



January 15, 2019

**Via Electronic Mail and US Mail**

Debra A. Howland  
Executive Director  
New Hampshire Public Utilities Commission  
21 S. Fruit Street, Suite 10  
Concord, NH 03301-2429

**Re: DE 17-136 – 2018-2020 New Hampshire Statewide Energy Efficiency Plan**

Dear Director Howland:

On December 31, 2018, the Commission issued Order No. 26,207 in the above docket approving a settlement agreement relating to the implementation of the 2019 Update to the Energy Efficiency Resource Standard (“EERS”) in New Hampshire. That Order approved a settlement agreement which modified the 2019 Update plan that had been submitted by the New Hampshire Electric and Natural Gas Utilities: 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; Unitil Energy Systems, Inc. (UES); Liberty Utilities (EnergyNorth Natural Gas) Corp d/b/a Liberty Utilities; and Northern Utilities, Inc. (Northern) (collectively, the “NH Utilities”) on September 15, 2018. As part of the Order, the Commission required the NH Utilities to file an updated version of the 2019 Update plan reflecting the changes necessitated by the settlement agreement within 15 days of the date of the Order.

In line with the Commission’s requirement, enclosed for filing is an updated version of the 2019 Update plan reflecting the changes required under the settlement agreement. The NH Utilities look forward to implementing the 2019 Update in line with this revised plan and to working with the Commission, its Staff, and other stakeholders, on further enhancements for the benefit of New Hampshire and its utility customers. Please contact me if there are any questions about this filing. Thank you.

Very truly yours,



Matthew J. Fossum  
Senior Counsel, Eversource Energy  
o/b/o the Electric and Natural Gas Utilities

Enclosures  
cc: Service List

**NH SAVES**  
we all win

# 2019

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## NEW HAMPSHIRE STATEWIDE ENERGY EFFICIENCY PLAN

### 2019 Update

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

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

Unitil Energy Systems, Inc.

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

Northern Utilities, Inc.

**NHPUC Docket DE 17-136**

**Compliance Filing**

**January 15, 2019**

**NHSAVES<sup>®</sup>**

**EVERSOURCE**

 **Liberty Utilities**

 **NEW HAMPSHIRE  
Electric Co-op**

 **Unitil**  
energy for life

**TABLE OF CONTENTS**

**1.0 Introduction..... 5**

**2.0 2019 Program Goals..... 7**

    2.1 2019 Annual Energy Savings Targets ..... 8

    2.2 Program Funding ..... 10

    2.3 Annual Program Budgets ..... 15

**3.0 Residential Program Changes..... 18**

    3.1 Home Energy Assistance (“HEA”)..... 18

    3.2 Home Performance with ENERGY STAR® (“HPwES”)..... 20

    3.3 ENERGY STAR Homes ..... 21

    3.4 ENERGY STAR Products (“ESProducts”) ..... 23

    3.5 Home Energy Report (“HER”) Program..... 24

    3.6 Customer Engagement Platform..... 25

**4.0 NHSaves Commercial and Industrial Program Changes ..... 27**

    4.1 Large Business, Small Business and Municipal Programs ..... 27

    4.2 Energy Rewards Request for Proposals (“RFP”)..... 29

**5.0 Marketing ..... 30**

**6.0 NHSaves Financing..... 31**

    6.1 Residential Financing Changes ..... 31

    6.2 Commercial and Municipal Financing Changes ..... 31

    6.3 Additional Program Funding Sources..... 34

**7.0 Planning Elements ..... 36**

    7.1 Benefit – Cost Testing..... 36

    7.2 Low Income Non-Energy Impacts (NEI)..... 38

    7.3 Benefit Cost Tables..... 41

    7.4 Lost Base Revenue (“LBR”) Calculation ..... 42

    7.5 Capacity Demand Management..... 42

    7.6 DE 17-136 Working Groups..... 45

    7.7 Stakeholder Process for 2021-2023 Plan ..... 48

**8.0 Evaluation, Measurement and Verification (EM&V)..... 49**

## **TABLES and FIGURES**

**Table 1.1: Comparison to 2018**

**Table 2.1: Energy savings goals as a percentage of 2014 retail sales**

**Table 2.2: Electric Program Annual Statewide Savings Goal**

**Table 2.3: Natural Gas Program Annual Statewide Savings Goal**

**Table 2.4: Electric Program Annual Savings, by Utility**

**Table 2.5: Electric Program Annual Savings, by Sector**

**Table 2.6: Natural Gas Program Annual Savings, by Utility**

**Table 2.7: Natural Gas Program Annual Savings, by Sector**

**Table 2.8: Expected Savings from Other Fuels, by Sector**

**Table 2.9: Annual Funding Source, Electric, Original 2019 Estimate**

**Table 2.10: Annual Funding Source, Electric, Updated 2019 Estimate**

**Table 2.11: Annual Funding Source, Electric, Difference Between Update and Original**

**Table 2.12: Funding and Budget Details**

**Table 2.13: Annual Funding Source, Natural Gas, Original 2019 Estimate**

**Table 2.14: Annual Funding Source, Natural Gas, Updated 2019 Estimate**

**Table 2.15: Annual Funding Source, Natural Gas, Difference Between Update and Original**

**Table 2.16: Annual Electric Budget, by Utility**

**Figure 2.17: Electric Budget, by Sector**

**Table 2.18: Annual Natural Gas Budget, by Utility**

**Figure 2.19: Natural Gas Budget, by Sector**

**Table 3.1: Home Energy Assistance Energy Savings and Budget**

**Table 3.2: 2019 HEA Quarterly Project Schedule**

**Table 3.3: 2019 HEA Project Distribution**

**Table 3.4: Home Performance with ENERGY STAR Energy Savings and Budget**

**Table 3.5: ENERGY STAR Homes Energy Savings and Budget**

**Table 3.6: ENERGY STAR Products Energy Savings and Budget**

**Table 3.7: Home Energy Reports Energy Savings and Budget**

**Figure 3.8: Customer Engagement Platform – Disaggregation Wheel Example**

**Table 3.9: Eversource Customer Engagement Platform Budget**

**Table 4.1: Large Business Energy Solutions Energy Savings and Budgets**

**Table 4.2: Small Business Energy Solutions Energy Savings and Budgets**

**Table 4.3: Municipal Energy Solutions Energy Saving and Budgets**

**Table 4.4: Energy Rewards Energy Savings and Budgets**

**Table 6.1: 2019 Capital for On-Bill Financing**

**Table 7.1: Commercial Benefit-Cost Ratios**

**Table 7.2: Residential Benefit-Cost Ratios**

**ATTACHMENTS**

- Attachment A: Summary of Material Changes
- Attachment B: Statewide Goals
- Attachment C: Utility Budgets by Activity
- Attachment D: Utility Goals by Program
- Attachment E1: Eversource – Electric Program Cost-Effectiveness
- Attachment E2: Eversource – Electric Detailed Planning Assumptions by Program
- Attachment E3: Eversource – Electric System Benefits Charge Calculation
- Attachment E4: Eversource – Planned and Actual Data by Program
- Attachment F1: Liberty Utilities – Electric Program Cost-Effectiveness
- Attachment F2: Liberty Utilities – Electric Detailed Planning Assumptions by Program
- Attachment F3: Liberty Utilities – Electric System Benefits Charge Calculation
- Attachment F4: Liberty Utilities – Planned and Actual Data by Program
- Attachment G1: NHEC – Electric Program Cost Effectiveness
- Attachment G2: NHEC – Electric Detailed Planning Assumptions by Program
- Attachment G3: NHEC – Electric System Benefits Charge Calculation
- Attachment G4: NHEC - Planned and Actual Data by Program
- Attachment H1: Unitil Energy Systems, Inc. – Electric Program Cost-Effectiveness
- Attachment H2: Unitil Energy Systems, Inc. – Electric Detailed Planning Assumptions by Program
- Attachment H3: Unitil Energy Systems, Inc. – Electric System Benefits Charge Calculation
- Attachment H4: Unitil Energy Systems, Inc. - Planned and Actual Data by Program
- Attachment I1: Liberty Utilities – Natural Gas Program Cost-Effectiveness
- Attachment I2: Liberty Utilities – Natural Gas Detailed Planning Assumptions by Program
- Attachment I3: Liberty Utilities – Natural Gas Energy Efficiency Rate and Lost Base Revenue Rate Calculations
- Attachment I4: Liberty Utilities – Natural Gas Planned and Actual Data by Program
- Attachment J1: Northern Utilities – Natural Gas Program Cost-Effectiveness
- Attachment J2: Northern Utilities – Natural Gas Detailed Planning Assumptions by Program
- Attachment J3: Northern Utilities – Natural Gas Energy Efficiency Rate Calculation
- Attachment J4: Northern Utilities – Natural Gas Planned and Actual Data by Program
- Attachment J5: Northern Utilities – Natural Gas Lost Base Revenue Rate Calculation
- Attachment L1: Statewide Summary of Detailed Demand Charge Lost Base Revenue Calculation
- Attachment L2: Eversource – Electric Detailed Lost Base Revenue Calculation
- Attachment L3: Liberty Utilities – Electric Detailed Lost Base Revenue Calculation
- Attachment L4: Unitil Energy Systems, Inc. – Electric Detailed Lost Base Revenue Calculation
- Attachment L5: Liberty Utilities – Natural Gas Detailed Lost Base Revenue Calculation
- Attachment L6: Northern Utilities – Natural Gas Detailed Lost Base Revenue Calculation

## 1.0 Introduction

The New Hampshire electric and natural gas utilities are pleased to submit our 2019 Statewide Energy Efficiency Plan Update (“2019 Update”) for approval by the New Hampshire Public Utilities Commission (the “Commission”). The 2019 Update is being filed jointly by Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities, New Hampshire Electric Cooperative, Inc. (“NHEC”), Public Service Company of New Hampshire d/b/a Eversource Energy, and Unil Energy Systems, Inc. (“UES”) (referred to throughout the remainder of this document as the “NH Electric Utilities”) and Liberty Utilities (EnergyNorth Natural Gas) d/b/a Liberty Utilities and Northern Utilities, Inc. (“Northern”) (referred to as the “NH Natural Gas Utilities”) or collectively as the “NH Utilities”. The NH Utilities appreciate the opportunity to build upon our long history of providing energy efficiency programs in New Hampshire. We look forward to working with our customers<sup>1</sup> and all of the energy efficiency stakeholders to increase energy savings and achieve the significant economic and environmental benefits that energy efficiency delivers to New Hampshire.

2019 is the second year of New Hampshire’s first 3-year, Energy Efficiency Plan under the Energy Efficiency Resource Standard (“EERS”). The 2018-2020 Statewide Energy Efficiency Plan (“2018-2020 Plan”) was approved by the Commission on January 2, 2018 in Order no. 26,095. The 2019 Update provides information regarding changes or adjustments from the information provided for 2019 in the 2018-2020 Plan. The information contained in the original 2018-2020 Plan that is not updated in the 2019 Update, remains in its original form as approved by the Commission.

### Direct Energy Savings, Demand and Emissions Reductions

Since 2002, New Hampshire natural gas and electric customers have installed energy efficiency measures that have or will save more than 14 billion electric kilowatt-hours (“kWh”) and 30 million natural gas million British Thermal Units (“MMBtus”), resulting in cumulative customer savings in excess of \$2.4 billion.

The 2019 Update will lead to savings of more than 1.3 billion electric kilowatt-hours and 2.8 million natural gas MMBtus over the lifetime of the measures. In addition, the program will save 1.8 million MMBtus from other fuels.

The measures implemented as part of the 2019 Update will reduce summer peak demand by 12.5 MW and winter peak demand by 16 MW, which in turn will reduce costs for all electric

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



customers.

The 2019 Update energy savings will result in customer energy cost savings of more than \$289 million over the lifetime of the measures. In addition, the 2019 Update will support 678 full time equivalents (“FTEs”) or 1.4 million work hours (using 2,080 hours for each FTE).<sup>2</sup> Efficiency investments support the New Hampshire economy in other ways. When energy bills are lowered, residents and businesses have more money to spend on operations, materials, labor and other productive investments. The lower energy costs that result from efficiency projects in municipal buildings lead to a more efficient use of taxpayer dollars in the community.

The 2019 Update will also lead to a lifetime reduction of more than 927 thousand tons of greenhouse gas emissions, the equivalent of taking 260,065<sup>3</sup> passenger vehicles off the road for one year.

## 2019 Overview

Table 1.1: Comparison to 2018

ELECTRIC PROGRAMS	2018	2019 Update
Lifetime MWh Savings	1,046,970	1,327,457
Annual MWh Savings	86,589	109,897
Annual Savings as a % of 2014 Delivery Sales	0.80%	1.0%
Program Budget	\$36,623,566	\$47,079,203
Program Cost per Lifetime kWh Savings	\$0.035	\$0.035
NATURAL GAS PROGRAMS	2018	2019 Update
Lifetime MMBtu Savings	2,306,693	2,841,037
Annual MMBtu Savings	163,616	174,787
Annual Savings as a % of 2014 Delivery Sales	0.70%	0.75%
Program Funding	\$9,157,813	\$9,896,499
Program Cost per Lifetime MMBTU Savings	\$3.97	\$3.48

<sup>2</sup>According to a study from the Political Economy Research Institute (PERI) of the University of Massachusetts at Amherst (2012), every million dollars spent on energy-efficient measures, such as building retrofits, supports 7 direct jobs and 4.9 indirect jobs.

Burr, A., Majerski, C., Stellberg, S., Garrett-Peltier, H. (2012, March). “Analysis of Job Creation and Energy Cost Savings”. Retrieved from [http://www.peri.umass.edu/fileadmin/pdf/other\\_publication\\_types/PERI-IMT-2012-Analysis\\_Job\\_Creation.pdf](http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/PERI-IMT-2012-Analysis_Job_Creation.pdf)

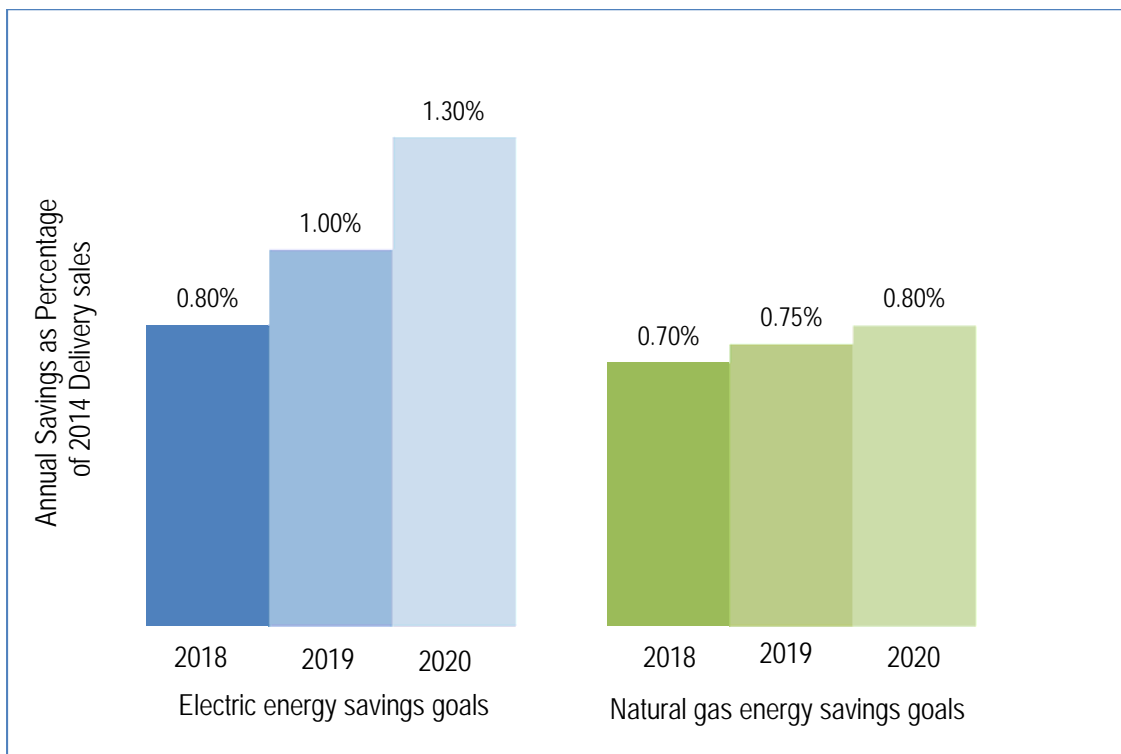
<sup>3</sup> Utilizing EPA Greenhouse Gas Equivalencies Calculator. Retrieved from <http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

## 2.0 2019 Program Goals

Commission Order No. 25,932<sup>4</sup> set statewide energy savings goals for the 2018-2020 NHSaves Programs based on a percentage of the NH Utilities’ 2014 delivery sales. For 2019, the NH Utilities propose energy efficiency measures, tools, and programs designed to achieve energy savings of 1.0 percent of retail electric sales and 0.75 percent of retail natural gas sales, relative to the 2014 delivery sales baseline.

**FIGURE 2.1: Energy savings goals as a percentage of 2014 retail sales**

The annual energy savings goals increase incrementally between 2018 and 2020.



<sup>4</sup> New Hampshire Public Utilities Commission (2016, August 8), Order No. 25,932, “Energy Efficiency Resource Standard – Order Approving Settlement Agreement”. Retrieved from <http://www.puc.state.nh.us/Regulatory/Orders/2016orders/25932e.pdf>





Tables 2.2 and 2.3 summarize the specific statewide energy savings goals for the 2019 NHSaves Electric and Natural Gas Programs.

**Table 2.2: Electric Program Annual Statewide Savings Goal**

Electric Annual Statewide Goal (MWH)	
2014 Delivery Sales (MWH)	2019
10,782,973	107,830

**Table 2.3: Natural Gas Program Annual Statewide Savings Goal**

Natural Gas Annual Statewide Goal (MMBtu)	
2014 Delivery Sales (MMBtu)	2019
23,352,672	174,787

## 2.1 2019 Annual Energy Savings Targets

Tables 2.4 and 2.5, summarize the energy savings targets for the NHSaves electric program. Tables 2.6 and 2.7 summarize the energy savings targets for the NHSaves natural gas programs.

**Table 2.4: 2019 Electric Program Annual Savings, by Utility**

Company	Electric Annual Savings (MWH)	Percentage of 2019 Statewide Savings
Eversource	85,147	78%
Liberty Utilities	9,224	8%
NHEC	5,433	5%
Unitil	10,093	9%
Total	110,006	100%

**Table 2.5: 2019 Electric Program Annual Savings, by Sector**

Sector	Electric Annual Savings (MWH)	Percentage of 2019 Statewide Savings
C&I and Municipal	85,578	78%
Residential	23,149	21%
Income Eligible	1,170	1%
Total	109,897	100%

**Table 2.6: 2019 Natural Gas Program Annual Savings, by Utility**

Company	Natural Gas Annual Savings (MMBtu)	Percentage of 2019 Statewide Savings
Liberty	138,080	79%
Unitil	36,707	21%
Total	174,787	100%

**Table 2.7: 2019 Natural Gas Program Annual Savings, by Sector**

Sector	Natural Gas Annual Savings (MMBtu)	Percentage of 2019 Statewide Savings
C&I and Municipal	122,047	70%
Residential	43,156	25%
Income Eligible	9,584	5%
Total	174,787	100%



## Additional Fuel Neutral Savings

The NH Electric Utilities programs also generate energy savings from other fuels including oil, propane, kerosene and wood. These energy savings are in addition to the statewide EERS electric and natural gas savings goals and are an important part of the comprehensive energy savings programs, contributing significant benefits to NH customers and reducing greenhouse gas emissions. These savings are particularly important to reduce the energy cost burden of residential customers, especially those who qualify for the income-eligible programs, as well as municipal customers whose costs are borne by local taxpayers. These savings also contribute to the programs’ cost-effectiveness and are reflected in Table 2.8 by customer sector in MMBtu’s.

**Table 2.8: 2019 Expected Savings from Other Fuels, by Sector**

Annual Savings From Other Fuel Sources, by Sector (MMBtu)		
Sector	MMBtu	Percentage of 2019 MMBtu savings
Income Eligible	27,890	31%
Residential	58,819	65%
Municipal	3,964	4%
Total	90,672	100%

## 2.2 Program Funding

### Electric Energy Efficiency 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) that 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 earned by each of the NH Electric Utilities from ISO-NE for participation in ISO-NE’s Forward Capacity Market (FCM). All electric utility FCM revenues are derived from demand reductions from the energy efficiency programs and support the NHSaves Electric Programs.

Additionally, the balance of funds from prior program years is carried forward to future years, including interest applied on the monthly balance at the prime rate.

The 2019 SBC revenues are estimated based on a forecast of each utility’s 2019 sales and a proposed SBC energy efficiency program rate of \$0.00373 per kilowatt-hour. The proposed SBC rate is a \$0.00098 increase from the 2018 SBC energy efficiency program rate of \$0.00275 per kilowatt-hour. The proposed SBC rate is 12 percent lower than the estimated 2019 SBC energy



efficiency program rate of \$0.00425 that was included in the Settlement Agreement that led to the Commission’s Order No. 25, 932<sup>5</sup> in the EERS proceeding.

The estimated RGGI revenues to be made available to the NHSaves programs are provided to the NH Electric Utilities by the Commission’s staff. The FCM revenues are estimated based on forecasted prices for the energy efficiency on-peak summer and winter demand resources. These differ by electric company and are subject to adjustment based on future performance.

Tables 2.9 – 2.11 summarize the original 2018-2020 Plan estimated electric program funding for 2019, the updated estimated program funding for 2019 and the difference between the 2019 Update and original by source and utility. The overall estimated level of funding for 2019 increased by \$818thousand from the estimated funding included in the 2018-2020 Plan. The increase consists primarily of carry forward and estimates of forward capacity market funding.

**Table 2.9: Annual Funding Source, Electric Original 2019 Estimate**

Source	Original 2019 Estimated Electric Funding (\$)				Total
	Eversource	Liberty	NHEC	Unitil	
System Benefits Charge (SBC)	29,331,571	3,424,682	2,812,856	4,427,087	39,996,196
Carry forward & Interest		-	-		
Regional Greenhouse Gas Initiative (RGGI)	1,876,246	215,538	198,535	282,414	2,572,733
ISO-NE Forward Capacity Market (FCM)	5,777,224	577,009	65,000	500,000	6,919,233
Total	36,985,041	4,217,229	3,076,391	5,209,501	49,488,162

<sup>5</sup> New Hampshire Public Utilities Commission (2016, August 8), Order No. 25,932, “Energy Efficiency Resource Standard – Order Approving Settlement Agreement”. Retrieved from <http://www.puc.state.nh.us/Regulatory/Orders/2016orders/25932e.pdf>

**Table 2.10: Annual Funding Source, Electric Updated 2019 Estimate**

Source	Updated 2019 Estimated Electric Funding (\$)				Total
	Eversource	Liberty	NHEC	Unitil	
System Benefits Charge (SBC)	29,288,061	3,424,682	2,826,128	4,480,530	40,019,402
Carry forward & Interest	(385,554)	163,024	56,949	751,289	585,708
Regional Greenhouse Gas Initiative (RGGI)	1,867,533	213,985	201,249	284,017	2,566,784
ISO-NE Forward Capacity Market (FCM)	5,777,224	632,524	75,000	650,000	7,134,748
Total	36,547,264	4,434,215	3,159,326	6,165,836	50,306,642

**Table 2.11: Annual Funding Source, Difference between Update and Original**

Source	2019 Estimated Electric Funding Difference (\$)				Total
	Eversource	Liberty	NHEC	Unitil	
System Benefits Charge (SBC)	(43,510)	0	13,272	53,443	23,206
Carry forward & Interest	(385,554)	163,024	56,949	751,289	585,708
Regional Greenhouse Gas Initiative (RGGI)	(8,713)	(1,553)	2,714	1,603	(5,949)
ISO-NE Forward Capacity Market (FCM)		55,515	10,000	150,000	215,515
Total	(437,777)	216,986	82,935	956,335	818,480

Liberty carried forward \$163,024 from 2017 and will utilize \$150,000 as capital for additional commercial on-bill financing. These funds will be allocated to the revolving loan pool and tracked within the revolving loan section of the Quarterly Reports. The remaining \$13,024 of carry forward is included in the 2019 Program Budget. Please see section 6.0 for more details about the NH Utilities on-bill finance offerings.

Unitil carried forward \$751,289 from 2017. Of that, \$375,000 will be transferred to the existing revolving loan fund as capital for commercial on-bill financing offerings. These funds will be tracked within the revolving loan section of the Quarterly Reports. \$206,071 will be utilized for programs in 2019, and the remaining \$116,218 will be held until 2020 and utilized during that



program year. Because the energy efficiency portion of the SBC rate is identical for each of the utilities, and due to the fact that Unitil anticipates starting 2019 with a significant over-collection, the Company does not anticipate expending all revenues carry forward during the 2019 program year.

At the end of 2017, NHEC had a carry forward balance of \$171,532. Seventeen percent was allocated to the HEA program to be spent on additional projects during 2018. The remaining balance was split between the residential and commercial sectors by sales allocation. The residential portion of \$85,423 was allocated to be utilized for HPwES projects during 2018, in response to a high demand for the program. The remaining \$56,949 was included as carry forward, shown in Table 2.10, and will be utilized for the 2019 commercial program budgets.

**Table 2.12: 2019 Funding and Budget Detail**

Source	2019 Funding and Budget Details (\$)				Total
	Eversource	Liberty	NHEC	Unitil	
Total Funding As detailed in Table 2.10	36,547,264	4,434,215	3,159,326	6,165,836	50,306,642
Carryover Utilized for OBF or held As discussed above		150,000		491,218	641,218
Funding for 2019 )	36,547,264	4,284,215	3,159,326	5,674,618	49,665,424
2019 Estimated Performance Incentive Additional Detail in Attachments E1, F1, G1 and H1	1,902,597	223,348	164,444	295,834	2,586,223
2019 Program Budget Additional Detail in Section 2.3	34,644,667	4,060,868	2,994,883	5,378,785	47,079,203

### Natural Gas Energy Efficiency Funding

The NHSaves programs offered by the NH Natural 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 [Table 2.14]. As with the electric programs, the balance of funds from prior program years is carried forward to future years, including interest earned on monthly balances applied at the prime rate.

The NH Natural Gas Utilities determine the overall budget requirements to meet the required energy savings targets. LDAC rates are then set by sector by each of the gas utilities based on a forecast of sales. Energy efficiency rates for 2019 can be found in Attachments I3 and J3 for the NH Natural Gas Utilities.

Liberty has a carry forward and interest balance of \$2,448,333 from 2017 and will utilize \$875,000 as capital for a residential and commercial on-bill financing offering. These funds for

on-bill financing will be tracked within the revolving loan section of the Quarterly Reports. The remaining \$1,573,333 of carry forward and interest is included in the 2019 Program Budget.

**Table 2.13: 2019 Original Annual Funding Source, Natural Gas**

Source	Original 2019 Natural Gas Funding (\$)		
	Liberty	Northern	Total
Local Distribution Adjustment Charge (LDAC)	8,258,955	2,321,158	10,580,113
Carry forward & Interest	0	(72,256)	(72,256)
<b>Total</b>	<b>8,258,955</b>	<b>2,248,902</b>	<b>10,507,857</b>

**Table 2.14: 2019 Updated Annual Funding Source, Natural Gas**

Source	2019 Updated Natural Gas Funding (\$)		
	Liberty	Northern	Total
Local Distribution Adjustment Charge (LDAC)	6,558,495	2,446,480	9,004,975
Carry forward & Interest	2,448,333	15,889	2,464,222
<b>Total</b>	<b>9,006,828</b>	<b>2,462,369</b>	<b>11,469,197</b>

**Table 2.15: Natural Gas Annual Funding Source, Difference between Update and Original**

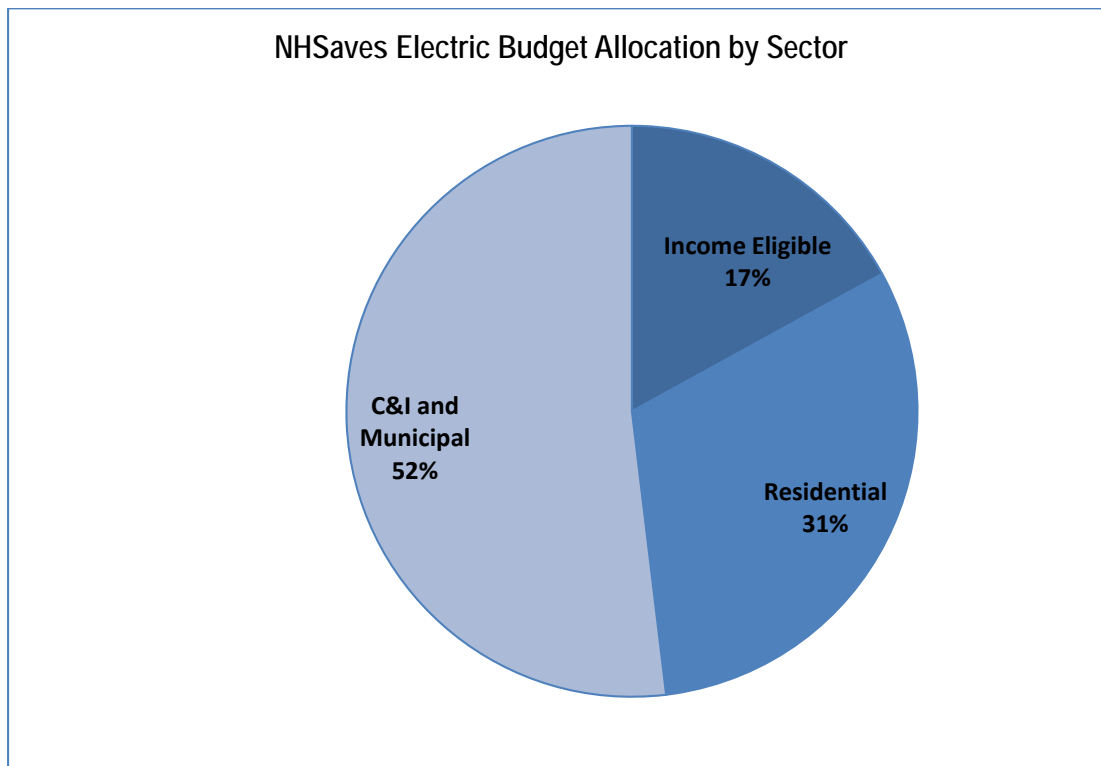
Source	Estimated Funding Difference (\$)		
	Liberty	Northern	Total
Local Distribution Adjustment Charge (LDAC)	(1,700,460)	125,322	(1,575,138)
Carry forward & Interest	2,448,333	88,145	2,536,478
<b>Total</b>	<b>747,873</b>	<b>213,467</b>	<b>961,340</b>

## 2.3 Annual Program Budgets

**Table 2.16: Annual Electric Budget, by Utility**

Company	Original 2019 Electric Budget	Updated 2019 Electric Budget	Difference	Percentage of 2019 Updated Budget
Eversource	35,059,623	34,644,667	(414,956)	74%
Liberty	3,997,374	4,060,868	63,494	9%
NHEC	2,916,271	2,994,883	78,612	6%
Unitil	4,937,916	5,378,785	440,869	11%
Total	46,911,184	47,079,203	168,019	100%

**Figure 2.17: Electric Budget, by Sector**

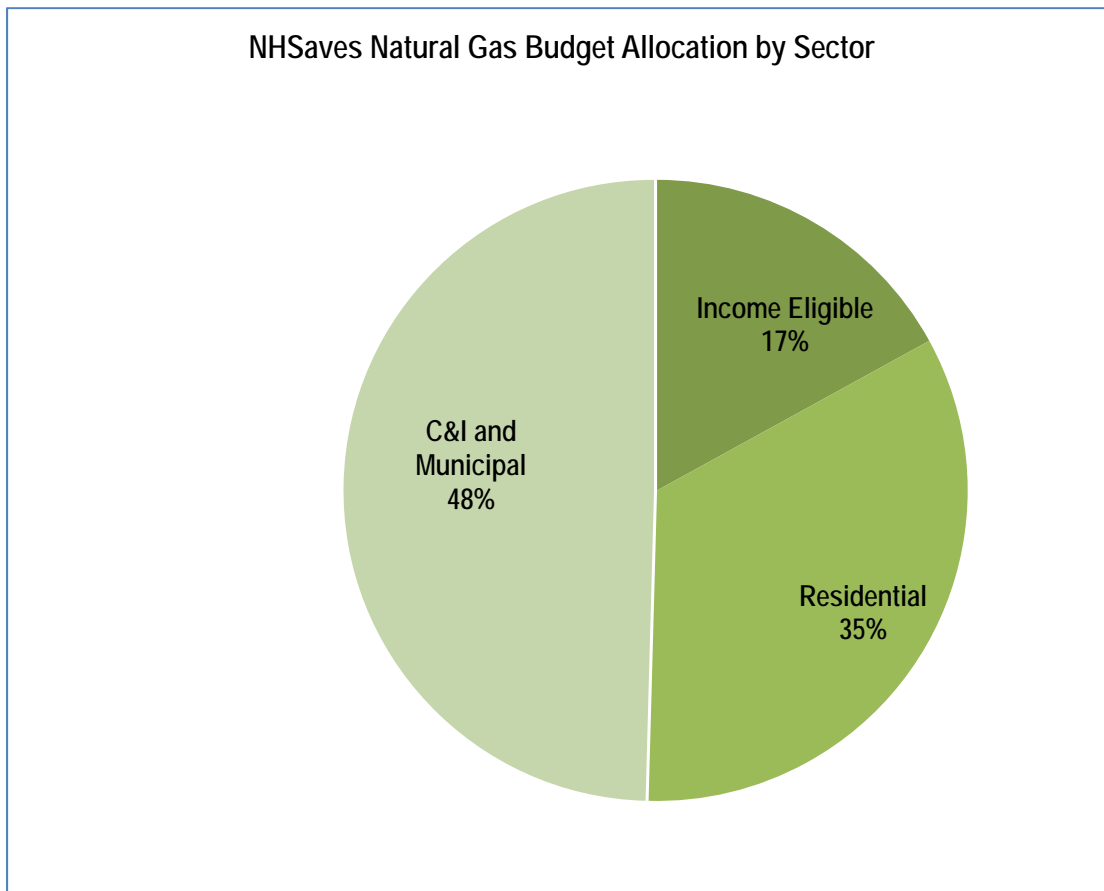




**Table 2.18: Annual Natural Gas Budget, by Utility**

Company	Original 2019 Natural Gas Budget	Updated 2019 Natural Gas Budget	Difference	Percentage of Updated 2019 Budget
Liberty	7,828,394	7,707,894	(120,500)	78%
Unitil	2,200,150	2,188,606	(11,544)	22%
Total	10,028,543	9,896,499	(132,044)	100%

**Figure 2.19: Natural Gas Budget, by Sector**



Budget allocations by sector are informed by the source of the funds, and each utility’s forecasted delivery sales to each sector. The income-eligible Home Energy Assistance (“HEA”) program budget is not less than 17 percent of each utility’s total portfolio budget.



