Rates at the Rate Level Effective July 1, 2016
Based on Billing Determinants for the Twelve Months Ending December 2015

Distribution rates excluding customer, meter, and per luminaire charges

Line	Rate Class	Delivery kWh	Distribution Revenue Excluding Fixed Charges	$/kWh
	Col. A	Col. B	Col. C	Col. D
1	Residential Rate D	273,818,053	$ 12,085,971	$ 0.04414
2	Residential TOU Rate D-10	5,571,935	$ 187,376	$ 0.03363
3	Residential Electric Heat Rate T	17,379,770	$ 643,399	$ 0.03702
4	Residential Subtotal	296,769,758	$ 12,916,746	$ 0.04352
5	General Service Rate G-1	385,699,306	$ 8,195,338	$ 0.02125
6	General Service Rate G-2	155,554,136	$ 4,062,812	$ 0.02612
7	General Service Rate G-3	90,016,335	$ 3,738,378	$ 0.04153
8	Commercial Electric Heat Rate V	316,195	$ 13,460	$ 0.04257
9	Commercial and Industrial subtotal	631,585,972	$ 16,009,988	$ 0.02535
10	Outdoor Lighting Rate M		$ -	
11	Total Retail	928,355,730	$ 28,926,734	$ 0.03116

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Bill Impacts of Changes in System Benefits Charge

	1/1/17 Bill at current SBC level *	1/1/17 Bill at proposed SBC level
System Benefits Charge ($/kWh)	$0.00330	$0.00354
Bill per month, including Liberty's default energy service		
Residential Rate D (625 kWh/month)	$93.36	$93.51
General Service Rate G-2 (40 kW, 10,000 kWh/month)	$1,579.34	$1,581.74
Change from previous rate level - $ per month		
Residential Rate D (625 kWh/month)		$0.15
General Service Rate G-2 (40 kW, 10,000 kWh/month)		$2.40
Change from previous rate level - %		
Residential Rate D (625 kWh/month)		0.16%
General Service Rate G-2 (40 kW, 10,000 kWh/month)		0.15%

*The Company's energy service rate changes monthly for G-2 customers. To show the impact of the SBC rate change, the calculation shows bill impact with the SBC at $0.00330 and the proposed rate of $0.00354 at January 1, 2017.

SYSTEM BENEFITS CHARGE PROVISION

Each of the Company's distribution rates shall collect a System Benefits Charge as required by New Hampshire law and approved by the Commission. The System Benefits Charge shall recover the cost of the Company's (i) Electric Assistance Program and (ii) energy efficiency core programs and any other such energy efficiency programs, as approved by the Commission.

The Company shall implement its Electric Assistance Program as approved by the Commission from time to time. The System Benefits Charge will fund the Company's Electric Assistance Program and such other system benefits as are required by law or approved by the Commission. The Company will reconcile on an annual basis actual costs incurred of the Electric Assistance Program, including development, implementation, and ongoing administrative and maintenance costs against the actual amounts charged to customers through the portion of the System Benefits Charge attributable to the Electric Assistance Program, set at a level of 0.150¢ per kilowatt-hour in accordance with RSA 374-F:4, VIII (c), and shall be in addition to the portion of the System Benefits Charge relating to the Company's energy efficiency core programs stated below.

The Company shall implement its energy efficiency core programs as approved by the Commission from time to time. The Company's cost of implementing the energy efficiency core programs shall be recovered through the portion of the System Benefits Charge attributable to such programs, set at a level of 0.198~~180~~¢ per kilowatt-hour in accordance with 2001 N.H. Laws 29:14, which shall be in addition to the portion of the System Benefits Charge relating to the Company's low income customer protection programs stated above. Any difference between the actual energy efficiency funds expended and the funds collected through the System Benefits Charge at 0.198~~180~~¢ per kilowatt-hour during a calendar year shall, with interest calculated at the average prime rate for each month, be added to or subtracted from the amount to be expended in the following calendar year. If actual amounts are not available for any period, they shall be estimated for purposed of the above calculations and adjusted the following year based on actual data.

The Company shall implement its lost revenue mechanism as approved by the Commission in accordance with Order No. 25,932 in Docket No. DE 15-137 Energy Efficiency Resource Standard, set at a level of 0.354¢. The lost revenue portion of the System Benefits Charge shall be established annually based on a forecast of lost revenue for the prospective year~~.~~ ~~and~~ Any difference between the actual lost revenue and the amount of lost revenue recovered through the System Benefits Charge shall be refunded or recouped with interest during the succeeding year.

Any adjustment of the System Benefits Charge shall be in accordance with a notice filed with the Commission setting forth the amount of the increase or decrease, and the new System Benefits Charge amount. The notice shall further specify the effective date of such adjustment, which shall not be earlier than thirty days after the filing of the notice, or such other date as the Commission may authorize.

System Benefits Charge	
Electric Assistance Program (EAP)	0.150¢
Energy Efficiency Programs	0.198¢
Lost Revenue Mechanism	0.006¢
Total System Benefit Charge	0.354¢

Dated: ~~April 1, 2014~~ September 23, 2016
~~Richard Leehr~~ Swain
Effective: ~~April 1, 2014~~ January 1, 2017
~~Richard Leehr~~ Swain

Issued by /s/ David R.
David R.
Title: President

Authorized by NHPUC Order No. xx,xxx~~25,638~~ in Docket No. DE 14-216, dated XXX XX, 2016~~ Issued March 17, 2014 in Docket No. DE 13-063~~

NHPUC No. 19 - ELECTRICITY
LIBERTY UTILITIES

~~Ninth~~ Revised Page 68
Superseding ~~Eighth~~ Revised Page 68
Summary of Rates

REDLINE TARIFF
RATES EFFECTIVE ~~AUGUST 1, 2016~~
FOR USAGE ON AND AFTER ~~AUGUST 1, 2016~~

Rate	Blocks		Distribution Charge	Business Profits Tax	REP/ VMP	Energy Service Cost Reclassification Adjustment Provision	***Net Distribution Charge***	Transmission Charge	Stranded Cost Charge	Storm Recovery Adjustment Factor	System Benefits Charge	Electricity Consumption Tax	***Total Delivery Service***	Energy Service	***Total Rate***
D	Customer Charge	$	12.12				***12.12***						***12.12***		***$ 12.12***
	1st 250 kWh	$	0.03278	0.00057	0.00038	(0.00017)	***0.03356***	0.01361	0.00040	-	~~0.00330~~	0.00055	***~~0.05142~~***	0.06868	***~~$ 0.12010~~***
	Excess kWh	$	0.04924	0.00057	0.00038	(0.00017)	***0.05002***	0.01361	0.00040	-	~~0.00330~~	0.00055	***~~0.06788~~***	0.06868	***~~$ 0.13656~~***
Off Peak Water Heating Use 16 Hour Control[1]	All kWh	$	0.03130	0.00057	0.00038	(0.00017)	***0.03208***	0.01361	0.00040	-	~~0.00330~~	0.00055	***~~0.04994~~***	0.06868	***~~$ 0.11862~~***
Off Peak Water Heating Use 6 Hour Control[1]	All kWh	$	0.03268	0.00057	0.00038	(0.00017)	***0.03346***	0.01361	0.00040	-	~~0.00330~~	0.00055	***~~0.05132~~***	0.06868	***~~$ 0.12000~~***
Farm[1]	~~All kWh~~ See Page 34	$	0.04101	0.00057	0.00038	(0.00017)	***0.04179***	0.01361	0.00040	-	~~0.00330~~	0.00055	***~~0.05965~~***	0.06868	***~~$ 0.12833~~***
D-10	Customer Charge	$	12.28				***12.28***						***12.28***		***$ 12.28***
	On Peak kWh	$	0.09272	0.00057	0.00038	(0.00008)	***0.09359***	0.00985	0.00040	-	~~0.00330~~	0.00055	***~~0.10769~~***	0.06868	***~~$ 0.17637~~***
	Off Peak kWh	$	0.00078	0.00057	0.00038	(0.00008)	***0.00165***	0.00985	0.00040	-	~~0.00330~~	0.00055	***~~0.01575~~***	0.06868	***~~$ 0.08443~~***
G-1	Customer Charge	$	333.68				***333.68***						***333.68***		***$ 333.68***
	Demand Charge	$	7.11				***7.11***						***7.11***		***$ 7.11***
	On Peak kWh	$	0.00398	0.00057	0.00038	NA	***0.00493***	0.00871	0.00040	-	~~0.00330~~	0.00055	***~~0.01789~~***		
													Effective 8/1/16, usage on or after	0.05858	***~~$ 0.07647~~***
													Effective 9/1/16, usage on or after	0.05515	***~~$ 0.07304~~***
													Effective 10/1/16, usage on or after	0.05371	***~~$ 0.07160~~***
													Effective 11/1/16, usage on or after	0.06265	***~~$ 0.08054~~***
													Effective 12/1/16, usage on or after	0.07973	***~~$ 0.09762~~***
													Effective 1/1/17, usage on or after	0.10551	***~~$ 0.12340~~***
	Off Peak kWh	$	0.00078	0.00057	0.00038	NA	***0.00173***	0.00871	0.00040	-	~~0.00330~~	0.00055	***0.01469***		
													Effective 8/1/16, usage on or after	0.05858	***~~$ 0.07327~~***
													Effective 9/1/16, usage on or after	0.05515	***~~$ 0.06984~~***
													Effective 10/1/16, usage on or after	0.05371	***~~$ 0.06840~~***
													Effective 11/1/16, usage on or after	0.06265	***~~$ 0.07734~~***
													Effective 12/1/16, usage on or after	0.07973	***~~$ 0.09442~~***
													Effective 1/1/17, usage on or after	0.10551	***~~$ 0.12020~~***
G-2	Customer Charge	$	55.64				***55.64***						***55.64***		***$ 55.64***
	Demand Charge	$	7.15				***7.15***						***7.15***		***$ 7.15***
	All kWh	$	0.00118	0.00057	0.00038	NA	***0.00213***	0.01188	0.00040	-	~~0.00330~~	0.00055	***~~0.01826~~***		***~~$ 0.01826~~***
													Effective 8/1/16, usage on or after	0.05858	***~~$ 0.07684~~***
													Effective 9/1/16, usage on or after	0.05515	***~~$ 0.07341~~***
													Effective 10/1/16, usage on or after	0.05371	***~~$ 0.07197~~***
													Effective 11/1/16, usage on or after	0.06265	***~~$ 0.08091~~***
													Effective 12/1/16, usage on or after	0.07973	***~~$ 0.09799~~***
													Effective 1/1/17, usage on or after	0.10551	***~~$ 0.12377~~***
G-3	Customer Charge	$	12.03				***12.03***						***12.03***		***$ 12.03***
	All kWh	$	0.04075	0.00057	0.00038	(0.00017)	***0.04153***	0.00918	0.00040	-	~~0.00330~~	0.00055	***~~0.05496~~***	0.06868	***~~$ 0.12364~~***
M	All kWh	$	-	0.00057	0.00038	NA	***0.00095***	0.00970	0.00039	-	~~0.00330~~	0.00055	***~~0.01489~~***	0.06868	***~~$ 0.08357~~***
T	Customer Charge	$	12.25				***12.25***						***12.25***		***$ 12.25***
	All kWh	$	0.03614	0.00057	0.00038	(0.00007)	***0.03702***	0.01048	0.00040	-	~~0.00330~~	0.00055	***~~0.05175~~***	0.06868	***~~$ 0.12043~~***
V	Minimum Charge	$	12.07				***12.07***						***12.07***		***$ 12.07***
	All kWh	$	0.04171	0.00057	0.00038	(0.00009)	***0.04257***	0.01563	0.00040	-	~~0.00330~~	0.00055	***~~0.06245~~***	0.06868	***~~$ 0.13113~~***

[1] Rate is a subset of Domestic Rate D

Issued by: /s/David R. Swain
David R. Swain
Title: President

Dated: ~~July 26, 2016~~
Effective: ~~August 1, 2016~~

~~Authorized by NHPUC Order No. 25,908 in Docket No. DE 16-249, dated June 27, 2016~~

SYSTEM BENEFITS CHARGE PROVISION

Each of the Company's distribution rates shall collect a System Benefits Charge as required by New Hampshire law and approved by the Commission. The System Benefits Charge shall recover the cost of the Company's (i) Electric Assistance Program and (ii) energy efficiency core programs and any other such energy efficiency programs, as approved by the Commission.

The Company shall implement its Electric Assistance Program as approved by the Commission from time to time. The System Benefits Charge will fund the Company's Electric Assistance Program and such other system benefits as are required by law or approved by the Commission. The Company will reconcile on an annual basis actual costs incurred of the Electric Assistance Program, including development, implementation, and ongoing administrative and maintenance costs against the actual amounts charged to customers through the portion of the System Benefits Charge attributable to the Electric Assistance Program, set at a level of 0.150¢ per kilowatt-hour in accordance with RSA 374-F:4, VIII (c), and shall be in addition to the portion of the System Benefits Charge relating to the Company's energy efficiency core programs stated below.

The Company shall implement its energy efficiency core programs as approved by the Commission from time to time. The Company's cost of implementing the energy efficiency core programs shall be recovered through the portion of the System Benefits Charge attributable to such programs, set at a level of 0.198¢ per kilowatt-hour in accordance with 2001 N.H. Laws 29:14, which shall be in addition to the portion of the System Benefits Charge relating to the Company's low income customer protection programs stated above. Any difference between the actual energy efficiency funds expended and the funds collected through the System Benefits Charge at 0.198¢ per kilowatt-hour during a calendar year shall, with interest calculated at the average prime rate for each month, be added to or subtracted from the amount to be expended in the following calendar year. If actual amounts are not available for any period, they shall be estimated for purposed of the above calculations and adjusted the following year based on actual data.

The Company shall implement its lost revenue mechanism as approved by the Commission in accordance with Order No. 25,932 in Docket No. DE 15-137 Energy Efficiency Resource Standard, set at a level of 0.354¢. The lost revenue portion of the System Benefits Charge shall be established annually based on a forecast of lost revenue for the prospective year. Any difference between the actual lost revenue and the amount of lost revenue recovered through the System Benefits Charge shall be refunded or recouped with interest during the succeeding year.

Any adjustment of the System Benefits Charge shall be in accordance with a notice filed with the Commission setting forth the amount of the increase or decrease, and the new System Benefits Charge amount. The notice shall further specify the effective date of such adjustment, which shall not be earlier than thirty days after the filing of the notice, or such other date as the Commission may authorize.

System Benefits Charge	
Electric Assistance Program (EAP)	0.150¢
Energy Efficiency Programs	0.198¢
Lost Revenue Mechanism	0.006¢
Total System Benefit Charge	0.354¢

Dated: September 23, 2016
Effective: January 1, 2017

Issued by /s/ David R. Swain
David R. Swain
Title: President

NHPUC No. 19 - ELECTRICITY
LIBERTY UTILITIES

Tenth Revised Page 68
Superseding Ninth Revised Page 68
Summary of Rates

PROPOSED TARIFF
RATES EFFECTIVE JANUARY 1, 2017
FOR USAGE ON AND AFTER JANUARY 1, 2017

Rate	Blocks		Distribution Charge	Business Profits Tax	REP/ VMP	Energy Service Cost Reclassification Adjustment Provision	***Net Distribution Charge***	Transmission Charge	Stranded Cost Charge	Storm Recovery Adjustment Factor	System Benefits Charge	Electricity Consumption Tax	***Total Delivery Service***	Energy Service	***Total Rate***
D	Customer Charge	$	12.12				***12.12***						***12.12***		***$ 12.12***
	1st 250 kWh	$	0.03278	0.00057	0.00038	(0.00017)	***0.03356***	0.01361	0.00040	-	0.00354	0.00055	***0.05166***	0.06868	***$ 0.12034***
	Excess kWh	$	0.04924	0.00057	0.00038	(0.00017)	***0.05002***	0.01361	0.00040	-	0.00354	0.00055	***0.06812***	0.06868	***$ 0.13680***
Off Peak Water Heating Use 16 Hour Control[1]	All kWh	$	0.03130	0.00057	0.00038	(0.00017)	***0.03208***	0.01361	0.00040	-	0.00354	0.00055	***0.05018***	0.06868	***$ 0.11886***
Off Peak Water Heating Use 6 Hour Control[1]	All kWh	$	0.03268	0.00057	0.00038	(0.00017)	***0.03346***	0.01361	0.00040	-	0.00354	0.00055	***0.05156***	0.06868	***$ 0.12024***
Farm[1]	See Page 34	$	0.04101	0.00057	0.00038	(0.00017)	***0.04179***	0.01361	0.00040	-	0.00354	0.00055	***0.05989***	0.06868	***$ 0.12857***
D-10	Customer Charge	$	12.28				***12.28***						***12.28***		***$ 12.28***
	On Peak kWh	$	0.09272	0.00057	0.00038	(0.00008)	***0.09359***	0.00985	0.00040	-	0.00354	0.00055	***0.10793***	0.06868	***$ 0.17661***
	Off Peak kWh	$	0.00078	0.00057	0.00038	(0.00008)	***0.00165***	0.00985	0.00040	-	0.00354	0.00055	***0.01599***	0.06868	***$ 0.08467***
G-1	Customer Charge	$	333.68				***333.68***						***333.68***		***$ 333.68***
	Demand Charge	$	7.11				***7.11***						***7.11***		***$ 7.11***
	On Peak kWh	$	0.00398	0.00057	0.00038	NA	***0.00493***	0.00871	0.00040	-	0.00354	0.00055	***0.01813***		
													Effective 8/1/16, usage on or after	0.05858	***$ 0.07671***
													Effective 9/1/16, usage on or after	0.05515	***$ 0.07328***
													Effective 10/1/16, usage on or after	0.05371	***$ 0.07184***
													Effective 11/1/16, usage on or after	0.06265	***$ 0.08078***
													Effective 12/1/16, usage on or after	0.07973	***$ 0.09786***
													Effective 1/1/17, usage on or after	0.10551	***$ 0.12364***
	Off Peak kWh	$	0.00078	0.00057	0.00038	NA	***0.00173***	0.00871	0.00040	-	0.00354	0.00055	***0.01493***		
													Effective 8/1/16, usage on or after	0.05858	***$ 0.07351***
													Effective 9/1/16, usage on or after	0.05515	***$ 0.07008***
													Effective 10/1/16, usage on or after	0.05371	***$ 0.06864***
													Effective 11/1/16, usage on or after	0.06265	***$ 0.07758***
													Effective 12/1/16, usage on or after	0.07973	***$ 0.09466***
													Effective 1/1/17, usage on or after	0.10551	***$ 0.12044***
G-2	Customer Charge	$	55.64				***55.64***						***55.64***		***$ 55.64***
	Demand Charge	$	7.15				***7.15***						***7.15***		***$ 7.15***
	All kWh	$	0.00118	0.00057	0.00038	NA	***0.00213***	0.01188	0.00040	-	0.00354	0.00055	***0.01850***		***$ 0.01850***
													Effective 8/1/16, usage on or after	0.05858	***$ 0.07708***
													Effective 9/1/16, usage on or after	0.05515	***$ 0.07365***
													Effective 10/1/16, usage on or after	0.05371	***$ 0.07221***
													Effective 11/1/16, usage on or after	0.06265	***$ 0.08115***
													Effective 12/1/16, usage on or after	0.07973	***$ 0.09823***
													Effective 1/1/17, usage on or after	0.10551	***$ 0.12401***
G-3	Customer Charge	$	12.03				***12.03***						***12.03***		***$ 12.03***
	All kWh	$	0.04075	0.00057	0.00038	(0.00017)	***0.04153***	0.00918	0.00040	-	0.00354	0.00055	***0.05520***	0.06868	***$ 0.12388***
M	All kWh	$	-	0.00057	0.00038	NA	***0.00095***	0.00970	0.00039	-	0.00354	0.00055	***0.01513***	0.06868	***$ 0.08381***
T	Customer Charge	$	12.25				***12.25***						***12.25***		***$ 12.25***
	All kWh	$	0.03614	0.00057	0.00038	(0.00007)	***0.03702***	0.01048	0.00040	-	0.00354	0.00055	***0.05199***	0.06868	***$ 0.12067***
V	Minimum Charge	$	12.07				***12.07***						***12.07***		***$ 12.07***
	All kWh	$	0.04171	0.00057	0.00038	(0.00009)	***0.04257***	0.01563	0.00040	-	0.00354	0.00055	***0.06269***	0.06868	***$ 0.13137***

[1] Rate is a subset of Domestic Rate D

Issued by: /s/David R. Swain
David R. Swain
Title: President

Dated: September 23, 2016
Effective: January 1, 2017

Authorized by NHPUC Order No. XX, XXX in Docket No. DE 14-216, dated XXX XX, 2016

STATE OF NEW HAMPSHIRE

BEFORE THE

PUBLIC UTILITIES COMMISSION

Docket No. DG 16-XXX

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Winter 2016/2017 Cost of Gas Filing

DIRECT TESTIMONY

OF

DAVID B. SIMEK

September 1, 2016

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I. INTRODUCTION

Q. Please state your full name and business address.

A. My name is David B. Simek. My business address is 15 Buttrick Road, Londonderry, New Hampshire 03053.

Q. Please state by whom you are employed and your position.

A. I am a Lead Utility Analyst for Liberty Utilities Service Corp. ("Liberty") which provides services to Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities ("EnergyNorth" or the "Company"). I am responsible for providing rate-related services for the Company.

Q. Please describe your educational background and training.

A. I graduated from Ferris State University in 1993 with a Bachelor of Science in Finance. I received a Master's of Science in Finance from Walsh College in 2000. I also received a Master's of Business Administration from Walsh College in 2001. In 2006, I earned a Graduate Certificate in Power Systems Management from Worcester Polytechnic Institute.

Q. What is your professional background?

A. In August 2013, I joined Liberty Utilities as a Utility Analyst and I was promoted to a Lead Utility Analyst in December 2014. Prior to my employment at Liberty Energy Utilities (New Hampshire) Corp., I was employed by NSTAR Electric & Gas ("NSTAR") as a Senior Analyst in Energy Supply from 2008 to 2012. Prior to my

position in Energy Supply at NSTAR, I was a Senior Financial Analyst within the NSTAR Investment Planning group from 2004 to 2008.

Q. Have you previously testified in regulatory proceedings before the New Hampshire Public Utilities Commission (the "Commission")?

A. Yes. I have testified on numerous occasions before the Commission.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the Company's proposed firm sales cost of gas rates for the 2016/17 Winter (Peak) Period and the Company's proposed 2016/17 Local Distribution Adjustment Charge, both effective November 1, 2016. I also describe the Company's proposal to have one annual cost of gas filing that would contain information for both the winter and summer cost of gas rates.

II. COST OF GAS FACTOR

Q. What are the proposed firm sales and firm transportation cost of gas rates?

A. The Company proposes a firm sales cost of gas rate of $0.7068 per therm for residential customers, $0.7026 per therm for commercial/industrial high winter use customers, and $0.7210 per therm for commercial/industrial low winter use customers as shown on Proposed Tenth Revised Page 77. The Company proposes a firm transportation cost of gas rate of $0.0006 per therm as shown on Proposed Second Revised Page 79.

Q. Would you please explain tariff page Proposed Third Revised Page 76 and Proposed Tenth Revised Page 77?

A. Proposed Third Revised Page 76 and Proposed Tenth Revised Page 77 contain the calculation of the 2016/17 Winter Period Cost of Gas Rate and summarize the Company's forecast of firm gas costs and firm gas sales. As shown on Page 77, the proposed 2016/17 Average Cost of Gas of $0.7068 per therm is derived by adding the Direct Cost of Gas Rate of $0.6550 per therm to the Indirect Cost of Gas Rate of $0.0518 per therm. The estimated total Anticipated Direct Cost of gas, derived on Page 76 and repeated on Page 77, is $58,894,216. The estimated Indirect Cost of Gas, also derived on Page 76 and repeated on Page 77, is $4,661,664. The Direct Cost of Gas Rate of $0.6550 and the Indirect Cost of Gas Rate of $0.0518 are determined by dividing each of these total cost figures by the projected winter period firm sales volumes of 89,920,078 therms.

To calculate the total Anticipated Direct Cost of Gas, the Company adds a list of allowable adjustments from deferred gas cost accounts to the projected demand and commodity costs for the winter period supply portfolio. These allowable adjustments, shown on Page 76, total ($4,087,455). These adjustments are added to the Unadjusted Anticipated Cost of Gas of $62,981,672 to determine the Total Anticipated Direct Cost of Gas of $58,894,216.