There are several factors that may impact budget levels. Any difference between the actual spending in each program year and the actual energy efficiency funds received based on customer usage, is carried forward into future year program budgets. This value may be positive or negative. Monthly interest at the prime rate is applied to fund balances. Funding estimates from the SBC and LDAC are based on each company's sales projections. Actual sales may differ, resulting in more or less SBC or LDAC revenue available for energy efficiency programs. In addition, RGGI and FCM proceeds are estimated and are also subject to change.

## 3.0 Residential Program Changes

### 3.1 Home Energy Assistance (“HEA”)

#### Program Changes

In implementing the Home Energy Assistance program, the NH utilities remain focused on working with the Community Action Agencies (“CAAs”) to provide comprehensive weatherization services to income-eligible customers. The program design remains as described in the 2018-2020 Plan.

As the NH Utilities, the CAAs, and the Office of Strategic Initiatives (“OSI”) work together to serve income-eligible customers, utilizing a combination of utility, federal and other funding sources, we are reviewing workforce training needs. Knowledgeable and capable workers who can perform energy audits and safely install energy efficiency measures are a key element to effectively delivering the HEA program. The NH Utilities will coordinate with the CAAs and OSI to identify training needs and provide workforce training opportunities during 2019.

#### Program Budget and Goals

Table 3.1: Home Energy Assistance Energy Savings and Budget

Annual Home Energy Assistance Program		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	7,974,902	8,184,964
kWh savings	1,036,792	1,170,363
kW reduction	148	153
MMBtu savings	25,622	27,890
Electric participants	1,004	1,115
<b>Natural gas</b>		
Budget	1,704,868	1,684,368
MMBtu savings	9,679	9,584
Gas participants	339	307

Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBtu = million British thermal units



The NH Utilities work with the CAAs to estimate the number of income-eligible participants to be served each quarter and by county to ensure the services are being delivered throughout the state. Tables 3.2 and 3.3 display the 2019 HEA Quarterly Project Schedule and the 2019 HEA Project Distribution by county. Quarterly targets are considered benchmarks and typically vary in practice.

**Table 3.2: 2019 HEA Quarterly Project Schedule**

The project schedule reflects the expected number of homes served (“Jobs”) by the HEA Program by quarter.

Utility	Total Jobs	1st. Qtr.	2nd. Qtr.	3rd. Qtr.	4th. Qtr.
		23%	29%	29%	19%
LU-Electric	72	12	23	25	12
NHEC	63	8	20	23	12
Eversource	865	219	249	249	148
Unitil	115	26	29	34	26
LU-Gas	245	46	79	68	52
Unitil-Gas	62	11	17	20	14
<b>TOTAL Electric</b>	<b>1,115</b>	<b>265</b>	<b>321</b>	<b>331</b>	<b>198</b>
<b>TOTAL Gas</b>	<b>307</b>	<b>57</b>	<b>96</b>	<b>88</b>	<b>66</b>
<b>Cumulative TOTAL</b>		322	739	1,158	1,422

**Table 3.3: 2018 HEA Project Distribution**

The project distribution table outlines how projects will be allocated by county.

BY COUNTY	LU-Electric	NHEC	Eversource	Unitil	LU-Gas	Unitil-Gas	Grand Total
Belknap		9	55		24		88
Carroll		9	68				77
Cheshire	3		27				30
Coos		3	77		0		80
Grafton	31	21	32				84
Hillsborough	9		353		193		555
Merrimack		7	47	41	24		119
Rockingham	24	3	93	74	4	39	237
Strafford		5	93			23	121
Sullivan	5	6	20				31
Program Totals	72	63	865	115	245	62	1,422



## Recent or Planned Evaluations

A process and impact evaluation for the HEA Program began in 2018. Opinion Dynamics Corporation (“ODC”) is the third party evaluation consultant conducting the evaluation under the direction of the NH EM&V Working Group. Initial results are expected in spring 2019 and will follow the review and finalization process described in the 2018-2020 Plan, Section 10, Evaluation, Measurement & Verification. An additional scope of work regarding specific Non-Energy Impacts (“NEIs”) for the HEA programs is also underway and results are expected to be incorporated into the 2020 Update Plan.

## 3.2 Home Performance with ENERGY STAR® (“HPwES”)

### Program Changes

The program design remains as described in the 2018-2020 Plan.

In 2019, the NH Utilities will explore the feasibility of offering a package of energy saving measures for electric customers who do not meet the Home Heating Index (“HHI”) threshold. This offering will be informed by the experience from the natural gas visual audit offering and will allow the program to capture electric savings in homes where full weatherization services would not be cost effective. As with the natural gas visual audit, if the contractor indicates that there is an opportunity for additional energy savings while on site, auditing software can be used to test for cost-effectiveness. If sufficient opportunity exists, the customer will have the opportunity to receive HPwES weatherization measures.

The Natural Gas Utilities will offer a new opportunity for on-bill financing of up to \$4,000 to customers participating in the HPwES program. Additional details are included in Section 6.1. Additionally, as described in Section 6.1, NHEC and Unitil Electric have increased the on-bill loan offering from a maximum of \$2,000 to a maximum of \$4,000 to help cover the customer’s portion of the weatherization job. By increasing the maximum loan amount, NHEC and Unitil expect to increase the number of customers assisted in overcoming the upfront cost barrier, including customers of more moderate income levels.

## Program Budget and Goals

Table 3.4: Home Performance with ENERGY STAR Energy Savings and Budget

Annual Home Performance with ENERGY STAR		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	5,157,513	5,387,205
kWh savings	821,233	930,709
kW reduction	147	116
MMBtu savings	37,747	41,658
Electric participants	1,290	1,431
<b>Natural gas</b>		
Budget	1,025,088	1,239,988
MMBtu savings	9,799	12,480
Gas participants	615	792
<small>Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBtu = million British thermal units</small>		

## Recent or Planned Evaluations

A process and impact evaluation for the HPwES Program began in 2018. As with the review of the HEA program, ODC is performing the evaluation of HPwES. Initial results are expected in spring 2019 and will follow the review and finalization process described in the 2018-2020 Plan, Section 10, Evaluation, Measurement & Verification.

## 3.3 ENERGY STAR Homes

### Program Changes

The program design remains as described in the 2018-2020 Plan. The NH Utilities are developing an incentive structure for ENERGY STAR manufactured homes in order to reach an additional subset of the new home construction market.

Certification for HVAC contractors is an important element of the ENERGY STAR program and was identified as a barrier to increasing the number of ENERGY STAR certified homes in a recent evaluation of the program.<sup>6</sup> In 2018 the NH Utilities initiated the ‘Drive to ENERGY STAR’ offering as a pathway into the program for new builders and HVAC contractors. In 2019 the NH Utilities will continue to enhance this pathway by providing training and certification assistance

<sup>6</sup>ERS, New Hampshire ENERGY STAR Homes Program Impact Evaluation (2014–2015) Final Report, December 7, 2017. See [http://www.puc.state.nh.us/Electric/Monitoring%20and%20Evaluation%20Reports/NH\\_ESHomes\\_Report\\_Final\\_v4-2017.pdf](http://www.puc.state.nh.us/Electric/Monitoring%20and%20Evaluation%20Reports/NH_ESHomes_Report_Final_v4-2017.pdf)

to facilitate certification of HVAC contractors that are currently installing systems properly but have not yet gone through the credentialing process.

### Program Budget and Goals

**Table 3.5: ENERGY STAR Homes Energy Savings and Budget**

Annual ENERGY STAR Homes		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	2,805,646	2,697,699
kWh savings	1,194,124	1,448,919
kW reduction	267	328
MMBtu savings	12,871	13,672
Electric participants	945	1,220
<b>Natural gas</b>		
Budget	434,751	612,751
MMBtu savings	3,305	4,017
Gas participants	121	164

Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBtu = million British thermal units

### Recent or Planned Evaluations

Energy & Resource Solutions, Inc. (“ERS”), working on behalf of the EM&V Working Group completed a process and impact evaluation study of the ENERGY STAR Homes program in December 2017.<sup>7</sup> The evaluation study found “a program that is well run from an administrative standpoint and is valued by stakeholders and participants, with those surveyed giving the program high marks.”

The study also found some reluctance among HVAC contractors to go through the ENERGY STAR v3.0 certification requirements for administrative and design tasks. Further, the study identified spillover effects indicating that contractors participating in the program utilized high efficiency practices in all new homes that they build, not just those that are participating in the program and receiving an incentive. As a result of the study, the NH Utilities made several changes to the program in 2018, including updating the baseline home against which savings are claimed and adding an incentive tier for homes that are built to the higher expectations of ENERGY STAR v3.1. The full list of recommendations and responses from the NH Utilities are

<sup>7</sup> ERS, New Hampshire ENERGY STAR Homes Program Impact Evaluation (2014–2015) Final Report, December 7, 2017. See [http://www.puc.state.nh.us/Electric/Monitoring%20and%20Evaluation%20Reports/NH\\_ESHomes\\_Report\\_Final\\_v4-2017.pdf](http://www.puc.state.nh.us/Electric/Monitoring%20and%20Evaluation%20Reports/NH_ESHomes_Report_Final_v4-2017.pdf)

tracked on the EM&V Working Group’s webpage.<sup>8</sup>

## 2018 Awards

Chinburg Properties of Newmarket, NH received EPA’s 2018 ENERGY STAR Partner of the Year–Sustained Excellence recognition for its dedication to the ENERGY STAR Certified Homes program and its longstanding partnership with Home Energy Raters and utilities that also collaborate with the Certified Homes program in New Hampshire. The NH Utilities are extremely proud to see a New Hampshire homebuilder receive this special recognition.

The NH Utilities were also recognized by the EPA in 2018, receiving the ENERGY STAR Partner of the Year–Sustained Excellence recognition for the successful implementation of the ENERGY STAR Certified Homes program. The New Hampshire Utilities were specifically recognized for their collaboration and partnerships with Homebuilders, Home Energy Raters and trade associations to successfully implement the ENERGY STAR Certified Homes program across the state. 2018 was the 6<sup>th</sup> consecutive year that the NH Utilities have been recognized by the EPA as an ENERGY STAR Partner of the Year Award recipient.

## 3.4 ENERGY STAR Products (“ESProducts”)

### Program Changes

The program design remains as described in the 2018-2020 Plan.

The NH Utilities continue to focus on ways to make the ENERGY STAR Products program easily accessible to our customers. In 2019 we will work with our vendor partners to develop and test a point of sale e-rebates platform that will allow eligible customers to access rebates for appliances applied at the time of purchase. This type of offering allows the vendor to confirm customer and product eligibility via the customer’s smart phone. The mail-in and on-line rebate application forms will remain available for customers who prefer those options to e-rebates. The NH Utilities may also utilize special promotions and short-term appliance markdowns as an enhancement to the appliance offering.

Due to the low avoided cost of natural gas and expense of high efficiency water heaters, the gas companies are de-emphasizing or eliminating incentives for certain water heating products in 2019.

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<sup>8</sup> See [https://www.puc.nh.gov/EESE%20Board/EERS\\_Working\\_Groups.html#em&v](https://www.puc.nh.gov/EESE%20Board/EERS_Working_Groups.html#em&v) and [https://www.puc.nh.gov/EESE%20Board/EERS\\_WG/nh-emv-eval-of-recommendations-tracker-060018.pdf](https://www.puc.nh.gov/EESE%20Board/EERS_WG/nh-emv-eval-of-recommendations-tracker-060018.pdf).



## Program Budget and Goals

Table 3.6: ENERGY STAR Products Energy Savings and Budget

Annual ENERGY STAR Products		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	4,921,565	5,025,263
kWh savings	12,598,436	13,250,764
kW reduction	1,584	1,818
MMBtu savings	3,515	3,489
Electric participants	175,569	280,769
<b>Natural gas</b>		
Budget	1,501,137	1,240,237
MMBtu savings	19,100	16,022
Gas participants	2,327	1,972
<small>Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBtu = million British thermal units</small>		

## Recent or Planned Evaluations

The Cadmus process and impact evaluation of the ENERGY STAR Products program began in December 2017 but was not complete in time for incorporation into the 2019 Update Plan. Final results are expected in the Fall of 2018. As noted in the 2018-2020 Plan, final evaluations must be completed two months prior to the date the Plan filing is due in order for results to be incorporated. Given this, the EM&V Working Group reached consensus on continuing with the savings assumptions included in the original 2018-2020 Plan for 2019 and considering the study results for incorporation in the 2020 Plan Update.

## 3.5 Home Energy Report (“HER”) Program

### Program Changes

Eversource plans to leverage the results of tests conducted in its MA and CT territories to optimize its HER programs in New Hampshire. Randomized control trials gauged the impacts of modifying report language (e.g., using the term “similar homes” instead of “neighbors”), and alternative representation of comparison data in order to educate and motivate customers to take action.

The Liberty Home Energy Report program remains as described in the 2018-2020 Plan.

Due to unforeseen delays in launching its behavioral program, Unitil expects to send out the first paper HER reports to customers in the fourth quarter of 2018. Costs and savings for 2019 have been updated to reflect the number and usage of participants in the treatment pool, as well as the later than anticipated start of the program.

### Program Budget and Goals

**Table 3.7: Home Energy Reports Energy Savings and Budget**

Annual Home Energy Reports		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	1,190,617	1,143,866
kWh savings	7,486,587	7,519,600
kW reduction	609	619
MMBtu savings	0	0
Electric participants	147,000	142,800
<b>Natural gas</b>		
Budget	351,064	352,520
MMBtu savings	10,270	10,636
Gas participants	48,000	49,600
<small>Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBtu = million British thermal units</small>		

## 3.6 Customer Engagement Platform

### Program Changes

Eversource’s Customer Engagement Platform (“CEP”) has a number of enhancements scheduled for 2019 including:

- Incorporation of kW demand data (Commercial and Enterprise)
- Incorporation of interval data for Commercial customers wherever applicable (currently interval data is only available in the Enterprise module)
- Solar production interval data integration with CEP
- Additional integration with the behavior program

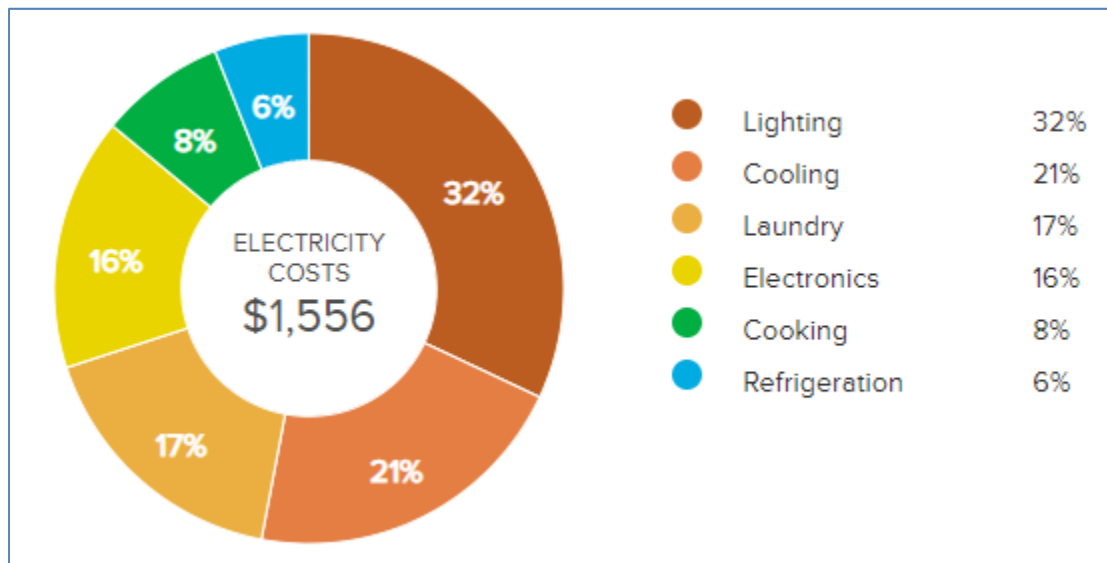
### Marketing & Outreach Updates

The following items are in process to increase marketing and usage of CEP:

- Implementation of Ex Machina, a machine learning tool that helps Eversource to determine the most appropriate message for targeted customers and further increase energy efficiency program participation. This tool is currently available in a testing environment and will be implemented in late 2018.

- In order to track customers’ footprint within CEP, a tool called Google Tag Manager (“GTM”) is currently in testing and will be available in late 2018.
- Additionally, to increase usage of CEP, Eversource is working to embed various CEP charts and graphs directly into the customers’ account page on Eversource.com. For example, the CEP disaggregation wheel, which is a tool within CEP for analyzing and displaying customer’s usage break-down, will be integrated with Eversource.com in 2018. This integration is intended to drive more traffic to CEP.

Figure 3.8: Customer Engagement Platform – Disaggregation Wheel Example



**Budget**

Table 3.9: EVERSOURCE Customer Engagement Platform Budget

Customer Engagement Platform		
	2019 Original (\$)	2019 Update (\$)
Total	616,720	529,692

## 4.0 NHSAVES Commercial and Industrial Program Changes

### 4.1 Large Business, Small Business and Municipal Programs

#### Program Changes

The Large Business, Small Business and Municipal Programs have similar structures that provide prescriptive incentives (i.e., applied based on average costs and savings) and custom incentives (based on the specific site conditions). These incentives reduce the customers' up-front costs for high-efficiency equipment for retrofit and new construction projects. The program design for all three customer segments remains as detailed in the 2018-2020 Plan.

The utilities began exploring a point-of-sale approach at the distributor level for LED lighting in 2018. The distributor point-of-sale approach allows lighting distributors to sell LED products to Large, Small and Municipal customers with the incentive applied to the price. The point of sale approach streamlines the rebate transaction for customers, as they receive the rebate through discounted pricing without the need to fill out paperwork or submit a rebate application to the utility or vendor. The electric utilities will continue exploring this model with other technologies in 2019. The gas utilities deployed this approach in 2017 for water heaters and will explore adding heating equipment in 2019.

The NH Utilities continue to pursue avenues to motivate business and municipal customers to undertake more comprehensive energy efficiency projects, including those with longer pay-back periods. The utilities are encouraging energy efficiency contractors to expand their portfolio of measures. One effort includes having direct install vendors streamline the installation of more comprehensive measures for midsize business customers, those that do not qualify for the Small Business program due to their average monthly peak demand being higher than 200 kW but are not the highest users. The utilities continue to work with distributors, installation contractors and direct install vendors to recommend and install comprehensive energy efficiency projects.

## Program Budget and Goals

TABLE 4.1: Large Business Energy Solutions Energy Savings and Budgets

Annual Large Business Energy Solutions		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	12,271,495	12,243,177
kWh savings	54,717,623	56,091,966
kW reduction	5,998	6,108
Electric participants	694	778
<b>Natural gas</b>		
Budget	2,798,338	2,923,338
MMBTu savings	75,197	82,013
Gas participants	181	166
<small>Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBTu = million British thermal units</small>		

\*The Large C&I budget includes \$93,765 for the Unitil Demand Reduction Initiative

TABLE 4.2: Small Business Energy Solutions Energy Savings and Budgets

Annual Small Business Energy Solutions		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	7,805,041	7,442,124
kWh savings	21,283,705	20,828,971
kW reduction	3,018	2,369
Electric participants	1,014	1,020
<b>Natural gas</b>		
Budget	2,112,527	1,742,527
MMBTu savings	47,437	40,033
Gas participants	1,154	1,088
<small>Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBTu = million British thermal units</small>		

**TABLE 4.3: Municipal Energy Solutions Energy Saving and Budgets**

Annual Municipal Energy Solutions		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	2,000,000	2,000,271
kWh savings	4,486,133	4,426,911
kW reduction	346	235
MMBtu savings	3,904	3,964
Electric participants	133	107

Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBTu = million British thermal units

### Recent or Planned Evaluations

An Impact Evaluation for the lighting measures within the Small Business and Municipal Programs was completed by the third-party evaluator DNV-GL in June 2018. Updated realization rates and coincidence factors from the study results have been incorporated into the benefit cost model for 2019. A Non-Lighting Measure Impact and Process Evaluation for the Small Business and Municipal Programs began in 2018 with the third-party evaluator Cadmus, which is scheduled for completion in the third quarter of 2019.

## 4.2 Energy Rewards Request for Proposals (“RFP”)

### Program Objective

The program design for the Eversource Energy Rewards RFP remains as described in the 2018-2020 Plan.

### Program Budget and Goals

**Table 4.4: Energy Rewards Energy Savings and Budgets**

Annual Energy Rewards RFP Program		
	2019 Original	2019 Update
<b>Electric</b>		
Budget	1,263,185	1,195,561
kWh savings	4,205,420	4,205,420
kW reduction	714	714
Electric participants	44	44

Note: kWh = kilowatt-hours; kW = kilowatt, reflecting reduction during ISO-NE summer on-peak hours; MMBTu = million British thermal units

## 5.0 Marketing

The overall strategy and objectives for Marketing remain as outlined in the 2018-2020 Plan. During 2018, the NHSaves website was redesigned with improvements to navigation that makes it easier for customers and partners to find the information that they are looking for. The website was re-launched in April. Development of phase one of the fully integrated umbrella marketing campaign began during the third quarter of 2018. Overarching objectives include:

- Increasing customer awareness of energy efficiency
- Encouraging and facilitating participation in energy efficiency programs
- Fostering behavior changes
- Identifying customer values related to energy efficiency and developing tactics to bridge the gap between awareness and action
- Outlining the benefits of energy efficiency and the value of going beyond simple actions to deeper savings
- Create a more streamlined customer experience and build trust

The campaign will launch during the fourth quarter of 2018 and continue into 2019. The campaign will focus on deploying engaging content through traditional, digital and social activities. As part of the campaign, the NHSaves logo will be updated.

A market assessment evaluation study was launched in 2018 and is being conducted by Navigant Consulting. The primary goal of the study is to gather information to better understand and characterize New Hampshire residents, businesses and municipalities in regards to energy efficiency, which will help inform the development, implementation and marketing of the New Hampshire energy efficiency programs.

Specific study objectives include:

- 1) Assess overall knowledge and awareness of energy efficiency
- 2) Identify general attitudes, perceptions and behaviors concerning energy efficiency
- 3) Develop a deeper understanding of the drivers of energy efficiency participation and the barriers that impede or prevent participation
- 4) Identify the means for most effectively communicating with customers and different customer segments
- 5) Establish a benchmark awareness level of the New Hampshire utilities' statewide energy efficiency program brand, NHSaves®.

The final report should be completed by the end of 2018 and the utilities will leverage this research to inform its specific marketing campaign strategies in 2019.

## 6.0 NHSaves Financing

### 6.1 Residential Financing Changes

#### On-Bill Offerings

In 2018 NHEC and Unitil Electric increased their on-bill offerings for residential financing from a maximum of \$2,000 to a maximum of \$4,000. The new level will remain in effect in 2019.

Liberty Gas and Unitil Gas will offer a new on-bill financing option for natural gas customers in 2019. On-bill loans will be available for Home Performance program customers to help cover their portion of a weatherization project up to \$4,000. Loans larger than \$4,000 will continue to be available through the third-party financing option as described in the 2018-2020 Plan.

#### Expanded Accessibility for Moderate Income Customers

The NH Utilities have explored options for expanding accessibility to financing for moderate income customers during 2018. These options include: an approach based on the VT Heat Saver Loan as described in the 2018-2020 Plan, a partnership with the Capital Good Fund utilized by National Grid in MA and RI as well as utilities in NY, and a rebate-focused Moderate Income program offering utilized in MA. Based on this review, the NH Utilities intend to re-focus on creating a 0% Moderate Income offering with existing third-party lenders as described in the 2018-2020 Plan. Items to be finalized in the fall of 2018 and early 2019 include lender interest rates, underwriting standards, process for income verification by the lenders and whether to utilize a virtual loan loss reserve mechanism.

The expansion of 0% on-bill loans for NHEC, Unitil Electric, Liberty Gas and Unitil Gas will also provide additional loan access to moderate income customers. While the utilities do not request or verify income levels, (on-bill approval for these four utilities is based on bill payment history), it is logical to assume that some moderate income customers have and will continue to utilize the on-bill offering. The utilities will survey customers in 2020 to determine income level distribution of loans initiated in 2019 in order to determine at what level moderate income customers are participating.

### 6.2 Commercial and Municipal Financing Changes

#### On-Bill Financing for Municipal Customers

The NH Electric Utilities will continue to offer loan options for municipal customers as described in the 2018-2020 Plan, including on-bill offerings for Liberty and Unitil and Smart Start for





Eversource and NHEC.

The Natural Gas Utilities will create a new on-bill offering for municipal customers, matching their existing offerings for electric customers.

### On-Bill Financing for Commercial Customers

The NH Utilities will expand the on-bill offerings for commercial and industrial customers in 2019. Eversource, Liberty Gas and Unitil Gas will create a new on-bill mechanism for business customers. Liberty Electric and Unitil Electric will utilize their existing on-bill offerings for business customers. NHEC will continue to offer Smart Start to its commercial members during 2019.

Depending on program and market needs, the utilities may focus the on-bill offering on those customers that are pursuing comprehensive efficiency measures, or otherwise focus the offering to meet customer needs. Availability of this offering and maximum loan amounts will depend upon available capital for the on-bill loans and may differ between utilities.

### Capital for On-Bill Loan Offerings

**Eversource:** For the Commercial on-bill offering Eversource will utilize its existing RGGI Revolving Loan Fund. Originally capitalized at \$690,000, the RGGI Revolving Loan Fund is currently utilized for residential loans of \$2,000 or less. As of the 2018 Second Quarter Report<sup>9</sup> the Fund has an available balance of \$482,400. Utilizing the RGGI Revolving Loan Fund for commercial loans as well as residential will allow Eversource to create a new option for commercial customers while maintaining the existing residential offering.

**Liberty Electric:** Liberty will utilize \$150,000 of its \$163,024 carry forward funds from 2017 to add to its balance for the On-Bill Financing program. As of the 2018 Second Quarter Report, the program has an available balance of \$132,421. Adding \$150,000 for loans will allow Liberty to serve more municipal and small commercial customers through the program.

**Liberty Gas:** Liberty will utilize \$875,000 of its \$2,448,333 carry forward funds to introduce an On-Bill Financing program offering for residential, municipal and commercial customers. Program terms for the On-Bill Financing offering will parallel that of the existing On-Bill Financing offerings for Liberty Electric customers, helping to create consistency between customer fuel types.

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<sup>9</sup> <http://www.puc.state.nh.us/Electric/NH%20EnergyEfficiencyPrograms/17-136/17-136-CORE-Energy-Efficiency-Programs-2nd-Quarter-Report.pdf>

**Unitil Electric:** In order to serve the increasing demand for low cost financing from our commercial customers, and drive interest in energy efficiency programs to meet the increased energy saving goals under the EERS, Unitil will be adding \$375,000 to its existing commercial and industrial on-bill financing program in 2019. This will raise the total pool of funding in the Commercial On-Bill financing program to approximately \$832k. The current balance of available funds, before the injection of an additional \$375,000, is approximately \$160,000. The focus of activity will be on small and medium businesses without access to low-cost capital, for which a zero-percent interest rate loan can overcome the upfront cost barrier that the installation of high efficiency equipment or controls might present. The commercial loans will be made available to those customers needing smaller loans that are not available from the CDFA Clean Energy Fund.

**Unitil Gas:** Unitil will seed its on-bill financing program for the first time in 2019 with \$30,000 for residential customers undertaking weatherization and \$53,000 for commercial and industrial customers investing in energy efficiency projects. Residential loans will be offered up to \$4,000 to offset the customer costs associated with weatherization. This will provide a similar offering and experience for gas customers that our electric customers have had access to through the electric on-bill financing offer, providing a seamless experience for our customers as well as the weatherization contractors that serve them. The commercial loans will be made available to those customers needing smaller loans that are not available from the CDFA Clean Energy Fund.

**Table 6.1: 2019 Capital for On-Bill Financing**

Company	Source of 2019 Funding	2019 new funding (\$), or change	Total Capital Pool for On-Bill Financing (\$)
<b>Electric</b>			
Eversource	RGGI Revolving Loan Fund	Adjust fund for use in Residential or C&I	690,000
Liberty	2017 Carry Forward	150,000	431,345
Unitil	2017 Carry Forward	375,000	832,000
Total		525,000	1,953,345
<b>Natural Gas</b>			
Liberty	2017 Carry Forward	875,000	875,000
Northern	2019 LDAC	83,000	83,000
Total		958,000	958,000



### Community Development Finance Authority Partnership

The NH Utilities will continue to partner with the Community Development Finance Authority (“CDFA”) to make loan offerings available for business, non-profit, and municipal customers. CDFa, through its Clean Energy Fund, offers loans to business, non-profit and municipal customers at low interest rates. There is natural alignment between the goals of the NHSaves programs and the goals of the CDFa Clean Energy Fund with regard to facilitating energy efficiency projects in the state. Typically, the smallest loan amount offered by CDFa is \$30,000. If there is a gap between the maximum utility on-bill loan offering and CDFa’s typical loan offering, the NH Utilities and CDFa will work to develop a partnership to fill that gap and create a loan option for customers.

For loans greater than \$30,000, municipal, commercial and industrial customers can access the existing CDFa Clean Energy Fund loan products. The NH Utilities will work with CDFa to ensure customers and contractors are aware of the loan options. In addition to covering the customer co-pays for NHSaves projects, loans from CDFa can also help to finance additional measures, such as fuel neutral weatherization, renewable energy systems, and health and safety measures related to the energy project.

## 6.3 Additional Program Funding Sources

### NHSaves Partnership Initiative

As described in the 2018-2020 Plan, the NH Utilities have a track record of accessing additional funding to supplement or enhance the NHSaves energy efficiency programs. This funding has typically come from state or federal funding sources, which the NH Utilities will continue to pursue when it is available. In addition, the NH Utilities will develop the NHSaves Partnership Initiative in order to pursue and access untapped foundation funding for energy efficiency.

The NH Utilities will work in 2019 to identify potential foundation funding sources that align with the goals of the energy efficiency programs, and also to identify non-profit partner(s) whose mission(s) align with one or more of the goals of the energy efficiency programs. Once potential resources and partners have been identified, the NH Utilities will form the initial partnership(s) and work with the non-profit partner(s) to apply for identified foundation or grant funding.



The partnership(s) will focus on particular areas of need and interest as determined by the NH Utilities and the non-profit partner(s). The chosen area of focus will ideally have strong alignment with potential foundation funding sources, support the mission of the non-profit partner and further the energy efficiency goals of the NHSaves programs. The NH Utilities intend to hire a consultant to assist with identifying funding sources, identifying areas of alignment with potential non-profit partners and submitting grant applications. Successful NHSaves Partnerships will supplement, rather than replace, existing NHSaves programs and funding.

## 7.0 Planning Elements

### 7.1 Benefit – Cost Testing

The NH Utilities use a Total Resource Cost (“TRC”) test to screen programs for cost-effectiveness. The TRC test estimates benefits via the net present value of energy and non-energy impacts over the life of program measures (numerator) and compares that to the total costs, defined as the net present value of program costs plus out-of-pocket added costs that customers pay to install energy efficiency measures versus a standard efficiency measure (denominator). Thus, a program or measure with a benefit/cost ratio of 1.0 or greater is cost effective, which is to say that there are more benefits than costs over the life of the measure(s). Further, the use of a common set of avoided energy supply costs by the NH Utilities ensures that the value of programs and services are considered on an equal basis for all New Hampshire customers, preserving equity throughout the state.

The NH Utilities strive to ensure each individual program exceeds a benefit cost ratio of 1.0, with exceptions for income-eligible, education or start-up programs such as the initial years of a new program. Each sector (Residential and Commercial) is designed to meet a benefit cost ratio of 1.0 or greater.

For the 2019 Update, the New Hampshire TRC test uses a nominal discount rate of 4.75 percent<sup>10</sup> and a general inflation rate of 1.86 percent<sup>11</sup> within the TRC test to estimate future benefits resulting in a real discount rate of 2.84 percent<sup>12</sup> used for benefit calculations.

For the purposes of estimating the benefits resulting from the energy efficiency programs, the New England utilities reference a regional avoided energy supply cost study in benefit-cost modelling. The *Avoided Energy Supply Components in New England: 2018 Report* (“AESC 2018”) was completed in June 2018<sup>13</sup> and includes avoided costs associated with electricity, natural gas, other fossil fuels and wood for each of the New England states. In addition, the report provides estimates of Demand Reduction Induced Price Effect (“DRIPE”), embedded and non-embedded environmental costs associated with emissions of CO<sub>2</sub> and NO<sub>x</sub>, and avoided costs

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<sup>10</sup>Based on the June 2018 Prime Rate in accordance with the Final Energy Efficiency Group Report, dated July 6, 1999 in DR 96-150. Retrieved from <http://www.moneycafe.com/personal-finance/prime-rate/>

<sup>11</sup>Based on the inflation rate from Q1 2017 to Q1 2018, Retrieved from <https://fred.stlouisfed.org/data/GDPDEF.txt>

<sup>12</sup> Real Discount Rate =  $[(1 + \text{Nominal Discount Rate}) / (1 + \text{Inflation Rate})] - 1$

<sup>13</sup>Synapse Energy Economics, Resource Insight, Les Deman Consulting, North Side Energy, Sustainable Energy Advantage. (2018, June 1). “Avoided Energy Supply Components in New England: 2018 Report.” Retrieved from <http://www.synapse-energy.com/sites/default/files/AESC-2018-17-080-June-Release.pdf>

of transmission. The AESC study is undertaken by a competitively procured, independent consultant whose work is supervised by a Study Group comprised of regulators, utility staff and energy efficiency consultants from throughout New England. The final work product serves as the source of most avoided costs for the calculation of energy efficiency program benefits for New England states.

### Updates to Current Assumptions

The benefit cost model for the New Hampshire energy efficiency programs in 2019 includes updated values from AESC 2018 for the avoided energy supply costs that were included in the 2018-2020 Plan. Notable changes compared to the AESC 2015 estimated avoided costs, which were utilized in the original NH Energy Efficiency 2018-2020 Plan, include a decrease in the value of electric capacity benefits, a non-zero estimate of capacity DRIPE, as well as decreases in the value of winter and summer peak and off-peak electricity benefits. AESC 2018 updates include an increase in estimated benefits for both electric and natural gas DRIPE as well as increased value of fuel oil, propane and wood.

In addition to updating previous values, AESC 2018 included several new elements that are incorporated into the benefit cost model for 2019 and are briefly described below. A full discussion of these benefits is included in the study itself, which can be referenced on the [Synapse website](#)<sup>14</sup>.

### Pooled Transmission Facilities (PTF)

AESC 2018 includes calculation of benefits related to avoided costs for Pool Transmission Facilities (“PTF”) which all electric load in New England pays for. AESC 2018 estimated this value to be \$94/Kw-year. Because summer peak load dominates ISO New England’s transmission planning, this value is applied to the reduction in summer peak load.

In addition to avoided PTF costs, AESC 2018 explains that local distribution companies may also have avoided costs related to *local* transmission investments. Prior to 2019, the NH Utilities have included in the TRC an estimate of avoided transmission benefits originally calculated in 2014. That earlier calculation likely included some elements of PTF and some elements related to local transmission. Because AESC 2018 includes a much more recent analysis of PTF, the NH Utilities have applied this value instead of the previous estimate of transmission benefits. At this time the NH Utilities do not have additional benefits related to avoided local transmission in the benefit cost model. If benefits specifically related to avoided local transmission are developed at a future date, they may be included in future Plan updates.

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<sup>14</sup>Synapse Energy Economics, AESC 2018 Materials. Retrieved from <http://www.synapse-energy.com/project/aesc-2018-materials>

## Non-Embedded Environmental Benefits for Fossil Fuel

As described in the AESC 2018, some environmental costs are “embedded” in the price of the energy due to regulations that require expenditures by generators or other energy suppliers to reduce emissions (e.g., the Regional Greenhouse Gas Initiative or (“RGGI”). “Non-embedded” environmental costs are externalities associated with energy production and supply that are not directly reflected in energy prices. AESC 2018 electric energy avoided costs include embedded avoided emissions costs. However, there are not comparable embedded emissions values associated with fossil fuels. In order to treat electric and fossil fuel emissions consistently in benefit-cost screening, the NH 2019 Update incorporates comparable fossil fuel avoided emissions with a conservative calculation based on the AESC 2018 forecast of RGGI values and standard emissions output factors for those fuels.<sup>15</sup>

## Oil DRIPE

AESC 2018 for the first time calculated a value for Oil DRIPE, which has been included in the New Hampshire benefit cost model for 2019. The New Hampshire intrastate (“zone-on-zone”) value for Oil DRIPE is approximately \$0.01 per MMBtu which translate to a negligible increase in the avoided cost of oil.

## 7.2 Low Income Non-Energy Impacts (NEI)

Based on input from multiple stakeholders, discussions within the Benefit-Cost Working Group and the preponderance of evidence from other states, the NH Utilities increased the NEI adder for the Home Energy Assistance program for income-eligible customers from 10 percent to 20 percent, to more fully reflect the substantial benefits to participants and utilities resulting from low-income programs. This adder will be applied to the value of all electric, gas, and other fuel benefits for HEA. Historically, New Hampshire’s TRC test has included all energy efficiency program and participant costs, but not all benefits.<sup>16</sup> This adder will help ensure balanced, symmetrical treatment of costs and benefits of low-income programs, and is a reasonable proxy to reflect the significant benefits unique to these programs for 2019 while New Hampshire-specific non-energy impacts are being studied by third party evaluators.

There is substantial evidence from research both nationally and in neighboring states regarding the substantial non-energy benefits low-income energy efficiency programs provide to customers as well as the utilities themselves, above and beyond those provided by other efficiency programs. The average low-income household spends three times more of its income

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<sup>15</sup> AESC 2018, Table 149, page 369.

<sup>16</sup> The proposed low-income adder would be in addition to the portfolio-wide 10 percent NEI adder adopted in the 2018-2020 Plan in DE 17-136.

on energy bills than non-low-income households,<sup>17</sup> and these high energy burdens are due in part to inefficient housing stock, appliances, and heating and cooling systems.<sup>18</sup> High home energy costs result in a variety of negative impacts for low-income households. For example, according to the National Energy Assistance Survey, unaffordable energy costs resulted in nearly a quarter of households surveyed going without food for at least one day, and about a third of households using their kitchen stove or oven to provide heat.<sup>19</sup> The survey also found that nearly a quarter of respondents were unable to use their main source of heat in the prior year because, for example, they could not pay for fuel delivery, or their heating system was broken and they could not afford to fix it. The greater the energy burdens that these customers face, the greater the potential benefits associated with the low-income energy efficiency programs that serve them.

Over 20 states plus Washington D.C. recognize the additional benefits of low-income programs in their cost effectiveness tests. For example, Massachusetts, Connecticut, and Rhode Island use measured NEI values from evaluations<sup>20</sup>, and states including Colorado, Idaho, New Mexico, and Vermont, as well as Washington, D.C. use low-income NEI adders to account for participant benefits associated with these programs.<sup>21</sup> In states using measured NEIs, the values for particular NEIs are greater for low-income participants than for non-low-income participants. For example, Massachusetts' current NEI values for improved health, safety, comfort, and other

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<sup>17</sup>Census Bureau, *American Housing Survey 2011 Public Use File*, [www.census.gov/programs-surveys/ahs/data/2011/ahs-national-and-metropolitan-pufmicrodata.html](http://www.census.gov/programs-surveys/ahs/data/2011/ahs-national-and-metropolitan-pufmicrodata.html), and *American Housing Survey 2013 Metropolitan Public Use File*, [www.census.gov/programssurveys/ahs/data/2013/ahs-2013-public-use-file--puf-/2013-ahs-metropolitan-puf-microdata.html](http://www.census.gov/programssurveys/ahs/data/2013/ahs-2013-public-use-file--puf-/2013-ahs-metropolitan-puf-microdata.html); Drehobl, A., and L. Ross. 2016. *Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low-Income and Underserved Communities*. Washington, DC: ACEEE.

<sup>18</sup>Cluett, R., J. Amann, and S. Ou. 2016. *Building Better Energy Efficiency Programs for Low-Income Households*. Washington, DC: ACEEE.

<sup>19</sup>National Energy Assistance Directors' Association, *2011 National Energy Assistance Survey, Final Report*, November 2011. Findings were based on 1,768 interviews of Low-Income Home Energy Assistance Program recipients across 13 states, with a response rate of 56 percent. <http://www.appriseinc.org/reports/Final%20NEADA%202011%20Report.pdf>.

<sup>20</sup> See, for example, Three<sup>3</sup> and NMR, *Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study*, August 2016, available at <http://ma-eeac.org/wordpress/wp-content/uploads/Low-Income-Single-Family-Health-and-Safety-Related-NonEnergy-Impacts-Study.pdf>; NMR, *Project R4 HES/HES-IE Process Evaluation and R31 Real-time Research*, April 2016, available at [https://www.energizect.com/sites/default/files/R4\\_HES-HESIE%20Process%20Evaluation,%20Final%20Report\\_4.13.16.pdf](https://www.energizect.com/sites/default/files/R4_HES-HESIE%20Process%20Evaluation,%20Final%20Report_4.13.16.pdf).

<sup>21</sup>ACEEE, *Guidelines for Low Income Energy Efficiency Programs*, June 2017. <https://database.aceee.org/state/guidelines-low-income-programs>.



benefits from single-family weatherization measures are \$67 for non-low-income participants and \$558 for low-income participants.

In addition to participant NEIs, there is substantial evidence of benefits from reduced gas and electric utility costs associated with low-income programs. For example, the Maryland Public Service Commission reviewed ten studies of utility arrearages, focusing on the most comprehensive and recent studies potentially applicable to Maryland.<sup>22</sup> Based on this review, the Commission determined that an NEI of 2 percent of kWh savings should be applied to low-income programs to reflect lower utility costs associated with reduced arrearages. Similarly, Massachusetts applies NEI values of over \$7.00 per low-income participant to account for reduced arrearages, bad debt write-offs, terminations and reconnections, customer notices, calls and collections.

The low-income NEI values from neighboring states provide points of comparison with the NH Utilities' proposed 10 percent adder:

- Vermont's cost effectiveness test includes a 15 percent low-income NEI adder, which the Public Service Board determined was a conservative estimate of the unique benefits of low-income programs.<sup>23</sup>
- Based on Massachusetts-specific evaluations, Massachusetts utilities reported total NEIs associated with low-income residential programs in 2016 equivalent to 80.6 percent of the programs' electric, gas, and other fuel benefits.
- Based on Connecticut-specific evaluations, Connecticut utilities reported total NEIs associated with low-income residential programs in 2017 equivalent to 88.2 percent of the programs' electric, gas, and other fuel benefits.

The New Hampshire EM&V Working Group initiated an evaluation of the Home Energy Assistance program in 2018 that will include primary research on low-income NEIs associated with the New Hampshire programs. When complete, this evaluation will provide quantified, New Hampshire-specific values for low-income NEIs that will inform the 2020 Plan Update. The NEIs being considered for this study include, but are not limited to, improvements in health and safety, changes in hardship faced by participants due to bill savings, reduced missed days of employment and school, reduced arrearages, reduced bad-debt write-offs and reduced reliance

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<sup>22</sup>Itron, Inc. *Development and Application of Select Non-Energy Benefits for the EmPOWER Maryland Energy Efficiency Programs*, August 2014, available at [https://rpsc.energy.gov/sites/default/files/publication/OC-1411\\_NonEnergyBenefitsReport-Itron-022415.pdf](https://rpsc.energy.gov/sites/default/files/publication/OC-1411_NonEnergyBenefitsReport-Itron-022415.pdf).

<sup>23</sup>This adder is in addition to a 15 percent portfolio-wide adder incorporated in Vermont's cost effectiveness test to account for the hard-to-quantify benefits that factor into participant decision-making.

on utility assistance programs. The study is planned for completion in Spring of 2019

### 7.3 Benefit Cost Tables

The following tables depict overall benefit cost ratios for each program from the original Plan and the 2019 Update.

**Table 7.1: Commercial Benefit-Cost Ratios**

Commercial Programs Benefit-Cost Results		
	2019 Original	2019 Update
<b>Electric</b>		
Large Business Energy Solutions	2.36	2.15
Small Business Energy Solutions	1.81	1.56
Municipal Energy Solutions	1.43	1.18
Energy Rewards RFP Program	1.77	1.72
<b>Natural gas</b>		
Large Business Energy Solutions	1.72	1.80
Small Business Energy Solutions	1.74	1.72

**Table 7.2: Residential Benefit-Cost Ratios**

Residential Programs Benefit-Cost Results		
	2019 Original	2019 Update
<b>Electric</b>		
Home Energy Assistance Program	1.43	1.74
ENERGY STAR Homes	2.09	2.81
Home Performance with ENERGY STAR	1.82	2.14
ENERGY STAR Products	1.77	1.79
Home Energy Reports	1.44	1.63
<b>Natural gas</b>		
Home Energy Assistance Program	1.16	1.15
ENERGY STAR Homes	1.42	1.20
Home Performance with ENERGY STAR	1.31	1.34
ENERGY STAR Products	1.15	1.15
Home Energy Reports	1.20	1.03

## 7.4 Lost Base Revenue (“LBR”) Calculation

In accordance with Commission Order No. 26,095 in Docket DE 17-136, the LBR Working Group worked throughout 2018 to consider the general impact of customer peak and the general impact of demand charge ratchets on the kW values to be used in calculating LBR for the Commercial and Industrial sectors for upgrades installed in 2019 and thereafter. This process included several iterations and revisions to LBR calculations based on input from Commission Staff, the NH Office of Consumer Advocate, and other stakeholders, and resulted in a final report reflecting a largely consensus document.<sup>24</sup> The NH Utilities will calculate LBR as described in the Working Group report, including the derivation of kWh savings as detailed in Section III, the derivation of kW savings as detailed in Section IV, and the 2019-2020 LBR savings calculation templates for each utility included in Appendix A of the report.

## 7.5 Capacity Demand Management

Note: The discussion of Capacity Demand Management is also updated by the Settlement Agreement filed on December 13, 2018, and will be additionally updated by a separate filing to be made in early 2019 regarding the Demand Reduction Demonstration Pilot.

In New Hampshire, the measures included in the energy efficiency programs achieve significant reductions in demand (kW), as well as achieving reductions in kWh. The 2019 measures will result in reduction of 12.5 MW during the ISO-NE summer on-peak hours and 16 MW during the ISO-NE winter on-peak hours. Demand reductions achieved through traditional energy efficiency measures are sometimes referred to as “passive” demand reduction.

“Active” demand reduction more typically refers to measures or initiatives that are designed specifically to reduce kW, rather than kWh. The NH Utilities have been monitoring and participating in a number of activities and discussions related to active demand management during 2018 including; review of energy efficiency program demonstration projects in other New England states and project proposals submitted outside of the energy efficiency programs. Even in those states, such as Massachusetts, that are pursuing active demand reduction initiatives, the overwhelming majority of kW reduction achieved still comes as passive demand reduction from traditional energy efficiency measures.

**Demonstrations in other States:** There are several active demand reduction technologies

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<sup>24</sup> See [https://www.puc.nh.gov/EESE%20Board/EERS\\_WG/2018-08-29-2018wg-report-on-lbr.doc](https://www.puc.nh.gov/EESE%20Board/EERS_WG/2018-08-29-2018wg-report-on-lbr.doc) for the August 29, 2018 working group report, and [https://www.puc.nh.gov/EESE%20Board/EERS\\_Working\\_Groups.html#lostbaserevenues](https://www.puc.nh.gov/EESE%20Board/EERS_Working_Groups.html#lostbaserevenues) for agendas and other supporting documents developed and reviewed by the Working Group.

being tested as part of energy efficiency program demonstrations that the NH Utilities have been closely monitoring. The following list includes demonstrations that the NH Utilities have been reviewing and their current status:

- **Wireless Thermostats for Small Business Customers:**
  - The Massachusetts Program Administrators (“PA’s”) are working with a vendor to install Wi-Fi thermostats at small businesses. Customers under certain load conditions will have their thermostat temperatures raised or turned off for several hours (2-4 hours per event). The goal of the Wi-Fi thermostat project is to reduce monthly demand peaks and reduce load on the grid which would lower customer’s bills, help the distribution system, as well as help manage the customer’s ICAP tag.
- **Control System Software:**
  - The PA’s are working with an energy management platform vendor to test the ability to manage multiple demand response and demand management vendors under one utility driven software/web-based program. The goal is to have one vendor control the dispatching of customers from all of the various demand resources. Multiple different resources are currently being controlled by the software system.
- **Software and controls:**
  - The PA’s are working with two vendors that provide different approaches. The software has been installed at two sites and another fourteen sites are in the sales pipeline. The aim of these projects is to reduce monthly demand peaks that would lower customer’s bills, as well as help manage the ICAP tag for the following year.
- **Demand Response:**
  - The PA’s are working with a large Demand Response vendor to bring customers that currently are enrolled in an ISO-NE DR program into a demonstration project that would provide customers an added revenue stream by enrolling in our program that would include additional hours to respond to a called event, as well as trigger events for ICAP notification and Winter price responsive curtailment.
- **Battery Storage (Lithium Ion):**
  - The MA battery storage demonstration includes behind-the-meter batteries at commercial and industrial customer facilities. Eversource is working with two battery storage vendors that will provide different dispatch approaches: Daily Dispatch and Targeted Dispatch. Eversource has two sites installed and another ten sites in the sales pipeline. The daily dispatch strategy will cost-effectively reduce year-round peak loads. In comparison, the targeted dispatch strategy will focus on reducing four specific types of demand peaks: Summer ICAP, Summer Utility, Winter Price, and Monthly Customer Peaks.
- **Thermal Energy Storage:**
  - There are two separate technologies being evaluated via two, separate vendor contracts.

- Air conditioning ice storage systems with energy management software to create ice at night that will then draw on that thermal mass during the day to reduce AC peak loads. Nineteen (19) target sites have been identified with equipment installed at one facility to date. The goal of this measure is to cost-effectively reduce Summer air conditioning peak loads.
- Phase change material installed in refrigerated/freezer spaces with controls on a facility's HVAC system in order to cost-effectively reduce year-round peak loads in accordance with a peak demand reduction schedule. Eleven (11) customer sites have been targeted with equipment installed at one facility to date.

In addition to learning from the demonstrations happening in other states, the electric utilities have the opportunity to leverage vendor relationships that deliver demand reduction services. Eversource has recently issued a multi-state RFP to bring together a set of vendors that can provide a holistic set of services for demand management. These include C&I curtailment service providers, residential demand response management systems, electric vehicle load management and Distributed Energy Resource Management Systems ("DERMS"). With this vendor pool in place, the New Hampshire programs will be well positioned to begin implementing demand reduction efforts when ready.

The demand reduction activities that the NH Utilities are monitoring in other states are included as part of the energy efficiency programs in those states. While each state has its own unique policy directives in this area, there are a number of overarching elements that can be part of the decision to include demand reduction efforts with energy efficiency. Demand reduction aligns with energy efficiency goals related to helping customers to reduce their energy costs. It also aligns with the structure of measure and service offerings provided by EE, using existing outreach methods and channels. Additionally, demand reduction aligns with the broader goal of energy efficiency to use funds in a way that reduces costs to all customers, and it is administratively efficient to include the two efforts together in a single docket and suite of program offerings. Conversely, demand reduction efforts could reduce the amount of funding available for traditional energy efficiency efforts.

- **Additional Demand Reduction Activity in NH:** Several of the NH Utilities have demand reduction proposals currently under discussion in New Hampshire outside of energy efficiency.

Liberty Utilities has a proposal for a battery storage offering in DE 17-189, which is currently an open docket at the Commission. The program is designed to use behind-the-meter battery storage to reduce peak usage each month.

Eversource has included an alternative load control pilot as part of its Time of Use Rate Pilot proposal in DE 16-576. The proposal for that pilot program is still under discussion with stakeholders and Commission Staff. Unitil has also made a Time of Use Rate program proposal to stakeholders and Commission Staff.

NHEC currently offers the Peak Days program which is designed to engage members in voluntarily reducing energy usage during periods of high electric demand. In April 2018, NHEC introduced an electric vehicle time of day rate, and is also conducting a limited residential battery storage pilot. NHEC also continues to operate its legacy space heat and water heater control programs.

During 2019 the NH Utilities will continue to learn from the demand reduction initiatives being conducted in other states and will also engage in the demand reduction discussions and activities that are ongoing in NH. The NH Utilities will work with colleagues, Commission Staff, and stakeholders to determine whether a demand reduction initiative will be included in the 2020 Update Plan and what form it will take if included.

## 7.6 DE 17-136 Working Groups

Note: The discussion of the DE 17-136 Working Groups is updated by the Settlement Agreement filed on December 13, 2018.

The Settlement Agreement in DE 17-136 created four Working Groups on specific topics.

- (1) A Performance Incentive (“PI”) Working Group to review potential performance incentive methodologies with the goal of promoting achievement of NH’s EERS goals, and making recommendations for implementation in the 2020 Plan update.
- (2) A Financing and Funding Working Group to research potential funding and financing mechanisms. If viable options are found, the Working Group shall work with the utilities to test procurement strategies and will make recommendations for incorporation in annual Plan Update filings and in the 2021-2023 Plan.
- (3) A Benefit/Cost Working Group to discuss elements and issues related to NH’s Benefit/Cost test as well as results from the 2018 Avoided Energy Supply Cost study, and will make recommendations for adjustments in future annual Plan Updates or three-year plans. The BC Working Group and the EM&V Working Group shall share information, especially with regard to NEIs and DRIPE.
- (4) A Lost Base Revenue Working Group to determine the appropriate kW values to be used

for calculating Lost Base Revenues, and make recommendations for the 2019 Plan Update.

The four Working Groups have met a combined total of 27 times from January to July 2018. During these meetings the Working Groups have made progress, providing a forum for discussion and education on the identified topics. During the course of the 2018 meetings, it became clear that some areas of conversation cut across multiple Working Groups resulting in overlapping conversations in different meetings with slightly different attendees. Moving forward and in 2019, the existing DE 17-136 Quarterly Meetings should serve as a venue to discuss cross-cutting topics.

### **Performance Incentive Working Group**

Meetings focused on the review of PI methodologies and approaches used in NH and other jurisdictions through presentations and discussions. The utilities have developed a draft proposal for the consideration of the Working Group, which can serve as the basis for the remainder of the discussions. The Working Group should complete its review by the end of the first quarter of 2019, providing enough time for any recommendations to be considered for the 2020 plan.

### **Funding and Finance Working Group**

Meetings focused on reviewing funding and finance mechanisms, existing utility offerings, goals for financing and funding within the EERS, loan offerings in other jurisdictions and by other state funding institutions. Lending partners and contractors were invited to provide additional perspective.

The utilities have incorporated modifications or expanded loan offerings and initiatives, which are discussed in more detail in Section 6 of the 2019 Update. These include on-bill small business and municipal loans, a moderate income offering and a partnership with CDFA. Contractor training and marketing materials will be developed and distributed. The utilities are also exploring a NHSaves Partnership Initiative in order to identify and pursue untapped foundation funding for energy efficiency.

Going forward, a quarterly meeting of this working group will be appropriate, to allow time for implementation and to review progress of the initiatives.

### **Benefit Cost Working Group**

The scope of the discussions of the Working Group as determined at the first meeting included:

- Which Non-Energy Impacts (NEIs) to study, and when and how to include New Hampshire-specific, evidence-based NEIs into the annual update for 2020 and future plans.
- Adoption of an income-eligible adder separate from the 10% NEI adder.
- Whether a separate, evidence-based, income-eligible NEI study should be undertaken
- Should any adder adopted in this proceeding be extended through the 2020 program year until such time as the NEI studies are complete and the New Hampshire-specific NEI has been adopted or rejected by the Commission.
- Review Rest of Pool DRIPE to determine if any adjustments should be made to the benefit/cost test assumptions.
- Review results from the 2018 AESC study to determine if any adjustments should be made to the benefit/cost test assumptions.

The Working Group vetted the items in the scope over the six months through presentations by the utilities and other experts and through discussions. As an outcome of the working group meetings, the utilities received formal feedback from staff and parties that was incorporated into the 2019 update plan.

Two evaluation studies are currently in process that are addressing NEIs, a Crosscutting NEI evaluation and an evaluation of the HEA program that includes a Low Income NEI component. The Benefit Cost Working Group has provided input into the scope of the study. The 2018 Strategic Evaluation Plan (developed to guide the work of the EM&V Working group) was designed to incorporate a formalized process for input to evaluations, through the independent expert hired and supervised by the Commission and the representative of the EESE Board, who both represent the interests of stakeholders and the settling parties as members of the working group. It is specified that subsequent year plans will be developed collaboratively incorporating feedback from stakeholders. Final evaluation results will be presented in public meetings open to all stakeholders. In addition, it was agreed that the EM&V Working Group would provide regular updates at Quarterly Meetings and also to the EESE Board. Now that this process has been finalized, the EM&V working group is well positioned to effectively manage any remaining items while also minimizing duplication of effort. A final meeting will be held in September 2018.

### **Lost Base Revenue Working Group**

The activity of the LBR Working Group was discussed in Section 7.4. This Working Group has completed its mission for the 2019 Plan Update and does not need to continue in 2019.





## 7.7 Stakeholder Process for 2021-2023 Plan

Note: The discussion of the Stakeholder Process for 2021-2023 is updated by the Settlement Agreement filed on December 13, 2018

The NH Utilities will participate in a stakeholder process regarding the 2021-2023 Plan starting in the fall of 2019, as anticipated by the DE 17-136 Settlement Agreement. This process will include attending meetings of the EERS Committee of the EESE Board, and discussion with other stakeholders and the independent planning expert when hired by the Commission. During the fall of 2019 the stakeholder process should focus on setting goals for the 2021-2023 Plan, so that development of that Plan can begin in 2020. The NH Utilities look forward to the opportunity for continued discussion on moving the energy efficiency programs forward into the second Three-Year Plan under EERS.

## 8.0 Evaluation, Measurement and Verification (EM&V)

Evaluation, Measurement and Verification (“EM&V”) has been an integral component of the efficiency programs in New Hampshire since their inception. EM&V has many objectives, including verifying portfolio energy savings, estimating future energy savings of specific measures and behaviors, and identifying ways to improve program delivery and results. The 2018-2020 Plan established a formalized NH EM&V Working Group, consisting of Commission Staff members, independent EM&V consultants hired and supervised by the Commission, representatives of the Utilities, and a representative of the EESE Board. As agreed by the settling parties for the 2018-2020 Plan, the EM&V Working Group has worked expeditiously to build upon ongoing evaluation work and has transitioned to the new accelerated framework for 2018 as described in the Plan.<sup>25</sup>

As the first task under this framework, the EM&V Working Group developed a multi-year Strategic Evaluation Plan (“SEP”) to identify evaluation work currently in process and the studies to be initiated in the coming program years. The SEP identified five priority studies to begin in early 2018, and three others to begin in later 2018 and 2019. Studies were prioritized based on several criteria, including the length of time since the most recent evaluation of a program, the relative contribution of program savings to the portfolio, the degree of innovation within the program or shifts in markets or technologies, and regulatory requirements or stakeholder interest. For example, two priority studies that include analysis of non-energy impacts (NEI) were prioritized in part to address stakeholder and regulatory interest in developing evidence-based, New Hampshire-specific NEIs to be applied to the TRC for the 2020 Plan Year.

The EM&V Working Group issued competitive solicitations and awarded contracts for five priority studies as follows:

Evaluation	Vendor	Estimated Date for Final Report
Home Energy Assistance Impact, Process, and Low-Income NEI Evaluation	Opinion Dynamics Corporation	Q1 2019
Home Performance with Energy Star Impact and Process Evaluation	Opinion Dynamics Corporation	Q1 2019

<sup>25</sup>EM&V Working Group agendas, the evaluation recommendations tracking spreadsheet, and the 2018 Strategic Evaluation Plan are posted at [https://www.puc.nh.gov/EESE%20Board/EERS\\_Working\\_Groups.html#em&v](https://www.puc.nh.gov/EESE%20Board/EERS_Working_Groups.html#em&v).

Non-Lighting Impact and Process Evaluation for Multiple C&I Programs	Cadmus	Q2 2019
Crosscutting Non-Energy Impacts Study (phase 1)	DNV-GL	Q4 2018
Energy Efficiency Market Assessment	Navigant	Q4 2018

In addition, the Strategic Evaluation Plan identified the following three efforts, to begin in late 2018—early 2019:

- Energy Efficiency Potential Study, to be conducted Q4 2018–Q4 2019
- Technical Reference Manual, to be developed in Q1 2019–Q1 2020
- Large Business Impact and Process Evaluation, to be conducted Q2 2019–Q2 2020

The Strategic Evaluation Plan will be updated in Q1 2019 to include scopes of work for these three efforts, scopes of work for primary research on NEIs as part of phase 2 of the Crosscutting Non-Energy Impacts Study, and other planned studies and activities to be determined by the EM&V Working Group.

The Settlement Agreement filed on December 13, 2018 identified two additional studies that will be undertaken in 2019 in coordination with the Benefit Cost Working Group.

- A review of the Benefit Cost Test undertaken utilizing the framework of the National Standards Practice Manual. To be conducted Q1 - Q2 2019
- A review of Energy Optimization approaches to be conducted Q1 - Q2 2019

In 2017 and 2018, independent third-party evaluators working on behalf of the EM&V Working Group completed evaluations of the ENERGY STAR Homes program, Small Business and Municipal lighting measures, and the ENERGY STAR Products program. In coordination with EM&V Working Group members, the utilities reviewed and implemented the studies’ recommendations as described in chapters 3.3 ENERGY STAR Homes, 3.4 ENERGY STAR Products, and 4.1 Large Business, Small Business, and Municipal Programs. The full list of specific recommendations and responses from the NH Utilities are tracked on the EM&V Working Group’s webpage.<sup>26</sup> In addition, all completed evaluation studies are posted on the PUC website at [http://www.puc.state.nh.us/Electric/Monitoring\\_Evaluation\\_Report\\_List.htm](http://www.puc.state.nh.us/Electric/Monitoring_Evaluation_Report_List.htm).

<sup>26</sup>See [https://www.puc.nh.gov/EESE%20Board/EERS\\_WG/nh-emv-eval-of-recommendations-tracker-060018.pdf](https://www.puc.nh.gov/EESE%20Board/EERS_WG/nh-emv-eval-of-recommendations-tracker-060018.pdf).

**Attachment A: Summary of Material Changes**

Topic	Description of Change
<b>Program Design Changes</b>	
ENERGY STAR Products Program (Lighting, Appliances and Electric Heating/Cooling and Hot Water Systems)	<ul style="list-style-type: none"> <li>▪ Develop a point of sale e-rebates platform</li> </ul>
ENERGY STAR Homes	<ul style="list-style-type: none"> <li>▪ Developing an incentive structure for ENERGY STAR Manufactured Homes</li> <li>▪ Training and certification assistance to facilitate certification of HBAC contractors.</li> </ul>
Home Performance with ENERGY STAR	<ul style="list-style-type: none"> <li>▪ Explore an offering for a package of energy saving measures for electric customers who do not meet the Home Heating Index threshold.</li> </ul>
Commercial, Industrial and Municipal Programs	<ul style="list-style-type: none"> <li>▪ Explore a distributor point-of-sale approach for lighting and other technologies.</li> </ul>
Large Business Demand Response Initiative	<ul style="list-style-type: none"> <li>▪ Eversource and Unitil will explore the potential for active demand response strategies within the Commercial and Industrial sector</li> </ul>
<b>Changes in Savings Assumptions</b>	
Small Business and Municipal Lighting	<ul style="list-style-type: none"> <li>▪ Updated Realization Rates, Summer and Winter Peak Coincident Factors and kW Realization Rates based on 2018 DNV-GL Impact Evaluation.</li> </ul>
<b>Other Changes</b>	
Avoided Energy Supply Costs	<ul style="list-style-type: none"> <li>▪ Incorporated changes from the 2018 AESC Study completed in June 2018.</li> <li>▪ Included Pool Transmission Facilities value from AESC 2018 and removed prior transmission benefit</li> <li>▪ Included Non-Embedded Environmental Benefits for Fossil Fuel based on AESC forecast of RGGI values.</li> <li>▪ Increased the nominal discount rate from 4.0 to 4.75 percent.</li> <li>▪ Increased inflation from 1.56 to 1.86 percent.</li> </ul>

<b>Topic</b>	<b>Description of Change</b>
Low-Income Non-Energy Impacts	<ul style="list-style-type: none"> <li>▪ Incorporated an additional 10% adder to all energy related benefits (all benefits excluding water) within the Home Energy Assistance Program to reflect non-energy impacts.</li> </ul>
Lost Base Revenue Calculation	<ul style="list-style-type: none"> <li>▪ Updated calculation of Lost Base Revenue for 2019 and forward.</li> </ul>
Home Energy Assistance Education	<ul style="list-style-type: none"> <li>▪ An additional \$200,000 in funding has been incorporated in Education for the specific purpose of increasing training opportunities and other capacity building needs for contractors serving the HEA program</li> </ul>

**NHSAVES PROGRAMS  
 2019 Statewide Goals  
 Statewide & Company-Specific Programs**

Description	Program Budget <sup>(1)</sup>	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<b><u>Electric Utilities</u></b>								
Statewide Programs <sup>(3)</sup>	\$ 40,980,433	93,721,693	1,192,669,855	13,799	10,942	86,708	1,794,241	286,089
Municipal Program	\$ 2,000,271	4,451,591	62,257,801	718	238	3,964	59,746	110
All Other Statewide Programs								
Sub-total	\$ 42,980,704	98,173,284	1,254,927,656	14,518	11,180	90,672	1,853,988	286,199
Company Specific Programs <sup>(2)</sup>	\$ 4,098,498	11,724,020	72,529,723	1,422	1,333	-	-	142,919
<b>Total Electric</b>	<b>\$ 47,079,203</b>	<b>109,897,304</b>	<b>1,327,457,379</b>	<b>15,940</b>	<b>12,513</b>	<b>90,672</b>	<b>1,853,988</b>	<b>429,119</b>
<b><u>Gas Utilities</u></b>								
Statewide Programs	\$ 9,443,209	379,619	4,807,453	104	44	164,151	2,804,935	4,488
Company Specific Programs <sup>(2)</sup>	\$ 453,290	-	-			10,636	36,102	49,600
<b>Total Gas</b>	<b>\$ 9,896,499</b>	<b>379,619</b>	<b>4,807,453</b>	<b>104</b>	<b>44</b>	<b>174,787</b>	<b>2,841,037</b>	<b>54,088</b>
<b>Grand Total</b>	<b>\$ 56,975,701</b>	<b>110,276,923</b>	<b>1,332,264,833</b>	<b>16,044</b>	<b>12,557</b>	<b>265,459</b>	<b>4,695,024</b>	<b>483,207</b>

**Notes:**

- (1) Program budgets shown in this report exclude the performance incentive (PI).
- (2) Company-specific includes company-specific programs, education, forward capacity market administration and loan program administration.
- (3) Large Business Energy Solutions Program Budget includes \$93,765.00 for the Large Business DR Pilot for Unitil Energy Systems, Inc.