Q. What are the components of the Unadjusted Anticipated Cost of Gas?

A. The Unadjusted Anticipated Cost of Gas shown on Proposed Third Revised Page 76 consists of the following components:

1.	Purchased Gas Demand Costs	$7,527,898
2.	Purchased Gas Commodity Costs	48,688,614
3.	Storage Demand and Capacity Costs	941,660
4.	Storage Commodity Costs	4,026,000
5.	Produced Gas Cost	1,797,499
	Total (does not add due to rounding)	$62,981,672

Q. What are the components of the allowable adjustments to the Cost of Gas?

A. The allowable adjustments to gas costs, listed on Proposed Third Revised Page 76 are as follows:

1.	Prior Period Under Collection	$2,690,610
2.	Interest	33,236
3.	Broker Revenues	(1,374,947)
4.	Transportation COG Revenue	(29,471)
5.	Capacity Release Margin	(5,448,856)
6.	Fixed Price Administrative Cost	41,972
	Total Adjustments (does not add due to rounding)	($4,087,455)

These allowable adjustments are standard adjustments made to the deferred gas cost balance through the operation of the Company's cost of gas adjustment clause. I will discuss the factors contributing to the prior period over collection later in this testimony.

Q. How does the proposed average cost of gas rate in this filing compare to the average cost of gas rate approved by the Commission in Docket No. DG 15-353 for the 2015/16 Winter Period?

A. The average cost of gas rate proposed in this filing is $0.0448 per therm lower than the initial rate of $0.7516[1] approved by the Commission in Order No. 25,833 dated October 30, 2015, in Docket No. DG 15-353. The decrease in the rate reflects a decrease in the total cost of gas of approximately $909 thousand or 1.4% ($532 thousand decrease in total direct gas costs and a $377 thousand decrease in indirect gas costs).

Q. How does the proposed firm transportation winter cost of gas rate compare to the rate approved by the Commission for the 2016/17 winter period?

A. The proposed firm transportation winter cost of gas rate is $0.0006 per therm. The rate approved in Docket No. DG 15-353 was ($0.0007). The increase in the rate relates to an estimated $63,000 in transportation customer costs offset by the prior period over collection of $33,912.

1 For comparison purposes, by the end of the 2015/16 Winter Period, the residential cost of gas rate decreased to $0.4423 per therm through the operation of the monthly adjustment mechanism.

Q. In the calculation of its firm transportation winter cost of gas rate, has the Company updated the estimated percentage used for pressure support purposes?

A. No, it has not. The Company used, for pressure support purposes, a rate of 9.9% based on the marginal cost study used for the rate design approved in the Settlement Agreement in Docket No. DG 10-017.

Q. What was the actual weighted average firm sales cost of gas rate for the 2015/16 winter period?

A. The weighted average cost of gas rate was $0.5141 per therm. This was calculated by applying the actual monthly cost of gas rates for November 2015 through April 2016 to the monthly therm usage of an average residential heating customer using 763 therms per year, or 608 therms for the six winter period months.

III. PRIOR PERIOD UNDER COLLECTION

Q. Please explain the prior period under collection of $2,619,772.

A. The prior period under collection is also detailed in the 2015/16 Winter Period Reconciliation that was filed with the Commission on July 29, 2016. The $2,619,772 under collection is the sum of the deferred gas cost, bad debt, and working capital balance as of April 30, 2016, including Peak Period costs recovered in May 2016 based on billings for April consumption. The under-collection was driven mainly by the timing of monthly cost of gas rate adjustments as compared to changes in the underlying costs and accounting adjustments made between the Summer and Winter periods.

IV. FIXED PRICE OPTION

Q. Has the Company established a winter period fixed price pursuant to its Fixed Price Option Program?

A. Yes. Pursuant to Order No. 24,515 in Docket No. DG 05-127 the Fixed Price Option Program ("FPO") rates are set at $0.0200 per therm higher than the initial proposed COG rate. Proposed Second Revised Page 78 contains the FPO rate for the 2016/17 Winter period, which is $0.7268 per therm for residential customers. This compares to FPO rate approved for the 2015/16 winter period of $0.7716 per therm for residential customers. This represents a $0.0448 per therm, or 5.8% decrease in the residential FPO rate. The total bill impact on the winter period bills for an average FPO heating customer using 608 therms is a decrease of approximately $51 or 5.8% compared to last winter. The total bill impact reflects the implementation of the increases approved in Docket No. DG 16-449 effective July 1, 2016, relating to the cast iron/bare steel main replacement program. The estimated winter period bill for an average residential heating customer opting for the FPO would be approximately $12.16 (or 1.4%) higher than the bill under the proposed cost of gas rates, assuming no monthly adjustments to the COG rate during the course of the winter. Schedule 23 contains the historical results of the FPO program.

V. LOCAL DISTRIBUTION ADJUSTMENT CHARGE ("LDAC")

Q. What are the surcharges that will be billed under the LDAC?

A. As shown on Proposed Second Revised Page 82, the Company is submitting for approval an LDAC of $0.0553 per therm for the residential non-heating class and residential heating class, and $0.0370 per therm for the commercial/industrial bundled sales classes

effective November 1, 2016. The surcharges proposed to be billed under the LDAC are the Energy Efficiency Charge, the Environmental Surcharge for Manufactured Gas Plant ("MGP") remediation, Rate Case Expense Recovery, and the Residential Low Income Assistance Program charge. The Company is also submitting for approval Proposed Third Revised Page 82 effective January 1, 2017, an LDAC of $0.0640 per therm for the residential non-heating class and residential heating class, and $0.0450 per therm for the commercial/industrial bundled sales classes. The surcharges proposed to be billed under the LDAC are the Energy Efficiency Charge, the Energy Efficiency Resource Standard Lost Revenue Adjustment Mechanism, the Environmental Surcharge for Manufactured Gas Plant ("MGP") remediation, and the Residential Low Income Assistance Program charge.

Q. Please explain the Energy Efficiency Charge.

A. The Energy Efficiency Charge is designed to recover the projected expenses associated with the Company's energy efficiency programs for Calendar Year 2017 that will be filed with the Commission in the near future. In the calculation of the Energy Efficiency Charge, the Company has also included the projected prior period under recovery of the Company's Residential and Commercial energy efficiency programs as of October 2016. As shown on Schedule 19 Energy Efficiency, the proposed Energy Efficiency charge is $0.0402 per therm for Residential customers and $0.0219 per therm for Commercial and Industrial customers.

Q. Please explain the Energy Efficiency Resource Standard Lost Revenue Adjustment Mechanism ("LRAM").

A. As shown on Schedule 19 LRAM, the proposed LRAM charge is $0.0016 per therm for Residential customers and $0.0009 per therm for Commercial and Industrial customers. It is designed to recover lost revenues associated with energy efficiency measures installed under the CORE programs. In accordance with Order No. 25,932 in Docket No. DE 15-137 the Company shall implement its Lost Revenue Adjustment Mechanism effective January 1, 2017. Therefore, the LDAC will increase on January 1, 2017, by the amount of the LRAM charge. Included in this filing is Proposed Third Revised Tariff page 82 effective January 1, 2017, which includes the LRAM factor.

Q. What is the proposed Residential Low Income Assistance Program ("RLIAP") charge?

A. As shown on Schedule 19 RLIAP, the proposed RLIAP charge is $0.0067 per therm. It is designed to recover administrative costs, revenue shortfall, and the prior period reconciliation adjustment relating to this program. For the 2016/17 Winter Period the Company is providing a 60% base rate discount, consistent with the settlement agreement approved by the Commission in Order No. 24,669 in Docket No. DG 06-120. The current RLIAP charge is designed to recover $1,253,515, of which $1,584,540 is for the revenue shortfall resulting from 5,003 customers receiving a 60% discount off their base rates, and ($331,025) (an over recovery) is for the prior year reconciling adjustment.

Q. In Order No. 24,824 in Docket No. DG 06-122 relating to short-term debt issues, the Company agreed to adjust its short-term debt limits each year as part of the Company's Winter Period Cost Of Gas filing. Did the Company calculate the short-term debt limit for fuel and non-fuel purposes in accordance with this settlement?

A. Yes, the Company included in Schedule 24 the short-term debt limit for fuel and non-fuel purposes for the 2016/17 period. As shown, the short-term debt limit for fuel inventory financing for the period November 1, 2016, through October 31, 2017, is calculated to be $19,066,764, and the limit for non-fuel purposes is calculated to be $69,611,416.

Q. Has the Company updated the Environmental Surcharge (Tariff Page 80)?

A. Yes, it has. The costs submitted for recovery through the MGP remediation cost recovery mechanism as well as the third party recoveries are included in the Environmental Cost Summary in Schedule 20 of this filing. The environmental investigation and remediation costs that underlie these expenses are the result of efforts by the Company to respond to its legal obligations with regard to these sites, as described by Ms. Casey in her pre-filed direct testimony in this proceeding and as set forth in the MGP site summaries included in this filing under Schedule 20. The Summary included in Schedule 20 shows the remediation cost pools for the Concord, Manchester, Nashua, Dover, Laconia, and Keene sites and a General Pool for costs that cannot be directly assigned to a specific site.

A summary sheet and detailed backup spreadsheets that support the 2016/17 costs are provided in Schedule 20 of this filing. Consistent with past practice, the Company met with the Commission Staff and OCA in August of this year to update them on the status

of environmental matters. Ms. Casey's testimony describes the Company's activities with regard to all six sites.

Q. Please describe how the Company calculated the Environmental Surcharge included in this filing.

A. The proposed Manufactured Gas Plant Remediation surcharge for the period beginning November 1, 2016, and ending October 31, 2017, is $0.0155 per therm. This surcharge will recover a total of $2,893,504 in amortized remediation costs. The total amortized remediation costs of $2,893,504 include a correction to a prior year formulaic error in the spreadsheet, which had been in place since the acquisition of EnergyNorth by Liberty Utilities. The formula correction reduced the recoverable amortized remediation costs by approximately $790,000. The costs submitted for recovery are shown in the Environmental Cost Summary included in Schedule 20 of this filing.

Q. Did the Company include a Rate Case Expense (RCE) surcharge in this filing?

A. Yes. Consistent with the Settlement Agreement in Docket No. DG 14-180 and as shown on Schedule 19 RCE, the Company is proposing to refund $247,451 in estimated over collected rate case and recoupment expense through December 2016. The RCE rate of ($0.0071) per therm is determined by dividing the $247,451 by the estimated November 2016 through December 2016 sales volumes of 34,894,997 therms. The proposed RCE surcharge terminates December 31, 2016. Proposed Third Revised Tariff page 82 effective January 1, 2017, reflects the termination of the RCE surcharge.

Q. Has the Company also updated its Company Allowance percentage for the period November 2016 through October 2017 in accordance with Section 8 of the Company's Delivery Terms and Condition?

A. Yes, in Schedule 25 the Company has recalculated its Company Allowance for the period November 2016 through October 2017. The Company calculated the Company Allowance of 2.48% based on sendout and throughput data for the twelve-month period ending June 2016. This recalculated Company Allowance is proposed to be applied to all supplier deliveries beginning in November 2016.

VI. CUSTOMER BILL IMPACTS

Q. What is the estimated impact of the proposed firm sales cost of gas rate and proposed LDAC surcharges on an average heating customer's seasonal bill as compared to the rates in effect last year?

A. The bill impact analysis is presented in Schedule 8 of this filing. These bill impacts reflect the implementation of the increases approved in Docket No DG 16-449 effective July 1, 2016, relating to permanent distribution rate increases and the cast iron/bare steel main replacement program. The total bill impact over the winter period for an average residential heating customer is an increase of approximately $94, or 13.2%. The total bill impact for an average commercial/industrial G-41 customer is an increase of approximately $309, or 17.5%. Schedule 8 of this filing provides more detail of the impact of the proposed rate adjustments on heating customers.

VII. OTHER TARIFF CHANGES

Q. Is the Company updating its Delivery Terms and Conditions in the filing?

A. Yes. The Company is submitting Proposed Second Revised Page 143 relating to Supplier Balancing and Peaking Demand Charges and Proposed Second Revised Page 144 relating to Capacity Allocation.

Q. Please describe the changes to tariff Page 143.

A. In Proposed Second Revised Page 143, the Company is updating the Peaking Demand Charge from $12.89 per MMBtu of Peak MDQ to $11.39 per MMBtu of Peak MDQ, a $1.50 decrease. This calculation is also presented in Schedule 21.

Q. Please describe the changes to tariff Page 144.

A. Proposed Second Revised Page 144 updates the Capacity Allocator percentages used to allocate pipeline, storage, and local peaking capacity to high and low load factor customers under the mandatory capacity assignment requirement for firm transportation service. Schedule 22 contains the six-page worksheet that backs up the calculations for the updated allocators.

Q. Is the Company proposing to have one annual cost of gas filing?

A. Yes, the Company is proposing to have one annual cost of gas filing beginning with this winter 2016/2017 filing. The Company is proposing that during the winter cost of gas filing the Company incorporates a summer cost of gas filing that includes indicative summer cost of gas rates.

Q. Is the Company requesting the Commission to approve the summer cost of gas rate during the winter cost of gas proceeding?

A. No, the Company is not proposing to have the summer cost of gas rate approved during the winter cost of gas proceeding. The Company is requesting that the Commission approve the process used to calculate the beginning summer cost of gas rate. If the Commission approves this process, there will be no need for a hearing or an order approving the summer cost of gas rate. Rather, the actual summer cost of gas rate will be the rate calculated in April of each year under the process described below.

Q. What is the process proposed to calculate the summer cost of gas rates?

A. The winter cost of gas filing will include an indicative summer cost of gas filing with all relevant schedules updated. For each of the months of December through April, the Company will include a summer cost of gas adjustment calculation along with the winter monthly cost of gas adjustment calculation already being filed. Therefore, the Commission will be kept apprised of any changes to the projected summer cost of gas adjustment through these monthly updates. The monthly summer cost of gas adjustment calculation will only include three changes from the indicative summer cost of gas filing made in the winter: updated NYMEX rates, updated basis differentials, and updated accounting over/under balances. The actual summer cost of gas rates effective May 1 will be the rates calculated in the April summer cost of gas adjustment calculation, which is due to the Commission no later than five business days prior to May 1. The cost of gas rates calculated in the April summer cost of gas adjustment calculation will be the

approved cost of gas rates used to calculate the 25% threshold of cumulative rate adjustments upward. All reconciliation and accounting processes remain the same.

Q. What are the proposed indicative 2017 summer firm sales cost of gas rates?

A. The Company proposes an indicative firm sales cost of gas rate of $0.3338 per therm for residential customers, $0.3545 per therm for commercial/industrial low winter use customers, and $0.3177 per therm for commercial/industrial high winter use customers as shown on Proposed Revised Eleventh Page 77.

Q. Would you please explain tariff pages Proposed Fourth Revised Page 76 and Proposed Eleventh Revised Page 77?

A. Proposed Fourth Revised Page 76 and Proposed Eleventh Revised Page 77 contain the calculation of the 2017 Summer Period Cost of Gas Rate and summarize the Company's forecast of firm gas sales, firm gas sendout, and gas costs. On Proposed Eleventh Revised Page 77, the 2017 Average Cost of Gas of $0.3338 per therm is derived by adding the Direct Cost of Gas Rate of $0.3208 per therm to the Indirect Cost of Gas Rate of $0.0130 per therm. The estimated total Anticipated Direct Cost of gas is $7,127,374 and the estimated Indirect Cost of Gas is $288,148. The Direct Cost of Gas Rate and the Indirect Cost of Gas Rates are determined by dividing each of these total cost figures by the projected firm sales volumes of 22,215,128 therms. Proposed Eleventh Revised Page 77 further shows that the Residential Cost of Gas Rate of $0.3338 per therm is equal to the Average Cost of Gas for all firm sales customers. It also shows the calculation of the

Commercial/Industrial Low Winter Use Cost of Gas Rate of $0.3545 per therm and the Commercial/Industrial High Winter Use Cost of Gas Rate of $0.3177 per therm.

The calculation of the Anticipated Direct Cost of Gas is shown on Proposed Fourth Revised Page 76. To derive the total Anticipated Direct Cost of Gas of $7,127,374, the Company starts with the Unadjusted Anticipated Cost of Gas of $7,876,444 and adds the Net Adjustment totaling ($749,070) (an over collection).

Q. What are the components of the Unadjusted Anticipated Cost of Gas?

A. The Unadjusted Anticipated Cost of Gas consists of the following:

1. Purchased Gas Demand Costs	$4,376,173
2. Purchased Gas Supply Costs	3,410,974
3. Produced Gas Costs	89,297
Total Unadjusted Anticipated Cost of Gas	**$7,876,444**

Q. What are the components of the adjustments to the cost of gas?

A. The adjustments to gas costs, listed on Proposed Fourth Revised Page 76, are as follows:

1. Prior Period (Over)/Under Collection	($727,882)
2. Interest	(21,188)
Total Adjustments	**($749,070)**

Q. How does the proposed average cost of gas rate in this filing compare to the initial cost of gas rate approved by the Commission for the 2016 Summer Period?

A. The cost of gas rate proposed in this filing is $0.0779 per therm lower than the initial rate approved by the Commission for the 2016 Summer Period ($0.3338 vs. $0.4117). This decrease is primarily due to the $1,746,091 difference between the current over collection and interest balance of ($749,070) and the 2015 Summer Period under collection and interest balance of $997,021.

Q. Does this conclude your testimony?

A. Yes, it does.

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Uitilities — Schedule 19
Local Distribution Adjustment Charge (LDAC) increase due to Lost Revenue Adjustment Mechanism — LRAM
For LDAC effective January 1, 2017 - October 31, 2017 — Page 1 of 2

	Residential	
1	October 31, 2016 Balance	$0
2	Calculated Lost Distribution Revenue - January 2017 through October 2017	$83,023
3	Calculated Interest - January 2017 through October 2017	$1,339
4		
5	Total to be recovered	$84,362
6		
7	Estimated January 2017 - October 2017 Sales (therms)	53,437,615
8		
9	LRAM residential rate per therm January 2017 - October 2017	$0.0016
	Commercial & Industrial	
10	October 31, 2016 Balance	$0
11	Calculated Lost Distribution Revenue - January 2017 through October 2017	$87,511
12	Calculated Interest - January 2017 through October 2017	$1,411
13		
14	Total to be recovered	$88,921
15		
16	Estimated January 2017 - October 2017 Sales (therms)	98,576,602
17		
18	LRAM C&I rate per therm January 2017 - October 2017	$0.0009

Liberty Utilities (EnergyNorth Natural Gas) Corp.

JANUARY 2017 THROUGH OCTOBER 2017
LOST REVENUE ADJUSTMENT MECHANISM

		(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	
1	**FOR THE MONTH OF:**	**Jan-17**	**Feb-17**	**Mar-17**	**Apr-17**	**May-17**	**Jun-17**	**Jul-17**	**Aug-17**	**Sep-17**	**Oct-17**	**Total**
2	**DAYS IN MONTH**	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	
	RESIDENTIAL											
3	Beginning Balance	$ -	$ 10,350	$ 19,864	$ 28,549	$ 38,980	$ 48,297	$ 56,485	$ 64,588	$ 71,393	$ 76,888	**$ 415,395**
4												
5	Add: Lost Distribution Revenues	10,335	9,474	8,612	10,335	9,187	8,038	7,923	6,603	5,282	7,234	**83,023**
6												
7	Less: Lost Distribution Revenue Collections	-	-	-	-	-	-	-	-	-	-	**-**
8												
9	Add: Other	-	-	-	-	-	-	-	-	-	-	**-**
10												
11	Ending Balance Pre-Interest	$ 10,335	$ 19,824	$ 28,477	$ 38,883	$ 48,167	$ 56,335	$ 64,409	$ 71,191	$ 76,675	$ 84,123	**$ 498,418**
12												
13	Month's Average Balance	$ 5,167	$ 15,087	$ 24,171	$ 33,716	$ 43,574	$ 52,316	$ 60,447	$ 67,890	$ 74,034	$ 80,505	
14												
15	Interest Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	
16												
17	Interest Applied	$ 15	$ 41	$ 72	$ 97	$ 130	$ 150	$ 180	$ 202	$ 213	$ 239	**1,339**
18												
19	Ending Balance	**$ 10,350**	**$ 19,864**	**$ 28,549**	**$ 38,980**	**$ 48,297**	**$ 56,485**	**$ 64,588**	**$ 71,393**	**$ 76,888**	**$ 84,362**	
	COMMERCIAL & INDUSTRIAL											
3	Beginning Balance	$ -	$ 10,910	$ 20,938	$ 30,092	$ 41,087	$ 50,907	$ 59,538	$ 68,079	$ 75,252	$ 81,044	**$ 437,846**
4												
5	Add: Lost Distribution Revenues	10,893	9,986	9,078	10,893	9,683	8,473	8,352	6,960	5,568	7,625	**87,511**
6												
7	Less: Lost Distribution Revenue Collections	-	-	-	-	-	-	-	-	-	-	**-**
8												
9	Add: Other	-	-	-	-	-	-	-	-	-	-	**-**
10												
11	Ending Balance Pre-Interest	$ 10,893	$ 20,895	$ 30,016	$ 40,985	$ 50,770	$ 59,380	$ 67,890	$ 75,039	$ 80,819	$ 88,669	**$ 525,357**
12												
13	Month's Average Balance	$ 5,447	$ 15,902	$ 25,477	$ 35,538	$ 45,929	$ 55,143	$ 63,714	$ 71,559	$ 78,035	$ 84,857	
14												
15	Interest Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	
16												
17	Interest Applied	$ 16	$ 43	$ 76	$ 102	$ 137	$ 159	$ 189	$ 213	$ 224	$ 252	**1,411**
18												
19	Ending Balance	**$ 10,910**	**$ 20,938**	**$ 30,092**	**$ 41,087**	**$ 50,907**	**$ 59,538**	**$ 68,079**	**$ 75,252**	**$ 81,044**	**$ 88,921**	

2017 Therm Savings	Residential (29%)	C&I (71%)
1,234,839	358,103	876,736

Savings Achieved by Quarter	Residential	C&I
Q1 - 15%	53,715	131,510
Q2 - 20%	71,621	175,347
Q3 - 23%	82,364	201,649
Q4 - 42%	150,403	368,229

Average Distribution Rate ($ per therm)	Residential	C&I
	0.5772	0.2485

Months In Service	12	11	10	9	8	7	6	5	4	3
Residential (therms)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17
Incremental Annual Savings	17,905	17,905	17,905	23,874	23,874	23,874	27,455	27,455	27,455	50,134
Incremental Monthly Savings	17,905	16,413	14,921	17,905	15,916	13,926	13,727	11,439	9,152	12,534
C&I (therms)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17
Incremental Annual Savings	43,837	43,837	43,837	58,449	58,449	58,449	67,216	67,216	67,216	122,743
Incremental Monthly Savings	43,837	40,184	36,531	43,837	38,966	34,095	33,608	28,007	22,405	30,686

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
NHPUC Docket No. DE 14-216
Attachment OG
Page 21 of 26

Tariff Page Changes

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II RATE SCHEDULES
FIRM RATE SCHEDULES

	Winter Period				Summer Period			
	Delivery Charge	Cost of Gas Rate Page 77	LDAC Page 82	Total Rate	Delivery Charge	Cost of Gas Rate Page 77	LDAC Page 82	Total Rate
Residential Non Heating - R-1								
Customer Charge per Month per Meter	$ 15.27			$ 15.27	$ 15.27			$ 15.27
All Therms	$ 0.2018	$ 0.7068	$ 0.0553	$ 0.9639	$ 0.2018	$ 0.3338	$ 0.0553	$ 0.5909
	~~$ 0.2014~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.0544~~				
Residential Heating - R-3								
Customer Charge per Month per Meter	$ 22.10			$ 22.10	$ 22.10			$ 22.10
Size of the first block	100 therms				20 therms			
Therms in the first block per month at	$ 0.3495	$ 0.7068	$ 0.0553	$ 1.1116	$ 0.3495	$ 0.3338	$ 0.0553	$ 0.7386
	~~$ 0.3486~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.2016~~				
All therms over the first block per month at	$ 0.2892	$ 0.7068	$ 0.0553	$ 1.0513	$ 0.2892	$ 0.3338	$ 0.0553	$ 0.6783
	~~$ 0.2885~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.1415~~				
Residential Heating - R-4								
Customer Charge per Month per Meter	$ 8.84			$ 8.84	$ 8.84			$ 8.84
Size of the first block	100 therms				20 therms			
Therms in the first block per month at	$ 0.1398	$ 0.7068	$ 0.0553	$ 0.9019	$ 0.1398	$ 0.3338	$ 0.0553	$ 0.5289
	~~$ 0.1394~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 0.9924~~				
All therms over the first block per month at	$ 0.1156	$ 0.7068	$ 0.0553	$ 0.8777	$ 0.1156	$ 0.3338	$ 0.0553	$ 0.5047
	~~$ 0.1153~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 0.9683~~				
Commercial/Industrial - G-41								
Customer Charge per Month per Meter	$ 48.36			$ 48.36	$ 48.36			$ 48.36
Size of the first block	100 therms				20 therms			
Therms in the first block per month at	$ 0.3965	$ 0.7026	$ 0.0370	$ 1.1361	$ 0.3965	$ 0.3177	$ 0.0370	$ 0.7512
	~~$ 0.3956~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.2095~~				
All therms over the first block per month at	$ 0.2663	$ 0.7026	$ 0.0370	$ 1.0059	$ 0.2663	$ 0.3177	$ 0.0370	$ 0.6210
	~~$ 0.2657~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.0796~~				
Commercial/Industrial - G-42								
Customer Charge per Month per Meter	$ 145.08			$ 145.08	$ 145.08			$ 145.08
Size of the first block	1000 therms				400 therms			
Therms in the first block per month at	$ 0.3606	$ 0.7026	$ 0.0370	$ 1.1002	$ 0.3606	$ 0.3177	$ 0.0370	$ 0.7153
	~~$ 0.3598~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.1737~~				
All therms over the first block per month at	$ 0.2402	$ 0.7026	$ 0.0370	$ 0.9798	$ 0.2402	$ 0.3177	$ 0.0370	$ 0.5949
	~~$ 0.2396~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.0535~~				
Commercial/Industrial - G-43								
Customer Charge per Month per Meter	$ 622.61			$ 622.61	$ 622.61			$ 622.61
All therms over the first block per month at	$ 0.2216	$ 0.7026	$ 0.0370	$ 0.9612	$ 0.1013	$ 0.3177	$ 0.0370	$ 0.4560
	~~$ 0.2210~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.0349~~				
Commercial/Industrial - G-51								
Customer Charge per Month per Meter	$ 48.36			$ 48.36	$ 48.36			$ 48.36
Size of the first block	100 therms				100 therms			
Therms in the first block per month at	$ 0.2390	$ 0.7210	$ 0.0370	$ 0.9970	$ 0.2390	$ 0.3545	$ 0.0370	$ 0.6305
	~~$ 0.2384~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.0716~~				
All therms over the first block per month at	$ 0.1553	$ 0.7210	$ 0.0370	$ 0.9133	$ 0.1553	$ 0.3545	$ 0.0370	$ 0.5468
	~~$ 0.1549~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 0.9881~~				
Commercial/Industrial - G-52								
Customer Charge per Month per Meter	$ 145.08			$ 145.08	$ 145.08			$ 145.08
Size of the first block	1000 therms				1000 therms			
Therms in the first block per month at	$ 0.2052	$ 0.7210	$ 0.0370	$ 0.9632	$ 0.1487	$ 0.3545	$ 0.0370	$ 0.5402
	~~$ 0.2047~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.0379~~				
All therms over the first block per month at	$ 0.1367	$ 0.7210	$ 0.0370	$ 0.8947	$ 0.0845	$ 0.3545	$ 0.0370	$ 0.4760
	~~$ 0.1364~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 0.9696~~				
Commercial/Industrial - G-53								
Customer Charge per Month per Meter	$ 640.74			$ 640.74	$ 640.74			$ 640.74
All therms over the first block per month at	$ 0.1434	$ 0.7210	$ 0.0370	$ 0.9014	$ 0.0688	$ 0.3545	$ 0.0370	$ 0.4603
	~~$ 0.1430~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 0.9762~~				
Commercial/Industrial - G-54								
Customer Charge per Month per Meter	$ 640.74			$ 640.74	$ 640.74			$ 640.74
All therms over the first block per month at	$ 0.0547	$ 0.7210	$ 0.0370	$ 0.8127	$ 0.0297	$ 0.3545	$ 0.0370	$ 0.4212
	~~$ 0.0546~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 0.8878~~				

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II RATE SCHEDULES
FIRM RATE SCHEDULES

	Winter Period				Summer Period			
	Delivery Charge	Cost of Gas Rate Page 77	LDAC Page 82	Total Rate	Delivery Charge	Cost of Gas Rate Page 77	LDAC Page 82	Total Rate
Residential Non Heating - R-5								
Customer Charge per Month per Meter	$19.85			$ 19.85	$ 19.85			$ 19.85
All Therms	$ 0.2623	$ 0.7068	$ 0.0553	$ 1.0244	$ 0.2623	$ 0.3338	$ 0.0553	$ 0.6514
	~~$ 0.2623~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.1153~~				
Residential Heating - R-6								
Customer Charge per Month per Meter	$28.73			$ 28.73	$ 28.73			$ 28.73
Size of the first block	100 therms				20 therms			
Therms in the first block per month at	$ 0.4544	$ 0.7068	$ 0.0553	$ 1.2165	$ 0.4544	$ 0.3338	$ 0.0553	$ 0.8435
	~~$ 0.4544~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.3074~~				
All therms over the first block per month at	$ 0.3760	$ 0.7068	$ 0.0553	$ 1.1381	$ 0.3760	$ 0.3338	$ 0.0553	$ 0.7651
	~~$ 0.3760~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.2290~~				
Residential Heating - R-7								
Customer Charge per Month per Meter	$11.49			$ 11.49	$ 11.49			$ 11.49
Size of the first block	100 therms				20 therms			
Therms in the first block per month at	$ 0.1817	$ 0.7068	$ 0.0553	$ 0.9438	$ 0.1817	$ 0.3338	$ 0.0553	$ 0.5708
	~~$ 0.1817~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.0347~~				
All therms over the first block per month at	$ 0.1503	$ 0.7068	$ 0.0553	$ 0.9124	$ 0.1503	$ 0.3338	$ 0.0553	$ 0.5394
	~~$ 0.1503~~	~~$ 0.7516~~	~~$ 0.1014~~	~~$ 1.0033~~				
Commercial/Industrial - G-44								
Customer Charge per Month per Meter	$62.87			$ 62.87	$ 62.87			$ 62.87
Size of the first block	100 therms				20 therms			
Therms in the first block per month at	$ 0.5155	$ 0.7026	$ 0.0370	$ 1.2551	$ 0.5155	$ 0.3177	$ 0.0370	$ 0.8702
	~~$ 0.5155~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.3294~~				
All therms over the first block per month at	$ 0.3462	$ 0.7026	$ 0.0370	$ 1.0858	$ 0.3462	$ 0.3177	$ 0.0370	$ 0.7009
	~~$ 0.3462~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.1601~~				
Commercial/Industrial - G-45								
Customer Charge per Month per Meter	$188.60			$ 188.60	$ 188.60			$ 188.60
Size of the first block	1000 therms				400 therms			
Therms in the first block per month at	$ 0.4688	$ 0.7026	$ 0.0370	$ 1.2084	$ 0.4688	$ 0.3177	$ 0.0370	$ 0.8235
	~~$ 0.4688~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.2827~~				
All therms over the first block per month at	$ 0.3123	$ 0.7026	$ 0.0370	$ 1.0519	$ 0.3123	$ 0.3177	$ 0.0370	$ 0.6670
	~~$ 0.3123~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.1262~~				
Commercial/Industrial - G-46								
Customer Charge per Month per Meter	$809.39			$ 809.39	$ 809.39			$ 809.39
All therms over the first block per month at	$ 0.2881	$ 0.7026	$ 0.0370	$ 1.0277	$ 0.1317	$ 0.3177	$ 0.0370	$ 0.4864
	~~$ 0.2881~~	~~$ 0.7454~~	~~$ 0.0685~~	~~$ 1.1020~~				
Commercial/Industrial - G-55								
Customer Charge per Month per Meter	$62.87			$ 62.87	$ 62.87			$ 62.87
Size of the first block	100 therms				100 therms			
Therms in the first block per month at	$ 0.3107	$ 0.7210	$ 0.0370	$ 1.0687	$ 0.3107	$ 0.3545	$ 0.0370	$ 0.7022
	~~$ 0.3107~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.1439~~				
All therms over the first block per month at	$ 0.2019	$ 0.7210	$ 0.0370	$ 0.9599	$ 0.2019	$ 0.3545	$ 0.0370	$ 0.5934
	~~$ 0.2019~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.0351~~				
Commercial/Industrial - G-56								
Customer Charge per Month per Meter	$188.60			$ 188.60	$ 188.60			$ 188.60
Size of the first block	1000 therms				1000 therms			
Therms in the first block per month at	$ 0.2667	$ 0.7210	$ 0.0370	$ 1.0247	$ 0.1933	$ 0.3545	$ 0.0370	$ 0.5848
	~~$ 0.2667~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.0999~~				
All therms over the first block per month at	$ 0.1777	$ 0.7210	$ 0.0370	$ 0.9357	$ 0.1099	$ 0.3545	$ 0.0370	$ 0.5014
	~~$ 0.1777~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.0109~~				
Commercial/Industrial - G-57								
Customer Charge per Month per Meter	$832.96			$ 832.96	$ 832.96			$ 832.96
All therms over the first block per month at	$ 0.1864	$ 0.7210	$ 0.0370	$ 0.9444	$ 0.0894	$ 0.3545	$ 0.0370	$ 0.4809
	~~$ 0.1864~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 1.0196~~				
Commercial/Industrial - G-58								
Customer Charge per Month per Meter	$832.96			$ 832.96	$ 832.96			$ 832.96
All therms over the first block per month at	$ 0.0711	$ 0.7210	$ 0.0370	$ 0.8291	$ 0.0386	$ 0.3545	$ 0.0370	$ 0.4301
	~~$ 0.0711~~	~~$ 0.7647~~	~~$ 0.0685~~	~~$ 0.9043~~				

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NHPUC NO. 8 - GAS **Proposed ~~Second Revised~~ Third Revised Page 82**
LIBERTY UTILITIES **Superseding Second Revised Page 82**

Local Distribution Adjustment Charge Calculation

				Sales Customers	Transportation Customers	
Residential Non Heating Rates - R-1						
Energy Efficiency Charge	~~$0.0402~~		$0.0402			
Demand Side Management Charge	~~0.0000~~		0.0000			
Conservation Charge (CCx)		~~$0.0402~~		$0.0402		
Relief Holder and pond at Gas Street, Concord, NH	~~0.0000~~		0.0000			
Manufactured Gas Plants	~~0.0155~~		0.0155			
Environmental Surcharge (ES)		~~0.0155~~		0.0155		
Interruptible Transportation Margin Credit (ITMC)		~~0.0000~~		0.0000		
Energy Efficiency Resource Standard Lost Revenue Mechanism		~~0.0000~~		0.0016		
Rate Case Expense Factor (RCEF)		~~(0.0071)~~		0.0000		
Residential Low Income Assistance Program (RLIAP)		~~0.0067~~		0.0067		
LDAC		**~~$0.0553~~**		**$0.0640**		**per therm**
Residential Heating Rates - R-3, R-4, R-6, R-7						
Energy Efficiency Charge	~~$0.0402~~		$0.0402			
Demand Side Management Charge	~~0.0000~~		0.0000			
Conservation Charge (CCx)		~~$0.0402~~		$0.0402		
Relief Holder and pond at Gas Street, Concord, NH	~~0.0000~~		0.0000			
Manufactured Gas Plants	~~0.0155~~		0.0155			
Environmental Surcharge (ES)		~~0.0155~~		0.0155		
Energy Efficiency Resource Standard Lost Revenue Mechanism		~~0.0000~~		0.0016		
Rate Case Expense Factor (RCEF)		~~(0.0071)~~		0.0000		
Residential Low Income Assistance Program (RLIAP)		~~0.0067~~		0.0067		
LDAC		**~~$0.0553~~**		**$0.0640**		**per therm**
Commercial/Industrial Low Annual Use Rates - G-41, G-51						
Energy Efficiency Charge	~~$0.0219~~		$0.0219			
Demand Side Management Charge	~~0.0000~~		0.0000			
Conservation Charge (CCx)		~~$0.0219~~		$0.0219	~~$0.0219~~	$0.0219
Relief Holder and pond at Gas Street, Concord, NH	~~0.0000~~		0.0000			
Manufactured Gas Plants	~~0.0155~~		0.0155			
Environmental Surcharge (ES)		~~0.0155~~		0.0155	~~0.0155~~	0.0155
Energy Efficiency Resource Standard Lost Revenue Mechanism		~~0.0000~~		0.0009	~~0.0000~~	0.0009
Gas Restructuring Expense Factor (GREF)		~~0.0000~~		0.0000	~~0.0000~~	0.0000
Rate Case Expense Factor (RCEF)		~~(0.0071)~~		0.0000	~~(0.0071)~~	0.0000
Residential Low Income Assistance Program (RLIAP)		~~0.0067~~		0.0067	~~0.0067~~	0.0067
LDAC		**~~$0.0370~~**		**$0.0450**	**~~$0.0370~~**	**$0.0450** **per therm**
Commercial/Industrial Medium Annual Use Rates - G-42, G-52						
Energy Efficiency Charge	~~$0.0219~~		$0.0219			
Demand Side Management Charge	~~0.0000~~		0.0000			
Conservation Charge (CCx)		~~$0.0219~~		$0.0219	~~$0.0219~~	$0.0219
Relief Holder and pond at Gas Street, Concord, NH	~~0.0000~~		0.0000			
Manufactured Gas Plants	~~0.0155~~		0.0155			
Environmental Surcharge (ES)		~~0.0155~~		0.0155	~~0.0155~~	0.0155
Energy Efficiency Resource Standard Lost Revenue Mechanism		~~0.0000~~		0.0009	~~0.0000~~	0.0009
Gas Restructuring Expense Factor (GREF)		~~0.0000~~		0.0000	~~0.0000~~	0.0000
Rate Case Expense Factor (RCEF)		~~(0.0071)~~		0.0000	~~(0.0071)~~	0.0000
Residential Low Income Assistance Program (RLIAP)		~~0.0067~~		0.0067	~~0.0067~~	0.0067
LDAC		**~~$0.0370~~**		**$0.0450**	**~~$0.0370~~**	**$0.0450** **per therm**
Commercial/Industrial Large Annual Use Rates - G-43, G-53, G-54						
Energy Efficiency Charge	~~$0.0219~~		$0.0219			
Demand Side Management Charge	~~0.0000~~		0.0000			
Conservation Charge (CCx)		~~$0.0219~~		$0.0219	~~$0.0219~~	$0.0219
Relief Holder and pond at Gas Street, Concord, NH	~~0.0000~~		0.0000			
Manufactured Gas Plants	~~0.0155~~		0.0155			
Environmental Surcharge (ES)		~~0.0155~~		0.0155	~~0.0155~~	0.0155
Energy Efficiency Resource Standard Lost Revenue Mechanism		~~0.0000~~		0.0009	~~0.0000~~	0.0009
Gas Restructuring Expense Factor (GREF)		~~0.0000~~		0.0000	~~0.0000~~	0.0000
Rate Case Expense Factor (RCEF)		~~(0.0071)~~		0.0000	~~(0.0071)~~	0.0000
Residential Low Income Assistance Program (RLIAP)		~~0.0067~~		0.0067	~~0.0067~~	0.0067
LDAC		**~~$0.0370~~**		**$0.0450**	**~~$0.0370~~**	**$0.0450** **per therm**

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Calculation of Lost Revenues - Liberty Utilities Gas (Energy North)
Year 2017
Savings and lost revenues are estimated based on a calendar year.

	Annualized	"Installed" Savings												
	Therm Savings	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Residential														
Jan	17,905	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	17,905
Feb	17,905		1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	16,413
Mar	17,905			1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	14,921
Apr	23,874				1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	17,906
May	23,874					1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	15,916
Jun	23,874						1,990	1,990	1,990	1,990	1,990	1,990	1,990	13,927
Jul	27,455							2,288	2,288	2,288	2,288	2,288	2,288	13,728
Aug	27,455								2,288	2,288	2,288	2,288	2,288	11,440
Sep	27,455									2,288	2,288	2,288	2,288	9,152
Oct	50,134										4,178	4,178	4,178	12,534
Nov	50,134											4,178	4,178	8,356
Dec	50,134												4,178	4,178
Total	358,104	1,492	2,984	4,476	6,466	8,455	10,445	12,733	15,021	17,309	21,486	25,664	29,842	156,373
		1,492	4,476	8,953	15,418	23,874	34,318	47,051	62,072	79,380	100,866	126,531	156,373	
Proposed Distribution Rate														**$ 0.5772**
Lost Revenue														**$ 90,258**
C&I														
Jan	43,837	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	43,837
Feb	43,837		3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	40,184
Mar	43,837			3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	36,531
Apr	58,449				4,871	4,871	4,871	4,871	4,871	4,871	4,871	4,871	4,871	43,837
May	58,449					4,871	4,871	4,871	4,871	4,871	4,871	4,871	4,871	38,966
Jun	58,449						4,871	4,871	4,871	4,871	4,871	4,871	4,871	34,095
Jul	67,216							5,601	5,601	5,601	5,601	5,601	5,601	33,608
Aug	67,216								5,601	5,601	5,601	5,601	5,601	28,007
Sep	67,216									5,601	5,601	5,601	5,601	22,405
Oct	122,743										10,229	10,229	10,229	30,686
Nov(Staff1-10)	122,743											10,229	10,229	20,457
Dec(Staff 1-10)	122,743												10,229	10,229
Total	876,735	3,653	7,306	10,959	15,830	20,701	25,572	31,173	36,774	42,376	52,604	62,833	73,061	382,841
		3,653	10,959	21,919	37,749	58,449	84,021	115,194	151,968	194,343	246,947	309,780	382,841	
Proposed Distribution Rate														**$ 0.2485**
Lost Revenue														**$ 95,136**
Total Lost Revenue														**$ 185,394**

New Hampshire Electric Cooperative, Inc.
2017 System Benefits Charge ("SBC") Calculation
($ in 000's)

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Other Revenues	Carryforward with Interest	Current Year Interest	SBC Requirement	Forecasted Distribution (MWH)	SBC Rate EE Portion (cents/kWh)	SBC Rate EAP Portion (cents/kWh)	SBC Rate LBR Portion (cents/kWh)	2017 Total SBC Rate (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M
2017	$ 1,782	$ 202	$ 65	$ -	$ 6	$ (0)	$ 1,510	762,388	0.198	0.150	-	0.348

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. C: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. D: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. E: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. F: CORE Electric Program Budget 2017
Col. G: Page 2, Line 13, Col. O
Col. H: Col. B - Col. C - Col. D - Col. E + Col. F + Col. G
Col. I: Company Forecast
Col. J: (Col. H / Col. I) x 100
Col. K: EAP Portion of SBC Rate
Col. L: Page 3, Col. G
Col. M: Col. J + Col. K + Col. L

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconcilliation
January 1, 2017 to December 31, 2017
($ in 000's)

Line	Description	Carryover 12/31/16	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Total
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	SBC Revenues		161	154	128	126	96	108	121	120	141	108	114	134	1,510
2	RGGI Revenues		-	-	50	-	-	50	-	-	50	-	-	50	202
3	FCM Revenues		5	5	5	5	5	5	5	5	5	5	5	5	65
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	**Total Revenues**		**167**	**159**	**184**	**131**	**101**	**164**	**126**	**125**	**197**	**113**	**119**	**190**	**1,777**
6	Program Expenses		149	149	149	149	149	149	149	149	149	149	149	149	1,782
7	**Total Program Expenses**		**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**1,782**
8	Current Month (Over)/Under Recovery		(18)	(11)	(35)	17	47	(15)	22	24	(49)	35	29	(41)	
9	Cumulative (Over)/Under Recovery	6	(13)	(23)	(59)	(42)	6	(10)	12	36	(13)	23	52	11	
10	Deferred Taxes @ 40.330%														
11	Net EE SBC Deferral (Over)/Under Recovery	6	(13)	(23)	(59)	(42)	6	(10)	12	36	(13)	23	52	11	
12	Interest @ Prime Rate		0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	
13	**Interest on Deferral Balance**		**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**0**	**0**	**0**	**0**	**0**	**0**	**(0)**
14	**Monthly Sales (MWh)**		81,446	77,747	64,594	63,512	48,458	54,577	60,942	60,368	71,362	54,341	57,401	67,642	762,388
15	**EE SBC Rate**		0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	

Line 1: (Line 14 x Line 15) / 100
Line 2: Page 1, Col. C
Line 3: Page 1, Col. D
Line 4: Page 1, Col. E
Line 5: Sum of Lines 1 through Lines 4
Line 6: Page 1, Col. B
Line 7: Sum of Line 6
Line 8: Line 5 - Line 7
Line 9: Prior month Line 9 + Current month Line 8
Line 10: Line 9 x 40.330%
Line 11: Line 9 - Line 10
Line 12: Prime Rate / 12
Line 13: (Prior Month Line 11 + Current Month Line 11) / 2 x Line 12
Line 14: Company Forecast
Line 15: Page 1, Col. J

Bill Impacts of Changes in System Benefits Charge - New Hampshire Electric Cooperative, Inc.