**NHSAVES PROGRAMS  
 2019 Statewide Goals  
 Statewide Programs <sup>(1)</sup>**

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<b><u>Electric Utilities</u></b>								
<b>Residential</b>								
Home Energy Assistance	\$ 8,184,964	1,170,363	15,010,841	114.4	153.0	27,889.5	581,070	1,115
NH Home Performance w/Energy Star	\$ 5,387,205	930,709	14,368,245	116.4	167.2	41,657.9	838,107	1,431
EnergyStar® Homes	\$ 2,697,699	1,448,919	32,161,391	162.4	327.5	13,671.7	324,531	975
EnergyStar® Products	\$ 5,025,263	13,250,764	96,842,868	3,790.9	1,817.6	3,488.9	50,533	280,769
Sub-total	\$ 21,295,131	16,800,756	158,383,345	4,184.1	2,465.3	86,708.1	1,794,241	284,291
<b>Commercial &amp; Industrial</b>								
Large Business Energy Solutions <sup>(2)</sup>	\$ 12,243,177	56,091,966	758,769,489	7,447.5	6,107.6	-	-	778
Small Business Energy Solutions	\$ 7,442,125	20,828,971	275,517,021	2,167.8	2,369.2	-	-	1,020
Municipal Program	\$ 2,000,271	4,451,591	62,257,801	718.4	238.3	3,964.1	59,746	110
Sub-total	\$ 21,685,573	81,372,528	1,096,544,311	10,333.6	8,715.0	3,964.1	59,746	1,908
<b>Total Electric</b>	<b>\$ 42,980,704</b>	<b>98,173,284</b>	<b>1,254,927,656</b>	<b>14,517.7</b>	<b>11,180.3</b>	<b>90,672.2</b>	<b>1,853,988</b>	<b>286,199</b>
<b><u>Gas Utilities</u></b>								
<b>Residential</b>								
Home Energy Assistance	\$ 1,684,368	59,368	1,082,433	25.3	0.9	9,584.4	194,976	307
NH Home Performance w/Energy Star	\$ 1,239,988	202,339	1,426,785	40.2	30.7	12,480.4	230,303	792
EnergyStar® Homes	\$ 612,751	53,144	1,230,059	6.6	12.4	4,017.3	99,679	164
EnergyStar® Products	\$ 1,240,237	63,256	1,040,960	32.0	-	16,022.4	270,018	1,972
Sub-total	\$ 4,777,344	378,107	4,780,237	104.0	44.1	42,104.4	794,976	3,235
<b>Commercial &amp; Industrial</b>								
Large Business Energy Solutions	\$ 2,923,338	-	-	-	-	82,013.2	1,392,613	166
Small Business Energy Solutions	\$ 1,742,527	1,512	27,216	0.1	-	40,033.3	617,345	1,088
Sub-total	\$ 4,665,865	1,512	27,216	0.1	-	122,046.5	2,009,959	1,253
<b>Total Gas</b>	<b>\$ 9,443,209</b>	<b>379,619</b>	<b>4,807,453</b>	<b>104.1</b>	<b>44.1</b>	<b>164,150.9</b>	<b>2,804,935</b>	<b>4,488</b>
<b>Grand Total</b>	<b>\$ 52,423,913</b>	<b>98,552,903</b>	<b>1,259,735,109</b>	<b>14,621.9</b>	<b>11,224.4</b>	<b>254,823.2</b>	<b>4,658,923</b>	<b>290,687</b>

**Notes:**

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

(2) Large Business Energy Solutions Program Budget includes \$93,765.00 for the Large Business DR Pilot for Unifit Energy Systems, Inc.

**NHSAVES PROGRAMS**  
**2019 Statewide Goals**  
**Company-Specific Programs <sup>(1)</sup>**

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<b><u>Electric Utilities</u></b>								
<b>Residential</b>								
Home Energy Reports	\$ 1,143,866	7,518,600	20,689,072	854.1	618.5	-	-	142,800
Customer Engagement Platform	\$ 211,877	-	-			-	-	-
Forward Capacity Market Expenses <sup>(2)</sup>	\$ 87,000	-	-			-	-	-
Sub-total	\$ 1,442,743	7,518,600	20,689,072	854.1	618.5	-	-	142,800
<b>Commercial &amp; Industrial</b>								
Smart Start	\$ 57,000	-	-			-	-	-
C&I Customer Partnerships	\$ 25,360	-	-			-	-	-
C&I RFP Program	\$ 1,195,561	4,205,420	51,840,651	568.1	714.3	-	-	44
Customer Engagement Platform	\$ 317,815	-	-			-	-	-
Education	\$ 618,530	-	-			-	-	-
Forward Capacity Market Expenses <sup>(2)</sup>	\$ 191,490	-	-			-	-	-
Large Business DR Initiative	\$ 250,000	-	-			-	-	75
Sub-total	\$ 2,655,756	4,205,420	51,840,651	568	714	-	-	119
<b>Total Residential and C&amp;I</b>	<b>\$ 4,098,498</b>	<b>11,724,020</b>	<b>72,529,723</b>	<b>1,422.2</b>	<b>1,332.8</b>	<b>-</b>	<b>-</b>	<b>142,919</b>
<b><u>Gas Utilities</u></b>								
<b>Residential</b>								
Home Energy Reports	\$ 352,520	-	-			10,636	36,102	49,600
Education	\$ -	-	-			-	-	-
Sub-total	\$ 352,520	-	-			10,636	36,102	49,600
<b>Commercial &amp; Industrial</b>								
Education	\$ 100,770	-	-			-	-	-
Sub-total	\$ 100,770	-	-			-	-	-
<b>Total Residential and C&amp;I</b>	<b>\$ 453,290</b>	<b>-</b>	<b>-</b>			<b>10,636</b>	<b>36,102</b>	<b>49,600</b>
<b>Grand Total</b>	<b>\$ 4,551,788</b>	<b>11,724,020</b>	<b>72,529,723</b>	<b>1,422.2</b>	<b>1,332.8</b>	<b>10,636.0</b>	<b>36,102</b>	<b>192,519</b>

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



**NHSAVES ENERGY EFFICIENCY PROGRAM - 2019 UTILITY BUDGETS BY ACTIVITY**  
**Residential Programs**

Description	Electric Utilities					Gas Utilities			Grand Total	
	Liberty	NHEC	Eversource	Unitil	Sub-total Electric	Liberty	Unitil	Sub-total Gas		
Home Energy Assistance	Internal Admin	\$ 23,102	\$ 23,322	\$ 104,726	\$ 37,296	\$ 188,446	\$ 36,635	\$ 21,612	\$ 58,247	\$ 246,692
	External Admin	\$ 1,060	\$ 15,488	\$ 9,782	\$ 7,869	\$ 34,200	\$ 2,676	\$ 748	\$ 3,424	\$ 37,623
	Rebate/Services	\$ 514,309	\$ 383,053	\$ 5,218,493	\$ 768,968	\$ 6,884,823	\$ 1,061,377	\$ 283,498	\$ 1,344,875	\$ 8,229,698
	Implementation Services	\$ 89,745	\$ 50,695	\$ 211,403	\$ 101,595	\$ 453,438	\$ 85,172	\$ 43,668	\$ 128,840	\$ 582,278
	Marketing	\$ 27,614	\$ 8,862	\$ 176,514	\$ 24,119	\$ 237,109	\$ 58,965	\$ 4,500	\$ 63,465	\$ 300,574
	EM&V	\$ 34,517	\$ 17,996	\$ 294,190	\$ 40,247	\$ 386,949	\$ 65,517	\$ 20,000	\$ 85,517	\$ 472,467
	<b>Total</b>	<b>\$ 690,348</b>	<b>\$ 499,416</b>	<b>\$ 6,015,107</b>	<b>\$ 980,094</b>	<b>\$ 8,184,964</b>	<b>\$ 1,310,342</b>	<b>\$ 374,026</b>	<b>\$ 1,684,368</b>	<b>\$ 9,869,332</b>
HP w/EnergyStar®	Internal Admin	\$ 11,882	\$ 24,309	\$ 70,127	\$ 27,500	\$ 133,819	\$ 28,958	\$ 13,532	\$ 42,489	\$ 176,308
	External Admin	\$ 545	\$ 16,144	\$ 6,550	\$ -	\$ 23,239	\$ 2,115	\$ 176	\$ 2,291	\$ 25,530
	Rebate/Services	\$ 264,515	\$ 398,223	\$ 3,228,100	\$ 532,405	\$ 4,423,243	\$ 833,780	\$ 138,608	\$ 972,388	\$ 5,395,631
	Implementation Services	\$ 46,157	\$ 52,840	\$ 188,365	\$ 70,339	\$ 357,701	\$ 67,324	\$ 33,573	\$ 100,897	\$ 458,598
	Marketing	\$ 14,202	\$ 9,237	\$ 118,199	\$ 39,227	\$ 180,865	\$ 51,788	\$ 7,898	\$ 59,686	\$ 240,551
	EM&V	\$ 17,753	\$ 18,758	\$ 196,999	\$ 34,829	\$ 268,337	\$ 51,788	\$ 10,450	\$ 62,238	\$ 330,575
	<b>Total</b>	<b>\$ 355,054</b>	<b>\$ 519,511</b>	<b>\$ 3,808,341</b>	<b>\$ 704,300</b>	<b>\$ 5,387,205</b>	<b>\$ 1,035,751</b>	<b>\$ 204,237</b>	<b>\$ 1,239,988</b>	<b>\$ 6,627,194</b>
EnergyStar® Homes	Internal Admin	\$ 6,195	\$ 27,646	\$ 36,668	\$ 12,000	\$ 82,509	\$ 11,780	\$ 11,330	\$ 23,110	\$ 105,619
	External Admin	\$ 284	\$ 14,664	\$ 3,425	\$ 3,500	\$ 21,874	\$ 860	\$ 396	\$ 1,256	\$ 23,130
	Rebate/Services	\$ 137,928	\$ 136,763	\$ 1,732,481	\$ 140,276	\$ 2,147,448	\$ 341,294	\$ 132,171	\$ 473,465	\$ 2,620,914
	Implementation Services	\$ 24,068	\$ 41,046	\$ 122,721	\$ 27,847	\$ 215,682	\$ 27,388	\$ 32,543	\$ 59,931	\$ 275,613
	Marketing	\$ 7,406	\$ 8,762	\$ 61,803	\$ 9,420	\$ 87,391	\$ 18,961	\$ 6,600	\$ 25,561	\$ 112,952
	EM&V	\$ 9,257	\$ 17,793	\$ 103,005	\$ 12,740	\$ 142,795	\$ 21,068	\$ 8,360	\$ 29,428	\$ 172,223
	<b>Total</b>	<b>\$ 185,138</b>	<b>\$ 246,675</b>	<b>\$ 2,060,103</b>	<b>\$ 205,783</b>	<b>\$ 2,697,699</b>	<b>\$ 421,351</b>	<b>\$ 191,400</b>	<b>\$ 612,751</b>	<b>\$ 3,310,450</b>
Energy Star® Products	Internal Admin	\$ 10,093	\$ 46,770	\$ 62,836	\$ 28,870	\$ 148,569	\$ 25,861	\$ 17,189	\$ 43,050	\$ 191,618
	External Admin	\$ 463	\$ 24,745	\$ 5,869	\$ 450	\$ 31,528	\$ 1,889	\$ 575	\$ 2,464	\$ 33,992
	Rebate/Services	\$ 224,701	\$ 394,214	\$ 3,028,897	\$ 456,629	\$ 4,104,442	\$ 749,251	\$ 222,118	\$ 971,369	\$ 5,075,811
	Implementation Services	\$ 39,210	\$ 93,650	\$ 122,773	\$ 60,894	\$ 316,526	\$ 60,125	\$ 42,186	\$ 102,311	\$ 418,838
	Marketing	\$ 12,064	\$ 25,858	\$ 105,909	\$ 33,628	\$ 177,459	\$ 41,625	\$ 14,168	\$ 55,793	\$ 233,252
	EM&V	\$ 15,081	\$ 17,658	\$ 176,516	\$ 37,485	\$ 246,739	\$ 46,250	\$ 19,000	\$ 65,250	\$ 311,989
	<b>Total</b>	<b>\$ 301,612</b>	<b>\$ 602,895</b>	<b>\$ 3,502,801</b>	<b>\$ 617,955</b>	<b>\$ 5,025,263</b>	<b>\$ 925,001</b>	<b>\$ 315,236</b>	<b>\$ 1,240,237</b>	<b>\$ 6,265,499</b>

**NHSAVES ENERGY EFFICIENCY PROGRAM - 2019 UTILITY BUDGETS BY ACTIVITY**  
**Residential Programs (Continued)**

Description	Electric Utilities					Gas Utilities			Grand Total
	Liberty	NHEC	Eversource	Unitil	Sub-total Electric	Liberty	Unitil	Sub-total Gas	
Other*									
Internal Admin	\$ 1,550	\$ -	\$ 18,943	\$ 12,500	\$ 32,993	\$ 7,581	\$ 2,000	\$ 9,581	\$ 42,575
External Admin	\$ 250	\$ -	\$ 1,769	\$ -	\$ 2,019	\$ 542	\$ -	\$ 542	\$ 2,561
Rebate/Services	\$ 117,500	\$ -	\$ 965,639	\$ 171,828	\$ 1,254,967	\$ 235,565	\$ 77,256	\$ 312,821	\$ 1,567,788
Implementation Services	\$ 5,300	\$ 2,190	\$ 17,961	\$ 5,114	\$ 30,565	\$ 10,831	\$ 1,500	\$ 12,331	\$ 42,895
Marketing	\$ 2,150	\$ -	\$ 31,929	\$ -	\$ 34,079	\$ 2,708	\$ -	\$ 2,708	\$ 36,787
EM&V	\$ 22,050	\$ 3,810	\$ 53,215	\$ 9,043	\$ 88,119	\$ 13,538	\$ 1,000	\$ 14,538	\$ 102,657
Total	\$ 148,800	\$ 6,000	\$ 1,089,458	\$ 198,485	\$ 1,442,743	\$ 270,764	\$ 81,756	\$ 352,520	\$ 1,795,263
Total Residential									
Internal Admin	\$ 52,822	\$ 122,047	\$ 293,300	\$ 118,166	\$ 586,335	\$ 110,815	\$ 65,662	\$ 176,477	\$ 762,812
External Admin	\$ 2,603	\$ 71,041	\$ 27,396	\$ 11,819	\$ 112,860	\$ 8,081	\$ 1,895	\$ 9,976	\$ 122,837
Rebate/Services	\$ 1,258,953	\$ 1,312,254	\$ 14,173,611	\$ 2,070,106	\$ 18,814,924	\$ 3,221,267	\$ 853,651	\$ 4,074,918	\$ 22,889,841
Implementation Services	\$ 204,480	\$ 240,420	\$ 663,223	\$ 265,789	\$ 1,373,912	\$ 250,840	\$ 153,470	\$ 404,310	\$ 1,778,222
Marketing	\$ 63,436	\$ 52,719	\$ 494,354	\$ 106,394	\$ 716,904	\$ 174,046	\$ 33,166	\$ 207,212	\$ 924,116
EM&V	\$ 98,658	\$ 76,015	\$ 823,924	\$ 134,343	\$ 1,132,940	\$ 198,160	\$ 58,810	\$ 256,970	\$ 1,389,910
Total	\$ 1,680,951	\$ 1,874,496	\$ 16,475,809	\$ 2,706,617	\$ 22,737,874	\$ 3,963,210	\$ 1,166,655	\$ 5,129,864	\$ 27,867,738
Total %									
Internal Admin	3.1%	6.5%	1.8%	4.4%	2.6%	2.8%	5.6%	3.4%	2.7%
External Admin	0.2%	3.8%	0.2%	0.4%	0.5%	0.2%	0.2%	0.2%	0.4%
Rebate/Services	74.9%	70.0%	86.0%	76.5%	82.7%	81.3%	73.2%	79.4%	82.1%
Implementation Services	12.2%	12.8%	4.0%	9.8%	6.0%	6.3%	13.2%	7.9%	6.4%
Marketing	3.8%	2.8%	3.0%	3.9%	3.2%	4.4%	2.8%	4.0%	3.3%
EM&V	5.9%	4.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

**NHSAVES ENERGY EFFICIENCY PROGRAM - 2019 UTILITY BUDGETS BY ACTIVITY**  
**C&I and Municipal Programs**

		Electric Utilities					Gas Utilities			Grand Total
		Liberty	NHEC	Eversource	Unitil	Sub-total Electric	Liberty	Unitil	Sub-total Gas	
Large Business Energy Solutions	Internal Admin	\$ 41,201	\$ 23,169	\$ 163,025	\$ 67,467	\$ 294,862	\$ 64,312	\$ 31,690	\$ 96,002	\$ 390,864
	External Admin	\$ 1,891	\$ 12,196	\$ 15,228	\$ 2,250	\$ 31,565	\$ 4,697	\$ 1,600	\$ 6,297	\$ 37,862
	Rebate/Services	\$ 917,253	\$ 251,531	\$ 7,720,584	\$ 971,452	\$ 9,860,819	\$ 1,851,744	\$ 486,763	\$ 2,338,507	\$ 12,199,326
	Implementation Services	\$ 160,057	\$ 67,986	\$ 645,744	\$ 205,529	\$ 1,079,316	\$ 149,520	\$ 60,500	\$ 210,020	\$ 1,289,336
	Marketing	\$ 49,248	\$ 8,765	\$ 274,777	\$ 39,766	\$ 372,556	\$ 115,015	\$ 12,870	\$ 127,885	\$ 500,441
	EM&V	\$ 61,561	\$ 17,877	\$ 457,961	\$ 66,660	\$ 604,059	\$ 115,015	\$ 29,612	\$ 144,627	\$ 748,686
	Total	\$ 1,231,211	\$ 381,524	\$ 9,277,318	\$ 1,353,124	\$ 12,243,177	\$ 2,300,303	\$ 623,035	\$ 2,923,338	\$ 15,166,515
Small Business Energy Solutions	Internal Admin	\$ 29,374	\$ 22,913	\$ 91,936	\$ 50,809	\$ 195,031	\$ 38,078	\$ 19,800	\$ 57,878	\$ 252,910
	External Admin	\$ 1,348	\$ 12,061	\$ 8,587	\$ 1,710	\$ 23,707	\$ 2,781	\$ 704	\$ 3,485	\$ 27,192
	Rebate/Services	\$ 653,949	\$ 363,005	\$ 4,078,392	\$ 748,165	\$ 5,843,512	\$ 1,096,395	\$ 286,716	\$ 1,383,111	\$ 7,226,623
	Implementation Services	\$ 114,112	\$ 75,640	\$ 464,038	\$ 125,410	\$ 779,200	\$ 88,529	\$ 38,896	\$ 127,425	\$ 906,625
	Marketing	\$ 35,111	\$ 8,668	\$ 154,957	\$ 30,791	\$ 229,527	\$ 68,099	\$ 14,520	\$ 82,619	\$ 312,146
	EM&V	\$ 43,889	\$ 17,680	\$ 258,261	\$ 51,318	\$ 371,148	\$ 68,099	\$ 19,910	\$ 88,009	\$ 459,157
	Total	\$ 877,784	\$ 499,967	\$ 5,056,171	\$ 1,008,203	\$ 7,442,125	\$ 1,361,981	\$ 380,546	\$ 1,742,527	\$ 9,184,652
Municipal	Internal Admin	\$ 5,590	\$ 9,230	\$ 25,865	\$ 13,283	\$ 53,968	\$ -	\$ -	\$ -	\$ 53,968
	External Admin	\$ 257	\$ 4,634	\$ 2,416	\$ -	\$ 7,306	\$ -	\$ -	\$ -	\$ 7,306
	Rebate/Services	\$ 124,451	\$ 103,998	\$ 1,211,353	\$ 164,131	\$ 1,603,932	\$ -	\$ -	\$ -	\$ 1,603,932
	Implementation Services	\$ 21,716	\$ 20,314	\$ 97,290	\$ 25,598	\$ 164,919	\$ -	\$ -	\$ -	\$ 164,919
	Marketing	\$ 6,682	\$ 6,984	\$ 43,595	\$ 6,611	\$ 63,872	\$ -	\$ -	\$ -	\$ 63,872
	EM&V	\$ 8,352	\$ 14,244	\$ 72,659	\$ 11,019	\$ 106,274	\$ -	\$ -	\$ -	\$ 106,274
	Total	\$ 167,048	\$ 159,403	\$ 1,453,179	\$ 220,642	\$ 2,000,271	\$ -	\$ -	\$ -	\$ 2,000,271
Other*	Internal Admin	\$ 1,953	\$ -	\$ 43,107	\$ 12,500	\$ 57,560	\$ 2,304	\$ 2,750	\$ 5,054	\$ 62,614
	External Admin	\$ 90	\$ -	\$ 8,559	\$ -	\$ 8,649	\$ 168	\$ -	\$ 168	\$ 8,817
	Rebate/Services	\$ 43,488	\$ 26,092	\$ 2,013,298	\$ 57,392	\$ 2,140,270	\$ 66,332	\$ 11,000	\$ 77,332	\$ 2,217,602
	Implementation Services	\$ 7,588	\$ 33,592	\$ 125,948	\$ -	\$ 167,128	\$ 5,356	\$ -	\$ 5,356	\$ 172,484
	Marketing	\$ 2,335	\$ 10,919	\$ 71,729	\$ 4,000	\$ 88,983	\$ 4,120	\$ 3,300	\$ 7,420	\$ 96,403
	EM&V	\$ 48,419	\$ 8,891	\$ 119,548	\$ 16,307	\$ 193,165	\$ 4,120	\$ 1,320	\$ 5,440	\$ 198,605
	Total	\$ 103,873	\$ 79,494	\$ 2,382,190	\$ 90,199	\$ 2,655,756	\$ 82,400	\$ 18,370	\$ 100,770	\$ 2,756,526

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

**NHSAVES ENERGY EFFICIENCY PROGRAM - 2019 UTILITY BUDGETS BY ACTIVITY**  
**C&I and Municipal Program Total and Grand Total (Residential, C&I and Municipal)**

		Electric Utilities					Gas Utilities			Grand Total
		Liberty	NHEC	Eversource	Unitil	Sub-total Electric	Liberty	Unitil	Sub-total Gas	
Total C&I and Municipal	Internal Admin	\$ 78,119	\$ 55,311	\$ 323,933	\$ 144,059	\$ 601,422	\$ 104,694	\$ 54,240	\$ 158,934	\$ 760,356
	External Admin	\$ 3,586	\$ 28,891	\$ 34,791	\$ 3,960	\$ 71,227	\$ 7,646	\$ 2,304	\$ 9,950	\$ 81,177
	Rebate/Services	\$ 1,739,140	\$ 744,626	\$ 15,023,627	\$ 1,941,140	\$ 19,448,533	\$ 3,014,471	\$ 784,479	\$ 3,798,950	\$ 23,247,482
	Implementation Services	\$ 303,474	\$ 197,532	\$ 1,333,020	\$ 356,537	\$ 2,190,563	\$ 243,404	\$ 99,396	\$ 342,800	\$ 2,533,363
	Marketing	\$ 93,377	\$ 35,336	\$ 545,058	\$ 81,168	\$ 754,938	\$ 187,234	\$ 30,690	\$ 217,924	\$ 972,862
	EM&V	\$ 162,221	\$ 58,692	\$ 908,429	\$ 145,304	\$ 1,274,646	\$ 187,234	\$ 50,842	\$ 238,076	\$ 1,512,723
	Total	\$ 2,379,917	\$ 1,120,387	\$ 18,168,857	\$ 2,672,168	\$ 24,341,329	\$ 3,744,684	\$ 1,021,951	\$ 4,766,635	\$ 29,107,964
Total C&I and Municipal %	Internal Admin	3.3%	4.9%	1.8%	5.4%	2.5%	2.8%	5.3%	3.3%	2.6%
	External Admin	0.2%	2.6%	0.2%	0.1%	0.3%	0.2%	0.2%	0.2%	0.3%
	Rebate/Services	73.1%	66.5%	82.7%	72.6%	79.9%	80.5%	76.8%	79.7%	79.9%
	Implementation Services	12.8%	17.6%	7.3%	13.3%	9.0%	6.5%	9.7%	7.2%	8.7%
	Marketing	3.9%	3.2%	3.0%	3.0%	3.1%	5.0%	3.0%	4.6%	3.3%
	EM&V	6.8%	5.2%	5.0%	5.4%	5.2%	5.0%	5.0%	5.0%	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	\$ 130,941	\$ 177,358	\$ 617,233	\$ 262,225	\$ 1,187,757	\$ 215,509	\$ 119,902	\$ 335,412	\$ 1,523,168
	External Admin	\$ 6,189	\$ 99,932	\$ 62,187	\$ 15,779	\$ 184,087	\$ 15,728	\$ 4,199	\$ 19,927	\$ 204,014
	Rebate/Services	\$ 2,998,093	\$ 2,056,880	\$ 29,197,238	\$ 4,011,246	\$ 38,263,456	\$ 6,235,737	\$ 1,638,130	\$ 7,873,867	\$ 46,137,324
	Implementation Services	\$ 507,954	\$ 437,952	\$ 1,996,244	\$ 622,326	\$ 3,564,475	\$ 494,244	\$ 252,866	\$ 747,110	\$ 4,311,585
	Marketing	\$ 156,813	\$ 88,055	\$ 1,039,412	\$ 187,562	\$ 1,471,842	\$ 361,281	\$ 63,856	\$ 425,137	\$ 1,896,979
	EM&V	\$ 260,878	\$ 134,707	\$ 1,732,353	\$ 279,647	\$ 2,407,586	\$ 385,395	\$ 109,652	\$ 495,047	\$ 2,902,633
	Total	\$ 4,060,868	\$ 2,994,883	\$ 34,644,667	\$ 5,378,785	\$ 47,079,203	\$ 7,707,894	\$ 2,188,606	\$ 9,896,499	\$ 56,975,701
Grand Total % (Residential, C&I and Municipal)	Internal Admin	3.2%	5.9%	1.8%	4.9%	2.5%	2.8%	5.5%	3.4%	2.7%
	External Admin	0.2%	3.3%	0.2%	0.3%	0.4%	0.2%	0.2%	0.2%	0.4%
	Rebate/Services	73.8%	68.7%	84.3%	74.6%	81.3%	80.9%	74.8%	79.6%	81.0%
	Implementation Services	12.5%	14.6%	5.8%	11.6%	7.6%	6.4%	11.6%	7.5%	7.6%
	Marketing	3.9%	2.9%	3.0%	3.5%	3.1%	4.7%	2.9%	4.3%	3.3%
	EM&V	6.4%	4.5%	5.0%	5.2%	5.1%	5.0%	5.0%	5.0%	5.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**NHSAVES ELECTRIC PROGRAMS - 2019 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**

	Liberty		NHEC		Eversource		Unitil		Total	
<b>Home Energy Assistance</b>										
Number of Units / Lifetime kWh Savings	72	1,697,671	63	766,167	865	11,398,429	115	1,148,575	1,115	15,010,841
B/C Ratio / Planned Budget	1.73	\$690,348	1.77	\$499,416	1.72	\$6,015,107	1.86	\$980,094	1.74	\$8,184,964
/ Lifetime MMBtu Savings		45,207		35,336		438,475		62,053		581,070
<b>Home Performance w/ENERGY STAR</b>										
Number of Participants / Lifetime kWh Savings	83	1,327,806	169	2,767,602	1,067	8,769,128	113	1,503,708	1,431	14,368,245
B/C Ratio / Planned Budget	2.03	\$355,054	2.44	\$519,511	2.17	\$3,808,341	1.76	\$704,300	2.14	\$5,387,205
/ Lifetime MMBtu Savings		49,020		94,091		628,921		66,075		838,107
<b>ENERGY STAR Homes</b>										
Number of Homes / Lifetime kWh Savings	73	7,935,055	33	1,479,559	840	21,530,618	29	1,216,159	975	32,161,391
B/C Ratio / Planned Budget	6.30	\$185,138	1.71	\$246,675	2.70	\$2,060,103	1.81	\$205,783	2.81	\$2,697,699
/ Lifetime MMBtu Savings		29,189		13,934		270,551		10,856		324,531
<b>ENERGY STAR Products</b>										
Number of Participants / Lifetime kWh Savings	14,459	6,469,068	129,153	13,751,611	109,066	64,598,358	28,092	12,023,832	280,769	96,842,868
B/C Ratio / Planned Budget	2.10	\$301,612	1.60	\$602,895	1.85	\$3,502,801	2.04	\$617,955	1.85	\$5,025,263
/ Lifetime MMBtu Savings		1,886		2,279		39,246		7,122		50,533
<b>Large Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	101	67,850,378	24	20,560,046	594	614,073,184	59	56,285,881	778	758,769,489
B/C Ratio / Planned Budget	2.73	\$1,231,211	2.00	\$381,524	2.14	\$9,277,318	1.87	\$1,353,124	2.15	\$12,243,177
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Small Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	95	26,723,868	116	15,089,568	753	200,792,559	56	32,911,026	1,020	275,517,021
B/C Ratio / Planned Budget	1.66	\$877,784	1.32	\$499,967	1.56	\$5,056,171	1.67	\$1,008,203	1.56	\$7,442,125
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Municipal</b>										
Number of Participants / Lifetime kWh Savings	5	3,849,842	24	2,158,302	55	50,768,525	26	5,481,132	110	62,257,801
B/C Ratio / Planned Budget	1.36	\$167,048	1.04	\$159,403	1.18	\$1,453,179	1.14	\$220,642	1.18	\$2,000,271
/ Lifetime MMBtu Savings		1,485		4,939		51,523		1,800		59,746
<b>Educational Programs</b>										
Number of Participants / Planned Budget	0	\$58,373	0	\$60,494	0	\$429,454	0	\$70,209	0	\$618,530
<b>Company Specific Programs / FCM Expenses</b>										
Number of Participants / Lifetime kWh Savings	12,000	1,991,000	0	0	105,044	68,115,110	25,800	2,423,614	142,844	72,529,723
/ Planned Budget		\$194,300		\$20,000		\$2,990,194		\$218,475		\$3,422,969
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Smart Start (Eversource/NHEC)</b>										
Number of Participants / Planned Budget	0	\$0	0	\$5,000	0	\$52,000	0	\$0	0	\$57,000
<b>Utility Performance Incentive</b>										
Planned Budget		\$223,348		\$164,444		\$1,902,597		\$295,833		\$2,586,221
<b>TOTAL PLANNED BUDGET</b>		<b>\$4,284,216</b>		<b>\$3,159,326</b>		<b>\$36,547,263</b>		<b>\$5,674,619</b>		<b>\$49,665,424</b>

**NHSAVES ELECTRIC PROGRAMS**  
**SBC<sup>1</sup> and RGGI Funding Allocation**  
**2019 Budget**

**Program Allocation Summary**

Program	RGGI	SBC <sup>1</sup>	TOTAL
<b>HEA<sup>2</sup></b>			
Liberty	5.30057%	94.69943%	100.00000%
NHEC	6.17029%	93.82971%	100.00000%
Eversource	5.26998%	94.73002%	100.00000%
Unitil	4.95546%	0.950445372	100.00000%
<b>Municipal</b>			
Liberty	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 <sup>3</sup>	SBC HEA <sup>4</sup>	
Liberty	\$ 690,348	\$36,592	\$653,755.22	
NHEC	\$ 499,416	\$30,815	\$468,600	
Eversource	\$ 6,015,107	\$316,995	\$5,698,112	
Unitil	\$ 980,094	\$48,568	\$931,526	
Total	\$ 8,184,964	\$432,971	\$7,751,993	

Notes:

<sup>1</sup> SBC = System Benefits Charge, Forward Capacity Market and Carryforward/Interest

<sup>2</sup> HEA Allocation

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

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

<sup>3</sup> 17.0% of Total RGGI Funds including SB 268 funding less RGGI HEA Performance Incentive (((\$2,566,784 x .17) - (\$432,970 x .055))

<sup>4</sup> SBC HEA = Utility's total HEA program budget (B) less RGGI HEA (C)

**NHSAVES ELECTRIC PROGRAMS - 2019 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**

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

	Liberty		NHEC		Eversource		Unitil		Total	
<b>Home Energy Assistance</b>										
Number of Units / Lifetime kWh Savings	68	1,607,685	59	718,892	820	10,797,734	109	1,091,657	1,056	14,215,969
B/C Ratio / Planned Budget	1.73	\$653,755	1.77	\$468,600	1.72	\$5,698,112	1.86	\$931,526	1.74	\$7,751,993
/ Lifetime MMBtu Savings		42,811		33,156		415,367		58,978		550,311
<b>Home Performance w/ENERGY STAR</b>										
Number of Participants / Lifetime kWh Savings	83	1,327,806	169	2,767,602	1,067	8,769,128	113	1,503,708	1,431	14,368,245
B/C Ratio / Planned Budget	2.03	\$355,054	2.44	\$519,511	2.17	\$3,808,341	1.76	\$704,300	2.14	\$5,387,205
/ Lifetime MMBtu Savings		49,020		94,091		628,921		66,075		838,107
<b>ENERGY STAR Homes</b>										
Number of Homes / Lifetime kWh Savings	73	7,935,055	33	1,479,559	840	21,530,618	29	1,216,159	975	32,161,391
B/C Ratio / Planned Budget	6.30	\$185,138	1.71	\$246,675	2.70	\$2,060,103	1.81	\$205,783	2.81	\$2,697,699
/ Lifetime MMBtu Savings		29,189		13,934		270,551		10,856		324,531
<b>ENERGY STAR Products</b>										
Number of Participants / Lifetime kWh Savings	14,459	6,469,068	129,153	13,751,611	109,066	64,598,358	28,092	12,023,832	280,769	96,842,868
B/C Ratio / Planned Budget	2.10	\$301,612	1.60	\$602,895	1.85	\$3,502,801	2.04	\$617,955	1.85	\$5,025,263
/ Lifetime MMBtu Savings		1,886		2,279		39,246		7,122		50,533
<b>Large Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	101	67,850,378	24	20,560,046	594	614,073,184	59	56,285,881	778	758,769,489
B/C Ratio / Planned Budget	2.73	\$1,231,211	2.00	\$381,524	2.14	\$9,277,318	1.87	\$1,353,124	2.15	\$12,243,177
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Small Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	95	26,723,868	116	15,089,568	753	200,792,559	56	32,911,026	1,020	275,517,021
B/C Ratio / Planned Budget	1.66	\$877,784	1.32	\$499,967	1.56	\$5,056,171	1.67	\$1,008,203	1.56	\$7,442,125
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Municipal</b>										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio / Planned Budget	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0	0.00	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Educational Programs</b>										
Number of Participants / Planned Budget	0	\$58,373	0	\$60,494	0	\$429,454	0	\$70,209	0	\$618,530
<b>Company Specific Programs / FCM Expenses</b>										
Number of Participants / Lifetime kWh Savings	12,000	1,991,000	0	0	105,044	68,115,110	25,800	2,423,614	142,844	72,529,723
/ Planned Budget		\$194,300		\$20,000		\$2,990,194		\$218,475		\$3,422,969
/ Lifetime MMBtu Savings		0		0		0		0		0
<b>Smart Start (Eversource/NHEC)</b>										
Number of Participants / Planned Budget	0	\$0	0	\$5,000	0	\$52,000	0	\$0	0	\$57,000
<b>Utility Performance Incentive</b>										
Planned Budget		\$212,148		\$153,982		\$1,805,237		\$281,027		\$2,452,393
<b>TOTAL PLANNED BUDGET</b>		<b>\$4,069,375</b>		<b>\$2,958,646</b>		<b>\$34,679,730</b>		<b>\$5,390,602</b>		<b>\$47,098,354</b>

**NHSAVES ELECTRIC PROGRAMS - 2019 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings**

(Energy Efficiency Fund Only - Regional Greenhouse Gas Initiative)