	Current Rates	2017
System Benefits Charge ($/kWh)	$ 0.00330	$ 0.00348
Bill per month, including NHEC default energy service		
Residential Rate Basic (625 kWh/month)	$ 101.49	$ 101.60
Commercial B3, three-phase service (<50 kW, 10,000 kWh/month)	$ 1,809.50	$ 1,811.30
Change from previous rate level - $ per month		
Residential Rate Basic (625 kWh/month)		$ 0.11
Commercial B3, three-phase service (<50 kW, 10,000 kWh/month)		$ 1.80
Change from previous rate level - %		
Residential Rate Basic (625 kWh/month)		0.1%
Commercial B3, three-phase service (<50 kW, 10,000 kWh/month)		0.1%

PSNH d/b/a Eversource Energy
2017 System Benefits Charge ("SBC") Calculation
($ in 000's)

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Other Revenues	Carryforward with Interest	Current Year Interest	SBC Requirement	Forecasted Distribution (MWH)	SBC Rate EE Portion (cents/kWh)	SBC Rate EAP Portion (cents/kWh)	SBC Rate LBR Portion (cents/kWh)	2017 Total SBC Rate (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M
2017	$ 21,410	$ 1,898	$ 3,617	$ -	$ -	$ 10	$ 15,905	8,027,604	0.198	0.150	0.008	0.356

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Reference Table III.3 - NHSaves Electric Program Funding 2017
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Col. F: CORE Electric Program Budget 2017
Col. G: Page 2, Line 13, Col. O
Col. H: Col. B - Col. C - Col. D - Col. E + Col. F + Col. G
Col. I: Company Forecast
Col. J: (Col. H / Col. I) x 100
Col. K: EAP Portion of SBC Rate
Col. L: Page 3, Col. G
Col. M: Col. J + Col. K + Col. L

PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconcilliation
January 1, 2017 to December 31, 2017
($ in 000's)

Line	Description	Carryover 12/31/16	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Total
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	SBC Revenues		1,437	1,276	1,304	1,212	1,215	1,311	1,486	1,476	1,259	1,240	1,249	1,436	15,905
2	RGGI Revenues		-	-	474	-	-	474	-	-	474	-	-	474	1,898
3	FCM Revenues		188	171	197	342	376	376	342	393	342	376	342	171	3,617
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	**Total Revenues**		**1,625**	**1,447**	**1,975**	**1,554**	**1,591**	**2,162**	**1,829**	**1,870**	**2,076**	**1,617**	**1,591**	**2,082**	**21,420**
6	Program Expenses		1,784	1,784	1,784	1,784	1,784	1,784	1,784	1,784	1,784	1,784	1,784	1,784	21,410
7	**Total Program Expenses**		**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**1,784**	**21,410**
8	Current Month (Over)/Under Recovery		159	337	(191)	230	193	(378)	(44)	(86)	(292)	168	193	(298)	
9	Cumulative (Over)/Under Recovery	-	159	495	304	534	727	349	305	219	(72)	95	288	(10)	
10	Deferred Taxes @ 40.330%	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	Net EE SBC Deferral (Over)/Under Recovery	-	159	495	304	534	727	349	305	219	(72)	95	288	(10)	
12	Interest @ Prime Rate		0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	
13	**Interest on Deferral Balance**		**0**	**1**	**1**	**1**	**2**	**2**	**1**	**1**	**0**	**0**	**1**	**0**	**10**
14	**Monthly Sales (MWh)**		725,421	644,258	658,342	611,908	613,222	661,793	750,284	745,138	635,592	626,060	630,587	725,000	8,027,604
15	**EE SBC Rate**		0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	

Line 1: (Line 14 x Line 15) / 100
Line 2: Page 1, Col. C
Line 3: Page 1, Col. D
Line 4: Page 1, Col. E
Line 5: Sum of Lines 1 through Lines 4
Line 6: Page 1, Col. B
Line 7: Sum of Line 6
Line 8: l Line 7 - Line 5
Line 9: Prior month Line 9 + Current month Line 8
Line 10: Line 9 x 40.330%
Line 11: Line 9 - Line 10
Line 12: Prime Rate / 12
Line 13: (Prior Month Line 11 + Current Month Line 11) / 2 x Line 12
Line 14: Company Forecast
Line 15: Page 1, Col. J

PSNH d/b/a Eversource Energy
2017 System Benefits Charge Calculation (LBR Component)
($ in 000's)

Year	Forecasted LBR Revenue	Prior Year Deferral with Interest	Current Year Interest	Total LBR Revenue	Forecasted Distribution (MWH)	SBC Rate LBR Portion (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G
2017	$ 607	$ -	$ (4)	$ 603	8,027,604	0.008

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Page 4, Line 12, Col. O / 1000
Col. C: Prior Year LBR Component (Over)/Under recovery, with interest
Col. D: Page 5, Col. O, Line 8
Col. E: Col. B + Col. C + Col. D
Col. F: Company Forecast
Col. G: (Col. E * 100) / Col. F

PSNH d/b/a Eversource Energy
Estimated Monthly and Cumulative Savings (kWh) and Lost Base Revenue
January 1, 2017 to December 31, 2017

Line	Description	12/31/2016	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Annual Savings
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	Residential Annualized Savings		774,992	774,992	774,992	1,005,841	1,005,841	1,005,841	898,661	898,661	898,661	1,442,804	1,442,804	1,442,804	12,366,893
2	C&I Annualized Savings		1,064,527	1,064,527	1,064,527	2,404,578	2,404,578	2,404,578	2,392,054	2,392,054	2,392,054	6,662,684	6,662,684	6,662,684	37,571,529
3	Total		1,839,519	1,839,519	1,839,519	3,410,418	3,410,418	3,410,418	3,290,715	3,290,715	3,290,715	8,105,489	8,105,489	8,105,489	49,938,422

			Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Cumulative LBR Savings
4	Monthly Residential Savings		64,583	64,583	64,583	83,820	83,820	83,820	74,888	74,888	74,888	120,234	120,234	120,234	
5	Cumulative Residential Savings	-	64,583	129,165	193,748	277,568	361,388	445,208	520,097	594,985	669,873	790,107	910,341	1,030,574	5,987,637
6	Average Residential Distribution Rate		0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	0.04087	
7	Lost Residential Revenue		$ 2,639	$ 5,279	$ 7,918	$ 11,344	$ 14,770	$ 18,196	$ 21,256	$ 24,317	$ 27,378	$ 32,292	$ 37,206	$ 42,120	$ 244,715
8	Monthly C&I Savings		88,711	88,711	88,711	200,381	200,381	200,381	199,338	199,338	199,338	555,224	555,224	555,224	
9	Cumulative C&I Savings	-	88,711	177,421	266,132	466,513	666,895	867,276	1,066,614	1,265,952	1,465,290	2,020,513	2,575,737	3,130,961	14,058,014
10	Average C&I Distribution Rate		0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	0.02578	
11	Lost C&I Revenue		$ 2,287	$ 4,574	$ 6,861	$ 12,027	$ 17,193	$ 22,358	$ 27,497	$ 32,636	$ 37,775	$ 52,089	$ 66,403	$ 80,716	$ 362,416
12	**Total Lost Revenue**		**$ 4,926**	**$ 9,853**	**$ 14,779**	**$ 23,371**	**$ 31,962**	**$ 40,554**	**$ 48,754**	**$ 56,953**	**$ 65,153**	**$ 84,381**	**$ 103,608**	**$ 122,836**	**607,130**

Line 1: Estimated Savings per 2017 Core Filing
Line 2: Estimated Savings per 2017 Core Filing
Line 3: Line 1 + Line 2
Line 4: Line 1 / 12
Line 5: Prior Month Line 5 + Current Month Line 4
Line 6: Page 6, Line 1, Col. D
Line 7: Line 5 x Line 6
Line 8: Line 2 / 12
Line 9: Prior Month Line 9 + Current Month Line 8
Line 10: Page 6, Line 5, Col. D
Line 11: Line 9 x Line 10
Line 12: Line 7 + Line 11

PSNH d/b/a Eversource Energy
Lost Base Revenue Reconcilliation
January 1, 2017 to December 31, 2017
($ in 000's)

Line	Description	Carryover 12/31/16	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Total
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	Revenue Recovery		54	48	49	46	46	50	56	56	48	47	47	54	603
2	Lost Revenues		5	10	15	23	32	41	49	57	65	84	104	123	607
3	Current Month (Over)/Under Recovery		(50)	(39)	(35)	(23)	(14)	(9)	(8)	1	17	37	56	68	
4	Cumulative (Over)/Under Recovery	-	(50)	(88)	(123)	(145)	(159)	(169)	(176)	(175)	(158)	(120)	(64)	4	
5	Deferred Taxes @ 40.330%	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	Net EE SBC Deferral (Over)/Under Recovery	-	(50)	(88)	(123)	(145)	(159)	(169)	(176)	(175)	(158)	(120)	(64)	4	
7	Interest @ Prime Rate		0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	
8	**Interest on Deferral Balance**		**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(0)**	**(1)**	**(1)**	**(0)**	**(0)**	**(0)**	**(0)**	**(4)**
9	**Monthly Sales (MWh)**		725,421	644,258	658,342	611,908	613,222	661,793	750,284	745,138	635,592	626,060	630,587	725,000	8,027,604
10	**SBC Rate (LBR Component)**		0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	

Line 1: (Line 9 x Line 10) / 100
Line 2: Page 4, Line 12 / 1000
Line 3: Line 2 - Line 1
Line 4: Prior month Line 4 + Current month Line 3
Line 5: Line 4 x 40.330%
Line 6: Line 4 - Line 5
Line 7: Prime Rate / 12
Line 8: (Prior Month Line 6 + Current Month Line 6) / 2 x Line 7
Line 9: Company Forecast
Line 10: Page 3, Col. G

Public Service Company of New Hampshire dba Eversource Energy
Calculation of Average Distribution Rates at the Rate Level Effective July 1, 2016
Based on Billing Determinants for the Twelve Months Ending December 2014

Distribution rates excluding customer, meter, and per luminaire charges

Line	Rate Class	Delivery kWh	Distribution Revenue Excluding Fixed Charges	$/kWh
	Col. A	Col. B	Col. C	Col. D
1	Residential Rate R	3,183,054,832	$ 130,106,577	$ 0.04087
2	General Service Rate G	1,714,139,426	$ 66,208,472	$ 0.03862
3	Primary General Service Rate GV	1,661,784,325	$ 33,636,195	$ 0.02024
4	Large General Service Rate LG	1,308,837,521	$ 20,928,858	$ 0.01599
5	Commercial and Industrial subtotal	4,684,761,272	$ 120,773,525	$ 0.02578
6	Outdoor Lighting Rate OL		$ -	
7	Outdoor Lighting Rate EOL		$ -	
8	Total Retail	7,867,816,104	$ 250,880,102	$ 0.03189

Bill Impacts of Changes in System Benefits Charge - PSNH d/b/a Eversource Energy

	Current Rates	2017
System Benefits Charge ($/kWh)	$ 0.00330	$ 0.00356
Bill per month, including PSNH default energy service		
Residential Rate R (625 kWh/month)	$ 125.55	$ 125.71
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)	$ 1,863.20	$ 1,865.76
Change from previous rate level - $ per month		
Residential Rate R (625 kWh/month)		$ 0.16
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		$ 2.56
Change from previous rate level - %		
Residential Rate R (625 kWh/month)		0.1%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		0.1%

services such as charges relating to the stability of the transmission system which the Company is authorized to recover by order of the regulatory agency having jurisdiction over such charges; and transmission-based assessments or fees billed by or through regulatory agencies, including those associated with the ISO-NE, regional transmission organization ("RTO") and the FERC. For purposes of this mechanism, "Other Transmission Providers" shall be defined as any transmission provider and any regional transmission group, an independent system operator, an RTO and their successors, or other such body with the oversight of regional transmission, in the event that any of these entities are authorized to bill the Company directly for their services.

The TCAM rates shall be established annually based on a forecast of includable costs, and shall also include a full reconciliation with interest for any overrecovery or underrecovery occurring in the prior year. The Company may file to change the TCAM rates at any time if a significant overrecovery or underrecovery occurs. Interest on overrecoveries or underrecoveries shall be calculated at the prime rate.

Any changes to rates determined under the TCAM shall only be made following a notice filed with the Commission setting forth the amount of the increase or decrease, the new rates for each rate class, and the effective date of such new rates.

29. Electricity Consumption Tax Charge

On and after the Customer Choice Date, all Customers shall be obligated to pay the Electricity Consumption Tax Charge in accordance with New Hampshire Statute RSA Chapter 83-E, which may be revised from time to time, in addition to all other applicable rates and charges under this Tariff. The Electricity Consumption Tax Charge shall appear separately on all Customer bills. Any discounts provided for under a Special Contract shall not apply to the Electricity Consumption Tax Charge.

30. System Benefits Charge

On and after the Customer Choice Date, and subject to Commission review, all Customers shall be obligated to pay the following System Benefits Charge in addition to all other applicable rates and charges under this Tariff. The System Benefits Charge shall appear separately on all Customer bills.

System Benefits Charge ..... 0.~~330~~ 356 cents per kilowatt-hour

services such as charges relating to the stability of the transmission system which the Company is authorized to recover by order of the regulatory agency having jurisdiction over such charges; and transmission-based assessments or fees billed by or through regulatory agencies, including those associated with the ISO-NE, regional transmission organization ("RTO") and the FERC. For purposes of this mechanism, "Other Transmission Providers" shall be defined as any transmission provider and any regional transmission group, an independent system operator, an RTO and their successors, or other such body with the oversight of regional transmission, in the event that any of these entities are authorized to bill the Company directly for their services.

The TCAM rates shall be established annually based on a forecast of includable costs, and shall also include a full reconciliation with interest for any overrecovery or underrecovery occurring in the prior year. The Company may file to change the TCAM rates at any time if a significant overrecovery or underrecovery occurs. Interest on overrecoveries or underrecoveries shall be calculated at the prime rate.

Any changes to rates determined under the TCAM shall only be made following a notice filed with the Commission setting forth the amount of the increase or decrease, the new rates for each rate class, and the effective date of such new rates.

29. Electricity Consumption Tax Charge

On and after the Customer Choice Date, all Customers shall be obligated to pay the Electricity Consumption Tax Charge in accordance with New Hampshire Statute RSA Chapter 83-E, which may be revised from time to time, in addition to all other applicable rates and charges under this Tariff. The Electricity Consumption Tax Charge shall appear separately on all Customer bills. Any discounts provided for under a Special Contract shall not apply to the Electricity Consumption Tax Charge.

30. System Benefits Charge

On and after the Customer Choice Date, and subject to Commission review, all Customers shall be obligated to pay the following System Benefits Charge in addition to all other applicable rates and charges under this Tariff. The System Benefits Charge shall appear separately on all Customer bills.

System Benefits Charge ..... 0.356 cents per kilowatt-hour

Unitil Energy System, Inc.
2017 System Benefits Charge ("SBC") Calculation

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Other Revenues	Prior Year Deferral with Interest	Current Year Interest	SBC Requirement	Forecasted Distribution (kWh)	SBC Rate EE Portion ($/kWh)	SBC Rate EAP Portion ($/kWh)	SBC Rate LBR Portion ($/kWh)	2017 Total SBC Rate ($/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M
2017	$ 3,614,422	$ 288,508	$ 400,000	$ -	$ (547,639)	$ (16,313)	$ 2,361,961	1,192,909,468	$0.00198	$0.00150	$0.00009	$0.00357

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. C: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. D: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. E: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. F: Reference Table III.3 - NHSaves Electric Program Funding 2017
Col. G: Page 2, Line 14
Col. H: Col. B - Col. C - Col. D - Col. E + Col. F + Col. G
Col. I: Company Forecast
Col. J: Col. H / Col. I
Col. K: EAP Portion of SBC Rate
Col. L: Page 3, Col. G
Col. M: Col. J + Col. K + Col. L

Unitil Energy System, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
January 1, 2017 to December 31, 2017

		Jan-17 Estimate	Feb-17 Estimate	Mar-17 Estimate	Apr-17 Estimate	May-17 Estimate	Jun-17 Estimate	Jul-17 Estimate	Aug-17 Estimate	Sep-17 Estimate	Oct-17 Estimate	Nov-17 Estimate	Dec-17 Estimate	Total
1	Beginning Balance -- (Over)/Under Recovery	$ (547,639)	$ (660,741)	$ (751,916)	$ (672,976)	$ (627,239)	$ (526,315)	$ (345,571)	$ (467,890)	$ (370,228)	$ (293,999)	$ (350,062)	$ (279,270)	
2	**Total Costs**	130,976	150,008	379,753	264,933	311,097	473,668	131,800	361,970	384,123	160,678	357,966	507,451	$ 3,614,422
	Revenues													
3	Class Sales (inc. LI) -- kWh	105,530,756	104,018,437	97,595,002	92,926,777	88,447,968	94,045,997	110,898,219	116,025,644	101,757,108	92,147,457	91,317,954	98,198,150	1,192,909,468
4	Charge -- $/kWh	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	$ 0.00198	
5	Energy Efficiency Revenues	$ 208,951	$ 205,957	$ 193,238	$ 183,995	$ 175,127	$ 186,211	$ 219,578	$ 229,731	$ 201,479	$ 182,452	$ 180,810	$ 194,432	$ 2,361,961
6	Forward Capacity Market Revenue	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 33,333	$ 400,000
7	RGGI Funding	$ -	$ -	$ 72,127	$ -	$ -	$ 72,127	$ -	$ -	$ 72,127	$ -	$ 72,127	$ -	$ 288,508
8	Other Revenues	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
9	**Total Revenues**	$ 242,284	$ 239,290	$ 298,698	$ 217,328	$ 208,460	$ 291,671	$ 252,912	$ 263,064	$ 306,939	$ 215,785	$ 286,270	$ 227,766	$ 3,050,469
10	(Over)/Under Recovery (excluding interest)	$ (658,947)	$ (750,022)	$ (670,862)	$ (625,371)	$ (524,603)	$ (344,318)	$ (466,683)	$ (368,985)	$ (293,045)	$ (349,106)	$ (278,366)	$ 415	
	Interest Calculation													
11	Average Monthly Balance	$ (603,293)	$ (705,381)	$ (711,389)	$ (649,174)	$ (575,921)	$ (435,317)	$ (406,127)	$ (418,437)	$ (331,637)	$ (321,553)	$ (314,214)	$ (139,427)	
12	Interest Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	
13	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
14	Computed Interest	$ (1,793)	$ (1,894)	$ (2,115)	$ (1,867)	$ (1,712)	$ (1,252)	$ (1,207)	$ (1,244)	$ (954)	$ (956)	$ (904)	$ (414)	$ (16,313)
15	**Ending Balance**	$ (660,741)	$ (751,916)	$ (672,976)	$ (627,239)	$ (526,315)	$ (345,571)	$ (467,890)	$ (370,228)	$ (293,999)	$ (350,062)	$ (279,270)	$ 1	

Line 1: Prior period ending balance
Line 2: Page 1, Col. B
Line 3: Company Forecast
Line 4: Page 1, Col. J
Line 5: Line 3 * Line 4
Line 6: Page 1, Col. D
Line 7: Page 1, Col. C
Line 8: Page 1, Col. E
Line 9: Sum of Lines 5 through 8
Line 10: Line 1 + Line 2 - Line 9
Line 11: (Line 1 + Line 10)/2
Line 12: Prime Rate
Line 14: Line 11 * ((Line 12/# days per year) * Line 13))
Line 15: Line 10 + Line 14

Unitil Energy System, Inc.
2017 System Benefits Charge Calculation (LBR Component)

Year	Forecasted LBR Revenue	Prior Year Deferral with Interest	Current Year Interest	Total LBR Revenue	Forecasted Distribution (kWh)	SBC Rate LBR Portion ($/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G
2017	$ 102,395	$ -	$ (759)	$ 101,635	1,192,909,468	$ 0.00009

Col. A: Effective year (January 1, 2017 - December 31, 2017)
Col. B: Page 4, Line 12, Col. O
Col. C: Prior Year LBR Component Over/(Under) recovery, with interest
Col. D: Page 5, Col. O, Line 10
Col. E: Col. B + Col. C + Col. D
Col. F: Company Forecast
Col. G: Col. E/Col. F

Unitil Energy System, Inc.
Estimated Monthly and Cumulative Savings (kWh) and Lost Base Revenue
January 1, 2017 to December 31, 2017

Line	Description	12/31/2016	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Annual Savings
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	Residential Annualized Savings		76,711	92,053	107,395	107,395	76,711	260,816	61,369	153,421	76,711	76,711	76,711	368,211	1,534,213
2	C&I Annualized Savings		118,471	131,700	663,838	394,399	587,061	545,325	156,897	537,991	747,774	195,742	708,994	379,227	5,167,419
3	Total		195,182	223,753	771,233	501,793	663,772	806,141	218,265	691,412	824,485	272,452	785,705	747,438	6,701,632

			Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Cumulative LBR Savings
4	Monthly Residential Savings		6,393	7,671	8,950	8,950	6,393	21,735	5,114	12,785	6,393	6,393	6,393	30,684	
5	Cumulative Residential Savings	-	6,393	14,064	23,013	31,963	38,355	60,090	65,204	77,989	84,382	90,774	97,167	127,851	717,245
6	Average Residential Distribution Rate		0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	0.03726	
7	Lost Residential Revenue		$ 238	$ 524	$ 857	$ 1,191	$ 1,429	$ 2,239	$ 2,429	$ 2,906	$ 3,144	$ 3,382	$ 3,620	$ 4,764	$ 26,724
8	Monthly C&I Savings		9,873	10,975	55,320	32,867	48,922	45,444	13,075	44,833	62,314	16,312	59,083	31,602	
9	Cumulative C&I Savings	-	9,873	20,848	76,167	109,034	157,956	203,399	216,474	261,307	323,621	339,933	399,016	430,618	2,548,247
10	Average C&I Distribution Rate		0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	
11	Lost C&I Revenue		$ 293	$ 619	$ 2,262	$ 3,238	$ 4,691	$ 6,040	$ 6,428	$ 7,760	$ 9,610	$ 10,094	$ 11,849	$ 12,787	$ 75,671
12	**Total Lost Revenue**		**$ 531**	**$ 1,143**	**$ 3,119**	**$ 4,429**	**$ 6,120**	**$ 8,279**	**$ 8,858**	**$ 10,665**	**$ 12,754**	**$ 13,477**	**$ 15,469**	**$ 17,551**	**102,395**

Line 1: Estimated Savings per 2017 Core Filing
Line 2: Estimated Savings per 2017 Core Filing
Line 3: Line 1 + Line 2
Line 4: Line 1 / 12
Line 5: Prior Month Line 5 + Current Month Line 4
Line 6: Page 6, Line 8, Col. 4
Line 7: Line 5 x Line 6
Line 8: Line 2 / 12
Line 9: Prior Month Line 9 + Current Month Line 8
Line 10: Page 6, Line 23, Col. 4
Line 11: Line 9 x Line 10
Line 12: Line 7 + Line 11

Unitil Energy System, Inc.
Lost Base Revenue Reconciliation
January 1, 2017 to December 31, 2017

Line	Description	Forecast Jan 2017	Forecast Feb 2017	Forecast Mar 2017	Forecast Apr 2017	Forecast May 2017	Forecast June 2017	Forecast Jul 2017	Forecast Aug 2017	Forecast Sep 2017	Forecast Oct 2017	Forecast Nov 2017	Forecast Dec 2017	2017 Total
	Col. A	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O
1	Beginning Balance	$ -	$ (8,980)	$ (17,233)	$ (22,957)	$ (26,964)	$ (28,887)	$ (29,156)	$ (30,368)	$ (30,234)	$ (26,720)	$ (21,609)	$ (14,410)	
2	Lost Revenues	$ 531	$ 1,143	$ 3,119	$ 4,429	$ 6,120	$ 8,279	$ 8,858	$ 10,665	$ 12,754	$ 13,477	$ 15,469	$ 17,551	102,395
	REVENUE													
3	Total Sales (kWh)	105,530,756	104,018,437	97,595,002	92,926,777	88,447,968	94,045,997	110,898,219	116,025,644	101,757,108	92,147,457	91,317,954	98,198,150	1,192,909,468
4	Lost Revenue Rate ($/kWh)	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	$ 0.00009	
5	Revenue ($)	$ 9,498	$ 9,362	$ 8,784	$ 8,363	$ 7,960	$ 8,464	$ 9,981	$ 10,442	$ 9,158	$ 8,293	$ 8,219	$ 8,838	$ 107,362
6	Cumulative Over/(Under) Recovery	(8,966)	(17,198)	(22,898)	(26,892)	(28,805)	(29,073)	(30,279)	(30,144)	(26,639)	(21,537)	(14,358)	(5,697)	
	INTEREST													
7	Average Monthly Balance	$ (4,483)	$ (13,089)	$ (20,066)	$ (24,925)	$ (27,884)	$ (28,980)	$ (29,718)	$ (30,256)	$ (28,436)	$ (24,129)	$ (17,983)	$ (10,053)	
8	Interest Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
9	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
10	Computed Interest	$ (13)	$ (35)	$ (60)	$ (72)	$ (83)	$ (83)	$ (88)	$ (90)	$ (82)	$ (72)	$ (52)	$ (30)	$ (759)
11	**Ending Balance**	$ (8,980)	$ (17,233)	$ (22,957)	$ (26,964)	$ (28,887)	$ (29,156)	$ (30,368)	$ (30,234)	$ (26,720)	$ (21,609)	$ (14,410)	$ (5,727)	

Line 1: Prior period ending balance
Line 2: Page 4, Line 12
Line 3: Company Forecast
Line 4: Page 3, Column G
Line 5: Line 3 x Line 4
Line 6: Line 1 + Line 2 - Line 5
Line 7: (Line 1 + Line 6)/2
Line 8: Prime Rate
Line 10: Line 7 * ((Line 8/# days per year) * Line 9))
Line 11: Line 6 + Line 10

Unitil Energy Systems, Inc.
Calculation of Average Distribution Rate for Lost Revenue
Based on Actual Billing Determinants for 2015 and May 1, 2014 Distribution Rates*

			(1) Billing Determinants	(2) May 1, 2014 Distribution Rate	(3) = (1) X (2) Distribution Revenue	(4) = (3) / (1) Average Distribution Rate $/kWh
1	**Residential**					
2	Residential, D					
3			kWh			
4		First 250 kWh	177,320,752	$0.03404	$6,035,998	
5		Excess 250 kWh	320,555,076	$0.03904	$12,514,470	
6		Subtotal	497,875,828		$18,550,469	
7						
8		**Total Residential**	497,875,828 kWh		$18,550,469	$0.03726
9						
10	**Commercial & Industrial (C&I)**					
11	kWh Meter, G-2	kWh	607,397	$0.03211	$19,504	$0.03211
12	Quick Recovery Water Heating and/or Space Heating, G-2	kWh	5,742,223	$0.03073	$176,459	$0.03073
13						
14	Regular General, G-2	kWh	347,811,789	$0.00000	$0	
15		kW	1,348,556	$10.31	$13,903,613	
16	Transformer Ownership Credit, G-2				($19,605)	$0.03992
17						
18	Large General Service, G-1	kWh	353,924,392	$0.00000	$0	
19		kVa	1,022,850	$6.95	$7,108,808	
20	Transformer Ownership Credit, G-1				($162,033)	$0.01963
21						
22		**Total C&I**	708,085,800 kWh		$21,026,744	$0.02970
23						

*Rates reflect last approved permanent rates effective May 1, 2014. UES has temporary rates in effect July 1, 2016. Due to its pending rate case, UES will update its average distribution rate effective January 1, 2017 based on the final rates approved in its rate case.

Bill Impacts of Changes in System Benefits Charge - Unitil Energy Systems, Inc.

	8/1/2016	2017
System Benefits Charge ($/kWh)	$ 0.00330	$ 0.00357
Bill per month, including UES Default Service Charge		
Residential Rate R (625 kWh/month)	$ 88.76	$ 88.92
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)	$ 1,304.21	$ 1,306.86
Change from previous rate level - $ per month		
Residential Rate R (625 kWh/month)		$ 0.17
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		$ 2.65
Change from previous rate level - %		
Residential Rate R (625 kWh/month)		0.2%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		0.2%

SUMMARY OF DELIVERY SERVICE RATES (Includes Electricity Consumption Tax)

The effective rates listed below include an Electricity Consumption Tax, assessed in accordance with NH Statute RSA Chapter 83-E.
This tax, collected on behalf of the State of NH by each electric utility, is based on kWh consumed.
Each bill rendered for electric delivery service shall be calculated through the application of the effective rates as listed below.

Class		Distribution Charge*	External Delivery Charge**	Stranded Cost Charge**	Storm Recovery Adjustment Factor***	~~System Benefits Charge****~~ ~~(1)~~	System Benefits Charge**** (1)	~~Total Delivery Charges~~	Total Delivery Charges	Electricity Consumption Tax	~~Effective Delivery Rates (Incl. Electricity Consumption Tax)~~	Effective Delivery Rates (Incl. Electricity Consumption Tax)
D	Customer Charge	$10.27						~~$10.27~~	$10.27		~~$10.27~~	$10.27
	First 250 kWh	$0.03603	$0.02144	($0.00018)	$0.00221	~~$0.00330~~	$0.00357	~~$0.06280~~	$0.06307	$0.00055	~~$0.06335~~	$0.06362
	Excess 250 kWh	$0.04103	$0.02144	($0.00018)	$0.00221	~~$0.00330~~	$0.00357	~~$0.06780~~	$0.06807	$0.00055	~~$0.06835~~	$0.06862
G2	Customer Charge	$18.41						~~$18.41~~	$18.41		~~$18.41~~	$18.41
	All kW	$10.31		($0.04)				~~$10.27~~	$10.27		~~$10.27~~	$10.27
	All kWh	$0.00199	$0.02144	($0.00004)	$0.00221	~~$0.00330~~	$0.00357	~~$0.02890~~	$0.02917	$0.00055	~~$0.02945~~	$0.02972
G2 - kWh meter	Customer Charge	$13.94						~~$13.94~~	$13.94		~~$13.94~~	$13.94
	All kWh	$0.03410	$0.02144	($0.00018)	$0.00221	~~$0.00330~~	$0.00357	~~$0.06087~~	$0.06114	$0.00055	~~$0.06142~~	$0.06169
G2 - Quick Recovery Water Heat and/or Space Heat	Customer Charge	$6.25						~~$6.25~~	$6.25		~~$6.25~~	$6.25
	All kWh	$0.03272	$0.02144	($0.00018)	$0.00221	~~$0.00330~~	$0.00357	~~$0.05949~~	$0.05976	$0.00055	~~$0.06004~~	$0.06031
G1	Customer Charge	$97.16	Secondary Voltage					~~$97.16~~	$97.16		~~$97.16~~	$97.16
	Customer Charge	$57.58	Primary Voltage					~~$57.58~~	$57.58		~~$57.58~~	$57.58
	All kVA	$6.95		($0.05)				~~$6.90~~	$6.90		~~$6.90~~	$6.90
	All kWh	$0.00199	$0.02144	($0.00005)	$0.00221	~~$0.00330~~	$0.00357	~~$0.02889~~	$0.02916	$0.00055	~~$0.02944~~	$0.02971
ALL	Transformer Ownership Credit (kW/kVa)										~~($0.39)~~	($0.39)
GENERAL	Voltage Discount at 4,160 Volts or Over (all kW/kVA and kWh)										~~2.00%~~	2.00%
	Voltage Discount at 34,500 Volts or Over (all kW/kVA and kWh)										~~3.50%~~	3.50%

~~(1) Includes low-income portion of $0.00150 per kWh and energy efficiency portion of $0.00180 per kWh.~~
(1) Incldes low-income portion of $0.00150 per kWh, energy efficiency portion of $0.00198 per kWh and lost base revenue porion of $0.00009 per kWh.

** Authorized by NHPUC Order No. 25,915 in Case No. DE 16-384, dated June 28, 2016.*
*** Authorized by NHPUC Order No. 25,928 in Case No. DE 16-668, dated July 27, 2016*
**** Authorized by NHPUC Order No. 25,498 in Case No. DE 13-084, dated April 25, 2013*
***** Authorized by NHPUC Order No. ~~24,903~~ ____ in Case No. DE ~~08-097~~ _____, dated ~~September 30, 2008~~ _____*

Issued: ~~July 12, 2016~~ September 23, 2016
Effective: ~~August 1, 2016~~January 1, 2017

Issued By: Mark H. Collin
Sr. Vice President

SUMMARY OF DELIVERY SERVICE RATES (Includes Electricity Consumption Tax) (continued)

Class	Distribution Charge*	External Delivery Charge**	Stranded Cost Charge**	Storm Recovery Adjustment Factor***	~~System Benefits Charge**** (1)~~	System Benefits Charge**** (1)	~~Total Delivery Charges~~	Total Delivery Charges	Electricity Consumption Tax	~~Effective Delivery Rates (Incl. Electricity Consumption Tax)~~	Effective Delivery Rates (Incl. Electricity Consumption Tax)
OL											
All kWh	$0.00199	$0.02144	($0.00018)	$0.00221	~~$0.00330~~	$0.00357	~~$0.02876~~	$0.02704	$0.00055	~~$0.02931~~	$0.02759

Luminaire Charges

Lamp Size Nominal Watts	Lamp Size Lumens (Approx.)	All-Night Service Monthly kWh	Midnight Service Monthly kWh	Description	*Price Per Luminaire* Per Mo.	Per Year
100	3,500	40	19	Mercury Vapor Street	$11.28	$135.36
175	7,000	67	31	Mercury Vapor Street	$13.65	$163.80
250	11,000	95	44	Mercury Vapor Street	$15.67	$188.04
400	20,000	154	71	Mercury Vapor Street	$18.94	$227.28
1,000	60,000	388	180	Mercury Vapor Street	$39.06	$468.72
250	11,000	95	44	Mercury Vapor Flood	$16.79	$201.48
400	20,000	154	71	Mercury Vapor Flood	$20.38	$244.56
1,000	60,000	388	180	Mercury Vapor Flood	$34.74	$416.88
100	3,500	40	19	Mercury Vapor Power Bracket	$11.40	$136.80
175	7,000	67	31	Mercury Vapor Power Bracket	$12.81	$153.72
50	4,000	21	10	Sodium Vapor Street	$11.51	$138.12
100	9,500	43	20	Sodium Vapor Street	$13.14	$157.68
150	16,000	60	28	Sodium Vapor Street	$13.20	$158.40
250	30,000	101	47	Sodium Vapor Street	$16.91	$202.92
400	50,000	161	75	Sodium Vapor Street	$21.70	$260.40
1,000	140,000	398	185	Sodium Vapor Street	$38.55	$462.60
150	16,000	60	28	Sodium Vapor Flood	$15.44	$185.28
250	30,000	101	47	Sodium Vapor Flood	$18.47	$221.64
400	50,000	161	75	Sodium Vapor Flood	$21.18	$254.16
1,000	140,000	398	185	Sodium Vapor Flood	$38.90	$466.80
50	4,000	21	10	Sodium Vapor Power Bracket	$10.54	$126.48
100	9,500	43	20	Sodium Vapor Power Bracket	$12.01	$144.12
175	8,800	66	31	Metal Halide Street	$17.65	$211.80
250	13,500	92	43	Metal Halide Street	$19.32	$231.84
400	23,500	148	69	Metal Halide Street	$20.09	$241.08
175	8,800	66	31	Metal Halide Flood	$20.62	$247.44
250	13,500	92	43	Metal Halide Flood	$22.38	$268.56
400	23,500	148	69	Metal Halide Flood	$22.42	$269.04
175	8,800	66	31	Metal Halide Power Bracket	$16.42	$197.04
250	13,500	92	43	Metal Halide Power Bracket	$17.55	$210.60
400	23,500	148	69	Metal Halide Power Bracket	$18.86	$226.32

~~(1) Includes low-income portion of $0.00150 per kWh and energy efficiency portion of $0.00180 per kWh.~~

(1) Includes low-income portion of $0.00150 per kWh, energy efficiency portion of $0.00198 per kWh and lost base revenue porion of $0.00009 per kWh.

** Authorized by NHPUC Order No. 25,915 in Case No. DE 16-384, dated June 28, 2016.*
*** Authorized by NHPUC Order No. 25,928 in Case No. DE 16-668, dated July 27, 2016*
**** Authorized by NHPUC Order No. 25,498 in Case No. DE 13-084, dated April 25, 2013*
***** Authorized by NHPUC Order No. ~~24,903~~ ____ in Case No. DE ~~08-097~~ _____, dated ~~September 30, 2008~~ _____*

Issued: ~~July 12, 2016~~ September 23, 2016
Effective: ~~August 1, 2016~~January 1, 2017

Issued By: Mark H. Collin
Sr. Vice President

SYSTEM BENEFITS CHARGE
SCHEDULE SBC

A System Benefits Charge ("SBC") shall be billed by the Company to all customers taking Delivery Service from the Company. The purpose of the SBC is to recover, on a fully reconciling basis, the cost of 1) the statewide low income electric assistance program ("LI-EAP") provided by the Company, ~~and~~ 2) the Company's energy efficiency programs, and 3) lost revenue related to the energy efficiency programs.

The portion of the SBC covering the LI-EAP shall include all approved costs associated with the development and administration of the LI-EAP. These costs include program discounts, approved implementation and administrative costs, costs associated with the LI-EAP billed to the Company by third parties, and amortization of arrearages retired under the LI-EAP.

The low income electric assistance plan portion of the System Benefits Charge shall be set at $0.00150 per kilowatt-hour effective July 1, 2011 and shall remain in effect unless a different charge is approved by the Commission. The Company shall collect the low-income portion of the SBC, apply the program discounts to participant bills and deduct any authorized costs. Any remaining balance shall be submitted to the State Treasurer's Office. In the event that a shortfall exists, the Company shall submit a request for reimbursement.

The portion of the SBC covering energy efficiency program costs shall include program costs and performance incentives. ~~This portion of the SBC shall also include the Company's final Conservation Charge balances including any associated prior period adjustments.~~ The energy efficiency portion of the SBC shall be established annually based on a forecast of includable costs, and shall also include a full reconciliation with interest for any over- or under-recovery from the prior year. The Company may file to change the rate at any time should significant over- or under-recoveries occur or be expected to occur.

The third portion of the SBC shall include lost revenue related to energy efficiency programs pursuant to Order No. 25,932 in Docket DE 15-137, Energy Efficiency Resource Standard. The lost revenue portion of the SBC shall be established annually based on a forecast of lost revenue, and shall also include a full reconciliation with interest for any over- or under-recovery from the prior year. The Company may file to change the rate at any time should significant over- or under-recoveries occur or be expected to occur.

Any adjustment to the SBC shall be in accordance with a notice filed with the Commission setting forth the amount of the proposed charge and the amount of the increase or decrease. The notice shall further specify the effective date of such charge, which shall not be earlier than thirty days after the filing of the notice, or such other date as the Commission may authorize. The annual adjustment to the SBC shall be derived in the same manner as that provided by Calculation of the System Benefits Charge.

SYSTEM BENEFITS CHARGE
SCHEDULE SBC

~~The energy efficiency portion of the System Benefits Charge shall be set at $0.00180 per kilowatt-hour effective July 1, 2011 and shall remain in effect unless a different charge is approved by the Commission. The Company shall reconcile its energy efficiency program costs on an annual basis. Any difference between actual costs and revenues collected, including interest, shall be added to or subtracted from the budget for the following calendar year. If actual amounts are not available for any period, they shall be estimated for purposes of the above calculation and adjusted the following year based on actual data.~~

Interest hereunder shall be calculated based on the prime rate, with said prime rate to be fixed on a quarterly basis and to be established as reported in the Wall Street Journal on the first business day of the month preceding the calendar quarter; if more than one rate is reported the average of the reported rates shall be used.

Authorized by NHPUC Order No. ~~25,200~~ in Case No. ~~DE 10-192~~ dated ~~March 4, 2011~~

CALCULATION OF THE SYSTEM BENEFITS CHARGE (SBC)

1.	***Low-Income Energy Assistance Plan Portion of the SBC ($/kWh)***	*$0.00150*
	Calculation of the Energy Efficiency Portion of the SBC	
2.	*(Over)/under Recovery - Beginning Balance January 1, 2017*	*($547,639)*
3.	*Estimated Total Costs (January - December 2017)*	*$3,614,422*
4.	*Estimated Funding (January - December 2017)*	*$688,508*
5.	*Estimated Interest (January - December 2017)*	*($16,313)*
6.	*Costs to be Recovered (L. 2 + L. 3 - L.4 + L. 5)*	*$2,361,962*
7.	*Estimated Deliveries in kWh (January - December 2017)*	*1,192,909,468*
8.	*Energy Efficiency Portion of the SBC ($/kWh) (L.6 / L.7)*	*$0.00198*
	Calculation of the Lost Revenue Rate Portion of the SBC	
9.	*(Over)/under Recovery - Beginning Balance January 1, 2017*	*$0*
10.	*Estimated Lost Revenue (January - December 2017)*	*$102,395*
11.	*Estimated Interest (January - December 2017)*	*($759)*
12.	*Costs to be Recovered (L.9 + L.10 + L.11)*	*$101,636*
13.	*Estimated Deliveries in kWh (January - December 2017)*	*1,192,909,468*
14.	*Lost Revenue Rate ($/kWh) (L.12 / L.13)*	*$0.00009*
15.	***Total System Benefits Charge***	*$0.00357*

Authorized by NHPUC Order No. _____ in Case No. DE _____, dated _____

Issued: September 23, 2016 *Issued By: Mark H. Collin*
Effective: January 1, 2017 *Sr. Vice President*

SUMMARY OF DELIVERY SERVICE RATES (Includes Electricity Consumption Tax)

The effective rates listed below include an Electricity Consumption Tax, assessed in accordance with NH Statute RSA Chapter 83-E.
This tax, collected on behalf of the State of NH by each electric utility, is based on kWh consumed.
Each bill rendered for electric delivery service shall be calculated through the application of the effective rates as listed below.

Class		Distribution Charge*	External Delivery Charge**	Stranded Cost Charge**	Storm Recovery Adjustment Factor***	System Benefits Charge**** (1)	Total Delivery Charges	Electricity Consumption Tax	Effective Delivery Rates (Incl. Electricity Consumption Tax)
D	Customer Charge	$10.27					$10.27		$10.27
	First 250 kWh	$0.03603	$0.02144	($0.00018)	$0.00221	$0.00357	$0.06307	$0.00055	$0.06362
	Excess 250 kWh	$0.04103	$0.02144	($0.00018)	$0.00221	$0.00357	$0.06807	$0.00055	$0.06862
G2	Customer Charge	$18.41					$18.41		$18.41
	All kW	$10.31		($0.04)			$10.27		$10.27
	All kWh	$0.00199	$0.02144	($0.00004)	$0.00221	$0.00357	$0.02917	$0.00055	$0.02972
G2 - kWh meter	Customer Charge	$13.94					$13.94		$13.94
	All kWh	$0.03410	$0.02144	($0.00018)	$0.00221	$0.00357	$0.06114	$0.00055	$0.06169
G2 - Quick Recovery Water Heat and/or Space Heat	Customer Charge	$6.25					$6.25		$6.25
	All kWh	$0.03272	$0.02144	($0.00018)	$0.00221	$0.00357	$0.05976	$0.00055	$0.06031
G1	Customer Charge	$97.16	Secondary Voltage				$97.16		$97.16
	Customer Charge	$57.58	Primary Voltage				$57.58		$57.58
	All kVA	$6.95		($0.05)			$6.90		$6.90
	All kWh	$0.00199	$0.02144	($0.00005)	$0.00221	$0.00357	$0.02916	$0.00055	$0.02971
ALL GENERAL	Transformer Ownership Credit (kW/kVa)								($0.39)
	Voltage Discount at 4,160 Volts or Over (all kW/kVA and kWh)								2.00%
	Voltage Discount at 34,500 Volts or Over (all kW/kVA and kWh)								3.50%

(1) Includes low-income portion of $0.00150 per kWh, energy efficiency portion of $0.00198 per kWh and lost base revenue porion of $0.00009 per kWh.

** Authorized by NHPUC Order No. 25,915 in Case No. DE 16-384, dated June 28, 2016.*
*** Authorized by NHPUC Order No. 25,928 in Case No. DE 16-668, dated July 27, 2016*
**** Authorized by NHPUC Order No. 25,498 in Case No. DE 13-084, dated April 25, 2013*
***** Authorized by NHPUC Order No. ____ in Case No. DE _____, dated _____*

Issued: September 23, 2016
Effective: January 1, 2017

Issued By: Mark H. Collin
Sr. Vice President

SUMMARY OF DELIVERY SERVICE RATES (Includes Electricity Consumption Tax) (continued)

Class	Distribution Charge*	External Delivery Charge**	Stranded Cost Charge**	Storm Recovery Adjustment Factor***	System Benefits Charge**** (1)	Total Delivery Charges	Electricity Consumption Tax	Effective Delivery Rates (Incl. Electricity Consumption Tax)
OL								
All kWh	$0.00199	$0.02144	($0.00018)	$0.00221	$0.00357	$0.02903	$0.00055	$0.02958

Luminaire Charges

Lamp Size Nominal Watts	Lamp Size Lumens (Approx.)	All-Night Service Monthly kWh	Midnight Service Monthly kWh	Description	*Price Per Luminaire* Per Mo.	Per Year
100	3,500	40	19	Mercury Vapor Street	$11.28	$135.36
175	7,000	67	31	Mercury Vapor Street	$13.65	$163.80
250	11,000	95	44	Mercury Vapor Street	$15.67	$188.04
400	20,000	154	71	Mercury Vapor Street	$18.94	$227.28
1,000	60,000	388	180	Mercury Vapor Street	$39.06	$468.72
250	11,000	95	44	Mercury Vapor Flood	$16.79	$201.48
400	20,000	154	71	Mercury Vapor Flood	$20.38	$244.56
1,000	60,000	388	180	Mercury Vapor Flood	$34.74	$416.88
100	3,500	40	19	Mercury Vapor Power Bracket	$11.40	$136.80
175	7,000	67	31	Mercury Vapor Power Bracket	$12.81	$153.72
50	4,000	21	10	Sodium Vapor Street	$11.51	$138.12
100	9,500	43	20	Sodium Vapor Street	$13.14	$157.68
150	16,000	60	28	Sodium Vapor Street	$13.20	$158.40
250	30,000	101	47	Sodium Vapor Street	$16.91	$202.92
400	50,000	161	75	Sodium Vapor Street	$21.70	$260.40
1,000	140,000	398	185	Sodium Vapor Street	$38.55	$462.60
150	16,000	60	28	Sodium Vapor Flood	$15.44	$185.28
250	30,000	101	47	Sodium Vapor Flood	$18.47	$221.64
400	50,000	161	75	Sodium Vapor Flood	$21.18	$254.16
1,000	140,000	398	185	Sodium Vapor Flood	$38.90	$466.80
50	4,000	21	10	Sodium Vapor Power Bracket	$10.54	$126.48
100	9,500	43	20	Sodium Vapor Power Bracket	$12.01	$144.12
175	8,800	66	31	Metal Halide Street	$17.65	$211.80
250	13,500	92	43	Metal Halide Street	$19.32	$231.84
400	23,500	148	69	Metal Halide Street	$20.09	$241.08
175	8,800	66	31	Metal Halide Flood	$20.62	$247.44
250	13,500	92	43	Metal Halide Flood	$22.38	$268.56
400	23,500	148	69	Metal Halide Flood	$22.42	$269.04
175	8,800	66	31	Metal Halide Power Bracket	$16.42	$197.04
250	13,500	92	43	Metal Halide Power Bracket	$17.55	$210.60
400	23,500	148	69	Metal Halide Power Bracket	$18.86	$226.32

(1) Includes low-income portion of $0.00150 per kWh, energy efficiency portion of $0.00198 per kWh and lost base revenue porion of $0.00009 per kWh.

** Authorized by NHPUC Order No. 25,915 in Case No. DE 16-384, dated June 28, 2016.*
*** Authorized by NHPUC Order No. 25,928 in Case No. DE 16-668, dated July 27, 2016*
**** Authorized by NHPUC Order No. 25,498 in Case No. DE 13-084, dated April 25, 2013*
***** Authorized by NHPUC Order No. ____ in Case No. DE _____, dated _____*

Issued: September 23, 2016
Effective: January 1, 2017

Issued By: Mark H. Collin
Sr. Vice President

SYSTEM BENEFITS CHARGE
SCHEDULE SBC

A System Benefits Charge ("SBC") shall be billed by the Company to all customers taking Delivery Service from the Company. The purpose of the SBC is to recover, on a fully reconciling basis, the cost of 1) the statewide low income electric assistance program ("LI-EAP") provided by the Company, 2) the Company's energy efficiency programs, and 3) lost revenue related to the energy efficiency programs.

The portion of the SBC covering the LI-EAP shall include all approved costs associated with the development and administration of the LI-EAP. These costs include program discounts, approved implementation and administrative costs, costs associated with the LI-EAP billed to the Company by third parties, and amortization of arrearages retired under the LI-EAP.

The low income electric assistance plan portion of the System Benefits Charge shall be set at $0.00150 per kilowatt-hour effective July 1, 2011 and shall remain in effect unless a different charge is approved by the Commission. The Company shall collect the low-income portion of the SBC, apply the program discounts to participant bills and deduct any authorized costs. Any remaining balance shall be submitted to the State Treasurer's Office. In the event that a shortfall exists, the Company shall submit a request for reimbursement.

The portion of the SBC covering energy efficiency program costs shall include program costs and performance incentives. The energy efficiency portion of the SBC shall be established annually based on a forecast of includable costs, and shall also include a full reconciliation with interest for any over- or under-recovery from the prior year. The Company may file to change the rate at any time should significant over- or under-recoveries occur or be expected to occur.

The third portion of the SBC shall include lost revenue related to energy efficiency programs pursuant to Order No. 25,932 in Docket DE 15-137, Energy Efficiency Resource Standard. The lost revenue portion of the SBC shall be established annually based on a forecast of lost revenue, and shall also include a full reconciliation with interest for any over- or under-recovery from the prior year. The Company may file to change the rate at any time should significant over- or under-recoveries occur or be expected to occur.

Any adjustment to the SBC shall be in accordance with a notice filed with the Commission setting forth the amount of the proposed charge and the amount of the increase or decrease. The notice shall further specify the effective date of such charge, which shall not be earlier than thirty days after the filing of the notice, or such other date as the Commission may authorize. The annual adjustment to the SBC shall be derived in the same manner as that provided by Calculation of the System Benefits Charge.

Interest hereunder shall be calculated based on the prime rate, with said prime rate to be fixed on a quarterly basis and to be established as reported in the Wall Street Journal on the first business day of the month preceding the calendar quarter; if more than one rate is reported the average of the reported rates shall be used.