	Liberty		NHEC		Eversource		Unitil		Total	
<b>Home Energy Assistance</b>										
Number of Units / Lifetime kWh Savings	4	89,986	4	47,275	46	600,695	6	56,917	59	794,873
B/C Ratio / Planned Budget	1.73	\$36,592	1.77	\$30,815	1.72	\$316,995	1.86	\$48,568	1.74	\$432,971
/ Lifetime MMBtu Savings		2,396		2,180		23,108		3,075		30,759
<b>Home Performance w/ENERGY STAR</b>										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
<b>ENERGY STAR Homes</b>										
Number of Homes / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
<b>ENERGY STAR Products</b>										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	0
<b>Large Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
<b>Small Business Energy Solutions</b>										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
<b>Municipal</b>										
Number of Participants / Lifetime kWh Savings	5	3,849,842	24	2,158,302	55	50,768,525	26	5,481,132	110	62,257,801
B/C Ratio / Planned Budget	1.36	\$167,048	1.04	\$159,403	1.18	\$1,453,179	1.14	\$220,642	1.18	\$2,000,271
/ Lifetime MMBtu Savings		1,485		4,939		51,523		1,800		59,746
<b>Educational Programs</b>										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
<b>Company Specific Programs / FCM Expenses</b>										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
/ Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
<b>Smart Start (Eversource/NHEC)</b>										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
<b>Utility Performance Incentive</b>										
Planned Budget		\$11,200		\$10,462		\$97,360		\$14,807		\$133,828
<b>TOTAL PLANNED BUDGET</b>		<b>\$214,840</b>		<b>\$200,680</b>		<b>\$1,867,533</b>		<b>\$284,017</b>		<b>\$2,567,070</b>



**NHSAVES GAS PROGRAMS - 2019 UTILITY GOALS BY PROGRAM**  
**Total Customers Served, Program Budgets and Lifetime MMBtu Savings**

	Liberty		Unitil		Total	
<b>Home Energy Assistance</b>						
Number of Units / Lifetime MMBtu Savings	245	155,507	62	39,470	307	194,976
B/C Ratio / Planned Budget	1.19	\$1,310,342	1.04	\$374,026	1.15	\$1,684,368
<b>Home Performance w/ENERGY STAR</b>						
Number of Participants / Lifetime MMBtu Savings	692	201,357	100	28,946	792	230,303
B/C Ratio / Planned Budget	1.40	\$1,035,751	1.00	\$204,237	1.34	\$1,239,988
<b>ENERGY STAR Homes</b>						
Number of Homes / Lifetime MMBtu Savings	121	64,419	43	35,260	164	99,679
B/C Ratio / Planned Budget	1.26	\$421,351	1.10	\$191,400	1.20	\$612,751
<b>ENERGY STAR Products</b>						
Number of Participants / Lifetime kWh Savings	1,470	689,080	502	351,880	1,972	1,040,960
B/C Ratio / Planned Budget	1.14	\$925,001	1.19	\$315,236	1.15	\$1,240,237
/ Lifetime MMBtu Savings		201,701		68,316		270,018
<b>Large Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	94	1,155,640	72	236,974	166	1,392,613
B/C Ratio / Planned Budget	1.79	\$2,300,303	1.84	\$623,035	1.80	\$2,923,338
<b>Small Business Energy Solutions</b>						
Number of Participants / Lifetime MMBtu Savings	771	486,962	317	130,384	1,088	617,345
B/C Ratio / Planned Budget	1.72	\$1,361,981	1.71	\$380,546	1.72	\$1,742,527
<b>Education</b>						
B/C Ratio / Planned Budget	0.00	\$82,400	0.00	\$18,370	0.00	\$100,770
<b>Company Specific Programs</b>						
Number of Participants / Lifetime MMBtu Savings	38,000	27,356	11,600	8,746	49,600	36,102
B/C Ratio / Planned Budget	1.02	\$270,764	1.06	\$81,756	1.03	\$352,520
<b>Utility Performance Incentive</b>						
Planned Budget		\$423,934		\$120,373		\$544,307
<b>Total Program Expenses</b>		<b>\$8,131,828</b>		<b>\$2,308,979</b>		<b>\$10,440,807</b>

**Program Cost-Effectiveness - 2019 PLAN**

	Total Resource Benefit / Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
<b>Residential Programs</b>											
Home Energy Assistance	1.72	10,341.9	6,015.1	-	845.6	11,398.4	85.7	116.7	865	21,015.5	438,474.7
Energy Star Homes	2.70	8,351.1	2,060.1	1,033.8	989.4	21,530.6	114.5	222.8	840	11,505.2	270,551.3
Home Performance with Energy Star	2.17	14,947.7	3,808.3	3,081.1	587.9	8,769.1	82.2	102.7	1,067	31,408.4	628,921.2
Energy Star Products	1.85	8,871.9	3,502.8	1,280.0	8,177.7	64,598.4	2,403.3	1,198.3	109,066	2,709.0	39,246.5
Home Energy Reports	1.75	1,447.7	829.6	-	5,933.6	16,274.5	677.4	494.5	105,000	-	-
Res Customer Engagement Platform	0.00	-	211.9	-	-	-	-	-	-	-	-
ISO-NE Forward Capacity Market Expenses	0.00	-	48.0	-	-	-	-	-	-	-	-
<b>Sub-Total Residential</b>	<b>2.01</b>	<b>43,960.2</b>	<b>16,475.8</b>	<b>5,394.9</b>	<b>16,534.2</b>	<b>122,571.0</b>	<b>3,363.1</b>	<b>2,135.0</b>	<b>216,838</b>	<b>66,638.1</b>	<b>1,377,193.7</b>
<b>Commercial, Industrial &amp; Municipal</b>											
Large Business Energy Solutions	2.14	52,639.8	9,277.3	15,368.8	45,645.0	614,073.2	6,189.7	4,740.3	594	-	-
Small Business Energy Solutions	1.56	18,006.4	5,056.2	6,499.5	15,162.5	200,792.6	1,778.6	1,791.8	753	-	-
Municipal Energy Solutions	1.18	4,520.6	1,453.2	2,383.9	3,599.5	50,768.5	670.6	172.1	55	3,434.8	51,522.6
C&I Customer Partnerships	0.00	-	25.4	-	-	-	-	-	-	-	-
Energy Rewards RFP Program	1.72	5,326.5	1,195.6	1,906.2	4,205.4	51,840.7	568.1	714.3	44	-	-
C&I Customer Engagement Platform	0.00	-	317.8	-	-	-	-	-	-	-	-
Education	0.00	-	429.5	-	-	-	-	-	-	-	-
ISO Forward Capacity Market Expenses	0.00	-	112.0	-	-	-	-	-	-	-	-
Large Business DR Initiative	0.00	-	250.0	-	-	-	-	-	75	-	-
<b>Sub-Total Commercial &amp; Industrial</b>	<b>1.82</b>	<b>80,493.2</b>	<b>18,116.9</b>	<b>26,158.4</b>	<b>68,612.5</b>	<b>917,474.9</b>	<b>9,207.0</b>	<b>7,418.5</b>	<b>1,521</b>	<b>3,434.8</b>	<b>51,522.6</b>
Smart Start	0.00	-	52.0	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1.88</b>	<b>124,453.4</b>	<b>34,644.7</b>	<b>31,553.2</b>	<b>85,146.7</b>	<b>1,040,045.9</b>	<b>12,570.1</b>	<b>9,553.4</b>	<b>218,359</b>	<b>70,073.0</b>	<b>1,428,716.3</b>

Note: a 10% NEI adder is applied to total benefits, and an additional 10% NEI adder is applied to total benefits of the Home Energy Assistance program, excluding water.

Note: The Large Business Demand Reduction Initiative will focus on enrolling 5 MW of Demand Reduction at ISO-NE peak periods.

<b>Annual kWh Savings</b>	85,146,651	80.6%	<b>kWh &gt; 55%</b>	<b>Lifetime kWh Savings</b>	1,040,045,911	71.3%	<b>kWh &gt; 55%</b>
<b>Annual MMBTU Savings (in kWh)</b>	<u>20,536,364</u>	<u>19.4%</u>		<b>Lifetime MMBTU Savings (in kWh)</b>	<u>418,715,440</u>	<u>28.7%</u>	
	<b>105,683,015</b>	100.0%			<b>1,458,761,351</b>	100.0%	

Present Value Benefits - 2019 PLAN

	CAPACITY				ENERGY				Electric DRIPE	Total Electric Benefit	Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Fossil Emissions	Water Benefit	Other Non-Resource Benefit	
	Total Benefits (\$000)	Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak										Summer Off Peak
<b>Residential Programs</b>																		
Home Energy Assistance	\$ 10,342	\$ 125	\$ -	\$ 150	\$ 133	\$ 200	\$ 220	\$ 78	\$ 84	\$ 52	\$ 1,042	\$ 515	\$ 16	\$ 531	\$ 6,642	\$ 484	\$ -	\$ 1,643.02
Energy Star Homes	\$ 8,351	\$ 316	\$ -	\$ 350	\$ 310	\$ 322	\$ 415	\$ 133	\$ 169	\$ 92	\$ 2,106	\$ 553	\$ 16	\$ 569	\$ 4,629	\$ 294	\$ 23	\$ 730.38
Home Performance with Energy Star	\$ 14,948	\$ 110	\$ -	\$ 132	\$ 117	\$ 148	\$ 173	\$ 56	\$ 64	\$ 42	\$ 842	\$ -	\$ -	\$ -	\$ 12,122	\$ 686	\$ -	\$ 1,296.49
Energy Star Products	\$ 8,872	\$ 646	\$ -	\$ 946	\$ 838	\$ 1,474	\$ 1,074	\$ 604	\$ 388	\$ 348	\$ 6,318	\$ 80	\$ 3	\$ 83	\$ 553	\$ 40	\$ 1,184	\$ 695.30
Home Energy Reports	\$ 1,448	\$ 56	\$ -	\$ 121	\$ 107	\$ 388	\$ 329	\$ 133	\$ 118	\$ 63	\$ 1,316	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 131.61
Res Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISO-NE Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Building Practices and Demo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Residential</b>	<b>\$ 43,960</b>	<b>\$ 1,253</b>	<b>\$ -</b>	<b>\$ 1,700</b>	<b>\$ 1,505</b>	<b>\$ 2,533</b>	<b>\$ 2,210</b>	<b>\$ 1,004</b>	<b>\$ 823</b>	<b>\$ 596</b>	<b>\$ 11,624</b>	<b>\$ 1,148</b>	<b>\$ 35</b>	<b>\$ 1,183</b>	<b>\$ 23,946</b>	<b>\$ 1,504</b>	<b>\$ 1,207</b>	<b>\$ 4,497</b>
<b>Commercial/Industrial Programs</b>																		
Large Business Energy Solutions	\$ 52,640	\$ 3,628	\$ -	\$ 4,900	\$ 4,339	\$ 12,635	\$ 12,178	\$ 4,240	\$ 3,535	\$ 2,399	\$ 47,854	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,785.43
Small Business Energy Solutions	\$ 18,006	\$ 1,389	\$ -	\$ 1,869	\$ 1,655	\$ 4,108	\$ 3,437	\$ 1,686	\$ 1,350	\$ 875	\$ 16,369	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,636.94
Municipal Energy Solutions	\$ 4,521	\$ 130	\$ -	\$ 177	\$ 157	\$ 982	\$ 1,078	\$ 285	\$ 321	\$ 122	\$ 3,252	\$ -	\$ -	\$ -	\$ 805	\$ 59	\$ -	\$ 405.63
C&I Customer Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Rewards RFP Program	\$ 5,326	\$ 496	\$ -	\$ 693	\$ 614	\$ 953	\$ 906	\$ 467	\$ 407	\$ 307	\$ 4,842	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 484.23
C&I Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Large Business DR Initiative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CIM Other 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CIM Other 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CIM Other 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Commercial &amp; Industrial</b>	<b>\$ 80,493</b>	<b>\$ 5,644</b>	<b>\$ -</b>	<b>\$ 7,639</b>	<b>\$ 6,764</b>	<b>\$ 18,677</b>	<b>\$ 17,599</b>	<b>\$ 6,678</b>	<b>\$ 5,614</b>	<b>\$ 3,703</b>	<b>\$ 72,318</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 805</b>	<b>\$ 59</b>	<b>\$ -</b>	<b>\$ 7,312</b>
Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 124,453</b>	<b>\$ 6,896</b>	<b>\$ -</b>	<b>\$ 9,339</b>	<b>\$ 8,269</b>	<b>\$ 21,210</b>	<b>\$ 19,809</b>	<b>\$ 7,682</b>	<b>\$ 6,437</b>	<b>\$ 4,299</b>	<b>\$ 83,941</b>	<b>\$ 1,148</b>	<b>\$ 35</b>	<b>\$ 1,183</b>	<b>\$ 24,751</b>	<b>\$ 1,562</b>	<b>\$ 1,207</b>	<b>\$ 11,809</b>

**Performance Incentive Calculation  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.78	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>917,474,919</b>	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	596,358,697	
5. Implementation Expenses	\$18,116,857	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>8. Commercial &amp; Industrial Performance Incentive</b>	\$996,427	
<b>9. Maximum Commercial &amp; Industrial Performance Incentive (6.875%)</b>	\$1,245,534	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.93</b>	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>122,570,992</b>	
13. Threshold Lifetime kWh Savings (65%)	79,671,145	
14. Implementation Expenses	\$16,475,809	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>17. Residential Performance Incentive</b>	\$906,170	
<b>18. Maximum Residential Performance Incentive (6.875%)</b>	\$1,132,712	
<b>19. TOTAL PLANNED / EARNED INCENTIVE</b>	<b>\$1,902,597</b>	

**Notes**

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

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
1. Benefits (Value) From Eligible Programs	\$ 80,493,200	\$ -
2. Implementation Expenses	\$ 18,116,857	\$ -
3. Customer Contribution	\$ 26,158,382	\$ -
4. Performance Incentive	\$ 996,427	\$ -
5. Total Costs	\$ 45,271,667	\$ -
6. Benefit/Cost Ratio - Commercial & Industrial Sector	<b>1.78</b>	
<b>Residential</b>		
7. Benefits (Value) From Eligible Programs	\$ 43,960,204	\$ -
8. Implementation Expenses	\$ 16,475,809	\$ -
9. Customer Contribution	\$ 5,394,866	\$ -
10. Performance Incentive	\$ 906,170	\$ -
11. Total Costs	\$ 22,776,845	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>1.93</b>	

### Lifetime Energy Savings by Sector and Program 2019

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial</b>		
Large Business Energy Solutions	614,073,184	
Small Business Energy Solutions	200,792,559	
Municipal Energy Solutions	50,768,525	
C&I Customer Partnerships	-	
Energy Rewards RFP Program	51,840,651	
C&I Customer Engagement Platform	-	-
Education	-	
ISO Forward Capacity Market Expenses	-	
<b>Total Commercial &amp; Industrial</b>	<b>917,474,919</b>	
<b>Residential</b>		
Home Energy Assistance	11,398,429	
Energy Star Homes	21,530,618	
Home Performance with Energy Star	8,769,128	
Energy Star Products	64,598,358	
Home Energy Reports	16,274,459	
Res Customer Engagement Platform	-	
ISO-NE Forward Capacity Market Expenses	-	
<b>Total Residential</b>	<b>122,570,992</b>	

Eversource Energy Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019
Oil-Wxn: Air Sealing, Insulation, Water measures	152	189	243			382	21	22	21	87%	87%			1,664,496	31	31	31	98%	98%	94,038	126,244	153,367
Propane-Wxn: Air Sealing, Insulation, Water measures	54	91	87			382	21	22	21	87%	87%			604,174	21	15	21	98%	98%	23,253	29,043	37,923
Gas-Wxn: Air Sealing, Insulation, Water measures	60	212	161			382	22	16	22	87%	87%			1,173,075	20	0.7	20	98%	98%	25,906	2,391	71,147
Kerosene-Wxn: Air Sealing, Insulation, Water measures	108	75	173			382	20	22	20	87%	87%			1,149,927	23	22	23	98%	98%	49,109	35,866	80,089
Electric-Wxn: Air Sealing, Insulation, Water measures	13		20	5,611		5,611	19		21	87%	87%	1,164,201		2,083,968								
Cord Wood-Wxn: Air Sealing, Insulation, Water measures	13	24	21			382	20	22	20	87%	87%			140,700	47	44	47	98%	98%	12,312	22,933	20,081
Wood Pellets-Wxn: Air Sealing, Insulation, Water measures	9		14			382	21		20	87%	87%			93,800	47		47	98%	98%	8,609		13,387
Baseload SF homes	92		147				17	17	20	87%	87%							98%	98%			
LED Lighting Products	448	542	4,321	369	349	58	8	8	5	87%	87%	1,149,529	1,314,964	1,084,393								
Refrigerator	204	260	256	586	747	842	12	12	12	87%	87%	1,247,849	1,961,069	2,248,222								
Direct Install Water Measures (if broken out from Wxn)	277	2,176		382	97		21	20		87%		1,906,222	3,658,490									
Oil Boiler Replacement, >=87% AFUE	23	45	47	130		77	20	18	25	87%	87%	51,657		78,657	16	16	16	98%	100%	7,144	12,799	18,798
Propane Boiler Replacement, >=95% AFUE	3	19	8	399		399	20	18	25	87%	87%	20,529		68,322	20	12	17	98%	100%	1,167	3,950	3,289
Gas Boiler Replacement, >=95% AFUE		2	2					18	25	87%	87%					(24)	20	98%	100%		(856)	1,131
Kerosene Boiler Replacement, >=87% AFUE		7	1					18	25	87%	87%					13	6	98%	100%		1,618	180
Oil Furnace Replacement, >=87% ECM	25	45	50	76	16	7	18	16	20	87%	87%	29,205	10,118	5,769	17		24	98%	100%	7,266		23,781
Propane Furnace Replacement, >=95% ECM	11	19	29	2,148	12	131	18	18	20	87%	87%	381,543	3,629	66,460	17		17	98%	100%	3,488		9,793
Natural Gas Furnace Replacement, >=95% ECM		2	8		8,404			18	18	87%	87%		256,786				23	98%	100%			3,642
Kerosene Furnace Replacement, >=87% ECM	19	7	45	99		88	18	1	20	87%	87%	29,126		68,571	10		10	98%	100%	3,226		9,008
Base load SF Lighting			883			58			5		87%			221,647								
Base load SF Fridge			74			842			12		87%			646,214								
<b>Program Summary*</b>	<b>1,510</b>	<b>3,715</b>	<b>6,590</b>	<b>429,220</b>	<b>532,325</b>	<b>845,585</b>						<b>5,979,861</b>	<b>7,205,056</b>	<b>11,398,395</b>	<b>11,489</b>	<b>10,944</b>	<b>21,015</b>			<b>235,517</b>	<b>233,989</b>	<b>445,617</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

- All Annual Energy Savings and Measure Lives were updated for 2018-2020 to reflect more current information based on 2016 participation results. LED Measure Life updated to 5 years.
- US DOE WAP Collaboration: The federal Weatherization Assistance Program is expected.
- 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 Energy Home Performance with ENERGY STAR®

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019
Oil-Wxn: Air Sealing, Insulation, Water measures	264	203	562			225	20	21	20	100%	100%			2,527,909	37	36	37	100%	100%	199,536	154,764	420,644
Propane-Wxn: Air Sealing, Insulation, Water measures	107	82	210			225	19	21	20	100%	100%			944,442	31	32	31	100%	100%	62,822	54,118	128,486
Gas-Wxn: Air Sealing, Insulation, Water measures		1						7		100%						0.09		100%			1	
Kerosene-Wxn: Air Sealing, Insulation, Water measures	4	2	9			225	19	18	20	100%	100%			39,179	25	34	25	100%	100%	2,168	1,072	4,365
Electric-Wxn: Air Sealing, Insulation, Water measures	14	27		5,730		5,730	20		20	100%	100%	1,546,383		3,051,725								
Cord Wood-Wxn: Air Sealing, Insulation, Water measures	22	89	44			225	21	21	20	100%	100%			196,816	42	19	42	100%	100%	19,015	35,717	36,319
Wood Pellets-Wxn: Air Sealing, Insulation, Water measures	18		35			225	21		20	100%	100%			157,177	42		42	100%	100%	15,212		29,004
Baseload SF	92		181					18	20	100%	100%			-								
Baseload MF	549							20		100%												
LED Lighting Products				5,531		24					5											
Refrigerator				51		804					12											
Direct Install Water Measures (if broken out from Wxn)		57			52				8		100%		24,036									
Elec Savings on Fossil Homes (Lighting)	249	207		369	396		8	8		100%		736,154	656,232									
Elec Savings on Fossil Homes (Refrigerators)	62	9		586	894		12	12		100%		438,253	96,600									
Elec Savings on Fossil Homes (Elec Shell, secondary heat)	62	1,474		1,500	148		18	20		100%		1,701,831	4,351,090									
Elec Savings on Baseload Homes (Lighting)	641			369			8			100%		1,893,200										
Elec Savings on Baseload Homes (Refrigerators)	64			586			12			100%		450,830										
Oil Boiler Replacement, >=87% AFUE			29			142			25		100%			101,814			3		100%			1,936
Propane Boiler Replacement, >=95% AFUE			7			142			25		100%			25,453			10		100%			1,828
Oil Furnace Replacement, >=87% ECM			34			168			20		100%			113,573			5		100%			3,110
Propane Furnace Replacement, >=95% ECM			26			168			20		100%			86,040			6		100%			3,226
Oil Boiler Replacement (Oil, AFUE>=85%)	9	6					20	18							5	4				990	467	
Propane Boiler Replacement (LP, AFUE>=90%)	1	17					20	20							10	8				208	2,811	
Oil Boiler Replacement (Oil, AFUE>=90%)	3						20								11					645		
Propane Boiler Replacement (LP, AFUE>=95%)	2						20								13					524		
Oil Furnace Replacement (Oil, AFUE>=85%)	10			168	168		18	18		100%		30,240			18					3,240		
Propane Furnace Replacement (LP, AFUE>=95%)	10			168	168		18	18		100%		30,240			5					810		
Oil Furnace Replacement (Oil, AFUE>=90%)	4			168	168		18	18		100%		13,440			21					1,656		
Propane Furnace Replacement (LP, AFUE>=97%)	1			168	168		18	18		100%		2,688			6					94		
Base load SF Lighting			1,632			24			5		100%			194,987					100%			
Base load SF Fridge			18			804			12		100%			174,917					100%			
<b>Program Summary*</b>	<b>2,190</b>	<b>2,147</b>	<b>8,394</b>	<b>578,127</b>	<b>311,703</b>	<b>587,878</b>						<b>6,843,259</b>	<b>5,127,958</b>	<b>8,769,118</b>	<b>15,376</b>	<b>11,843</b>	<b>31,408</b>			<b>306,920</b>	<b>248,949</b>	<b>628,920</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

- 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 5 years
- Ancillary kWh Savings are no longer separated as they are included in the weatherization measure savings as appropriate.



Eversource Energy ENERGY STAR® Homes

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019
SF-Oil Heated Home	2	3		342	1,766		25	25		100%		16,121	132,475		47	48		100%		2,230	3,585	
SF-Propane Heated Home	87	105	172	1,276	877	1,008	25	25	24	100%	100%	2,767,842	2,303,100	4,103,615	57	64	39	100%	100%	124,161	167,298	158,777
SF-Gas Heated Home	19	7	17	1,436	1,394	1,069	25	25	23	100%	100%	676,909	243,875	415,319	48	54	36	100%	100%	22,612	9,520	13,946
SF-Electric Heated Home			42			5,604				100%				5,779,153								
SF-Wood Pellets Heated Home			2			6,836				100%				335,692			34					1,657
SF-Cord Wood Heated Home	6			1,074			25			100%	100%	151,880			50			100%	100%	7,054		
GSHP Heating	19	8		13,750	14,535		25	25		100%		6,481,541	2,906,900									
GSHP Cooling	19	8		169	7		25	25		100%		79,664	1,350									
GSHP Water	19	8		1,954	1,488		25	25		100%		921,086	297,625									
GSHP SF -Lights and Appliances	19	8		(162)	(170)		25	25		100%		(76,364)	(33,950)									
SF-Air Source Heating (including DHPs)	19	13		9,570	11,109		25	25		100%		4,511,153	3,610,350				2		100%		708	
SF-Heat Pump Cooling (including DHPs)	19	13		71	(167)		25	25		100%		33,468	(54,400)									
SF-Heat Pump Water	19	13		520	1,027		25	25		100%		245,120	333,775									
SF-Air Source Heating (Lights and Appliances)	19	13		(79)	(180)		25	25		100%		(37,239)	(58,625)									
Split System ASHP-MF Heated Home (heating)	57	142		1,930	1,789		25	25		100%		2,728,974	6,351,450				2		100%		5,860	
Split System ASHP-MF Heated Home (cooling)	57	142		14	116		25	25		100%		20,246	410,825									
Split System ASHP-MF Heated Home (water)	57	142		105	447		25	25		100%		148,283	1,585,550									
Split System ASHP-MF Lights and Appliances	57	142		(16)	6		25	25		100%		(22,528)	22,775									
LED Lighting Products	3,771	3,593	4,887	25	25	16	8	8	5	100%	100%	743,280	708,180	389,381								
LED Fixture	754	653	958	25	25	16	8	8	5	100%	100%	148,656	128,706	76,356								
Clothes Washer	53	65	107	124	124	89	11	11	14	100%	100%	71,960	88,596	133,269	0.5	0.5	0.3	100%	100%	263	324	404
Clothes Dryer		1		160	160	160	12	12	12	100%			1,920									
Refrigerator	339	402	715	41	41	41	12	12	12	100%	100%	168,462	199,535	351,650								
Programmable / Wifi Thermostats	321						15			100%												
MF-Wood Heated Home			6			21			21		100%			2,554			9		100%			1,114
MF-Propane Heated Home	38	74	103	1,660	1,472	866	25	25	24	100%	100%	1,564,998	2,723,275	2,131,775	24	17	11	100%	100%	22,853	31,849	27,561
MF-Gas Heated Home	132	113	335	347	594	493	25	25	23	100%	100%	1,144,994	1,677,175	3,833,291	16	9	9	100%	100%	53,884	26,275	67,088
MF-Electric Heated Home			163			1,004			24		100%			3,978,485								
<b>Program Summary*</b>	<b>5,898</b>	<b>5,668</b>	<b>7,507</b>	<b>986,318</b>	<b>1,027,594</b>	<b>989,386</b>						<b>22,488,505</b>	<b>23,580,462</b>	<b>21,530,539</b>	<b>9,336</b>	<b>9,833</b>	<b>11,505</b>			<b>233,057</b>	<b>245,420</b>	<b>270,548</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

- 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 & appliances)
- Measure Life Changes:  
 > LEDs measure life changed to 5 years.
- Lighting & Appliance Energy Savings have been updated per the EPA Energy Star Appliance Calculators and NH evaluation results.



Eversource Energy Home Energy Reports Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019
Behavioral Savings	50,000	50,000	105,000	13	47	14	1	1	1	100%	100%	644,800	2,328,439	1,471,533								
Behavioral Savings	50,000	50,000	105,000	10	10	11	2	2	2	100%	100%	969,779	969,779	2,213,185								
Behavioral Savings	50,000	50,000	105,000	7	7	8	3	3	3	100%	100%	1,093,911	1,093,911	2,496,473								
Behavioral Savings	50,000	50,000	105,000	22	22	24	4	4	4	100%	100%	4,422,694	4,422,694	10,093,267								
<b>Program Summary*</b>	<b>200,000</b>	<b>200,000</b>	<b>420,000</b>	<b>2,600,000</b>	<b>4,283,639</b>	<b>5,933,600</b>						<b>7,131,184</b>	<b>8,814,823</b>	<b>16,274,459</b>								

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual kWh Savings were developed with contractor based on 50,000 current customers in 2018; and 100,000 customers in 2019-2020

Eversource Energy Large Business Energy Solutions Programs

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBtu)			
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	
<b>Retrofit Track</b>																							
Cooling	6	2	20	36,254	156,455	25,990	13	13	13	99.86%	99.86%	2,591,558	4,062,027	6,590,196									
Heating	7	9	5	58,412	130,605	53,258	13	13	13	99.86%	99.86%	5,287,742	15,259,009	3,673,103									
Lighting	1	2	14	97,775	1,140,600	48,431	13	12	13	99.86%	99.86%	1,324,580	26,949,594	8,672,455									
Lighting-LED	88	116	236	56,327	134,618	63,006	13	13	13	99.86%	99.86%	64,315,994	200,148,030	193,126,639									
LightingOS Only	11	13	9	19,452	38,732	171,497	9	9	9	99.86%	99.86%	1,840,893	4,525,241	13,205,095									
Park Lot Lights	36	22	70	57,026	55,515	91,923	13	13	13	99.86%	99.86%	26,934,461	15,854,678	83,273,858									
Process	39	17	51	133,197	120,484	47,202	14	13	12	99.86%	99.86%	73,200,951	26,017,110	28,342,124									
								-															
<b>New Equipment &amp; Construction Track</b>																							
Cooling	30	32	12	22,256	11,562	45,205	14	14	14	99.86%	99.86%	9,360,923	5,077,767	7,565,636									
Heating	5	12	45	171,327	124,221	130,428	12	15	15	99.86%	99.86%	10,602,401	22,327,985	84,820,718									
Lighting		1	1	57,198	14,875	31,093	15	15	15	99.86%	99.86%	-	222,807	356,137									
Lighting-LED	18	38	43	104,525	73,494	132,571	15	15	15	99.86%	99.86%	28,525,751	41,831,758	85,440,681									
LightingOS Only	8	1	1	22,102	3,048	77,456	10	10	11	99.86%	99.86%	1,812,892	30,437	538,861									
Park Lot Lights	10	7	19	90,032	47,714	104,415	15	15	15	99.86%	99.86%	13,962,345	5,002,839	29,705,967									
Process	22	30	69	130,093	225,907	71,471	15	16	14	99.86%	99.86%	44,602,402	110,958,802	68,763,947									
<b>Program Summary*</b>	<b>703</b>	<b>687</b>	<b>1,168</b>	<b>20,649,115</b>	<b>34,891,136</b>	<b>45,645,221</b>						<b>284,362,894</b>	<b>478,268,085</b>	<b>614,075,415</b>									

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)  
 0.0

**Planning Assumptions**

1. Annual Savings were updated based on recent trends and reflect expected project sizes.

Eversource Energy Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	
<b>Retrofit Track</b>																							
Cooling	4	3	8	20,474	44,207	24,014	10	13	10	100%	100%	882,342	1,661,290	2,037,107									
Lighting	126	171	201	25,421	30,723	29,126	10	13	13	100%	107%	32,115,239	68,421,490	81,532,765									
Ext. Lighting	18	43	45	40,400	24,493	31,448	13	13	13	100%	103%	9,594,122	13,864,286	18,893,754									
Process	14	2	35	30,226	38,807	21,488	13	13	14	100%	100%	5,496,693	1,008,982	10,378,474									
Custom		4	21		32,559	20,247		15	13	100%	100%		1,980,707	5,594,317									
Motors		3	1		25,831	25,951		13	11	100%	100%		1,007,396	284,208									
Refrigeration	2	4	2	30,247	62,712	43,844	13	12	15	100%	100%	591,947	3,075,980	1,363,793									
DHW			4			14,235			10		100%			573,245									
<b>New Equipment &amp; Construction Track</b>																							
Cooling	6	15	7	12,771	4,185	26,148	15	17	15	100%	100%	1,102,306	1,051,320	2,840,424									
Heating		1	0		1,237	12,808		15	15	100%	100%		18,555	57,250									
Lighting	34	36	43	23,214	50,909	27,565	15	15	15	100%	107%	11,788,537	27,215,107	18,545,419									
Ext. Lighting	19	10	1	23,214	70,340	26,198	15	15	15	100%	103%	6,597,900	10,551,045	292,537									
Process	18	6	32	16,445	29,939	8,617	15	15	15	100%	100%	4,478,604	2,694,480	4,169,032									
Custom		1	21		7,927	6,876		15	15	100%	100%		118,905	2,147,140									
Motors		4	2		2,846	59,222		15	15	100%	100%		170,745	2,033,708									
Refrigeration			0			34,711			15		100%			165,117									
<b>Direct Install Track</b>																							
Ext Lighting	32		281	31,427		1,719	13		13	100%	103%	12,679,713		6,334,899									
Lighting	108	110	42	19,765	20,930	73,867	13	13	13	100%	107%	27,475,487	29,842,959	42,670,779									
Refrigeration	5	9	6	16,068	19,675	12,025	12	10	13	100%	100%	1,023,943	1,788,356	878,586									
<b>Program Summary*</b>	<b>389</b>	<b>424</b>	<b>758</b>	<b>9,330,764</b>	<b>12,254,082</b>	<b>15,162,512</b>						<b>113,826,834</b>	<b>164,471,603</b>	<b>200,792,554</b>									

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

- Expanded New, Retrofit and Direct Install into detailed measures for 2018 and beyond. Used data from past years to develop 2018-2020 plan by measure type.
- Other Sales: Customer may still purchase bulbs through catalog, but the quantities have been very small so did not plan for any in 2018-2020.

Eversource Energy C&I RFP Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	2017 Plan	2017 Actual	2019	2017	2019	2017 Plan	2017 Actual	2019	
Cooling	2		17	191,396		23,658	13		15	100%	100%	4,251,844		6,067,131									
Lighting						0			0		100%												
Lighting-LED	2	2	5	146,136	10,652	107,205	13	13	13	100%	100%	3,603,138	276,952	7,483,973									
LightingOS Only		1	1		624	122,710			9		100%		5,616	1,223,884									
Park Lot Lights	2		2	99,008		49,770			8		100%			1,360,512									
Process	10	6	18	242,964	331,674	162,448	13	12	12	100%	100%	31,051,720	24,652,056	35,705,152									
<b>Program Summary*</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>3,171,974</b>	<b>2,011,970</b>	<b>4,205,420</b>						<b>40,436,356</b>	<b>24,934,624</b>	<b>51,840,651</b>									

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Estimated project mix based on trends seen in projects completed 2015 - 2016.