CALCULATION OF THE SYSTEM BENEFITS CHARGE (SBC)

1.	**Low-Income Energy Assistance Plan Portion of the SBC ($/kWh)**	$0.00150
	Calculation of the Energy Efficiency Portion of the SBC	
2.	(Over)/under Recovery - Beginning Balance January 1, 2017	($547,639)
3.	Estimated Total Costs (January - December 2017)	$3,614,422
4.	Estimated Funding (January - December 2017)	$688,508
5.	Estimated Interest (January - December 2017)	($16,313)
6.	Costs to be Recovered (L. 2 + L. 3 - L.4 + L. 5)	$2,361,962
7.	Estimated Deliveries in kWh (January - December 2017)	1,192,909,468
8.	Energy Efficiency Portion of the SBC ($/kWh) (L.6 / L.7)	$0.00198
	Calculation of the Lost Revenue Rate Portion of the SBC	
9.	(Over)/under Recovery - Beginning Balance January 1, 2017	$0
10.	Estimated Lost Revenue (January - December 2017)	$102,395
11.	Estimated Interest (January - December 2017)	($759)
12.	Costs to be Recovered (L.9 + L.10 + L.11)	$101,636
13.	Estimated Deliveries in kWh (January - December 2017)	1,192,909,468
14.	Lost Revenue Rate ($/kWh) (L. 12 / L.13)	$0.00009
15.	**Total System Benefits Charge**	$0.00357

Authorized by NHPUC Order No. _____ in Case No. DE _____, dated _____

Issued: September 23, 2016
Effective: January 1, 2017

Issued By: Mark H. Collin
Sr. Vice President

NORTHERN UTILITIES, INC.
NEW HAMPSHIRE DIVISION
NOVEMBER 2016 / OCTOBER 2017 ANNUAL PERIOD COST OF GAS ADJUSTMENT FILING
PREFILED TESTIMONY OF
JOSEPH F. CONNEELY

I. INTRODUCTION

Q. Please state your name, business address, and position.

A. My name is Joseph F. Conneely. My business address is 6 Liberty Lane West, Hampton, New Hampshire.

Q. For whom do you work and in what capacity?

A. I am a Senior Regulatory Analyst for Unitil Service Corp. ("Unitil Service"), a subsidiary of Unitil Corporation that provides managerial, financial, regulatory and engineering services to Unitil Corporation's principal subsidiaries Fitchburg Gas and Electric Light Company, d/b/a Unitil ("FG&E"), Granite State Gas Transmission, Inc. ("Granite"), Northern Utilities, Inc. d/b/a Unitil ("Northern"), and Unitil Energy Systems, Inc. ("UES") (together "Unitil"). In this capacity I am responsible for managing and filing reporting requirements.

Q. Please summarize your professional and educational background.

A. I graduated from Saint Anselm College, Manchester, New Hampshire in 1999 with a Bachelor of Arts degree in Financial Economics. Before joining Unitil, I worked for the Royal Bank of Scotland- Sempra Energy Trading Corp. joint venture ("RBS") in

Greenwich, Connecticut as a senior electricity and natural gas trader. Prior to working for RBS, I was employed as a mid-term electricity and natural gas trader at Morgan Stanley in New York City. Before this position at Morgan Stanley, I ran an energy trading book at Shell Gas and Energy Trading North America in La Jolla, California. I joined Unitil in November 2008.

Q. Have you previously testified before the New Hampshire Public Utilities Commission?

A. Yes. I have testified in a similar role several times in the Company's Cost of Gas Adjustment proceedings.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to introduce and describe Northern's proposed changes to its Local Delivery Adjustment Clause ("LDAC") tariff (Page Nos. 44-59). Northern is proposing changes to its rates for effect November 1, 2016 for the following items: the Residential Low Income Assistance and Regulatory Assessment Costs ("RLIARA") Rate, the Energy Efficiency Charge (EEC)[1], and the Environmental Response Cost ("ERC") Rate. As described below, the Lost Revenue Rate ("LRR") is a new rate mechanism proposed for effect January 1, 2017. I will also discuss the impact that the proposed Cost

[1] The Company is proposing to use the term Energy Efficiency Charge in place of Conservation Charge.

of Gas ("COG") will have on bills of the Company's typical residential heating gas customer.

Q. What are the surcharges that will be billed under the LDAC?

A. The Company is submitting for approval an LDAC of $0.0483 per therm for the residential classes, and $0.0294 per therm for the commercial/industrial classes effective November 1, 2016. The Company has included in this filing, a Fourth Revised Page 59 with effective dates of November 1, 2016.

This filing also includes a Fifth Revised Page 59 with an effective date of January 1, 2017 to reflect the start date of the LRR. The Fifth Revised Page 59 proposes a LDAC of $0.0489 for residential classes and $0.0296 for commercial/industrial classes.

The surcharges currently billed under the LDAC are the EEC, the ERC Rate, and the RLIARA Rate. The Rate Case Expense Rate (RCE), the Reconciliation of Permanent Rates (RPC), and the Interruptible Transportation Margin (ITM) Rate are $0.0000 per therm. Effective January 1, 2017, the proposed LRR is $0.0006 for the residential classes, and $0.0002 for the commercial/industrial classes.

Q. Please describe the purpose of the RLIARA Rate.

A. The purpose of this rate is to allow the Company to recover the revenue discounts associated with customers participating in the Residential Low Income Assistance Program, as well as the associated administrative costs of that program, pursuant to DG 05-076. This rate also recovers the non-distribution portion of the annual NHPUC

Regulatory Assessment to the Company. The RLIARA Rate is charged on all firm gas sales and firm delivery service throughput billed under the Company's sales and delivery service rate schedules.

Q. Please describe the proposed change to the RLIARA rate.

A. Northern is proposing to decrease the RLIARA Rate from $0.0099 to $0.0096 per therm effective November 1, 2016.

Q. Could you describe the derivation of the proposed RLIARA Rate?

A. The RLIARA Rate is derived by estimating the Company's Low-Income Program and Regulatory Assessment costs and the account balance as of October 31, 2016.

The Low-Income Program costs are estimated to be $450,274 and are shown on Schedule 16 RLIARA, Page 1 of 3, Line 21. Lines 1 -19 explain the derivation of these costs.

The estimated 2016 NHPUC Regulatory Assessment, $219,335, is shown on Schedule 16 RLIARA, Page 1 of 3, Line 24 and is based on the NHPUC invoice dated September 1, 2016.

Lastly, the projected under-collection balance of the RLIARA is $24,247 as of October 31, 2016 and is derived as shown on Page 2 of 3.

The total amount of these three factors is $693,855 and is divided by the estimated weather normalized firm therms billed for the twelve months ended October 31, 2017 to derive the proposed RLIARA charge of $0.0096 per therm.

Q. What is the purpose of the EEC?

A. The purpose of the EEC is to recover from firm ratepayers Energy Efficiency program costs and performance incentives.

Q. What are the changes being proposed to the EEC?

A. The Company is proposing to increase the EEC for the residential classes from $0.0297 per therm to $0.0331 per therm, and decrease the charge for the commercial and industrial customer classes from $0.0146 per therm to $0.0142 per therm effective November 1, 2016.

Q. Please describe the reason for these proposed changes to and the derivation of the EEC.

A. The proposed changes to the EEC are necessitated by the implementation of Northern's calendar year 2017 energy efficiency program budget. That budget is provided in Schedule 16 EEC, Page 1 of 4. The proposed changes also include over-collections in the beginning balance largely due to actual costs being lower than forecasted for both classes of customer over this past year.

The EEC is provided in Schedule 16 EEC, Page 2 of 4. As shown the rate is derived by customer class and includes an annual reconciliation of the program costs and performance incentives with an adjustment for the low-income discount costs. Information regarding the development of the proposed charge for the residential classes

is provided in Schedule 16 EEC, Page 3 of 4. Schedule 16 EEC, Page 4 of 4 provides the support for the proposed rate for the commercial and industrial classes.

Q. Please explain the purpose of the LRR?

A. The purpose of the LRR is to recover lost distribution revenue related to the Company's energy efficiency programs. This rate mechanism is being established in accordance with Order No. 25,932 in DE 15-137 approving a Settlement Agreement which provides for the implementation of a lost revenue adjustment mechanism to recover lost revenue due to the installation of energy efficiency measures beginning on January 1, 2017.

Q. What is the proposed rate for effect January 1, 2017?

A. The proposed rate for the residential classes is $0.0006 per therm and the proposed rate for the commercial classes is $0.0002.

Q. Please explain the calculation of the proposed LRR?

A. The calculation of the LRR is provided on Schedule 16-LRR. As shown on Page 1 of 4, the LRR for each sector (residential and commercial/industrial) is derived by dividing the projected annual lost revenue, plus the reconciliation balance, plus projected interest, by forecast firm annual throughput. Page 2 of 4 provides the projected reconciliation of costs and revenue for the period January 2017 through October 2017. This page also provides the calculation of estimated lost distribution revenue based on estimated savings. Page 3 of 4 provides the calculation of the Company's average distribution rates

by sector, excluding customer charges. Page 4 of 4 provides further detail for the estimated savings that are used in the calculation of lost revenue on Page 2 of 4.

Q. Has the Company updated its LDAC tariff to incorporate the LRR?

A. Yes. The Company has provided a red-line of its LDAC tariff (pages 44 to 58C) to incorporate the LRR. The Company has also made some housekeeping related to the Energy Efficiency Charge, RLIARA, and change to annual COG filing approved by the Commission in DR 16-564. These LDAC tariff pages are proposed to become effective November 1, 2016.

Q. Please explain the purpose of Northern's ERC Rate.

A. The purpose of the ERC Rate is to recover expenditures associated with former manufactured gas plants. The ERC Rate is applied to all firm gas sales and firm delivery service throughput billed under the Company's sales and delivery service rate schedules. The costs submitted for recovery through the ERC cost recovery mechanism are presented in the ERC Filing submitted in this Docket under separate cover. The environmental investigation and remediation costs that underlie these expenses are the result of efforts by the Company to respond to its legal obligations with regard to the sites located in Exeter and Rochester, New- Hampshire. In total, the Company has incurred environmental remediation costs of $2,179,855 from July 2015 through June 2016. A summary sheet and detailed backup spreadsheets are provided in the ERC Filing that supports the 2015-2016 costs that the Company is submitting. The Company is prepared

to provide additional testimony and exhibits, if necessary, to further support recovery of these amounts after the Commission Staff has completed its review of these costs.

Q. Please describe the change to Northern's ERC Rate that is proposed for effect November 1, 2016.

A. The current ERC Rate is a credit of ($0.0022) per therm. Northern proposes to increase this to a charge of $0.0056 per therm.

Q. Please explain the calculation of the proposed ERC Rate.

A. As stated above, during the period July 1, 2015 through June 30, 2016, ERC expenses totaled $2,179,855. Northern is allowed to recover one-seventh of the actual response costs incurred by the Company in a twelve-month period ending June 30 of each year until fully amortized, plus any insurance and third-party expenses for the year or $311,412 (see table below). Thus, the ERC rate typically includes the current year and six prior years of unamortized amounts. Any insurance and third-party recoveries or other benefits for the year are used to reduce the unamortized balance. The $425,462 shown on Schedule 1 in the Environmental Response Cost filing and Schedule 16-ERC in this filing is comprised of the following:

1/7th ERC costs incurred July 2015 - June 2016	$311,412
1/7th ERC costs incurred July 2014 - June 2015	$ 16,028
1/7th ERC costs incurred July 2013 - June 2014	$ 5,840
1/7th ERC costs incurred July 2012 - June 2013	$ 25,058
1/7th ERC costs incurred July 2011 - June 2012	$ 22,717
1/7th ERC costs incurred July 2010 - June 2011	$ 17,316

1/7th ERC costs incurred July 2009 - June 2010	$ 27,091
Total	$425,412*

*As shown on Schedule 16-ERC Page 1 of 2.

Also used to derive the ERC Rate is the prior period reconciliation of ERC costs. It is estimated to be an over collection of ($19,230), as shown on Schedule 16-ERC Page 2 of 2. The final result of net ERC costs is a cost to customers during the period of November 2016 through October 2017 of ($406,232). Dividing these recoverable ERC credits by projected total annual sales of 72,641,339 therms yields an ERC Rate of $0.0056 per therm. This calculation is illustrated in Schedule 16 ERC, Page 1 of 2.

Q. Does the proposed LDAC include a credit for Interruptible Transportation Margins?

A. No. The Company has not provided any Interruptible Transportation service during the past year and therefore, has not earned any margins to credit back to sales customers.

Q. Have you prepared typical bill analyses showing the impacts of the proposed COG and LDAC rate changes for effect on November 1, 2016 for typical residential heating gas customers?

A. Yes, Schedule 8, pages 1 through 5 provides the analyses. It shows that a typical residential heating customer consuming 695 therms during the 2016/2017 Winter Season will expect a bill of $1,076.23. This is an increase of $90.20, or 9% compared to the 2015/2016 Winter Season bill with the same consumption.

Q. How will the proposed LRR change for effect on January 1, 2017 through April 30, 2017 impact bills for typical residential heating gas customers?

A. A typical residential heating customer consuming 539 therms between January 2017 and April 2017 will see an increase of their bill due to the LRR of $0.32.

Q. Have you prepared typical bill analyses showing the impacts of the proposed COG and LDAC for effect on May 1, 2017 for typical residential heating gas customers?

A. Yes, Schedule 8, pages 6 through 10 provides this analysis. It shows that a typical residential heating customer consuming 127 therms during the 2017 Summer Season will expect a bill of $255.00. This is an increase of $7.39, or 3% compared to the 2016 Summer Season bill with the same consumption.

Q. Does this conclude your testimony?

A. Yes, it does.

Northern Utilities, Inc. -- New Hampshire Division

EEC Budget

	Residential	Low-Income	Gen Service	Total
August-16	$59,622	$14,176	$114,721	$188,519
September-16	$32,268	$7,088	$116,964	$156,321
October-16	$30,018	$7,088	$57,733	$94,839
November-16	$32,268	$7,088	$76,729	$116,085
December-16	$149,031	$34,022	$78,972	$262,024
January-17	$25,370	$12,054	$32,765	$70,189
February-17	$25,370	$12,054	$32,765	$70,189
March-17	$25,370	$12,054	$36,365	$73,789
April-17	$33,826	$16,072	$43,686	$93,585
May-17	$33,826	$16,072	$43,686	$93,585
June-17	$33,826	$16,072	$47,286	$97,185
July-17	$38,900	$18,483	$50,239	$107,623
August-17	$38,900	$18,483	$50,239	$107,623
September-17	$38,900	$18,483	$53,839	$111,223
October-17	$71,035	$33,752	$91,742	$196,529
Total	$668,530	$243,042	$927,733	$1,839,305

Budget with Low-Income Costs Allocated to Residential and General Service Classes

	Residential	Low-Income	Gen Service	Total
August-16	$61,686	0	$126,833	$188,519
September-16	$33,153	0	$123,168	$156,321
October-16	$31,198	0	$63,640	$94,839
November-16	$33,931	0	$82,154	$116,085
December-16	$158,591	0	$103,433	$262,024
January-17	$28,840	0	$41,349	$70,189
February-17	$28,979	0	$41,210	$70,189
March-17	$28,910	0	$44,879	$73,789
April-17	$38,141	0	$55,444	$93,585
May-17	$37,651	0	$55,934	$93,585
June-17	$36,506	0	$60,679	$97,185
July-17	$41,317	0	$66,305	$107,623
August-17	$41,602	0	$66,021	$107,623
September-17	$41,216	0	$70,007	$111,223
October-17	$76,669	0	$119,860	$196,529
Total	$718,390	$0	$1,120,915	$1,839,305

EEC Charge Factor Calculation

EEC Charge Factors for Residential Customers

EEC Reconciliation Adjustment	($23,256)	Schedule 16 EEC Page 3 Nov '16 - Oct '17 Totals- November 2016 Beginning Balance
EEC Costs	$546,621	Schedule 16 EEC Page 3 Nov '16 - Oct '17 Totals- Column 2
EEC Performance Incentive	$30,839	Schedule 16 EEC Page 3 Nov '16 - Oct '17 Totals- Column 3
EEC Low-Income Costs	$45,731	Schedule 16 EEC Page 3 Nov '16 - Oct '17 Totals- Column 4
EEC Allocated Low-Income Share Holder Incentive	$3,064	Schedule 16 EEC Page 3 Nov '16 - Oct '17 Totals- Column 5
Total	$603,000	
Forecasted Annual Throughput Volumes for Residential Customers	18,202,060	Schedule 16 EEC Page 3 Nov '16 - Oct '17 Totals- Column 6
Energy Efficiency Charge Factor for Residential Customers	**$0.0331**	

EEC Charge Factors for Commercial and Industrial Customers (C&I)

EEC Reconciliation Adjustment	($83,376)	Schedule 16 EEC Page 4 Nov '16 - Oct '17 Totals- November 2016 Beginning Balance
EEC Costs	$638,315	Schedule 16 EEC Page 4 Nov '16 - Oct '17 Totals- Column 2
EEC Performance Incentive	$38,295	Schedule 16 EEC Page 4 Nov '16 - Oct '17 Totals- Column 3
EEC Low-Income Costs	$168,960	Schedule 16 EECPage 4 Nov '16 - Oct '17 Totals- Column 4
EEC Allocated Low-Income Share Holder Incentive	$10,771	Schedule 16 EEC Page 4 Nov '16 - Oct '17 Totals- Column 5
Total	$772,964	
Forecasted Annual Throughput Volumes for C&I Customers	54,439,279	Schedule 16 EEC Page 4 Nov '16 - Oct '17 Totals- Column 6
Energy Efficiency Charge Factor for C&I Customers	**$0.0142**	

Northern Utilities, Inc.

New Hampshire Division

Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge

To Be Effective November 1, 2016 through October 31, 2017

Residential Customers

		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income Costs	Allocated Low Income SHI	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Prime Rate	Interest @ Prime Rate	Ending Balance plus Interest (Over)/Under	Therm Sales	# of Days
August-15	Actual	($295,557)	$0.0350	$11,717	$57,426	$4,191	$2,041	$177	($243,438)	($269,497)	3.25%	($744)	($244,182)	334,440	31
September-15	Actual	($244,182)	$0.0350	$12,102	$24,199	$2,854	$3,153	$274	($225,802)	($234,992)	3.25%	($694)	($226,496)	345,448	30
October-15	Actual	($226,496)	$0.0350	$20,927	$25,548	$4,191	$14,999	$1,304	($201,382)	($213,939)	3.25%	($134)	($201,516)	597,747	31
November-15	Actual	($201,516)	$0.0297	$36,728	$42,037	$4,191	$2,883	$251	($188,882)	($195,199)	3.25%	($521)	($189,404)	1,131,134	30
December-15	Actual	($189,404)	$0.0297	$55,375	$132,803	$4,191	$16,501	$1,435	($89,849)	($139,626)	3.25%	($385)	($90,234)	1,864,706	31
January-16	Actual	($90,234)	$0.0297	$77,844	$10,671	$3,792	$1,495	$130	($151,991)	($121,113)	3.50%	($333)	($152,324)	2,620,764	31
February-16	Actual	($152,324)	$0.0297	$89,642	$27,120	$3,792	$3,384	$294	($207,376)	($179,850)	3.50%	($463)	($207,839)	3,018,204	28
March-16	Actual	($207,839)	$0.0297	$73,308	$69,959	$3,792	$1,994	$173	($205,230)	($206,534)	3.50%	($569)	($205,798)	2,468,153	31
April-16	Actual	($205,798)	$0.0297	$50,611	$42,156	$3,792	$1,752	$152	($208,557)	($207,178)	3.50%	($583)	($209,140)	1,704,540	30
May-16	Actual	($209,140)	$0.0297	$31,217	$12,007	$3,792	$3,649	$317	($220,592)	($214,866)	3.50%	($637)	($221,229)	1,050,605	31
June-16	Actual	($221,229)	$0.0297	$14,441	$84,021	$3,792	$4,471	$389	($142,998)	($182,113)	3.50%	($522)	($143,520)	486,294	30
July-16	Actual	($143,520)	$0.0297	$9,872	$19,592	$3,792	$8,811	$766	($120,431)	($131,976)	3.50%	($391)	($120,822)	332,445	31
August-16	Forecast	($120,822)	$0.0297	$10,644	$59,622	$3,792	$2,064	$203	($65,786)	($93,304)	3.50%	($277)	($66,064)	358,396	31
September-16	Forecast	($66,064)	$0.0297	$10,249	$32,268	$3,792	$885	$174	($39,194)	($52,629)	3.50%	($151)	($39,346)	345,090	30
October-16	Forecast	($39,346)	$0.0297	$19,039	$30,018	$3,792	$1,180	$232	($23,163)	($31,254)	3.50%	($93)	($23,256)	641,042	31
November-16	Forecast	**($23,256)**	$0.0331	$44,413	$32,268	$3,792	$1,663	$327	($29,620)	($26,438)	3.50%	($76)	($29,696)	1,341,797	30
December-16	Forecast	($29,696)	$0.0331	$78,876	$149,031	$3,792	$9,561	$391	$54,202	$12,253	3.50%	$36	$54,238	2,382,955	31
January-17	Forecast	$54,238	$0.0331	$105,262	$25,370	$2,326	$3,470	$318	($19,540)	$17,349	3.50%	$52	($19,489)	3,180,115	31
February-17	Forecast	($19,489)	$0.0331	$105,356	$25,370	$2,326	$3,609	$331	($93,209)	($56,349)	3.50%	($151)	($93,361)	3,182,966	28
March-17	Forecast	($93,361)	$0.0331	$93,605	$25,370	$2,326	$3,540	$324	($155,406)	($124,383)	3.50%	($370)	($155,776)	2,827,949	31
April-17	Forecast	($155,776)	$0.0331	$61,550	$33,826	$2,326	$4,315	$297	($176,562)	($166,169)	3.50%	($478)	($177,040)	1,859,506	30
May-17	Forecast	($177,040)	$0.0331	$36,844	$33,826	$2,326	$3,825	$263	($173,645)	($175,343)	3.50%	($521)	($174,166)	1,113,120	31
June-17	Forecast	($174,166)	$0.0331	$17,901	$33,826	$2,326	$2,680	$184	($153,051)	($163,609)	3.50%	($471)	($153,522)	540,814	30
July-17	Forecast	($153,522)	$0.0331	$12,926	$38,900	$2,326	$2,417	$145	($122,660)	($138,091)	3.50%	($410)	($123,070)	390,499	31
August-17	Forecast	($123,070)	$0.0331	$12,192	$38,900	$2,326	$2,702	$162	($91,174)	($107,122)	3.50%	($318)	($91,492)	368,347	31
September-17	Forecast	($91,492)	$0.0331	$11,743	$38,900	$2,326	$2,316	$138	($59,556)	($75,524)	3.50%	($217)	($59,773)	354,785	30
October-17	Forecast	($59,773)	$0.0331	$21,820	$71,035	$2,326	$5,634	$184	($2,414)	($31,093)	3.50%	($92)	($2,506)	659,206	31
Nov 16 thru Oct 17 Totals				$602,488	$546,621	$30,839	$45,731	$3,064						18,202,060	

Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 1 of 3, filed on September 15, 2016 in this Cost of Gas Docket.

Northern Utilities, Inc.

New Hampshire Division

Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge

To Be Effective November 1, 2016 through October 31, 2017

General Service Customers

		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income Costs	Allocated Low Income SHI	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Prime Rate	Interest @ Prime Rate	Ending Balance plus Interest (Over)/Under	Therm Sales	# of Days
August-15	Actual	($409,191)	$0.0138	$27,775	$18,657	$3,706	$12,280	$1,068	($401,254)	($405,223)	3.25%	($1,119)	($402,373)	2,012,724	31
September-15	Actual	($402,373)	$0.0138	$32,672	$23,714	($15,889)	$21,609	$1,879	($403,733)	($403,053)	3.25%	($1,853)	($405,585)	2,367,455	30
October-15	Actual	($405,585)	$0.0138	$42,584	$27,373	$3,706	$77,429	$6,733	($332,927)	($369,256)	3.25%	($846)	($333,773)	3,085,769	31
November-15	Actual	($333,773)	$0.0146	$56,879	$19,788	$3,706	$2,477	$8,476	($356,205)	($344,989)	3.25%	($922)	($357,127)	3,953,233	30
December-15	Actual	($357,127)	$0.0146	$74,857	$293,493	$3,706	$45,368	$3,945	($85,471)	($221,299)	3.25%	($611)	($86,082)	5,126,845	31
January-16	Actual	($86,082)	$0.0146	$99,556	$9,865	$3,800	$3,889	$338	($167,745)	($133,979)	3.50%	($349)	($168,095)	6,818,528	31
February-16	Actual	($168,095)	$0.0146	$104,052	$16,453	$3,800	$7,991	$695	($243,208)	($229,441)	3.50%	($530)	($243,737)	7,123,876	28
March-16	Actual	($243,737)	$0.0146	$89,512	$27,271	$3,800	$4,951	$431	($296,797)	($307,098)	3.50%	($744)	($297,541)	6,128,716	31
April-16	Actual	($297,541)	$0.0146	$68,870	$29,637	$3,800	$4,890	$425	($327,659)	($343,417)	3.50%	($1,550)	($329,209)	4,716,881	30
May-16	Actual	($329,209)	$0.0146	$49,778	$9,923	$3,800	$11,841	$1,030	($352,392)	($365,055)	3.50%	($1,010)	($353,403)	3,409,262	31
June-16	Actual	($353,403)	$0.0146	$36,000	$9,819	$3,800	$22,671	$1,971	($351,141)	($386,544)	3.50%	($1,011)	($352,152)	2,465,693	30
July-16	Actual	($352,152)	$0.0146	$30,550	$21,944	$3,800	$55,448	$4,822	($296,689)	($402,293)	3.50%	($962)	($297,651)	2,092,079	31
August-16	Forecast	($297,651)	$0.0146	$30,704	$114,721	$3,800	$12,112	$1,190	($196,532)	($247,091)	3.50%	($735)	($197,266)	2,103,001	31
September-16	Forecast	($197,266)	$0.0146	$35,327	$116,964	$3,800	$6,203	$1,219	($104,407)	($150,837)	3.50%	($434)	($104,841)	2,419,656	30
October-16	Forecast	($104,841)	$0.0146	$46,857	$57,733	$3,800	$5,908	$1,161	($83,096)	($93,969)	3.50%	($279)	($83,376)	3,209,395	31
November-16	Forecast	**($83,376)**	$0.0142	$62,179	$76,729	$3,800	$5,425	$1,066	($58,535)	($70,955)	3.50%	($204)	($58,739)	4,378,804	30
December-16	Forecast	($58,739)	$0.0142	$86,572	$78,972	$3,800	$24,461	$1,001	($37,076)	($47,907)	3.50%	($142)	($37,218)	6,096,628	31
January-17	Forecast	($37,218)	$0.0142	$111,718	$32,765	$3,069	$8,584	$787	($103,731)	($70,475)	3.50%	($209)	($103,940)	7,867,443	31
February-17	Forecast	($103,940)	$0.0142	$105,752	$32,765	$3,069	$8,445	$774	($164,638)	($134,289)	3.50%	($361)	($164,999)	7,447,330	28
March-17	Forecast	($164,999)	$0.0142	$96,586	$36,365	$3,069	$8,514	$780	($212,856)	($188,928)	3.50%	($562)	($213,418)	6,801,859	31
April-17	Forecast	($213,418)	$0.0142	$71,952	$43,686	$3,069	$11,758	$808	($226,048)	($219,733)	3.50%	($632)	($226,680)	5,067,009	30
May-17	Forecast	($226,680)	$0.0142	$50,608	$43,686	$3,069	$12,247	$842	($217,443)	($222,062)	3.50%	($660)	($218,103)	3,563,909	31
June-17	Forecast	($218,103)	$0.0142	$38,375	$47,286	$3,069	$13,392	$921	($191,809)	($204,956)	3.50%	($590)	($192,399)	2,702,478	30
July-17	Forecast	($192,399)	$0.0142	$36,852	$50,239	$3,069	$16,066	$960	($158,916)	($175,658)	3.50%	($522)	($159,438)	2,595,235	31
August-17	Forecast	($159,438)	$0.0142	$30,552	$50,239	$3,069	$15,782	$943	($119,956)	($139,697)	3.50%	($415)	($120,371)	2,151,565	31
September-17	Forecast	($120,371)	$0.0142	$35,172	$53,839	$3,069	$16,167	$967	($81,500)	($100,936)	3.50%	($290)	($81,790)	2,476,883	30
October-17	Forecast	($81,790)	$0.0142	$46,720	$91,742	$3,069	$28,118	$921	($4,661)	($43,226)	3.50%	($128)	($4,789)	3,290,136	31
Nov 16 thru Oct 17 Totals				$773,038	$638,315	$38,295	$168,960	$10,771						54,439,278	

Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 1 of 3, filed on September 15, 2016 in this Cost of Gas Docket. Does not include Special Contracts.

Northern Utilities, Inc.
Calculation of Lost Revenue Rate (LRR)
Effective January 1, 2017

Line	Sector			Reference
	Residential Classes- R5, R6, R10, R11			
1	Sector Ending Balance-December 31, 2016	$	-	Page 2, Ln 2, Jan-2017
2	Lost Distribution Revenue-January 2017 through October 2017	$	9,086	Page 2, Ln 12, Total
3	Interest- January 2017 through October 2017	$	(96)	Page 2, Ln 25, Total
4	**Total to be recovered**	**$**	**8,990**	Line 1+ Line 2+Line 3
5	Sector Sales - Therms- January 2017 through October 2017		14,477,308	Page 2, Line 15
6	**Lost Revenue Rate ($ per therm)**		**$0.0006**	Line 4 / Line 5
	Commercial & Industrial Classes-G40/T40, G50/T50, G41/T41, G51/T51, G42/T42, G-52/T52			
7	Sector Ending Balance-December 31, 2016		-	Page 2, Ln 29, Jan-2017
8	Lost Distribution Revenue-January 2017 through October 2017	$	10,086	Page 2, Ln 40, Total
9	Interest- January 2017 through October 2017	**$**	**(60)**	Page 2, Ln 53, Total
10	**Total to be recovered**	**$**	**10,026**	Line 7+Line 8+Line 9
11	Sector Sales - Therms- January 2017 through October 2017		43,963,847	Page 2, Line 43
12	**Lost Revenue Rate ($ per therm)**		**$0.0002**	Line 10 / Line 11

Northern Utilities, Inc.
Lost Revenue Reconciliation
2017

Line	Sector / Description	Unit	Estimate Jan-17	Estimate Feb-17	Estimate Mar-17	Estimate Apr-17	Estimate May-17	Estimate Jun-17	Estimate Jul-17	Estimate Aug-17	Estimate Sep-17	Estimate Oct-17	Total
1	**RESIDENTIAL**												
2	**Beginning Balance - (Over)/Under**	$'s	$ -	$ (1,790)	$ (3,431)	$ (4,709)	$ (5,283)	$ (5,287)	$ (4,822)	$ (3,955)	$ (2,763)	$ (1,310)	
3	**COSTS**												
4	Incremental Annualized Savings	Therms	2,680	3,350	3,350	2,680	2,680	2,680	6,700	6,700	5,360	7,370	43,547
5	Incremental Monthly Savings	Therms	223	279	279	223	223	223	558	558	447	614	3,629
6													
7	Cumulative Savings - Current	Therms	223	502	782	1,005	1,228	1,452	2,010	2,568	3,015	3,629	16,414
8	Cumulative Savings - Prior	Therms	-	-	-	-	-	-	-	-	-	-	-
9	Cumulative LBR Savings	Therms	223	502	782	1,005	1,228	1,452	2,010	2,568	3,015	3,629	16,414
10													
11	Average Distribution Rate	$/Therm	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	
12	Lost Distribution Revenue	**$'s**	$ 124	$ 278	$ 433	$ 556	$ 680	$ 804	$ 1,113	$ 1,422	$ 1,669	$ 2,009	**$ 9,086**
13													
14	**REVENUE**												
15	Sector Sales	Therms	3,180,115	3,182,966	2,827,949	1,859,506	1,113,120	540,814	390,499	368,347	354,785	659,206	14,477,308
16	Lost Revenue Rate	$/Therm	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	
17	Revenue	**$'s**	$ 1,908	$ 1,910	$ 1,697	$ 1,116	$ 668	$ 324	$ 234	$ 221	$ 213	$ 396	**$ 8,686**
18													
19	(Over)/Under-Recovery (Exc interest)		$ (1,784)	$ (3,421)	$ (4,695)	$ (5,268)	$ (5,271)	$ (4,808)	$ (3,943)	$ (2,754)	$ (1,307)	$ 303	
20													
21	**INTEREST**												
22	Average Monthly Balance		$ (892)	$ (2,606)	$ (4,063)	$ (4,988)	$ (5,277)	$ (5,047)	$ (4,382)	$ (3,355)	$ (2,035)	$ (504)	
23	Interest Rate-WSJ Prime Rate	Annual %	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	Total 2017
24	Days per Month		31	28	31	30	31	30	31	31	30	31	365
25	Computed Interest	$'s	$ (5.30)	$ (9.19)	$ (13.96)	$ (15.15)	$ (15.67)	$ (13.83)	$ (11.72)	$ (8.19)	$ (3.76)	$ 0.90	$ (95.87)
26													
27	**Ending Balance**	**$'s**	$ (1,790)	$ (3,431)	$ (4,709)	$ (5,283)	$ (5,287)	$ (4,822)	$ (3,955)	$ (2,763)	$ (1,310)	$ 304	
28	**COMMERCIAL & INDUSTRIAL**												
29	**Beginning Balance - (Over)/Under**	**$'s**	$ -	$ (1,485)	$ (2,796)	$ (3,704)	$ (3,862)	$ (3,564)	$ (2,968)	$ (2,257)	$ (1,236)	$ (61)	
30													
31	**COSTS**												
32	Incremental Annualized Savings	Therms	7,162	7,162	21,487	31,037	11,937	9,550	7,162	16,712	16,712	21,487	150,409
33	Incremental Monthly Savings	Therms	597	597	1,791	2,586	995	796	597	1,393	1,393	1,791	12,534
34													
35	Cumulative Savings - Current	Therms	597	1,194	2,984	5,571	6,565	7,361	7,958	9,351	10,743	12,534	64,859
36	Cumulative Savings - Prior	Therms	-	-	-	-	-	-	-	-	-	-	-
37	Cumulative LBR Savings	Therms	597	1,194	2,984	5,571	6,565	7,361	7,958	9,351	10,743	12,534	64,859
38													
39	Average Distribution Rate	$/Therm	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	
40	Lost Distribution Revenue	**$'s**	$ 93	$ 186	$ 464	$ 866	$ 1,021	$ 1,145	$ 1,238	$ 1,454	$ 1,671	$ 1,949	**$ 10,086**
41													
42	**REVENUE**												
43	Sector Sales	Therms	7,867,443	7,447,330	6,801,859	5,067,009	3,563,909	2,702,478	2,595,235	2,151,565	2,476,883	3,290,136	43,963,847
44	Lost Revenue Rate	$/Therm	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	
45	Revenue	**$'s**	$ 1,573	$ 1,489	$ 1,360	$ 1,013	$ 713	$ 540	$ 519	$ 430	$ 495	$ 658	**$ 8,793**
46													
47	(Over)/Under-Recovery (Exc interest)	$'s	$ (1,481)	$ (2,789)	$ (3,693)	$ (3,851)	$ (3,554)	$ (2,960)	$ (2,250)	$ (1,233)	$ (61)	$ 1,230	
48													
49	**INTEREST**												
50	Average Monthly Balance		$ (740)	$ (2,137)	$ (3,245)	$ (3,777)	$ (3,708)	$ (3,262)	$ (2,609)	$ (1,745)	$ (649)	$ 584	
51	Interest Rate-WSJ Prime Rate	Annual %	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	Total 2017
52	Days per Month		31	28	31	30	31	30	31	31	30	31	365
53	Computed Interest	$'s	$ (4.40)	$ (7.49)	$ (10.98)	$ (11.08)	$ (10.56)	$ (8.51)	$ (6.69)	$ (3.66)	$ (0.18)	$ 3.66	$ (60)
54													
55	**Ending Balance**	**$'s**	$ (1,485)	$ (2,796)	$ (3,704)	$ (3,862)	$ (3,564)	$ (2,968)	$ (2,257)	$ (1,236)	$ (61)	$ 1,234	

NOTES:
Line 11 and Line 39, see page 3 of 3.
Line 4 and Line 32, see Page 4.

Northern Utilities, Inc.
Calculation of Average Distribution Rate for Lost Revenue
Based on Actual Billing Determinants for 2015 at Current Distribution Rates (May 1, 2015)

		(1)		(2)		(3) = (1) X (2)	(4)		(5)		(6) = (4) X (5)	(7) = (3) + (6)	(8) = (1) + (4)	(9) = (7) / (8)
		Billing Determinants - Winter		Winter Distribution Rates			Billing Determinants - Summer		Summer Distribution Rates					
		First Therms	Excess Therms	First Therms $/thm	Excess Therms $/thm	Winter Distribution Revenue	First Therms	Excess Therms	First Therms $/thm	Excess Therms $/thm	Summer Distribution Revenue	Total Distribution Revenue	Total Annual Therms	Average Distribution Rate $/therm
R-5	Residential, Heating	5,200,624	7,025,576	$ 0.6239	$ 0.5103	$6,829,821	2,586,330	298,307	$ 0.5449	$ 0.5449	$1,571,839	$8,401,660		
R-10	Residential Heating, Low Income	332,822	291,390	$ 0.6239	$ 0.5103	$356,344	130,105	10,467	$ 0.5449	$ 0.5449	$76,598	$432,942		
R-6	Residential, Non-Heating	64,911	173,368	$ 0.4214	$ 0.4214	$100,411	60,444	48,235	$ 0.4214	$ 0.4214	$45,797	$146,208		
R-11	Residential Non-Heating, Low Incom	1,108	2,107	$ 0.4214	$ 0.4214	$1,355	704	511	$ 0.4214	$ 0.4214	$512	$1,867		
Total Residential Service		5,599,466	7,492,442			$7,287,931	2,777,584	357,520			$1,694,746	$8,982,677	16,227,012	$ 0.5536
G-40/T-40	Low Annual, High Winter Use	1,685,725	6,061,205	$ 0.1615	$ 0.1615	$1,251,129	656,308	712,371	$ 0.1615	$ 0.1615	$221,042	$1,472,171		
G-50/T-50	Low Annual, Low Winter Use	263,707	1,068,508	$ 0.1615	$ 0.1615	$215,153	242,840	634,605	$ 0.1615	$ 0.1615	$141,707	$356,860		
G-41/T-41	Medium Annual, High Winter Use	8,963,471		$ 0.2098		$1,880,536	2,194,797		$ 0.1622		$355,996	$2,236,532		
G-51/T-51	Medium Annual, Low Winter Use	1,482,895	990,163	$ 0.1520	$ 0.1238	$347,982	1,085,861	625,821	$ 0.1183	$ 0.0958	$188,411	$536,393		
G-42/T-42	High Annual, High Winter Use	2,814,928		$ 0.1764		$496,553	1,335,117		$ 0.1066		$142,323	$638,877		
G-52/T-52	High Annual, Low Winter Use	7,315,701		$ 0.1541		$1,127,350	5,162,991		$ 0.0707		$365,023	$1,492,373		
Total General Service		22,526,426	8,119,877			$5,318,703	10,677,914	1,972,797			$1,414,503	$6,733,206	43,297,014	$ 0.1555
Total Company		28,125,892	15,612,319			$12,606,634	13,455,498	2,330,317			$3,109,249	$15,715,884	59,524,026	

Northern Utilities, Inc.
Gas Savings for LRR Calculation

Planned Gas Savings - 2017	Annual
1. Residential Programs	Therms
2. Home Energy Assistance	12,066
3. EnergyStar® Homes	12,765
4. Home Perf w/ EnergyStar®	12,288
5. EnergyStar® Appliances	29,877
6. Residential	66,996
7.	
8. Commercial & Industrial Programs	
9. Large Business Energy Solutions	194,708
10. Small Business Energy Solutions	44,036
11. Education (Gas)	-
12. Commercial & Industrial	238,744

LBR Savings Allocation	Unit	Estimate Jan-17	Estimate Feb-17	Estimate Mar-17	Estimate Apr-17	Estimate May-17	Estimate Jun-17	Estimate Jul-17	Estimate Aug-17	Estimate Sep-17	Estimate Oct-17	Estimate Nov-17	Estimate Dec-17	Total 2017	January-October 2017 Total
13. Residential Programs		4%	5%	5%	4%	4%	4%	10%	10%	8%	11%	8%	27%	100%	
14. Annualized Therms	Therms	2,680	3,350	3,350	2,680	2,680	2,680	6,700	6,700	5,360	7,370	5,360	18,089	66,996	43,547
15.															
16. Monthly Incremental	Therms	223	279	279	223	223	223	558	558	447	614	447	1,507	5,583	
17. Monthly Cumulative	Therms	223	502	782	1,005	1,228	1,452	2,010	2,568	3,015	3,629	4,076	5,583	26,073	16,414
18.															
19. Commercial & Industrial Programs		3%	3%	9%	13%	5%	4%	3%	7%	7%	9%	12%	25%	100%	
20. Annualized Therms	Therms	7,162	7,162	21,487	31,037	11,937	9,550	7,162	16,712	16,712	21,487	28,649	59,686	238,744	150,409
21.															
22. Monthly Incremental	Therms	597	597	1,791	2,586	995	796	597	1,393	1,393	1,791	2,387	4,974	19,895	
23. Monthly Cumulative	Therms	597	1,194	2,984	5,571	6,565	7,361	7,958	9,351	10,743	12,534	14,922	19,895	99,676	64,859

V. LOCAL DELIVERY ADJUSTMENT CLAUSE

Applicability	EE ~~DSM~~ LR V.3.V. 3A	ERC V.4.	ITM V.5.	RLIARA V.7.	RCE V.9.	RPC V.10.
Residential Non-Heating	X X	X	X	X	X	X
Residential Heating	X X	X	X	X	X	X
Small C&I	X X	X	X	X	X	X
Medium C&I	X X	X	X	X	X	X
Large C&I	X X	X	X	X	X	X
No Previous Sales Service	X X	X	X	X	X	X

Notes:

1 N/A - Not applicable
2 X - Applicable to all
3 Specific EEC~~DSM CC~~ and LR R~~r~~ates for Residential Heating and Non-Heating
4 Specific EEC~~DSM CC~~ and LR R~~r~~ates for All C&I classes

3. Energy Efficiency Program ~~Demand Side Management~~ Costs Allowable for LDAC

3.1 Purpose

The purpose of this provision is to establish a procedure that allows Northern, subject to the jurisdiction of the NHPUC, to adjust on an annual basis, the Energy Efficiency ~~Conservation~~ Charge applicable to firm gas sales and firm delivery service throughput in order to recover from firm ratepayers Energy Efficiency p~~P~~rogram costs and performance incentives~~, pursuant to Order No. 24,109 in Docket DG 02-106, associated expenditures and shareholder incentives earned as a result of program performance~~.

3.2 Applicability

An Energy Efficiency ~~Conservation~~ Charge ("~~C~~EEC") shall be applied to firm sales and firm delivery service throughput of the Company as determined in accordance with the provisions of Part V, Section 3 of this clause. Such ~~C~~EEC shall be determined annually by the Company, separately for each Rate Category defined below,

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subject to review and approval by the NHPUC as provided for in this clause.

For purposes of applying the respective ~~C~~EEC each "Rate Category" shall be as follows:

Residential	Rates R-5, R-6, R-10, R-11
Commercial/Industrial (including multi-family)	Rates G-40, G-50, T-40, T-50 G-41, G-42, G-51, G-52 T-41, T-42, T-51, T-52

Special contract customers are exempt from the ~~C~~EEC

3.3 Reporting

The Company shall submit monthly and annual reports by Rate Category to the Commission reconciling any difference between the actual ~~C~~category Energy Efficiency ~~Program expenditures, loan repayments~~ costs and actual revenues collected under this rate schedule. The difference, whether positive or negative, will be carried forward, with interest, into the ~~Conservation Charge~~ EEC for the next recovery period. Annual reports shall be filed with the Commission at least 45 days prior to the effective date of the next subsequent twelve-month period.

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3.4 Effective Date of ~~Conservation Charge~~EEC

Forty-five ("45") days prior to November 1 of each year, the Company will file with the NHPUC for its consideration and approval, the Company's request for a change in the ~~CC~~ EEC applicable to each Rate Category during the next subsequent twelve-month period commencing with the calendar month of November.

3.5 Calculation of the EEC

The EEC for each Rate Category will be derived by dividing the projected annual EE costs, including performance incentives, plus the reconciliation balance, by forecast firm annual throughput. The reconciliation balance shall reflect both actual and projected data, as necessary, through October of the prior rate period.

3.6 Reconciliation Adjustments

Account 175.5 shall contain the accumulated difference between EEC revenues collected and actual Energy Efficiency program costs and performance incentives, plus carrying charges calculated on the average monthly balance and then added or credited to the end-of-month balance. Interest shall be calculated based on the prime rate, with said prime rate to be fixed on a quarterly basis and to be

V. LOCAL DELIVERY ADJUSTMENT CLAUSE

established as reported in the Wall Street Journal on the first business day of the month preceding the calendar quarter; if more than one rate is reported the average of the reported rates shall be used.

3.7 Application of EEC Rate to Bills

The EEC Rate ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm sales volumes and transportation throughput.

3.8 Information to be Filed with the NHPUC

An annual EEC filing will be required forty-five (45) days prior to the effective date of November 1, containing the calculation of the new annual EEC to become effective November 1. The calculation will reflect the forecast of EEC annual costs, the updated annual EEC reconciliation balance and throughput forecast for the upcoming period. Monthly and annual reconciliation reports will be filed in accordance with Section 3.3 above.

3.A. Lost Revenue Allowable for LDAC

3.A.1 Purpose

The purpose of this provision is to establish a procedure that allows Northern, subject to the jurisdiction of the NHPUC, to adjust on an annual basis, the Lost Revenue Rate applicable to firm gas sales and firm delivery service throughput in order to recover from firm ratepayers lost revenue related to Energy Efficiency programs, pursuant to Order No. 25,932 in Docket DE 15-137, Energy Efficiency Resource Standard.

3.A.2 Applicability

Effective January 1, 2017, a Lost Revenue Rate ("LRR") shall be applied to firm sales and firm delivery service throughput of the Company as determined in accordance with the provisions of Part V, Section 3.A of this clause. Such LRR shall be determined annually by the Company, separately for each Rate Category defined below, subject to review and approval by the NHPUC as provided for in this clause.

For purposes of applying the respective LRR each "Rate Category" shall be as follows:

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Residential Rates R-5, R-6, R-10, R-11
Commercial/Industrial (including multi-family) Rates G-40, G-50, T-40, T-50
G-41, G-42, G-51, G-52
T-41, T-42, T-51, T-52

Special contract customers are exempt from the LRR.

3.A.3 Effective Date of the LRR

Forty-five ("45") days prior to November 1 of each year, the Company will file with the NHPUC for its consideration and approval, the Company's request for a change in the LRR applicable to each Rate Category during the next subsequent twelve-month period commencing with the calendar month of November.

3.A.4 Calculation of the LRR

The LRR for each Rate Category will be derived by dividing the projected annual lost revenue, plus the reconciliation balance and projected interest, by forecast firm annual throughput. The reconciliation balance shall reflect both actual and projected data, as necessary, through October of the prior rate period.

3.A.5 Reconciliation Adjustments
Account 175.10 shall contain the accumulated difference between LRR revenues collected and actual costs, plus carrying charges calculated on the average monthly balance and then added or credited to the end-of-month balance. Interest shall be calculated based on the prime rate, with said prime rate to be fixed on a quarterly basis and to be established as reported in the Wall Street Journal on the first business day of the month preceding the calendar quarter; if more than one rate is reported the average of the reported rates shall be used.

3.A.6 Application of LRR to Bills

The LRR ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm sales volumes and transportation throughput.

3.A.7 Information to be Filed with the NHPUC

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An annual LRR filing will be required forty-five (45) days prior to the effective date of November 1, containing the calculation of the new annual LRR to become effective November 1. The calculation will reflect the forecast of LRR annual costs, the updated annual LRR reconciliation balance and throughput forecast for the upcoming period.

4. Environmental Response Costs Allowable for LDAC

4.1 Purpose

In order to recover Environmental Response Cost ("ERC") expenditures associated with former manufactured gas plants, there shall be an ERC Rate applied to all firm gas sales and firm delivery service throughput billed under the Company's sales and delivery service rate schedules.