**PSNH d/b/a Eversource Energy  
 2019 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)	2019 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
2019	\$ 36,547	\$ 1,868	\$ 5,777	\$ -	\$ (386)	\$ (19)	29,307	7,852,026	0.373	0.150	0.063	0.586

- Col. A: Effective year (January 1, 2019 - December 31, 2019)
- Col. B: Company Forecast
- Col. C: Company Forecast
- Col. D: Company Forecast
- Col. E: Company Forecast
- Col. F: Page 2, Line 9 Col. N + Line 11 Col. O
- Col. G: Page 3, Line 11, 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 4, Col. G
- Col. M: Col. J + Col. K + Col. L



**PSNH d/b/a Eversource Energy**  
**Energy Efficiency Expense & SBC Revenue Reconciliation**  
**January 1, 2018 to December 31, 2018**  
 (\$ in 000's)

Line	Description	Carryover 12/31/17	Actual Jan 2018	Actual Feb 2018	Actual Mar 2018	Actual Apr 2018	Actual May 2018	Actual Jun 2018	Actual Jul 2018	Forecast Aug 2018	Forecast Sep 2018	Forecast Oct 2018	Forecast Nov 2018	Forecast Dec 2018	2018 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		1,740	1,837	1,726	1,751	1,503	1,695	1,943	2,003	1,688	1,708	1,690	1,909	21,193
2	RGGI Revenues		-	-	-	419	-	483	-	-	483	-	-	483	1,869
3	FCM Revenues		444	438	433	430	441	449	610	495	495	495	495	495	5,719
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	<b>Total Revenues</b>		<b>2,184</b>	<b>2,275</b>	<b>2,159</b>	<b>2,600</b>	<b>1,944</b>	<b>2,627</b>	<b>2,553</b>	<b>2,497</b>	<b>2,666</b>	<b>2,203</b>	<b>2,185</b>	<b>2,887</b>	<b>28,781</b>
6	Program Expenses		378	1,104	1,796	1,026	1,990	2,094	1,813	3,683	3,761	3,761	3,761	3,761	28,929
7	<b>Total Program Expenses</b>		<b>378</b>	<b>1,104</b>	<b>1,796</b>	<b>1,026</b>	<b>1,990</b>	<b>2,094</b>	<b>1,813</b>	<b>3,683</b>	<b>3,761</b>	<b>3,761</b>	<b>3,761</b>	<b>3,761</b>	<b>28,929</b>
8	Current Month (Over)/Under Recovery		(1,806)	(1,171)	(363)	(1,574)	46	(534)	(740)	1,185	1,095	1,558	1,576	874	
9	Cumulative (Over)/Under Recovery	386	(1,420)	(2,591)	(2,954)	(4,528)	(4,482)	(5,016)	(5,756)	(4,570)	(3,476)	(1,917)	(341)	533	
10	Interest @ Prime Rate		0.38%	0.38%	0.38%	0.40%	0.40%	0.40%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
11	<b>Interest on Deferral Balance</b>		<b>(2)</b>	<b>(8)</b>	<b>(10)</b>	<b>(15)</b>	<b>(18)</b>	<b>(19)</b>	<b>(22)</b>	<b>(22)</b>	<b>(17)</b>	<b>(11)</b>	<b>(5)</b>	<b>0</b>	<b>(148)</b>
12	<b>Monthly Sales (MWh)</b>		756,620	667,944	627,520	636,684	546,614	616,421	706,414	728,243	613,972	621,188	614,641	694,243	7,830,504
13	<b>EE SBC Rate</b>		0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	

Line 1: (Line 12 x Line 13) / 100  
 Line 2: Company Forecast  
 Line 3: Company Forecast  
 Line 4: Company Forecast  
 Line 5: Sum of Lines 1 through Lines 4  
 Line 6: Company Forecast  
 Line 7: Sum of Line 6  
 Line 8: |Line 7 - Line 5  
 Line 9: Prior month Line 9 + Current month Line 8  
 Line 10: Prime Rate / 12  
 Line 11: (Prior Month Line 9 + Current Month Line 9) / 2 x Line 10  
 Line 12: Company Forecast  
 Line 13: 2018 approved rate

**PSNH d/b/a Eversource Energy**  
**Energy Efficiency Expense & SBC Revenue Reconciliation**  
**January 1, 2019 to December 31, 2019**  
 (\$ in 000's)

Line	Description	Carryover 12/31/2018	Forecast Jan 2019	Forecast Feb 2019	Forecast Mar 2019	Forecast Apr 2019	Forecast May 2019	Forecast June 2019	Forecast Jul 2019	Forecast Aug 2019	Forecast Sep 2019	Forecast Oct 2019	Forecast Nov 2019	Forecast Dec 2019	2019 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		2,663	2,360	2,422	2,176	2,251	2,415	2,732	2,739	2,312	2,306	2,302	2,610	29,288
2	RGGI Revenues		-	-	467	-	-	467	-	-	467	-	-	467	1,868
3	FCM Revenues		481	481	481	481	481	481	481	481	481	481	481	481	5,777
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
<b>5</b>	<b>Total Revenues</b>		<b>3,145</b>	<b>2,841</b>	<b>3,371</b>	<b>2,658</b>	<b>2,733</b>	<b>3,363</b>	<b>3,213</b>	<b>3,220</b>	<b>3,260</b>	<b>2,787</b>	<b>2,784</b>	<b>3,558</b>	<b>36,933</b>
6	Program Expenses		3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046	3,046	36,547
<b>7</b>	<b>Total Program Expenses</b>		<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>3,046</b>	<b>36,547</b>
8	Current Month (Over)/Under Recovery		(99)	204	(325)	388	313	(318)	(168)	(175)	(215)	258	262	(512)	
9	Cumulative (Over)/Under Recovery	386	287	491	166	554	867	549	382	207	(8)	251	513	0	
10	Interest @ Prime Rate		0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
<b>11</b>	<b>Interest on Deferral Balance</b>		<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>19</b>
12	Monthly Sales (MWh)		713,982	632,725	649,381	583,424	603,529	647,459	732,393	734,264	619,828	618,166	617,224	699,653	7,852,026
13	EE SBC Rate		0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	

Line 1: (Line 12 x Line 13) / 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 7 - Line 5  
 Line 9: Prior month Line 9 + Current month Line 8  
 Line 10: Prime Rate / 12  
 Line 11: (Prior Month Line 9 + Current Month Line 9) / 2 x Line 10  
 Line 12: Company Forecast  
 Line 13: Page 1, Col. J

**PSNH d/b/a Eversource Energy**  
**2019 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
2019	\$ 4,753	\$ 167	\$ (5)	\$ 4,915	7,852,026	0.063

Col. A: Effective year (January 1, 2019 - December 31, 2019)  
 Col. B: Page 5, Line 21, Col. O / 1000  
 Col. C: Page 6, Line 7, Col. N  
 Col. D: Page 7, Line 6, Col. O  
 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  
 Monthly and Cumulative Savings and Lost Base Revenue  
 January 1, 2019 to December 31, 2019

Line	Description	Cumulative Annual kWh Savings / Monthly												2019 Annual kWh and Monthly kW Savings	Cumulative Annual kWh and Monthly kW 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
1	Residential Annual kWh Savings (2017, 2018, & 2019)	26,186,394	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	1,377,848	16,534,174	42,720,568
2	C&I Annual kWh Savings (2017 & 2018)	94,971,106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94,971,106
3	C&I Annual kWh Savings (2019)	-	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	5,717,706	68,612,477	68,612,477	
4	C&I Monthly Installed kW Savings*	-	725	725	725	725	725	725	725	725	725	725	725	725	8,703	8,703	
<b>Total 2019</b>																	
		<b>Jan 2019</b>	<b>Feb 2019</b>	<b>Mar 2019</b>	<b>Apr 2019</b>	<b>May 2019</b>	<b>June 2019</b>	<b>Jul 2019</b>	<b>Aug 2019</b>	<b>Sep 2019</b>	<b>Oct 2019</b>	<b>Nov 2019</b>	<b>Dec 2019</b>	<b>Lost Base Revenue</b>			
5	Monthly Residential Savings (2019)	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410	57,410		
6	Cumulative Residential Savings	2,239,610	2,354,430	2,469,251	2,584,072	2,698,892	2,813,713	2,928,534	3,043,354	3,158,175	3,272,996	3,387,816	3,502,637				
7	Average Residential kWh Distribution Rate	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025	0.04025				
8	Total Lost Residential Revenue	\$ 90,137	\$ 94,758	\$ 99,380	\$ 104,001	\$ 108,622	\$ 113,243	\$ 117,864	\$ 122,485	\$ 127,107	\$ 131,728	\$ 136,349	\$ 140,970	\$	1,386,643		
9	Monthly C&I Savings (2017 & 2018)	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259	7,914,259				
10	Average C&I kWh Distribution Rate	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767	0.02767				
11	Lost C&I kWh Revenue	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$ 218,966	\$	218,966		
12	Monthly C&I Savings (2019)	238,238	238,238	238,238	238,238	238,238	238,238	238,238	238,238	238,238	238,238	238,238	238,238				
13	Cumulative C&I Savings	238,238	714,713	1,191,189	1,667,664	2,144,140	2,620,615	3,097,091	3,573,567	4,050,042	4,526,518	5,002,993	5,479,469				
14	Average C&I kWh Distribution Rate	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177	0.01177				
15	Lost C&I kWh Revenue	\$ 2,805	\$ 8,414	\$ 14,023	\$ 19,633	\$ 25,242	\$ 30,851	\$ 36,461	\$ 42,070	\$ 47,680	\$ 53,289	\$ 58,898	\$ 64,508				
16	Monthly C&I kW Savings (2019)	363	363	363	363	363	363	363	363	363	363	363	363				
17	Cumulative Monthly C&I kW Savings	363	1,088	1,813	2,538	3,264	3,989	4,714	5,439	6,165	6,890	7,615	8,340				
18	Average C&I Demand Rate	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42				
19	Lost C&I Demand Revenue	\$ 2,327	\$ 6,981	\$ 11,635	\$ 16,289	\$ 20,944	\$ 25,598	\$ 30,252	\$ 34,906	\$ 39,560	\$ 44,214	\$ 48,868	\$ 53,523				
20	Total Lost C&I kWh and Demand Revenue	\$ 224,098	\$ 234,361	\$ 244,625	\$ 254,888	\$ 265,152	\$ 275,415	\$ 285,679	\$ 295,942	\$ 306,206	\$ 316,469	\$ 326,733	\$ 336,996	\$	3,366,564		
21	<b>Total Lost Revenue</b>	<b>\$ 314,235</b>	<b>\$ 329,120</b>	<b>\$ 344,004</b>	<b>\$ 358,889</b>	<b>\$ 373,774</b>	<b>\$ 388,658</b>	<b>\$ 403,543</b>	<b>\$ 418,428</b>	<b>\$ 433,312</b>	<b>\$ 448,197</b>	<b>\$ 463,082</b>	<b>\$ 477,966</b>	<b>\$</b>	<b>4,753,207</b>		

Lines 1-4: Company Forecast  
 Line 5: Line 1 / 24  
 Line 6: Prior Month Line 6 + Current Month Line 5  
 Line 7: Page 8, Column 8  
 Line 8: Line 6 x Line 7  
 Line 9: Line 1, Column B / 12  
 Line 10: Page 8, Column 8  
 Line 11: Line 9 x Line 10  
 Line 12: Line 3 / 24  
 Line 13: Prior Month Line 13 + Current Month Line 12  
 Line 14: Page 8, Column 7  
 Line 15: Line 13 x Line 14  
 Line 16: Line 4 / 12  
 Line 17: Prior Month Line 17 + Current Month Line 16  
 Line 18: Page 8, Column 6  
 Line 19: Line 17 x Line 18  
 Line 20: Line 11 + Line 15 + Line 19  
 Line 21: Line 8 + Line 20

**PSNH d/b/a Eversource Energy**  
**Lost Base Revenue Reconciliation**  
**January 1, 2018 to December 31, 2018**  
**(\$ in 000's)**

Line	Description	Actual Carryover 12/31/2017	Actual Jan 2018	Actual Feb 2018	Actual Mar 2018	Actual Apr 2018	Actual May 2018	Actual Jun 2018	Actual Jul 2018	Forecast Aug 2018	Forecast Sep 2018	Forecast Oct 2018	Forecast Nov 2018	Forecast Dec 2018	2018 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		130	200	188	191	164	185	212	218	184	186	184	208	2,252
2	Lost Revenues		135	140	153	161	171	188	198	213	227	244	261	277	2,367
3	Current Month (Over)/Under Recovery		5	(61)	(36)	(30)	7	3	(14)	(6)	43	58	76	69	116
4	Cumulative (Over)/Under Recovery	52	57	(4)	(40)	(70)	(62)	(59)	(73)	(79)	(36)	22	98	167	
5	Interest @ Prime Rate		0.38%	0.38%	0.38%	0.40%	0.40%	0.40%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
6	Interest on Deferral Balance		0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	1	(1)
7	Cummulative (Over)/Under Recovery Incl Carrying Charge		57	(4)	(39)	(70)	(63)	(60)	(74)	(80)	(37)	21	97	167	
8	<b>Monthly Sales (MWh)</b>		756,620	667,944	627,520	636,684	546,614	616,421	706,414	728,243	613,972	621,188	614,641	694,243	7,830,504
9	<b>SBC Rate (LBR Component)</b>		0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	

Line 1: (Line 8 x Line 9) / 100  
 Line 2: Company Forecast  
 Line 3: Line 2 - Line 1  
 Line 4: Prior month Line 4 + Current month Line 3  
 Line 5: Prime Rate / 12  
 Line 6: (Prior Month Line 4 + Current Month Line 4) / 2 x Line 5  
 Line 7: Line 4 + Line 6  
 Line 8: Company Actuals and Forecast  
 Line 9: Approved Rates

**PSNH d/b/a Eversource Energy**  
**Lost Base Revenue Reconciliation**  
**January 1, 2019 to December 31, 2019**  
 (\$ in 000's)

Line	Description	Forecast Carryover 12/31/2018	Forecast Jan 2019	Forecast Feb 2019	Forecast Mar 2019	Forecast Apr 2019	Forecast May 2019	Forecast Jun 2019	Forecast Jul 2019	Forecast Aug 2019	Forecast Sep 2019	Forecast Oct 2019	Forecast Nov 2019	Forecast Dec 2019	2019 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		450	399	409	368	380	408	461	463	390	389	389	441	4,947
2	Lost Revenues		314	329	344	359	374	389	404	418	433	448	463	478	4,753
3	Current Month (Over)/Under Recovery		(136)	(69)	(65)	(9)	(6)	(19)	(58)	(44)	43	59	74	37	(194)
4	Cumulative (Over)/Under Recovery	167	31	(38)	(103)	(112)	(119)	(138)	(196)	(240)	(197)	(138)	(64)	(27)	
5	Interest @ Prime Rate		0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
6	Interest on Deferral Balance		0	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(0)	(0)	(5)
7	Cummulative (Over)/Under Recovery Incl Carrying Charge		32	(38)	(103)	(112)	(119)	(139)	(198)	(243)	(201)	(143)	(69)	(32)	
8	<b>Monthly Sales (MWh)</b>		713,982	632,725	649,381	583,424	603,529	647,459	732,393	734,264	619,828	618,166	617,224	699,653	7,852,026
9	<b>SBC Rate (LBR Component)</b>		0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	

Line 1: (Line 8 x Line 9) / 100  
 Line 2: Page 5, Line 21 / 1000  
 Line 3: Line 2 - Line 1  
 Line 4: Prior month Line 4 + Current month Line 3  
 Line 5: Prime Rate / 12  
 Line 6: (Prior Month Line 4 + Current Month Line 4) / 2 x Line 5  
 Line 7: Line 4 + Line 6  
 Line 8: Company Forecast  
 Line 9: Company Forecast

Eversource  
 Calculation of Forecasted Average Distribution Rate for Lost Revenue  
 Based on Actual Billing Determinants and Distribution Rates\*

	(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (1) + (4)	(7) = (2) / (5)	(8) = (3) / (5)
For the Period 07/01/17 Through 06/30/18								
Rate Class	Revenue			Delivery kW	Delivery kWh	Average Distribution Rate \$/kW	Average Distribution Rate \$/kWh <sup>(a)</sup>	Average Distribution Rate \$/kWh <sup>(b)</sup>
	Demand Charges	kWh Charges	Total Demand and kWh Charges					
<b>Residential</b>	\$ -	\$ 126,308,907	\$ 126,308,907	\$ -	3,138,357,008	<b>N/A</b>	<b>N/A</b>	<b>\$ 0.04025</b>
General Service Rate G	\$ 35,256,059	\$ 38,175,341	\$ 73,431,400	4,046,223	1,703,273,539	\$ 9.43	\$ 0.02241	\$ 0.04311
Primary General Service Rate GV	\$ 23,010,148	\$ 9,812,649	\$ 32,822,797	4,251,134	1,656,083,534	\$ 2.31	\$ 0.00593	\$ 0.01982
Large General Service Rate LG	<u>\$ 13,899,519</u>	<u>\$ 5,462,448</u>	<u>\$ 19,361,967</u>	<u>2,947,989</u>	<u>1,180,885,664</u>	<u>\$ 1.85</u>	<u>\$ 0.00463</u>	<u>\$ 0.01640</u>
<b>Commercial and Industrial</b>	\$ 72,165,726	\$ 53,450,438	\$ 125,616,164	11,245,346	4,540,242,737	<b>\$ 6.42</b>	<b>\$ 0.01177</b>	<b>\$ 0.02767</b>

\* Excludes the outdoor lighting rates (Rate OL and Rate EOL), the Customer/Meter charge revenue from each rate, and the on/off peak kWh associated with Rate B >= 115 kV under Rate LG.

(a) For 2019 C&I Savings

(b) For 2017 and 2018 C&I Savings

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

	<u>Current Rates*</u>	<u>2019</u>
System Benefits Charge (\$/kWh)	\$ 0.00455	\$ 0.00586
<u>Bill per month, including PSNH default energy service</u>		
Residential Rate R (625 kWh/month)	\$ 126.25	\$ 127.07
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)	\$ 1,869.73	\$ 1,882.81
<u>Change from previous rate level - \$ per month</u>		
Residential Rate R (625 kWh/month)		\$ 0.82
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		\$ 13.08
<u>Change from previous rate level - %</u>		
Residential Rate R (625 kWh/month)		0.6%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		0.7%

\* Stated at Eversource's rate levels effective August 1, 2018 - January 31, 2019



**Eversource**  
**Calculation of Distribution Revenue at the Rate Levels in Effect July 2017 - June 2018**  
**Based on Billing Determinants for the Twelve Months Ending June 2018**

Residential Rate R									
Rate	Source	July 1, 2017 - December 31, 2017			January 1, 2018 - June 30, 2018			July 2017 - Jun 2018 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	2,618,086	\$ 12.64	\$ 33,092,607	2,630,086	\$ 12.69	\$ 33,375,791	5,248,172	\$ 66,468,398
	All kWh	1,488,583,049	\$ 0.04125	\$ 61,404,051	1,519,610,226	\$ 0.04141	\$ 62,927,059	3,008,193,275	\$ 124,331,110
Uncontrolled Water Heating	Customer Charge	259,829	\$ 4.45	\$ 1,156,239	257,056	\$ 4.47	\$ 1,149,040	516,885	\$ 2,305,279
	All kWh	42,811,188	\$ 0.02022	\$ 865,642	51,317,728	\$ 0.02030	\$ 1,041,750	94,128,916	\$ 1,907,392
Controlled Water Heating	Customer Charge	1,560	\$ 7.85	\$ 12,246	1,511	\$ 7.88	\$ 11,907	3,071	\$ 24,153
	All kWh	257,549	\$ 0.00120	\$ 309	303,863	\$ 0.00120	\$ 365	561,412	\$ 674
LCS - Radio-controlled & 8 Hour Switch	Customer Charge	20,593	\$ 9.07	\$ 186,779	20,563	\$ 9.11	\$ 187,329	41,156	\$ 374,107
	All kWh	10,126,170	\$ 0.00120	\$ 12,151	24,276,216	\$ 0.00120	\$ 29,131	34,402,386	\$ 41,283
LCS - 8 Hour No Switch	Customer Charge	634	\$ 7.85	\$ 4,977	617	\$ 7.88	\$ 4,862	1,251	\$ 9,839
	All kWh	129,713	\$ 0.00120	\$ 156	226,656	\$ 0.00120	\$ 272	356,369	\$ 428
LCS - 10,11 Hour Switch	Customer Charge	30	\$ 9.07	\$ 272	30	\$ 9.11	\$ 273	60	\$ 545
	All kWh	9,274	\$ 0.02438	\$ 226	7,663	\$ 0.02448	\$ 188	16,937	\$ 414
LCS - 10,11 Hour No Switch	Customer Charge	601	\$ 7.85	\$ 4,718	579	\$ 7.88	\$ 4,563	1,180	\$ 9,280
	All kWh	120,394	\$ 0.02438	\$ 2,935	153,037	\$ 0.02448	\$ 3,746	273,431	\$ 6,682
Time of Day	Customer Charge	221	\$ 29.35	\$ 6,486	231	\$ 29.47	\$ 6,808	452	\$ 13,294
	On Peak kWh	70,792	\$ 0.13183	\$ 9,333	83,664	\$ 0.13235	\$ 11,073	154,456	\$ 20,405
	Off Peak kWh	114,867	\$ 0.00192	\$ 221	154,959	\$ 0.00193	\$ 299	269,826	\$ 520
Total Residential	Customer/Meter	2,901,554		\$ 34,464,324	2,910,673		\$ 34,740,573	5,812,227	\$ 69,204,896
	Demand	-		-	-		-	-	-
	kWh	1,542,222,996		\$ 62,295,023	1,596,134,012		\$ 64,013,883	3,138,357,008	\$ 126,308,907
				\$ 96,759,347			\$ 98,754,456	\$ 195,513,803	

General Service Rate G									
Rate	Source	July 1, 2017 - December 31, 2017			January 1, 2018 - June 30, 2018			July 2017 - Jun 2018 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Single Phase Customer Charge	335,447	\$ 14.83	\$ 4,974,679	335,734	\$ 14.89	\$ 4,999,079	671,181	\$ 9,973,758
	Three Phase Customer Charge	118,192	\$ 29.64	\$ 3,503,211	118,793	\$ 29.76	\$ 3,535,280	236,985	\$ 7,038,491
	Demand Charge > 5 kW	2,112,374	\$ 8.69	\$ 18,356,530	1,923,148	\$ 8.72	\$ 16,769,854	4,035,522	\$ 35,126,384
	First 500 kWh Charge	133,751,554	\$ 0.06959	\$ 9,307,771	253,196,980	\$ 0.06986	\$ 17,688,341	386,948,534	\$ 26,996,112
	Next 1,000 kWh Charge	141,163,171	\$ 0.01724	\$ 2,433,653	123,004,126	\$ 0.01731	\$ 2,129,201	264,167,297	\$ 4,562,854
	All Additional kWh Charge	574,696,563	\$ 0.00610	\$ 3,505,649	463,624,816	\$ 0.00612	\$ 2,837,384	1,038,321,379	\$ 6,343,033
Time of Day	Single Phase Customer Charge	106	\$ 38.42	\$ 4,073	93	\$ 38.57	\$ 3,587	199	\$ 7,660
	Three Phase Customer Charge	129	\$ 54.90	\$ 7,082	131	\$ 55.12	\$ 7,221	260	\$ 14,303
	Demand Charge	6,743	\$ 12.10	\$ 81,590	3,958	\$ 12.15	\$ 48,085	10,701	\$ 129,675
	On peak kWh	184,607	\$ 0.04882	\$ 9,013	126,879	\$ 0.04901	\$ 6,218	311,486	\$ 15,231
	Off peak kWh	311,687	\$ 0.00765	\$ 2,384	222,094	\$ 0.00768	\$ 1,706	533,781	\$ 4,090
Space Heating	Meter Charge	2,533	\$ 2.97	\$ 7,523	2,509	\$ 2.98	\$ 7,477	5,042	\$ 15,000
	All kWh	1,981,927	\$ 0.03413	\$ 67,643	3,212,845	\$ 0.03426	\$ 110,072	5,194,772	\$ 177,715
Uncontrolled Water Heating	Customer Charge	7,772	\$ 4.45	\$ 34,585	7,666	\$ 4.47	\$ 34,267	15,438	\$ 68,852
	All kWh	1,557,242	\$ 0.02022	\$ 31,487	1,861,383	\$ 0.02030	\$ 37,786	3,418,625	\$ 69,274
Controlled Water Heating	Customer Charge	-	\$ 7.85	\$ -	-	\$ 7.88	\$ -	-	\$ -
	All kWh	-	\$ 0.00120	\$ -	-	\$ 0.00120	\$ -	-	\$ -
LCS - Radio-controlled & 8 Hour Switch	Customer Charge	1,165	\$ 9.07	\$ 10,567	1,154	\$ 9.11	\$ 10,513	2,319	\$ 21,079
	All kWh	1,322,828	\$ 0.00120	\$ 1,587	2,910,378	\$ 0.00120	\$ 3,492	4,232,206	\$ 5,080
LCS - 8 Hour No Switch	Customer Charge	41	\$ 7.85	\$ 322	36	\$ 7.88	\$ 284	77	\$ 606
	All kWh	31,039	\$ 0.00120	\$ 37	36,759	\$ 0.00120	\$ 44	67,798	\$ 81
LCS - 10,11 Hour Switch	Customer Charge	-	\$ 9.07	\$ -	-	\$ 9.11	\$ -	-	\$ -
	All kWh	-	\$ 0.02438	\$ -	-	\$ 0.02448	\$ -	-	\$ -
LCS - 10,11 Hour No Switch	Customer Charge	12	\$ 7.85	\$ 94	12	\$ 7.88	\$ 95	24	\$ 189
	All kWh	57,360	\$ 0.02438	\$ 1,398	19,300	\$ 0.02448	\$ 472	76,660	\$ 1,871
Total General Service	Customer/Meter	465,397		\$ 8,542,136	466,128		\$ 8,597,802	931,525	\$ 17,199,937
	Demand	2,119,117		\$ 18,438,120	1,927,106		\$ 16,817,939	4,046,223	\$ 35,256,059
	kWh	855,057,978		\$ 15,360,623	848,215,561		\$ 22,814,718	1,703,273,539	\$ 38,175,341
				\$ 42,340,879			\$ 48,230,458	\$ 90,571,337	

Primary General Service Rate GV									
Rate	Source	July 1, 2017 - December 31, 2017			January 1, 2018 - June 30, 2018			July 2017 - Jun 2018 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	8,291	\$ 193.27	\$ 1,602,402	8,298	\$ 194.03	\$ 1,610,061	16,589	\$ 3,212,463
	First 100 kW Demand Charge	803,328	\$ 5.56	\$ 4,466,504	791,250	\$ 5.58	\$ 4,415,175	1,594,578	\$ 8,881,679
	All Additional kW Demand Charge	1,391,116	\$ 5.32	\$ 7,400,737	1,231,281	\$ 5.34	\$ 6,575,041	2,622,397	\$ 13,975,778
	First 200,000 kWh	729,664,285	\$ 0.00604	\$ 4,401,172	711,498,916	\$ 0.00606	\$ 4,311,683	1,441,163,201	\$ 8,718,856
	All Additional kWh	116,319,422	\$ 0.00507	\$ 589,739	96,332,560	\$ 0.00509	\$ 490,333	212,651,982	\$ 1,080,072
Rate B < 115 KV	Administrative Charge	41	\$ 340.50	\$ 13,961	47	\$ 341.84	\$ 16,066	88	\$ 30,027
	Translation Charge	18	\$ 57.12	\$ 1,028	21	\$ 57.34	\$ 1,204	39	\$ 2,232
	Demand Charge	17,049	\$ 4.46	\$ 76,039	17,110	\$ 4.48	\$ 76,653	34,159	\$ 152,691
	First 200,000 kWh	1,238,528	\$ 0.00604	\$ 7,481	1,029,823	\$ 0.00606	\$ 6,241	2,268,351	\$ 13,721
	All Additional kWh	-	\$ 0.00507	\$ -	-	\$ 0.00509	\$ -	-	\$ -
Space Heating	Meter Charge	-	\$ 2.97	\$ -	-	\$ 2.98	\$ -	-	\$ -
	All kWh	-	\$ 0.03413	\$ -	-	\$ 0.03426	\$ -	-	\$ -
Total GV	Customer/Meter	8,350		\$ 1,617,390	8,366		\$ 1,627,332	16,716	\$ 3,244,722
	Demand	2,211,493		\$ 11,943,279	2,039,641		\$ 11,066,868	4,251,134	\$ 23,010,148
	kWh	847,222,235		\$ 5,004,392	808,861,299		\$ 4,808,257	1,656,083,534	\$ 9,812,649
				\$ 18,565,062			\$ 17,502,457	\$ 36,067,519	

Large General Service Rate LG									
Rate	Source	July 1, 2017 - December 31, 2017			January 1, 2018 - June 30, 2018			July 2017 - Jun 2018 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	625	\$ 604.10	\$ 377,563	627	\$ 606.47	\$ 380,257	1,252	\$ 757,819
	Demand Charge	1,408,962	\$ 4.73	\$ 6,664,390	1,270,776	\$ 4.75	\$ 6,036,186	2,679,738	\$ 12,700,576
	On peak kWh	269,352,227	\$ 0.00506	\$ 1,362,922	243,903,864	\$ 0.00508	\$ 1,239,032	513,256,091	\$ 2,601,954
	Off Peak kWh	339,194,608	\$ 0.00427	\$ 1,448,361	318,181,521	\$ 0.00429	\$ 1,364,999	657,376,129	\$ 2,813,360
Rate B < 115 KV	Administrative Charge	54	\$ 340.50	\$ 18,387	53	\$ 341.84	\$ 18,118	107	\$ 36,505
	Translation Charge	12	\$ 57.12	\$ 685	21	\$ 57.34	\$ 1,204	33	\$ 1,890
	Demand charge	141,075	\$ 4.46	\$ 629,195	127,176	\$ 4.48	\$ 569,748	268,251	\$ 1,198,943
	On peak kWh	1,939,150	\$ 0.00506	\$ 9,812	2,165,816	\$ 0.00508	\$ 11,002	4,104,966	\$ 20,814
	Off Peak kWh	2,859,756	\$ 0.00427	\$ 12,211	3,288,722	\$ 0.00429	\$ 14,109	6,148,478	\$ 26,320
Rate B >= 115 KV	Administrative Charge	31	\$ 340.50	\$ 10,556	33	\$ 341.84	\$ 11,281	64	\$ 21,836
	Translation Charge	-	\$ 57.12	\$ -	13	\$ 57.34	\$ 745	13	\$ 745
	Demand charge	512,892	\$ -	\$ -	400,636	\$ -	\$ -	913,528	\$ -
	On peak kWh	3,376,729	\$ -	\$ -	5,384,690	\$ -	\$ -	8,761,419	\$ -
	Off Peak kWh	9,352,794	\$ -	\$ -	11,674,131	\$ -	\$ -	21,026,925	\$ -
Total LG	Customer/Meter	722		\$ 407,190	747		\$ 411,604	1,469	\$ 818,795
	Demand	2,062,929		\$ 7,293,585	1,798,588		\$ 6,605,934	3,861,517	\$ 13,899,519
	kWh	626,075,264		\$ 2,833,307	584,598,744		\$ 2,629,141	1,210,674,008	\$ 5,462,448
				\$ 10,534,082			\$ 9,646,680		\$ 20,180,762

Outdoor Lighting Rate OL										
Type	Fixture	July 1, 2017 - December 31, 2017			January 1, 2018 - June 30, 2018			July 2017 - Jun 2018 Total		
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue	
High Pressure Sodium	4,000 Lumens	21,216	\$ 15.77	\$ 334,576	21,279	\$ 15.83	\$ 336,846	42,495	\$ 671,422	
	5,800 Lumens	3,766	\$ 15.77	\$ 59,390	3,706	\$ 15.83	\$ 58,659	7,472	\$ 118,049	
	9,500 Lumens	5603	\$ 20.97	\$ 117,495	5,560	\$ 21.05	\$ 117,036	11,163	\$ 234,531	
	16,000 Lumens	4982	\$ 29.65	\$ 147,716	5,034	\$ 29.77	\$ 149,862	10,016	\$ 297,578	
	30,000 Lumens	8180	\$ 30.39	\$ 248,590	8,257	\$ 30.51	\$ 251,910	16,437	\$ 500,500	
	50,000 Lumens	11395	\$ 30.73	\$ 350,168	11,685	\$ 30.85	\$ 360,496	23,080	\$ 710,664	
	130,000 Lumens	1848	\$ 49.32	\$ 91,143	1,897	\$ 49.51	\$ 93,914	3,745	\$ 185,057	
	12,000 Lumens	55	\$ 21.68	\$ 1,192	55	\$ 21.77	\$ 1,197	110	\$ 2,390	
	34,200 Lumens	36	\$ 27.76	\$ 999	31	\$ 27.87	\$ 864	67	\$ 1,863	
	Mercury	3,500 Lumens	32675	\$ 13.91	\$ 454,509	30,146	\$ 13.96	\$ 420,834	62,821	\$ 875,344
		7,000 Lumens	6057	\$ 16.73	\$ 101,334	5,896	\$ 16.80	\$ 99,058	11,953	\$ 200,392
		11,000 Lumens	499	\$ 20.69	\$ 10,324	371	\$ 20.77	\$ 7,710	870	\$ 18,034
20,000 Lumens		2578	\$ 25.55	\$ 65,868	2,581	\$ 25.65	\$ 66,205	5,159	\$ 132,073	
56,000 Lumens		867	\$ 40.61	\$ 35,209	858	\$ 40.77	\$ 34,978	1,725	\$ 70,187	
Metal Halide	15,000 Lumens	32	\$ 23.67	\$ 757	20	\$ 23.76	\$ 464	52	\$ 1,222	
	5,000 Lumens	1333	\$ 16.45	\$ 21,928	1,359	\$ 16.51	\$ 22,435	2,692	\$ 44,363	
	8,000 Lumens	796	\$ 22.51	\$ 17,918	788	\$ 22.60	\$ 17,800	1,584	\$ 35,718	
	13,000 Lumens	0	\$ 30.89	\$ -		\$ 31.01	\$ -		\$ -	
	13,500 Lumens	708	\$ 31.55	\$ 22,337	727	\$ 31.67	\$ 23,032	1,435	\$ 45,369	
	20,000 Lumens	1771	\$ 31.55	\$ 55,875	1,887	\$ 31.67	\$ 59,761	3,658	\$ 115,636	
	36,000 Lumens	2687	\$ 31.83	\$ 85,527	2,814	\$ 31.96	\$ 89,935	5,501	\$ 175,463	
	100,000 Lumens	1649	\$ 47.72	\$ 78,690	1,666	\$ 47.91	\$ 79,818	3,315	\$ 158,508	
	Incandescent	600 Lumens	537	\$ 9.08	\$ 4,876	534	\$ 9.12	\$ 4,870	1,071	\$ 9,746
		1,000 Lumens	1560	\$ 10.14	\$ 15,818	1,451	\$ 10.18	\$ 14,768	3,011	\$ 30,587
2,500 Lumens		24	\$ 13.01	\$ 312	24	\$ 13.06	\$ 313	48	\$ 626	
Fluorescent	6,000 Lumens	0	\$ 22.35	\$ -	0	\$ 22.44	\$ -		\$ -	
	20,000 Lumens	12	\$ 34.65	\$ 416	12	\$ 34.79	\$ 417	24	\$ 833	
Total Rate OL	Fixtures	110,866		\$ 2,322,971	108,637		\$ 2,313,184	219,503	\$ 4,636,155	
	Demand									
	kWh	9,117,859			7,951,982			17,069,841		
				\$ 2,322,971			\$ 2,313,184		\$ 4,636,155	

Outdoor Lighting Rate EOL										
Type	Fixture	July 1, 2017 - December 31, 2017			January 1, 2018 - June 30, 2018			July 2017 - Jun 2018 Total		
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue	
High Pressure Sodium	4,000 Lumens	60,617	\$ 8.39	\$ 508,577	40,760	\$ 8.42	\$ 343,199	101,377	\$ 851,776	
	5,800 Lumens	2,807	\$ 8.39	\$ 23,551	1,507	\$ 8.42	\$ 12,689	4,314	\$ 36,240	
	9,500 Lumens	6,521	\$ 10.32	\$ 67,297	3,871	\$ 10.36	\$ 40,104	10,392	\$ 107,400	
	16,000 Lumens	7,577	\$ 11.35	\$ 85,999	4,504	\$ 11.39	\$ 51,301	12,081	\$ 137,300	
	30,000 Lumens	15,189	\$ 11.35	\$ 172,395	11,894	\$ 11.39	\$ 135,473	27,083	\$ 307,868	
	50,000 Lumens	1,095	\$ 11.71	\$ 12,822	837	\$ 11.76	\$ 9,843	1,932	\$ 22,666	
	130,000 Lumens	367	\$ 22.23	\$ 8,158	350	\$ 22.32	\$ 7,812	717	\$ 15,970	
	Metal Halide	5,000 Lumens	9,347	\$ 8.72	\$ 81,506	5,615	\$ 8.75	\$ 49,131	14,962	\$ 130,637
		8,000 Lumens	918	\$ 11.52	\$ 10,575	577	\$ 11.57	\$ 6,676	1,495	\$ 17,251
		13,000 Lumens	-	\$ 12.30	\$ -	-	\$ 12.35	\$ -		\$ -
		13,500 Lumens	579	\$ 12.95	\$ 7,498	558	\$ 13.00	\$ 7,254	1,137	\$ 14,752
		20,000 Lumens	486	\$ 13.17	\$ 6,401	618	\$ 13.22	\$ 8,170	1,104	\$ 14,571
36,000 Lumens		347	\$ 13.54	\$ 4,698	435	\$ 13.59	\$ 5,912	782	\$ 10,610	
100,000 Lumens		616	\$ 24.12	\$ 14,858	315	\$ 24.21	\$ 7,626	931	\$ 22,484	
LED's		Per Fixture	137,732	\$ 3.36	\$ 462,780	178,608	\$ 3.37	\$ 601,909	316,340	\$ 1,064,688
	Per Watt	1,946,547	\$ 0.0511	\$ 99,469	2,901,583	\$ 0.0513	\$ 148,851	4,848,130	\$ 248,320	
	Maintenance credit (contract)			\$ (53)			\$ (25)		\$ (78)	
Total Rate EOL	Fixtures	244,198		\$ 1,566,530	250,449		\$ 1,435,925	494,647	\$ 3,002,455	
	Demand	-		\$ -	-		\$ -	-	\$ -	
	kWh	6,616,388			5,596,189			12,212,577		
				\$ 1,566,530			\$ 1,435,925		\$ 3,002,455	

Total Retail							
Type	Source	July 1, 2017 - December 31, 2017		January 1, 2018 - June 30, 2018		July 2017 - Jun 2018 Total	
		Units	Revenue	Units	Revenue	Units	Revenue
Total Retail	Customer/Meter	3,376,023	\$ 45,031,040	3,385,914	\$ 45,377,310	6,761,937	\$ 90,408,350
	Fixtures	355,064	\$ 3,889,501	359,086	\$ 3,749,109	714,150	\$ 7,638,609
	Demand	6,393,539	\$ 37,674,984	5,765,335	\$ 34,490,742	12,158,874	\$ 72,165,726
	kWh	3,886,312,720	\$ 85,493,346	3,851,357,787	\$ 94,265,999	7,737,670,506	\$ 179,759,345
			\$ 172,088,871		\$ 177,883,160		\$ 349,972,031

Lost Base Revenue							
Summary of Data Included in the Calculation of the Average Distribution Rates*							
Type	Source	July 1, 2017 - December 31, 2017		January 1, 2018 - June 30, 2018		July 2017 - Jun 2018 Total	
		Units	Revenue	Units	Revenue	Units	Revenue
Total Residential	Demand	-	\$ -	-	\$ -	-	\$ -
	kWh	1,542,222,996	\$ 62,295,023	1,596,134,012	\$ 64,013,883	3,138,357,008	\$ 126,308,907
			\$ 62,295,023		\$ 64,013,883		\$ 126,308,907
Total General Service	Demand	2,119,117	\$ 18,438,120	1,927,106	\$ 16,817,939	4,046,223	\$ 35,256,059
	kWh	855,057,978	\$ 15,360,623	848,215,561	\$ 22,814,718	1,703,273,539	\$ 38,175,341
			\$ 33,798,744		\$ 39,632,656		\$ 73,431,400
Total GV	Demand	2,211,493	\$ 11,943,279	2,039,641	\$ 11,066,868	4,251,134	\$ 23,010,148
	kWh	847,222,235	\$ 5,004,392	808,861,299	\$ 4,808,257	1,656,083,534	\$ 9,812,649
			\$ 16,947,672		\$ 15,875,125		\$ 32,822,797
Total LG	Demand	1,550,037	\$ 7,293,585	1,397,952	\$ 6,605,934	2,947,989	\$ 13,899,519
	kWh	613,345,741	\$ 2,833,307	567,539,923	\$ 2,629,141	1,180,885,664	\$ 5,462,448
			\$ 10,126,891		\$ 9,235,076		\$ 19,361,967
Total	Demand	5,880,647	\$ 37,674,984	5,364,699	\$ 34,490,742	11,245,346	\$ 72,165,726
	kWh	3,857,848,950	\$ 85,493,346	3,820,750,795	\$ 94,265,999	7,678,599,744	\$ 179,759,345
			\$ 123,168,330		\$ 128,756,741		\$ 251,925,071

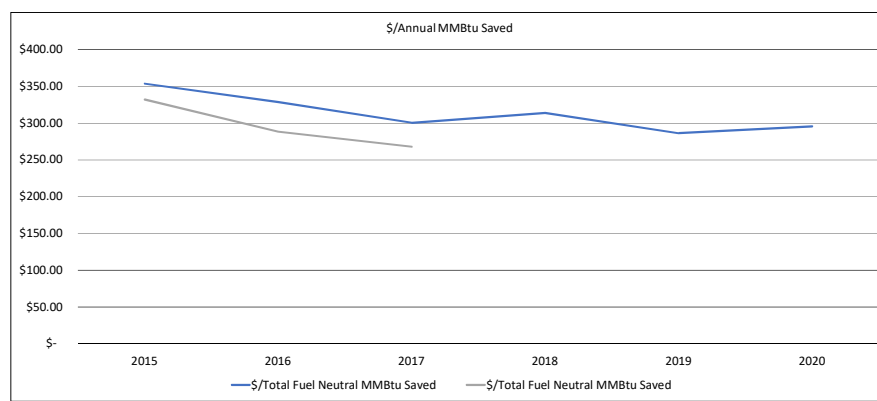
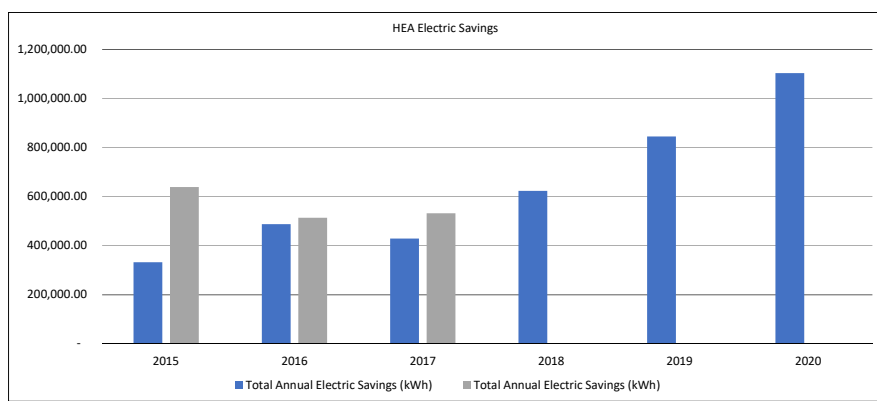
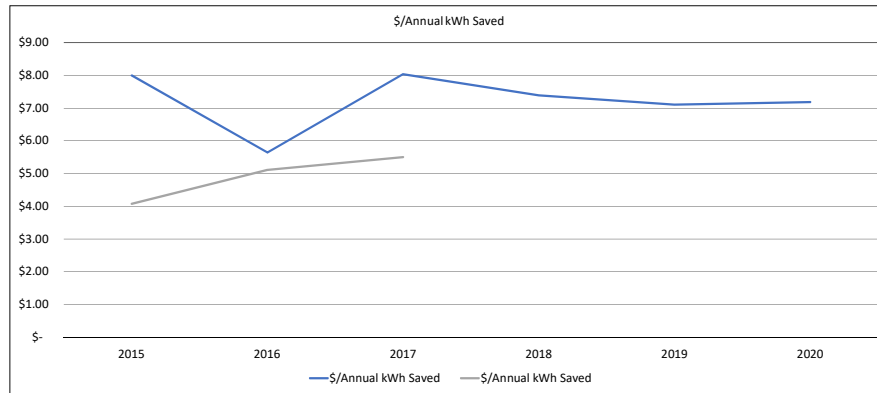
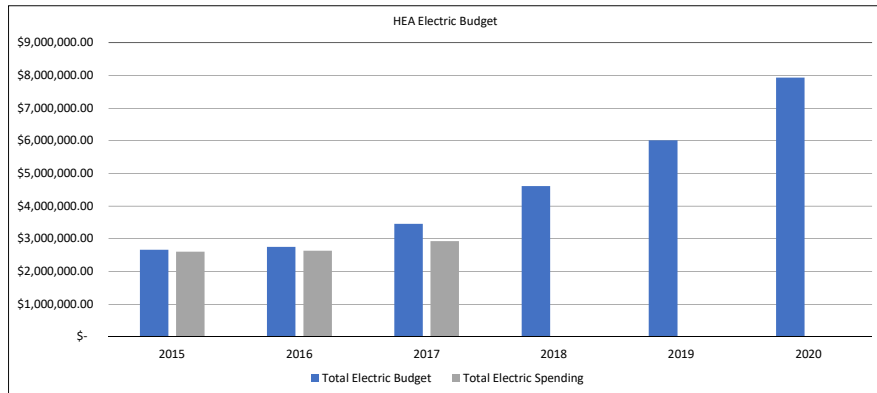
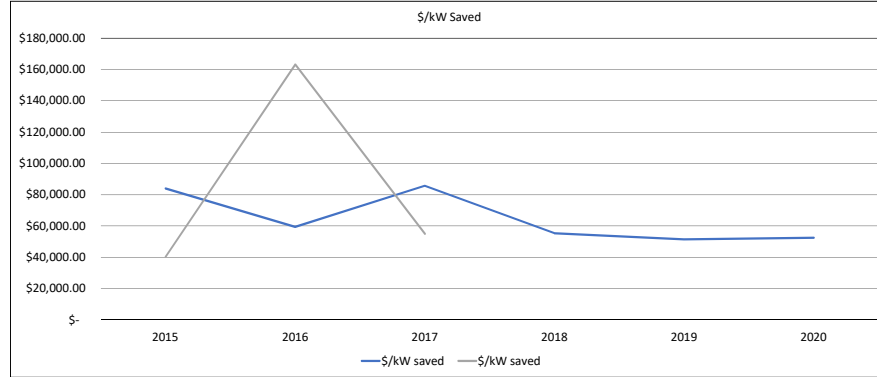
\* The Lost Base Revenue calculation excludes the outdoor lighting rates (Rate OL and Rate EOL), the Customer/Meter charge revenue from each rate, and the on/off peak kWh associated with Rate B >= 115 kV under Rate LG.

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 6,015,106.66	\$ 7,927,639.00
	Total Annual Electric Savings (kWh)	332,704.68	487,614.55	429,219.81	623,609.04	845,586.10	1,102,644.60
	\$/Annual kWh Saved	\$ 8.00	\$ 5.64	\$ 8.04	\$ 7.39	\$ 7.11	\$ 7.19
2)	Total Electric Budget	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 6,015,106.66	\$ 7,927,639.00
	Total kW saved	31.70	46.33	40.26	83.25	116.74	151.12
	\$/kW saved	\$ 83,961.98	\$ 59,383.90	\$ 85,705.87	\$ 55,388.90	\$ 51,526.89	\$ 52,458.82
3)	Total Electric Budget	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 6,015,106.66	\$ 7,927,639.00
	Total Fuel Neutral MMBtu Saved	7,527.20	8,371.96	11,489.26	14,683.27	21,015.45	26,820.91
	\$/Total Fuel Neutral MMBtu Saved	\$ 353.58	\$ 328.63	\$ 300.31	\$ 314.05	\$ 286.22	\$ 295.58

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,930,672.42
	Total Annual Electric Savings (kWh)	638,554.22	514,041.71	532,325.13
	\$/Annual kWh Saved	\$ 4.08	\$ 5.12	\$ 5.51
2)	Total Electric Spending	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,930,672.42
	Total kW saved	64.34	16.12	53.36
	\$/kW saved	\$ 40,451.13	\$ 163,221.09	\$ 54,918.84
3)	Total Electric Spending	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,930,672.42
	Total Fuel Neutral MMBtu Saved	7,839.29	9,126.57	10,943.68
	\$/Total Fuel Neutral MMBtu Saved	\$ 332.00	\$ 288.26	\$ 267.80

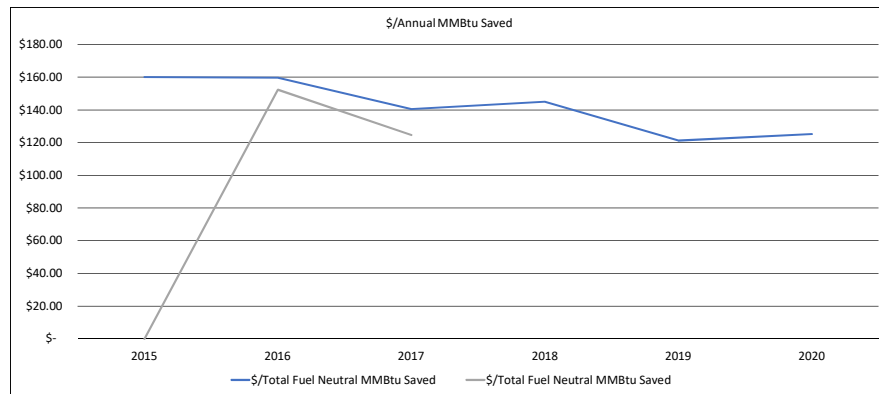
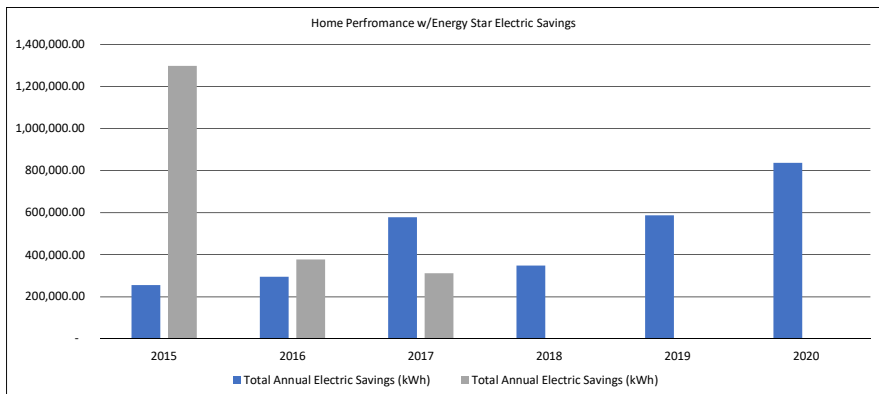
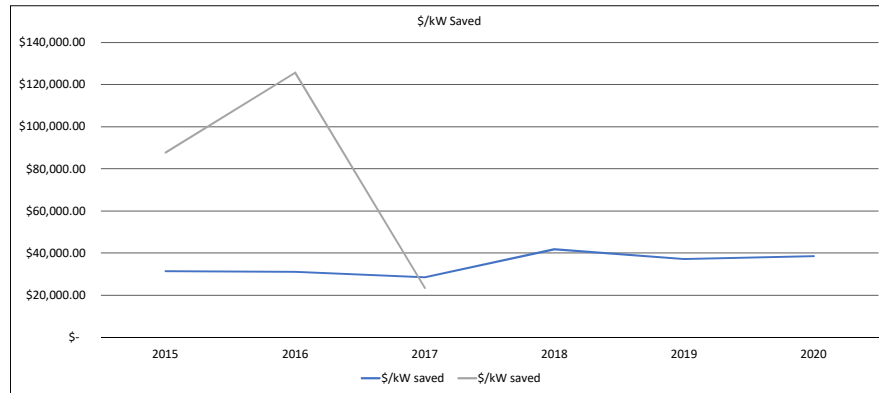
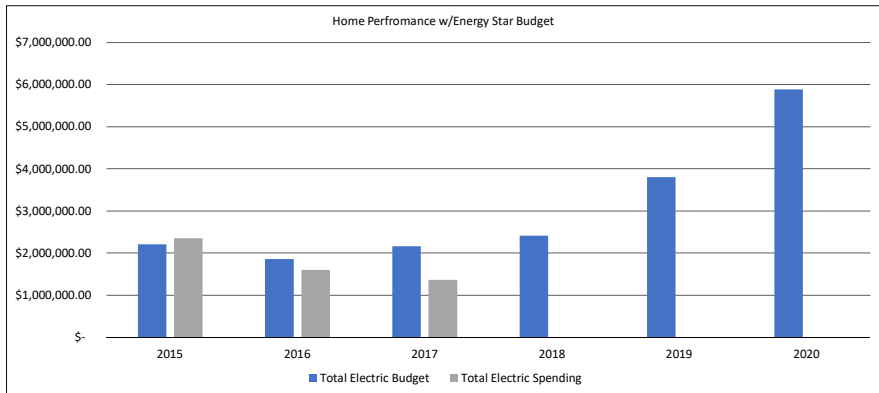
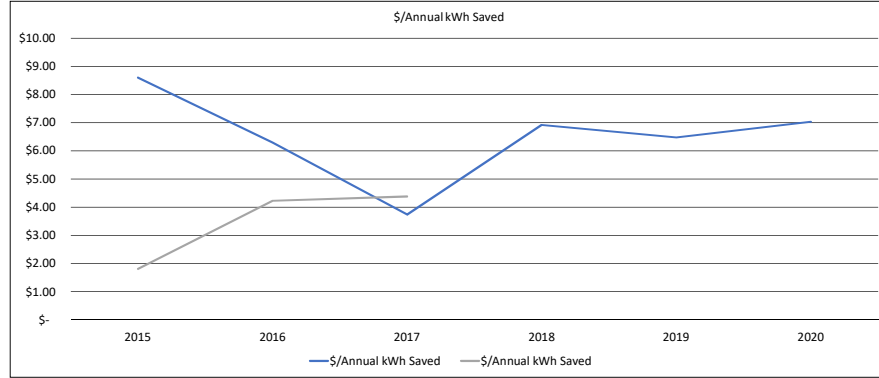


Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,808,340.70	\$ 5,890,311.74
	Total Annual Electric Savings (kWh)	256,056.96	295,674.17	578,126.50	348,885.75	587,878.50	837,859.55
	\$/Annual kWh Saved	\$ 8.60	\$ 6.29	\$ 3.74	\$ 6.92	\$ 6.48	\$ 7.03
2)	Total Electric Budget	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,808,340.70	\$ 5,890,311.74
	Total kW saved	70.29	59.98	75.98	57.84	102.69	153.07
	\$/kW saved	\$ 31,344.04	\$ 31,015.03	\$ 28,442.09	\$ 41,764.27	\$ 37,085.52	\$ 38,480.30
3)	Total Electric Budget	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,808,340.70	\$ 5,890,311.74
	Total Fuel Neutral MMBtu Saved	13,764.71	11,649.95	15,376.05	16,650.12	31,408.42	46,998.56
	\$/Total Fuel Neutral MMBtu Saved	\$ 160.07	\$ 159.69	\$ 140.55	\$ 145.09	\$ 121.25	\$ 125.33

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,365,080.05
	Total Annual Electric Savings (kWh)	1,297,571.81	377,818.52	311,703.00
	\$/Annual kWh Saved	\$ 1.81	\$ 4.23	\$ 4.38
2)	Total Electric Spending	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,365,080.05
	Total kW saved	26.75	12.71	58.41
	\$/kW saved	\$ 87,835.36	\$ 125,789.42	\$ 23,371.81
3)	Total Electric Spending	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,365,080.05
	Total Fuel Neutral MMBtu Saved	15,422.74	12,836.50	11,843.32
	\$/Total Fuel Neutral MMBtu Saved	\$ 152.32	\$ 124.57	\$ 115.26

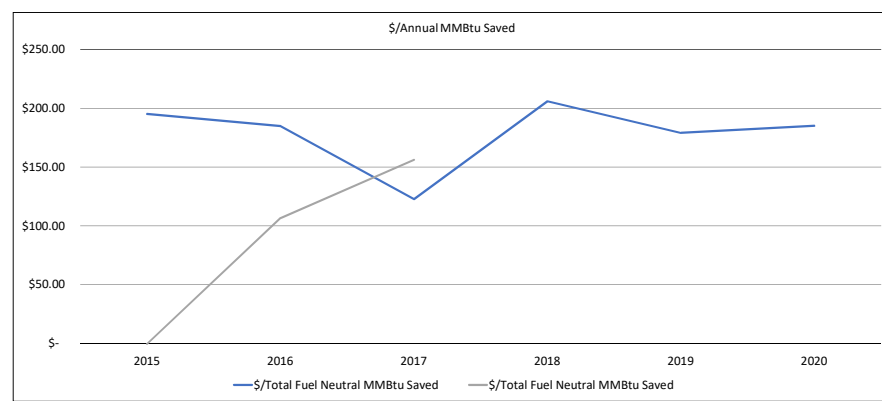
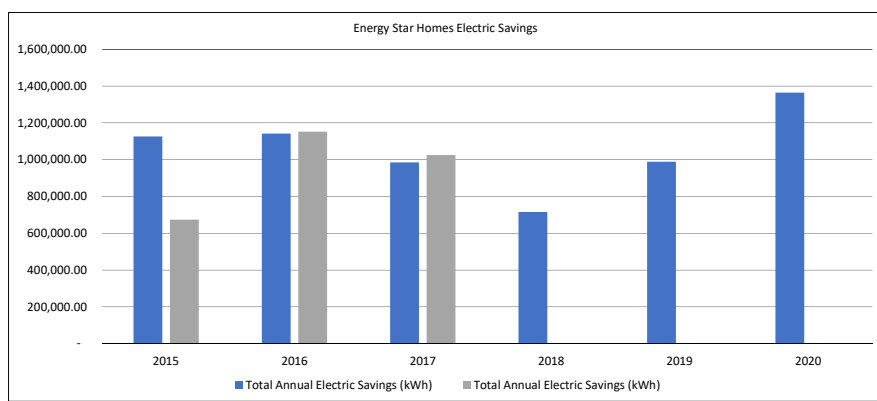
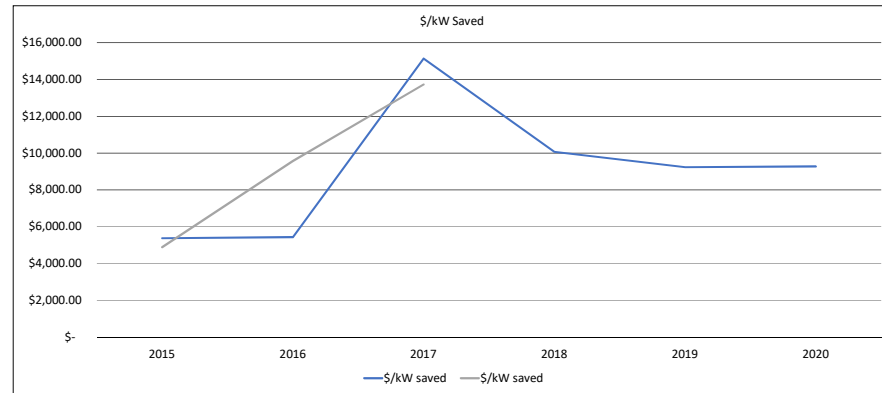
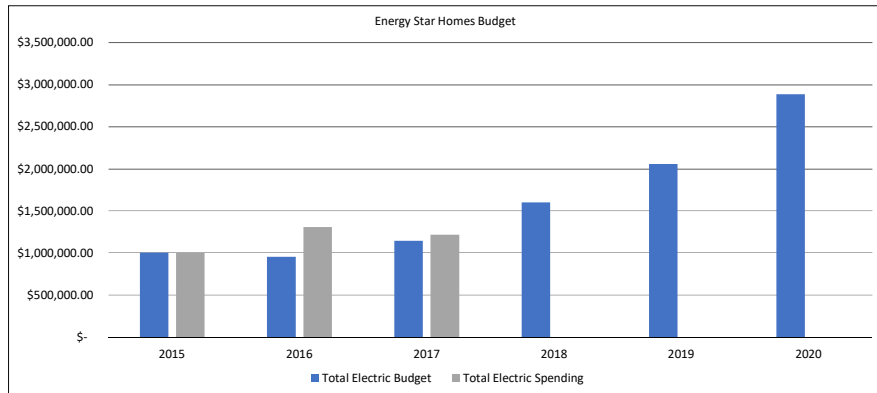
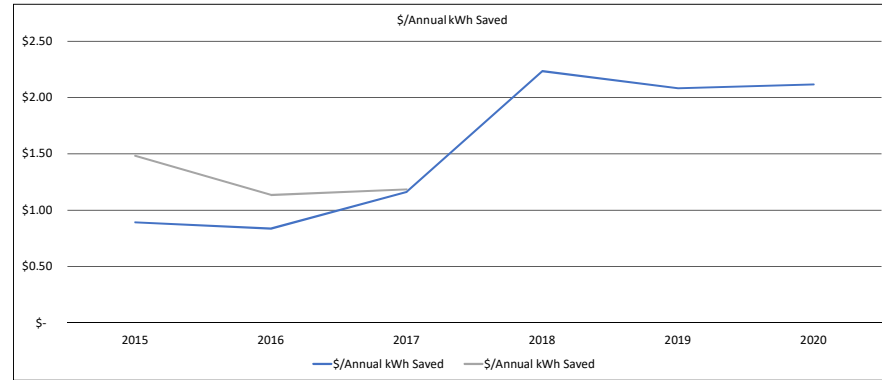


Energy Star Homes

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,060,103.01	\$ 2,889,907.63
	Total Annual Electric Savings (kWh)	1,127,834.31	1,143,193.79	986,318.15	717,397.53	989,389.19	1,365,879.84
	\$/Annual kWh Saved	\$ 0.89	\$ 0.84	\$ 1.16	\$ 2.23	\$ 2.08	\$ 2.12
2)	Total Electric Budget	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,060,103.01	\$ 2,889,907.63
	Total kW saved	187.30	176.08	75.75	159.13	222.81	311.59
	\$/kW saved	\$ 5,374.24	\$ 5,436.52	\$ 15,143.81	\$ 10,075.13	\$ 9,245.91	\$ 9,274.80
3)	Total Electric Budget	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,060,103.01	\$ 2,889,907.63
	Total Fuel Neutral MMBtu Saved	5,158.61	5,177.38	9,335.70	7,781.99	11,505.24	15,610.93
	\$/Total Fuel Neutral MMBtu Saved	\$ 195.13	\$ 184.89	\$ 122.88	\$ 206.02	\$ 179.06	\$ 185.12

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,218,908.50
	Total Annual Electric Savings (kWh)	674,639.98	1,153,065.16	1,027,593.90
	\$/Annual kWh Saved	\$ 1.48	\$ 1.14	\$ 1.19
2)	Total Electric Spending	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,218,908.50
	Total kW saved	204.73	136.81	88.78
	\$/kW saved	\$ 4,887.75	\$ 9,572.72	\$ 13,729.43
3)	Total Electric Spending	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,218,908.50
	Total Fuel Neutral MMBtu Saved	9,364.77	8,379.13	9,833.29
	\$/Total Fuel Neutral MMBtu Saved	\$ 106.85	\$ 156.30	\$ 123.96

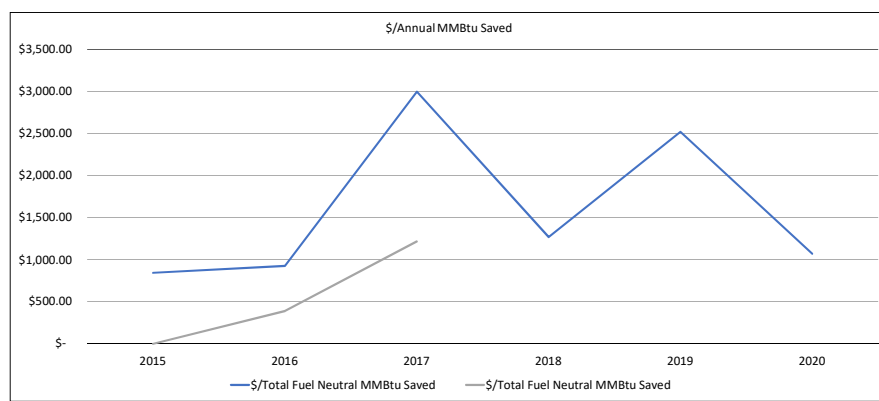
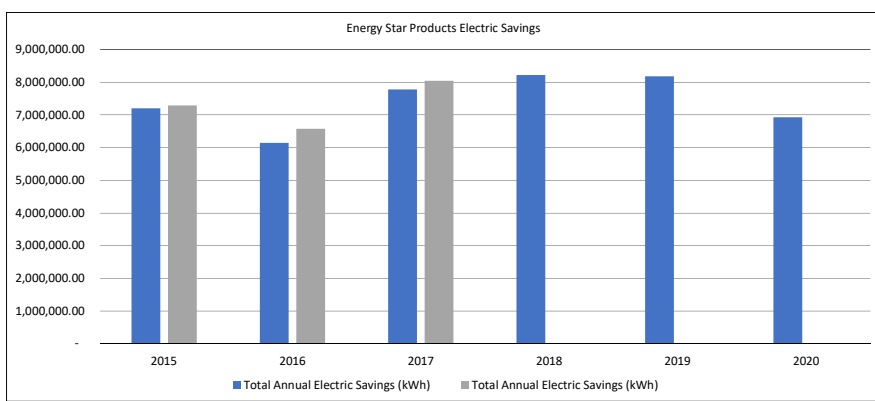
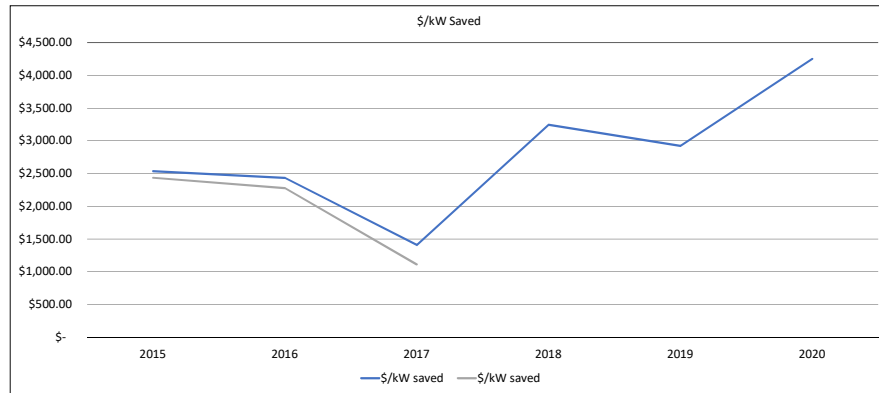
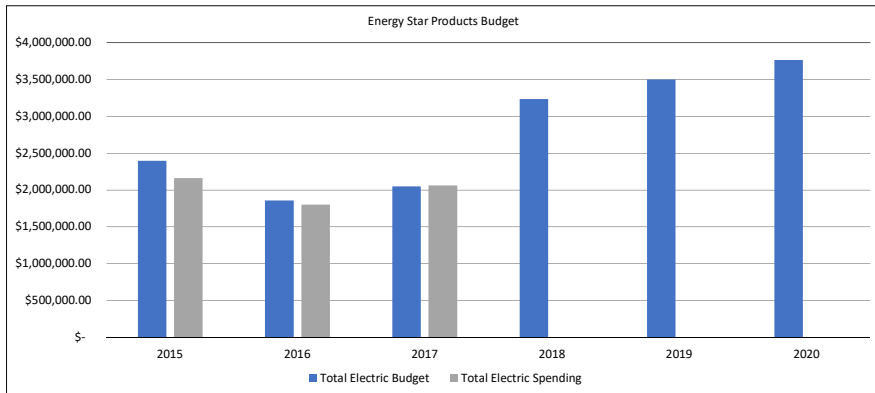
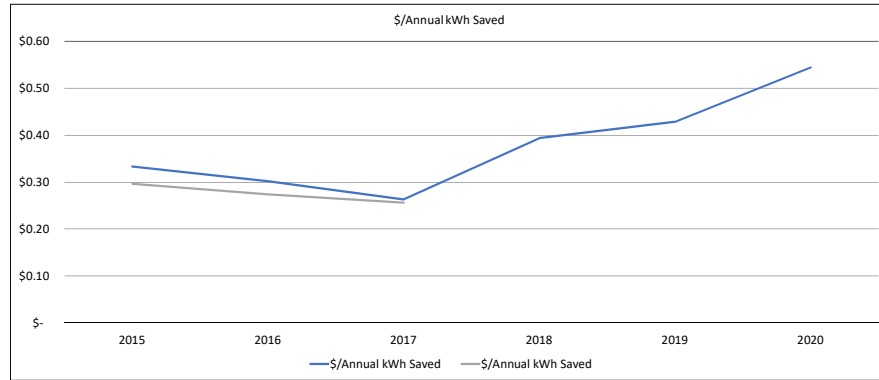