4.2 Applicability

An annual ERC Rate shall be calculated effective every November 1 for the annual period of November 1 through October 31. The annual ERC Rate shall be filed with the Company's ~~Winter~~ Annual~~Season~~ Cost of Gas ("COG") filing and be subject to review and approval by the Commission. The annual ERC Rate will be applied to firm sales and to firm Delivery Service throughput as a separate surcharge. Special contract customers are exempt from the ERC. 4.3 Environmental Response Cost Allowable

All approved environmental response costs associated with manufactured gas plants shall be included in the ERC Rate.

The total annual charge to the Company's ratepayers for environmental response costs during any annual ERC recovery period shall not exceed five percent (5%) of the Company's total revenues from firm gas sales and Delivery Service throughput during the preceding twelve (12) month period ending June 30. The total annual charge shall represent the ERC expenditures to be in effect for the upcoming twelve month period, November 1 through October 31. If this recovery limitation results in the Company recovering less than the amount that would otherwise be recovered in a particular ERC Recovery Year, then the Company would defer this unrecovered amount, with interest, calculated monthly on the average monthly balance, until the next recovery period in which this amount could be recovered without violating the 5% limitation. The interest rate is to be adjusted each quarter using the prime interest rate as reported by the Wall Street Journal on the first date of the month preceding the first month of the quarter.

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4.4 Effective Date

Forty-five ("45") days prior to November 1 of each year, the Company will file with the NHPUC for its consideration and approval, the Company's request for a change in the ERC applicable to all firm sales and firm delivery service throughput for the subsequent twelve month period commencing with the calendar month of November.

4.5 Definitions

Environmental Response Costs shall include all costs of investigation, testing, remediation, litigation expenses, and other liabilities relating to manufactured gas plant sites, disposal sites, or other sites onto which material may have migrated, as a result of the operating or decommissioning of New Hampshire gas manufacturing facilities. ERCs shall also include the expenses incurred by the Company in pursuing insurance and third-party claims and any recoveries or other benefits received by the company as a result of such claims.

4.6 Reconciliation Adjustments

Prior to the ~~Winter Season~~ Annual COG filing, the Company will calculate the difference between (a) the revenues derived by multiplying firm sales and Delivery Service throughput by the ERC Rate through October 31, and (b) the historical amortized costs approved for recoveries in the prior November's Annual ERC Recovery Period. This cumulative difference will be recorded in Account 175.6. The Company shall file the reconciliation along with its COG filing forty-five (45) days prior to the beginning of the ~~winter~~ annual period.

4.7 Calculation of the ERC

The ERC Rate calculated annually consists of one-seventh of actual response costs incurred by the Company in the twelve month period ending June 30 of each year until fully amortized (over seven years). Any insurance and third-party recoveries or other benefits for the twelve month period ending June 30 shall be applied to reduce the unamortized balance, shortening the amortization period. The sum of these amounts is then divided by the Company's forecast of total firm sales and Delivery Service throughput for the upcoming twelve months of November 1 through October 31.

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4.8 Application of ERC to Bills

The annual ERC Rate shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm gas sales by being included in the determination of the semiannual COG, and also will be applied to the monthly firm Delivery throughput of each firm Delivery customer's bill.

5. Interruptible Transportation Margins Allowable for LDAC

5.1 Purpose

The purpose of this provision is to establish a procedure that allows Northern subject to the jurisdiction of the NHPUC to adjust the Interruptible Transportation Margin Credit ("ITMC") applicable to firm gas sales and firm delivery service throughput in order to return the Interruptible Transportation margins allocated to the local distribution firm ratepayers.

5.2 Applicability

An Interruptible Transportation Margin Credit ("ITMC") shall be applied to all firm sales and firm delivery service throughput of the Company subject to the jurisdiction of the NHPUC as determined in accordance with the provisions of Part V, Section 5 of this clause. Such ITMC shall be determined annually by theCompany as defined below, subject to review and approval by the NHPUC as provided for in this clause. The ITMC is not applied to the bills of special contract customers.

The application of this provision may, for good cause shown, be modified by the NHPUC. See Part V, Section 12, "Other Rules."

5.3 Effective Date of Interruptible Transportation Margin

The ITMC shall become effective on November 1 as designated by the Company.

5.4 Interruptible Transportation Margins

The ITMC shall be computed annually based on a forecast of Interruptible Transportation margins and firm sales and firm delivery service throughput volumes.

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5.5 Annual ITM Credit Formula

The annual ITM Credit shall be calculated according to the following formulas:

$$ITMC = \frac{ITM}{A:TPvol} + RF_{ITM}$$

and:

$$RF_{ITM} = \frac{R_{ITM}}{A:TP_{vol}} .$$

Where:

$A : TP_{vol}$	Forecast annual firm sales and firm delivery service throughput.
ITMC	Annual Interruptible Transportation Margin Credit.
ITM	Interruptible Transportation margins
RF_{ITM}	Annual Interruptible Transportation margin reconciliation adjustment factor applicable to total firm sales and firm delivery service throughput.
R_{ITM}	Reconciliation costs - interruptible Transportation margins, Account 175.3 balance, inclusive of the associated Account 175.3 interest.

5.6 Reconciliation Adjustments

Account 175.3 shall contain the accumulated difference between annual, interruptible Transportation margins returned toward the local distribution function, as calculated by multiplying the interruptible Transportation margin credit (ITMC) times monthly firm sales and firm delivery service throughput during the year, and the actual margins for the year.

See Part V, Section 5.5 for Reconciliation formulas.

5.7 Application of ITMC to Bills

The ITMC ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm by period and will be applied to the monthly firm sales and firm delivery service throughput.

5.8 Information to be Filed with the NHPUC

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Information pertaining to the Interruptible Transportation Margins will be filed with the NHPUC along with the gas cost information as required pursuant to the LDAC and COGC. Required filings include an annual report providing actual data and resulting updated projection of the end-of-period reconciliation balance, as well as an annual calculation of the ITM credit, which shall be included in an annual LDAC filing. Also, the annual ITM reconciliation balances shall be filed along with the other reconciliation balances included in the LDAC.

6. Residential Low Income Assistance and Regulatory Assessment ("RLIARA") Costs Allowable for LDAC

6.1 Purpose:

The purpose of this provision is to allow Northern Utilities, subject to the jurisdiction of the NHPUC, to recover the revenue shortfall (costs) associated with customers participating in the Residential Low Income Assistance Program, as well as the associated administrative costs, pursuant to DG 05-076. This rate shall also recover the change in the Company's annual NHPUC regulatory assessment. Such costs shall be recovered by applying the RLIARA Rate to all firm gas sales and firm delivery service throughput billed under the Company's sales and delivery service rate schedules.

6.2 Applicability:

The RLIARA Rate shall be applied to all firm sales and transportation tariff customers with the exception of special contract customers who are exempt from the LDAC. The RLIARA Rate shall be determined annually by the Company as defined below, subject to review and approval by the NHPUC as provided in this clause.

6.3 Residential Low Income Assistance and Regulatory Assessment Costs ("RLIARAC") Allowable for LDAC

The amount of Residential Low Income Assistance costs is comprised of the revenue shortfall plus the associated administrative costs. Such revenue shortfall shall be derived by applying the actual billing determinants of the customers enrolled under the Residential Low Income Assistance Program to the difference in the monthly customer charge and volumetric rates of the Residential Heating Rate, R-5, versus the Low Income Residential Heating Rate, R-10. The revenue

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shortfall and administrative costs shall be the amount approved by the NHPUC. Effective July 1, 2014, the amount of the NH PUC regulatory assessment to be charged, or credited, through this clause shall be calculated by taking the total assessment minus the amount in base rates of $91,075 established in DG 13-086.

6.4 Effective Date of Residential Low Income Assistance and Regulatory Assessment Rate

Forty five (45) days prior to November 1 of each year, the Company will file with the NHPUC for its consideration and approval, the Company's request for a change in the RLIARA Rate applicable to all consumption of tariff customers eligible to receive delivery service for the subsequent twelve month period commencing with billings for gas consumed on and after November 1.

6.5 Definitions:

Residential Low Income Assistance Costs are the difference in revenues determined by comparing the delivery service revenues generated from customers participating in the Residential Low Income Assistance Program with revenues from those same customers under the regular Residential Heating R-5 rate schedule. Also, these costs include the associated administrative costs, which include associated Information Technology and start-up costs. The Company shall calculate the shortfall or reduced delivery service revenues by applying the monthly gas use of all customers of record under the Low Income Residential Heating Service R-10 rate schedule to the difference in the delivery service rates of the Low Income Residential Heating Service R-10 Rate and Residential Heating R-5 Rate.

6.6 Residential Low Income Assistance and Regulatory Assessment ("RLIARA") Rate Formula:

$$\textbf{RLIARA Rate} = \frac{\textbf{RLIARAC} + \textbf{RA}_{\textbf{RLIARA}}}{\textbf{A:TPvol}}$$

and:

RLIARAC=(Cust x DCust$)+(Cust x Avgthm x Dbr)+ AdminC+Assessment

Where:

AdminC	Costs associated with administering the Residential Low Income Assistance Program, including IT and start-up costs.
Assessment	The amount of the annual NHPUC regulatory assessment which is above or below the amount of $91,075 in base rates established in Docket 13-086.
Avgthm	Estimated average therm use per customer for period

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determined from most recent historical therm use under the Company's Residential LowIncome Assistance Program, or Residential Heating, rate schedules.

Cust	Estimated number of customers participating in the Residential Low Income Assistance Program.
Dbr	Difference between the Residential Heating R-5 and Low Income Residential Heating Service R-10 base rate charges.
DCust$	Difference between the Residential Heating R-5 and Low Income Residential Heating Service R-10 monthly customer charge.
RLIARAC	Costs, comprised of the revenue shortfall associated with customer participation in the Residential Low Income Assistance Program, plus associated administrative costs, as defined in section 6.5, and the non-distribution portion of the annual NHPUC regulatory assessment.
$RA_{RLIARAPC}$	Reconciliation Adjustment associated with Residential Low Income Assistance and Regulatory Assessment Costs and revenues - Account 175.9 balance, inclusive of the associated Account 175.9 interest, as outlined in Section 6.7.
A:TPvol	Forecast annual firm sales and firm delivery service throughput.

6.7 Reconciliation Adjustments

Account 175.9 shall contain the accumulated difference between revenues toward Residential Low Income Assistance and Regulatory Assessment costs as calculated by multiplying the (RLIARA) Rate times monthly firm throughput volumes and actual RLIARAC, comprised of the revenue shortfall and administrative costs, allowed as defined in Section 6.5, plus the non-distribution portion of the annual NHPUC regulatory assessment, plus carrying charges calculated on the average monthly balance using the .Federal Reserve Statistical Release prime lending rate and then added to the end-of-month balance.

6.8 Application of RLIARA Rate to Bills

The RLIARA Rate ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm sales volumes and transportation throughput.

6.9 Information to be Filed with the NHPUC

Information pertaining to the Residential Low Income Assistance and Regulatory Assessment (RLIARA) costs and revenue shall be filed with the NHPUC consistent with the filing requirements of all costs and revenue information included in the LDAC. An annual RLIARA filing will be required forty-five (45)

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days prior to the effective date of November 1, containing the calculation of the new annual RLIARA Rate to become effective November 1. The calculation will reflect the forecast of RLIARA annual costs, the updated annual RLIARA reconciliation balance and throughput forecast for the upcoming winter period. ~~The summer period RLIARA Rate filing may contain the calculation of the revised annual RLIARA Rate to become effective with gas consumed beginning May 1 and may include any available actual RLIARA costs and collections for the annual recovery period, as well as the most recent firm throughput forecast used for the summer period Cost of Gas filing.~~

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7. Expenses Related to Rate Cases Allowable for LDAC

7.1 Purpose

The purpose of this provision is to establish a procedure that allows Northern Utilities to adjust its rates for the recovery of NHPUC-approved rate case expenses.

7.2 Applicability

The Rate Case Expenses ("RCE") shall be applied to all firm tariffed customers with the exception of special contract customers. The RCE will be determined by the Company, as defined below.

7.3 Rate Case Expenses Allowable for LDAC

The total amount of the RCE will be equal to the amount approved by the Commission.

7.4 Rate Case Expenses Allowable for LDAC

The effective date of the RCE will be determined by the NHPUC in an individual rate proceeding.

7.5 Definition

The **RCE** includes all rate case-related expenses approved by the NHPUC. This includes legal expenses, costs for bill inserts, costs for legal notices, consulting fees, processing expenses, and other approved expenses.

7.6 Rate Case Expense (RCE) Factor Formulas

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The RCE will be calculated according to the Commission Order issued in an individual proceeding to establish details including the number of years over which the RCE shall be amortized and the allocation of recovery among rate classes. In general, the RCE Factor will be derived by dividing the annual portion of the total RCE, plus the RCE Reconciliation Adjustment, by forecast firm annual throughput.

7.7 Reconciliation Adjustments

Account 175.7 shall contain the accumulated difference between revenues toward Rate Case Expenses as calculated by multiplying the Rate Case Expense Factor (RCEF) times the appropriate monthly volumes and Rate Case Expense allowed.

At the end of the recovery period, any under or over recovery will be included in an active LDAC component, as approved by the Commission.

7.8 Application of RCE to Bills

The RCE ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm sales and firm delivery service throughput of tariffed customers.

7.9 Information to be Filed with the NHPUC

Information pertaining to the RCE will be filed with the NHPUC consistent with the filing requirements of all cost and revenue information included in the LDAC. The RCE filing will contain the calculation of the new RCE and will include the updated RCE reconciliation balance.

8. Reconciliation of Permanent Changes in Delivery Rates

8.1 Purpose

The purpose of this provision is to establish a procedure that allows Northern Utilities to adjust its rates for the reconciliation of revenues related to a permanent change in the Company's delivery service rates implemented subsequent to the effective date of such change. This provision includes the reconciliation for the difference in revenues charged under temporary versus permanent rates.

8.2 Applicability

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The factor to reconcile the revenues resulting from a permanent rate change ("RPC") shall be applied to all firm tariffed customers. The Company will determine the RPC, as defined in this section.

8.3 Amount of RPC Allowable for LDAC

The amount of the RPC will be equal to the amount approved by the Commission.

8.4 Effective Date of RPC Charge

The effective date of the RPC Charge will be determined by the NHPUC on a case by case basis.

8.5 Definition

The RPC is a surcharge mechanism, which allows Northern Utilities to adjust its rates for the reconciliation of revenues generated under delivery service rates that have been permanently changed.

8.6 Formulas to Reconcile Revenues Resulting From a Permanent Rate Change

The RPC will be calculated according to the Commission Order issued in an individual proceeding.

8.7 Reconciliation Adjustment Account

Account 175.8 shall contain the accumulated difference between revenues toward reconciliation expenses as calculated by multiplying the reconciliation of the permanent changes in delivery rate charge (RPC) times the appropriate monthly volumes and reconciliation amount allowed.

8.8 Application of RPC Charge to Bills

The RPC charge ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm sales and firm delivery service throughput of tariffed customers.

8.9 Information to be Filed with the NHPUC

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Information pertaining to the RPC will be filed with the NHPUC consistent with the filing requirements of all cost and revenue information included in the LDAC. The RPC filing will contain the calculation of the new RPC charge and will include the updated RPC reconciliation balance.

9. Effective Date of Local Delivery Adjustment Clause

The LDAC shall be filed annually and become effective on November 1 of each year pursuant to NHPUC approval. In order to minimize the magnitude of future reconciliation adjustments, the Company may request interim revisions to the LDAC rates, subject to review and approval of the NHPUC.

10. Local Delivery Adjustment Clause Formulas

The LDAC shall be calculated on an annual basis, ~~by customer,~~ by summing up the various factors included in the LDAC, where applicable.

LDAC Formula

$$LDAC^X = \text{~~C~~EE}C^x + LBR^x + ERC - ITMC + \text{~~+ +~~ } RLIARA + + RCEF^x + RPC^x$$

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Where:

~~C~~EEC^x	Annualized class specific Energy Efficiency ~~Conservation~~ Charge
L~~R~~R^x	Annualized class specific Lost Revenue Rate
$LDAC^x$	Annualized class specific Local Delivery Adjustment Clause
ITMC	Annualized Interruptible Transportation Margin Credit
ERC	Total firm annualized Environmental Response Charge
$RCEF^x$	Annualized class specific Rate Case Expense Factor
RLIARA	Annualized Residential Low Income Assistance and Regulatory Assessment Rate
RPC^x	Reconciliation of Permanent Changes in Delivery Rates

11. Application of LDAC to Bills

The component costs comprising the LDAC ($ per therm) shall be calculated to the nearest one one-hundredth of a cent per therm and will be applied to the monthly firm sales and firm delivery service throughput in accordance with the table shown in Part V, Section 2.

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12. Other Rules

(1) The NHPUC may, where appropriate, on petition or on its own motion, grant an exception from the provisions of these regulations, upon such terms that it may determine to be in the public interest.

(2) Such amendments may include the addition or deletion of component cost categories, subject to the review and approval of the NHPUC.

(3) The Company may implement an amended LDAC with the NHPUC approval at any time.

(4) The NHPUC may, at any time, require the Company to file an amended LDAC.

(5) The operation of the LDAC is subject to all powers of suspension and investigation vested in the NHPUC.

13. Amendments to Uniform System of Accounts

175.3 Interruptible Transportation Margin Reconciliation Adjustment for LDAC

This account shall be used to record the cumulative difference between annual Interruptible Transportation margin returns and annual Interruptible Transportation margins. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 5.

175.5 Energy Efficiency ~~Demand Side Management~~ Reconciliation Adjustment

This account shall be used to record the cumulative difference between the sum of ~~Category~~Energy Efficiency program costs and performance incentives ~~Conservation Expenditures incurred by the Company plus the sum of DSM Repayments~~ and the revenues collected from customers pursuant to this clause with respect to a given Rate Category. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 3.

175.6 Environmental Response Costs Reconciliation Adjustment

This account shall be used to record the cumulative difference between the revenues toward environmental response costs as calculated by multiplying the

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ERC times monthly firm sales volumes and delivery service throughput and environmental response costs allowable per formula. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 4.

175.7 Rate Case Expense Reconciliation Adjustment
This account shall be used to record the cumulative difference between the recovery and actual amounts of third party incremental expenses associated with the Company's Rate Case initiatives. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 7.

175.8 Reconciliation of Permanent Changes in Delivery Rates
This account shall be used to record the cumulative differences between the recovery or refund and actual amount of the reconciliation of permanent changes in delivery rates. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 8.

175.9 Residential Low Income Assistance and Regulatory Assessment Reconciliation Adjustment

This account shall be used to record the cumulative difference between the recovery and actual Residential Low Income Assistance and Regulatory AssessmentCosts. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 6.

175.10 Lost Revenue Reconciliation Adjustment

This account shall be used to record the cumulative difference between the lost revenue of the Company and the revenue collected from customers pursuant to this clause with respect to a given Rate Category. Entries to this account shall be determined as outlined in the Local Delivery Adjustment Clause, Part V, Section 3.A.

N.H.P.U.C. No. 11 - Gas
Northern Utilities, Inc.

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Local Delivery Adjustment Clause

Rate Schedule	RLIARA	~~DSM~~ EEC	*LRR*	ERC	ITM	RCE	RPC	LDAC
Residential Heating	~~$0.0099~~ 0.0096	~~$0.0297~~ 0.0331	*$0.0000*	$(~~0.0022~~) 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0374~~ 0.0483
Residential Non-Heating	~~$0.0099~~ 0.0096	~~$0.0297~~ 0.0331	*$0.0000*	$(~~0.0022~~) 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0374~~ 0.0483
Small C&I	~~$0.0099~~ 0.0096	~~$0.0146~~ 0.0142	*$0.0000*	$(~~0.0022~~) 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0223~~ 0.0294
Medium C&I	~~$0.0099~~ 0.0096	~~$0.0146~~ 0.0142	*$0.0000*	$(~~0.0022~~) 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0223~~ 0.0294
Large C&I	~~$0.0099~~ 0.0096	~~$0.0146~~ 0.0142	*$0.0000*	$(~~0.0022~~) 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0223~~ 0.0294
No Previous Sales Service								

Issued: ~~November 4, 2015~~ September 16, 2016
Effective: With Service Rendered On and After ~~November 1, 2015~~ November 1, 2016

Authorized by NHPUC Order No. in Docket No. , dated

Issued by:

Title: Senior Vice President

000296 000228

N.H.P.U.C. No. 11 - Gas
Northern Utilities, Inc.

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~~Third~~ Fourth Revised Page 59

Local Delivery Adjustment Clause

Rate Schedule	RLIARA	EEC	LRR	ERC	ITM	RCE	RPC	LDAC
Residential Heating	~~$0.0099~~ 0.0096	$0.0331	$0.0006	~~$(0.0022)~~ 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0374~~ 0.0489
Residential Non-Heating	~~$0.0099~~ 0.0096	$0.0331	$0.0006	~~$(0.0022)~~ 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0374~~ 0.0489
Small C&I	~~$0.0099~~ 0.0096	$0.0142	$0.0002	~~$(0.0022)~~ 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0223~~ 0.0296
Medium C&I	~~$0.0099~~ 0.0096	$0.0142	$0.0002	~~$(0.0022)~~ 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0223~~ 0.0296
Large C&I	~~$0.0099~~ 0.0096	$0.0142	$0.0002	~~$(0.0022)~~ 0.0056	$0.0000	$0.0000	$0.0000	~~$0.0223~~ 0.0296
No Previous Sales Service								

Issued: ~~November 4, 2015~~ September 16, 2016
Effective: With Service Rendered On and After ~~November 1, 2015~~ January 1, 2017

Authorized by NHPUC Order No. in Docket No. , dated

Issued by:
Title: Senior Vice President

000297 0002229

Calculation of Lost Revenues - Unitil Gas (Northern)
Year 2017
Savings and lost revenues are estimated based on a calendar year.

	Annualized	"Installed" Savings												
	Therm Savings	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Residential														
Jan	2,680	223	223	223	223	223	223	223	223	223	223	223	223	2,680
Feb	3,350		279	279	279	279	279	279	279	279	279	279	279	3,071
Mar	3,350			279	279	279	279	279	279	279	279	279	279	2,792
Apr	2,680				223	223	223	223	223	223	223	223	223	2,010
May	2,680					223	223	223	223	223	223	223	223	1,787
Jun	2,680						223	223	223	223	223	223	223	1,563
Jul	6,700							558	558	558	558	558	558	3,350
Aug	6,700								558	558	558	558	558	2,792
Sep	5,360									447	447	447	447	1,787
Oct	7,370										614	614	614	1,843
Nov	5,360											447	447	893
Dec	18,089												1,507	1,507
Total	66,999	223	503	782	1,005	1,228	1,452	2,010	2,568	3,015	3,629	4,076	5,583	26,074
		223	726	1,508	2,513	3,741	5,193	7,203	9,771	12,786	16,415	20,491	26,074	
Proposed Distribution Rate														**$ 0.5536**
Lost Revenue														**$ 14,435**
C&I														
Jan	7,162	597	597	597	597	597	597	597	597	597	597	597	597	7,162
Feb	7,162		597	597	597	597	597	597	597	597	597	597	597	6,565
Mar	21,487			1,791	1,791	1,791	1,791	1,791	1,791	1,791	1,791	1,791	1,791	17,906
Apr	31,037				2,586	2,586	2,586	2,586	2,586	2,586	2,586	2,586	2,586	23,278
May	11,937					995	995	995	995	995	995	995	995	7,958
Jun	9,550						796	796	796	796	796	796	796	5,571
Jul	7,162							597	597	597	597	597	597	3,581
Aug	16,712								1,393	1,393	1,393	1,393	1,393	6,963
Sep	16,712									1,393	1,393	1,393	1,393	5,571
Oct	21,487										1,791	1,791	1,791	5,372
Nov(Staff1-10)	28,649											2,387	2,387	4,775
Dec(Staff 1-10)	59,686												4,974	4,974
Total	238,743	597	1,194	2,984	5,571	6,565	7,361	7,958	9,351	10,743	12,534	14,921	19,895	99,675
		597	1,791	4,775	10,345	16,911	24,272	32,230	41,581	52,324	64,858	79,780	99,675	
Proposed Distribution Rate														**$ 0.1555**
Lost Revenue														**$ 15,499**
Total Lost Revenue														**$ 29,934**