Energy Star Products

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,502,800.00	\$ 3,767,565.68
	Total Annual Electric Savings (kWh)	7,197,903.64	6,137,671.04	7,773,228.53	8,217,144.12	8,177,720.00	6,921,514.31
	\$/Annual kWh Saved	\$ 0.33	\$ 0.30	\$ 0.26	\$ 0.39	\$ 0.43	\$ 0.54
2)	Total Electric Budget	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,502,800.00	\$ 3,767,565.68
	Total kW saved	944.51	761.13	1,452.08	996.25	1,198.30	885.84
	\$/kW saved	\$ 2,538.28	\$ 2,434.55	\$ 1,407.82	\$ 3,247.25	\$ 2,923.14	\$ 4,253.08
3)	Total Electric Budget	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,502,800.00	\$ 3,767,565.68
	Total Fuel Neutral MMBtu Saved	2,839.32	1,998.41	681.99	2,545.57	1,388.90	3,517.25
	\$/Total Fuel Neutral MMBtu Saved	\$ 844.37	\$ 927.25	\$ 2,997.51	\$ 1,270.86	\$ 2,522.00	\$ 1,071.17

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 2,159,065.92	\$ 1,799,457.82	\$ 2,058,666.85
	Total Annual Electric Savings (kWh)	7,288,383.41	6,571,188.82	8,039,990.99
	\$/Annual kWh Saved	\$ 0.30	\$ 0.27	\$ 0.26
2)	Total Electric Spending	\$ 2,159,065.92	\$ 1,799,457.82	\$ 2,058,666.85
	Total kW saved	886.37	790.47	1,851.20
	\$/kW saved	\$ 2,435.84	\$ 2,276.43	\$ 1,112.07
3)	Total Electric Spending	\$ 2,159,065.92	\$ 1,799,457.82	\$ 2,058,666.85
	Total Fuel Neutral MMBtu Saved	5,526.86	1,478.74	341.59
	\$/Total Fuel Neutral MMBtu Saved	\$ 390.65	\$ 1,216.89	\$ 6,026.76

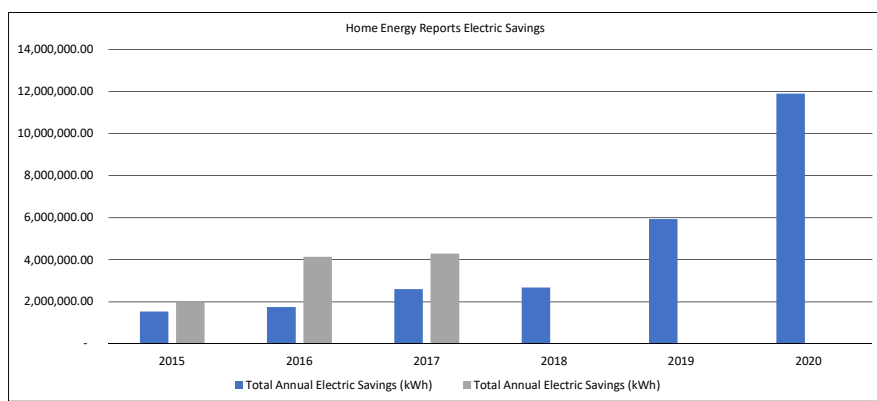
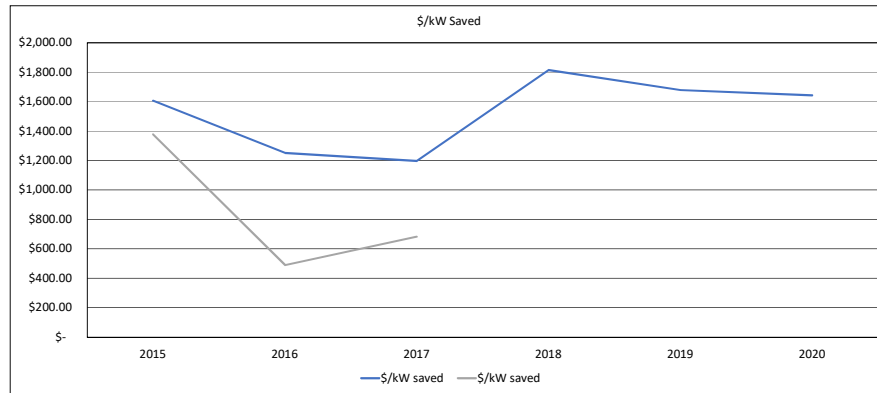
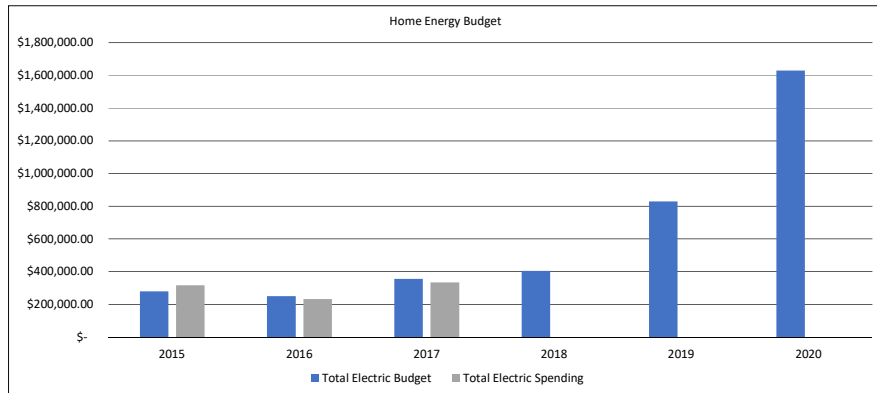
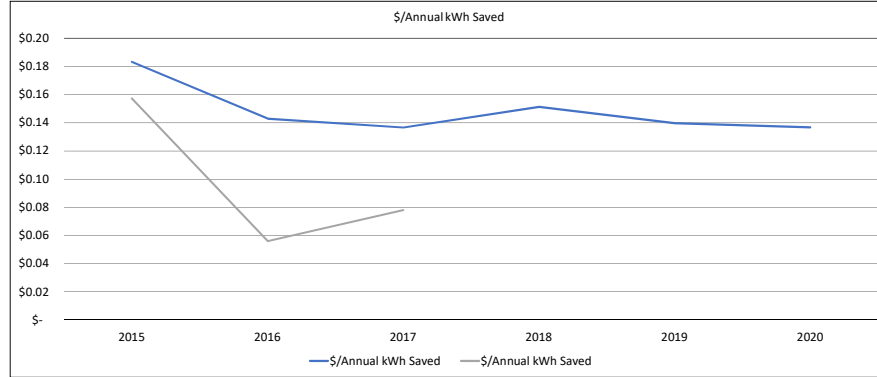


Home Energy Reports

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 280,402.00	\$ 251,006.39	\$ 355,117.61	\$ 404,663.00	\$ 829,581.11	\$ 1,628,822.42
	Total Annual Electric Savings (kWh)	1,529,834.00	1,755,680.67	2,600,000.00	2,675,775.15	5,933,600.00	11,900,800.00
	\$/Annual kWh Saved	\$ 0.18	\$ 0.14	\$ 0.14	\$ 0.15	\$ 0.14	\$ 0.14
2)	Total Electric Budget	\$ 280,402.00	\$ 251,006.39	\$ 355,117.61	\$ 404,663.00	\$ 829,581.11	\$ 1,628,822.42
	Total kW saved	174.64	200.42	296.80	222.98	494.47	991.73
	\$/kW saved	\$ 1,605.60	\$ 1,252.40	\$ 1,196.47	\$ 1,814.78	\$ 1,677.73	\$ 1,642.40
3)	Total Electric Budget	\$ 280,402.00	\$ 251,006.39	\$ 355,117.61	\$ 404,663.00	\$ 829,581.11	\$ 1,628,822.42
	Total Fuel Neutral MMBtu Saved						
	\$/Total Fuel Neutral MMBtu Saved						

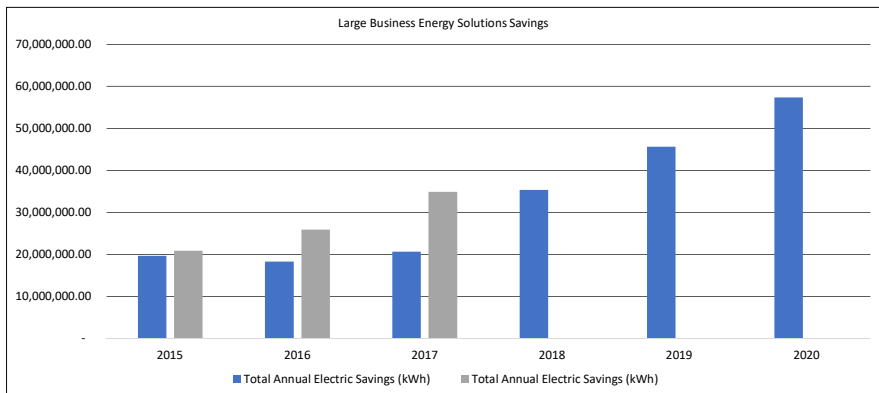
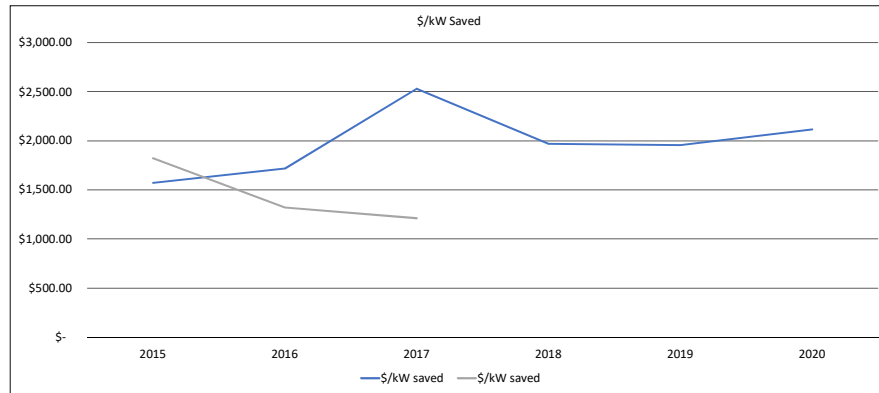
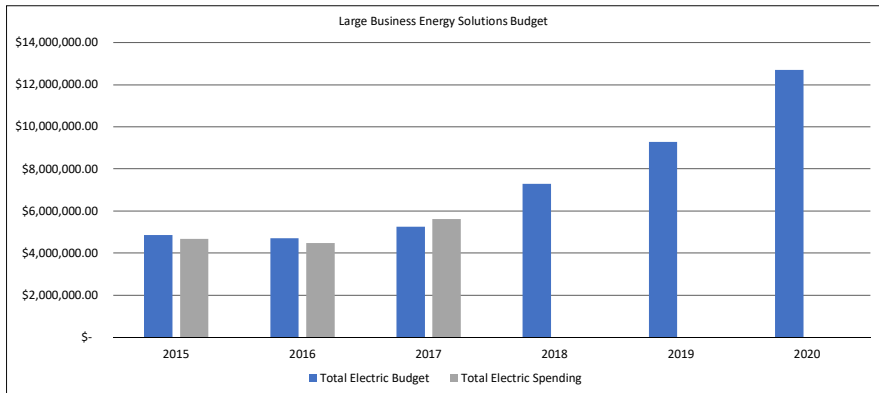
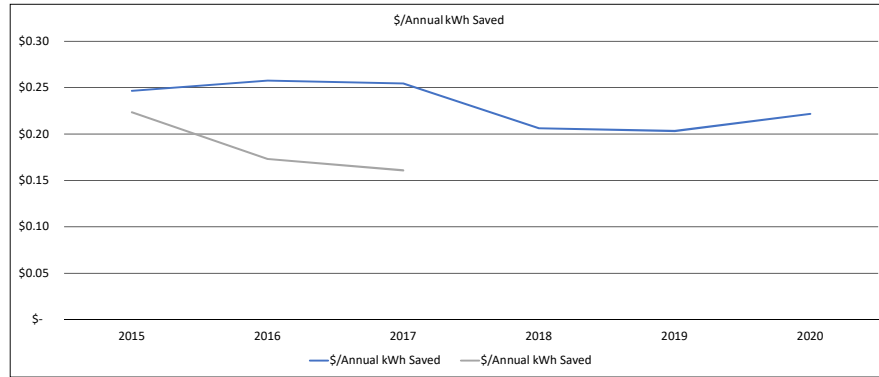
Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 316,754.26	\$ 231,662.02	\$ 333,867.14
	Total Annual Electric Savings (kWh)	2,013,872.00	4,142,136.00	4,283,639.00
	\$/Annual kWh Saved	\$ 0.16	\$ 0.06	\$ 0.08
2)	Total Electric Spending	\$ 316,754.26	\$ 231,662.02	\$ 333,867.14
	Total kW saved	229.89	472.85	489.00
	\$/kW saved	\$ 1,377.83	\$ 489.93	\$ 682.76
3)	Total Electric Spending	\$ 316,754.26	\$ 231,662.02	\$ 333,867.14
	Total Fuel Neutral MMBtu Saved			
	\$/Total Fuel Neutral MMBtu Saved			





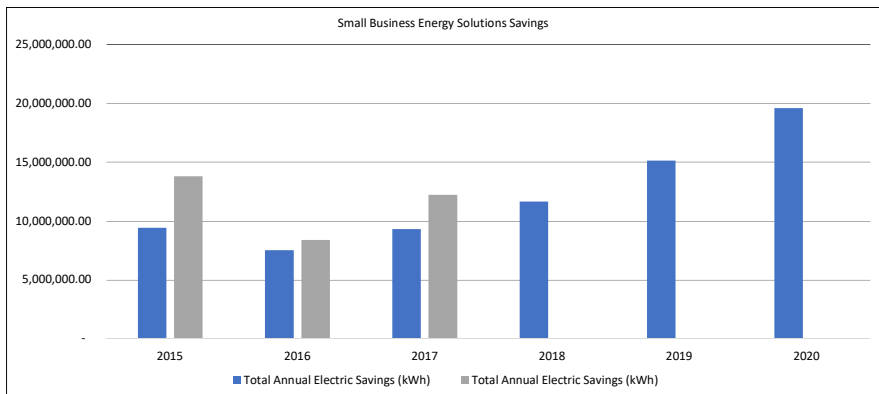
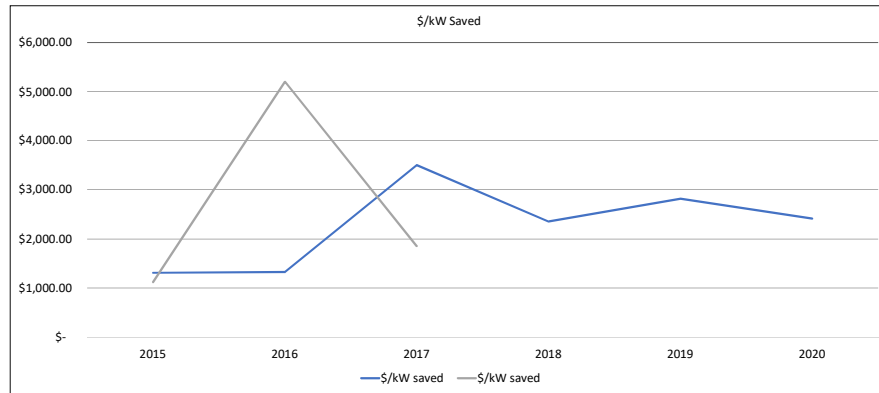
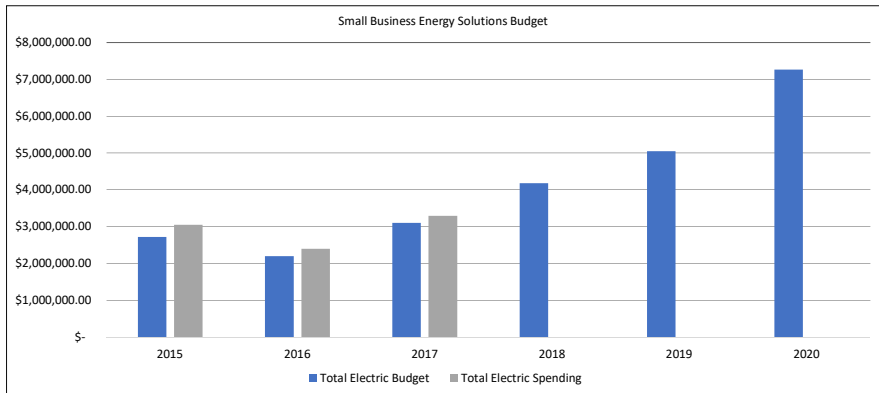
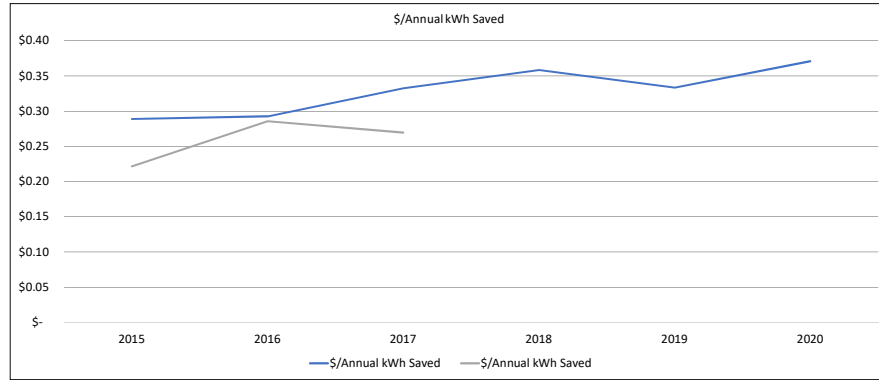
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,277,317.90	\$ 12,710,056.63
	Total Annual Electric Savings (kWh)	19,691,600.38	18,265,965.37	20,649,114.70	35,375,682.52	45,645,047.14	57,341,330.81
	\$/Annual kWh Saved	\$ 0.25	\$ 0.26	\$ 0.25	\$ 0.21	\$ 0.20	\$ 0.22
2)	Total Electric Budget	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,277,317.90	\$ 12,710,056.63
	Total kW saved	3,090.57	2,739.43	2,076.70	3,702.66	4,740.28	6,004.40
	\$/kW saved	\$ 1,572.00	\$ 1,717.44	\$ 2,531.75	\$ 1,969.39	\$ 1,957.13	\$ 2,116.79
3)	Total Electric Budget	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,277,317.90	\$ 12,710,056.63
	Total Fuel Neutral MMBtu Saved						
	\$/Total Fuel Neutral MMBtu Saved						
Actuals		2015	2016	2017			
1)	Total Electric Spending	\$ 4,674,280.43	\$ 4,476,682.34	\$ 5,610,438.18			
	Total Annual Electric Savings (kWh)	20,925,520.22	25,882,542.70	34,891,136.25			
	\$/Annual kWh Saved	\$ 0.22	\$ 0.17	\$ 0.16			
2)	Total Electric Spending	\$ 4,674,280.43	\$ 4,476,682.34	\$ 5,610,438.18			
	Total kW saved	2,564.23	3,392.39	4,628.74			
	\$/kW saved	\$ 1,822.88	\$ 1,319.62	\$ 1,212.09			
3)	Total Electric Spending	\$ 4,674,280.43	\$ 4,476,682.34	\$ 5,610,438.18			
	Total Fuel Neutral MMBtu Saved						
	\$/Total Fuel Neutral MMBtu Saved						



Small Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,056,170.53	\$ 7,269,237.07
	Total Annual Electric Savings (kWh)	9,447,957.26	7,535,748.40	9,330,764.44	11,667,553.31	15,162,512.29	19,598,951.62
	\$/Annual kWh Saved	\$ 0.29	\$ 0.29	\$ 0.33	\$ 0.36	\$ 0.33	\$ 0.37
2)	Total Electric Budget	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,056,170.53	\$ 7,269,237.07
	Total kW saved	2,082.66	1,659.37	885.51	1,774.87	1,791.78	3,012.45
	\$/kW saved	\$ 1,310.52	\$ 1,329.39	\$ 3,506.02	\$ 2,357.70	\$ 2,821.87	\$ 2,413.07
3)	Total Electric Budget	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,056,170.53	\$ 7,269,237.07
	Total Fuel Neutral MMBtu Saved						
	\$/Total Fuel Neutral MMBtu Saved						
Actuals		2015	2016	2017			
1)	Total Electric Spending	\$ 3,059,995.12	\$ 2,401,441.56	\$ 3,301,924.13			
	Total Annual Electric Savings (kWh)	13,805,821.64	8,410,520.19	12,254,082.00			
	\$/Annual kWh Saved	\$ 0.22	\$ 0.29	\$ 0.27			
2)	Total Electric Spending	\$ 3,059,995.12	\$ 2,401,441.56	\$ 3,301,924.13			
	Total kW saved	2,731.04	461.50	1,781.57			
	\$/kW saved	\$ 1,120.45	\$ 5,203.55	\$ 1,853.38			
3)	Total Electric Spending	\$ 3,059,995.12	\$ 2,401,441.56	\$ 3,301,924.13			
	Total Fuel Neutral MMBtu Saved						
	\$/Total Fuel Neutral MMBtu Saved						

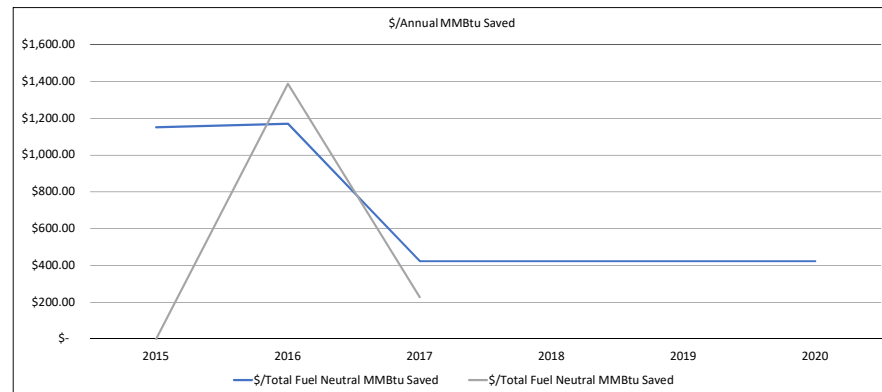
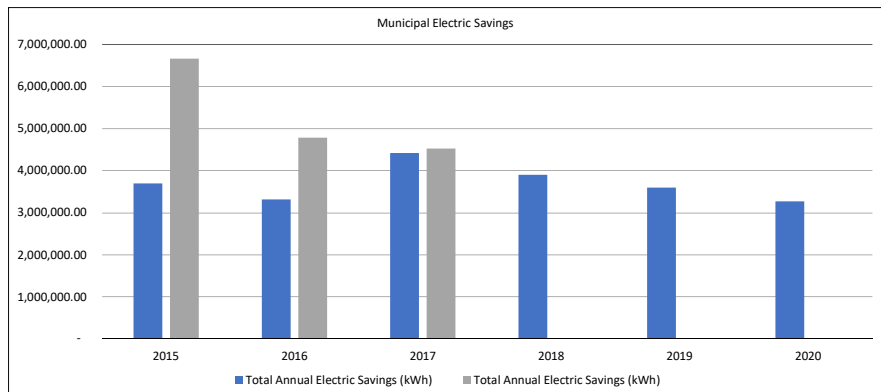
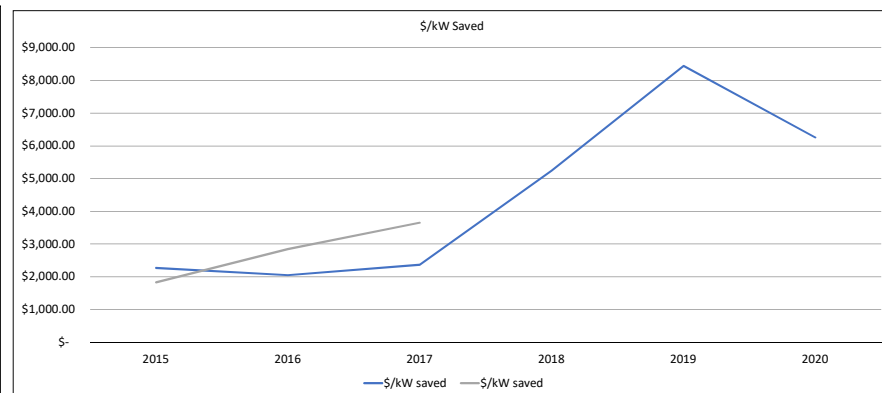
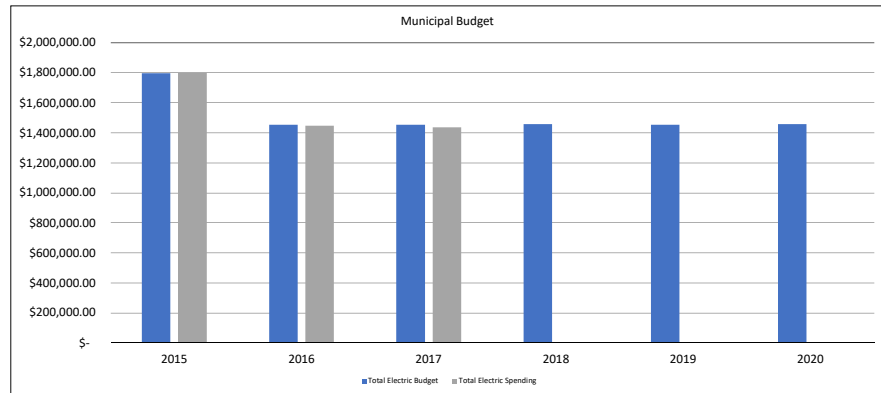
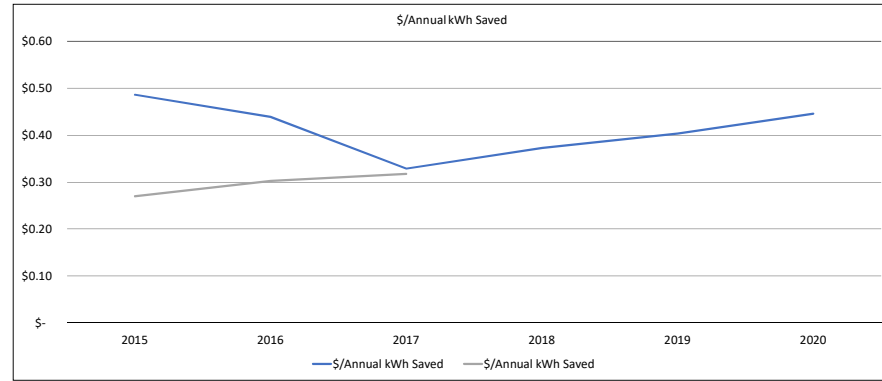


Municipal

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,453,178.57	\$ 1,456,555.00
	Total Annual Electric Savings (kWh)	3,698,108.00	3,312,917.02	4,419,676.13	3,905,245.08	3,599,497.95	3,267,027.93
	\$/Annual kWh Saved	\$ 0.49	\$ 0.44	\$ 0.33	\$ 0.37	\$ 0.40	\$ 0.45
2)	Total Electric Budget	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,453,178.57	\$ 1,456,555.00
	Total kW saved	791.05	709.12	614.36	277.96	172.13	232.53
	\$/kW saved	\$ 2,272.16	\$ 2,049.67	\$ 2,364.18	\$ 5,240.16	\$ 8,442.44	\$ 6,263.84
3)	Total Electric Budget	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,453,178.57	\$ 1,456,555.00
	Total Fuel Neutral MMBtu Saved	1,561.73	1,242.64	3,433.10	3,442.82	3,434.84	3,442.82
	\$/Total Fuel Neutral MMBtu Saved	\$ 1,150.90	\$ 1,169.65	\$ 423.07	\$ 423.07	\$ 423.07	\$ 423.07

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,436,276.77
	Total Annual Electric Savings (kWh)	6,663,323.93	4,783,558.00	4,524,552.20
	\$/Annual kWh Saved	\$ 0.27	\$ 0.30	\$ 0.32
2)	Total Electric Spending	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,436,276.77
	Total kW saved	983.31	508.31	393.39
	\$/kW saved	\$ 1,828.66	\$ 2,846.84	\$ 3,651.03
3)	Total Electric Spending	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,436,276.77
	Total Fuel Neutral MMBtu Saved	1,296.50	6,349.80	6,050.72
	\$/Total Fuel Neutral MMBtu Saved	\$ 1,386.91	\$ 227.89	\$ 237.37

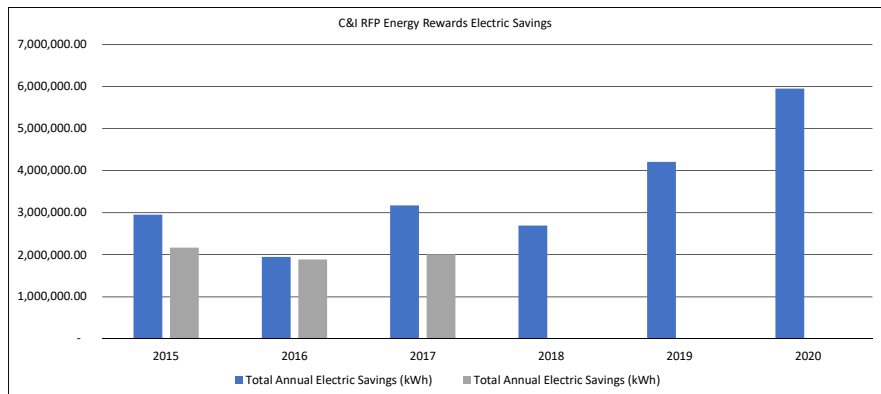
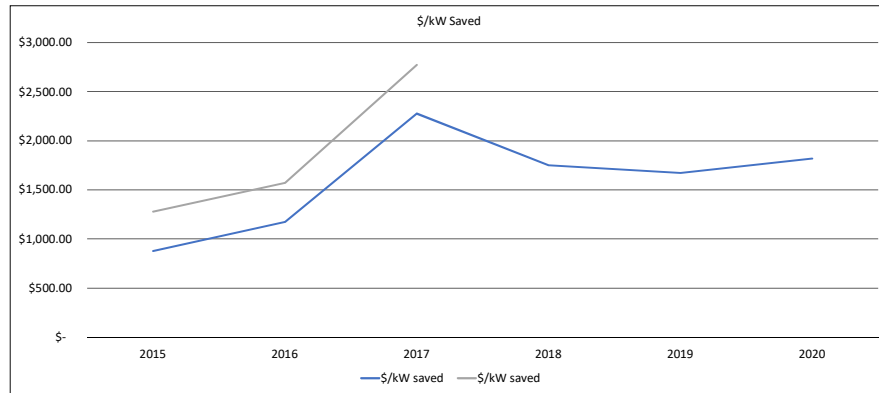
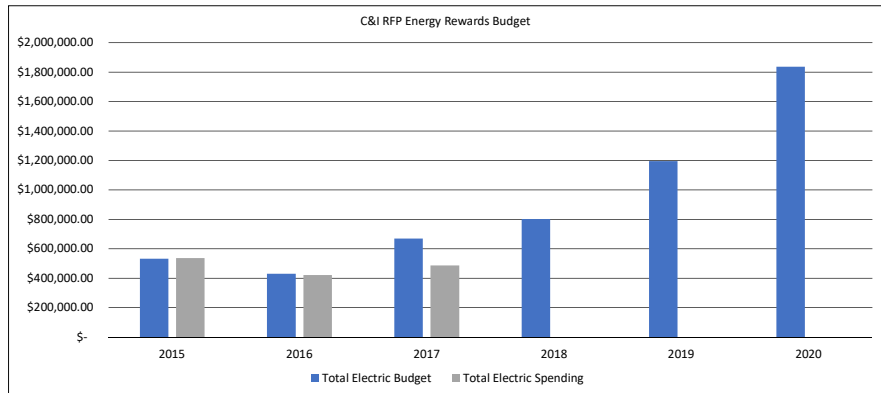
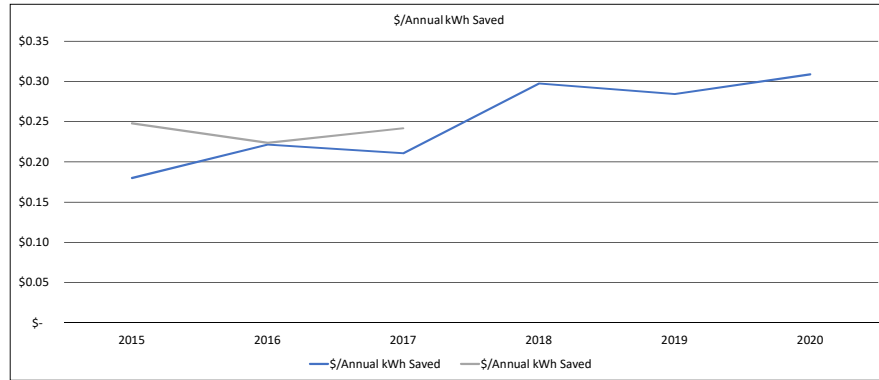


C&I RFP Energy Rewards Program

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 532,143.26	\$ 431,354.63	\$ 668,686.55	\$ 801,059.90	\$ 1,195,560.67	\$ 1,837,304.11
	Total Annual Electric Savings (kWh)	2,955,930.84	1,948,183.50	3,171,974.18	2,693,943.49	4,205,420.01	5,948,560.33
	\$/Annual kWh Saved	\$ 0.18	\$ 0.22	\$ 0.21	\$ 0.30	\$ 0.28	\$ 0.31
2)	Total Electric Budget	\$ 532,143.26	\$ 431,354.63	\$ 668,686.55	\$ 801,059.90	\$ 1,195,560.67	\$ 1,837,304.11
	Total kW saved	606.12	367.83	293.53	457.56	714.28	1,010.34
	\$/kW saved	\$ 877.95	\$ 1,172.69	\$ 2,278.10	\$ 1,750.73	\$ 1,673.81	\$ 1,818.50
3)	Total Electric Budget	\$ 532,143.26	\$ 431,354.63	\$ 668,686.55	\$ 801,059.90	\$ 1,195,560.67	\$ 1,837,304.11
	Total Fuel Neutral MMBtu Saved						
	\$/Total Fuel Neutral MMBtu Saved						

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 537,929.38	\$ 422,586.60	\$ 486,616.60
	Total Annual Electric Savings (kWh)	2,169,714.00	1,888,877.00	2,011,970.00
	\$/Annual kWh Saved	\$ 0.25	\$ 0.22	\$ 0.24
2)	Total Electric Spending	\$ 537,929.38	\$ 422,586.60	\$ 486,616.60
	Total kW saved	420.48	269.00	175.38
	\$/kW saved	\$ 1,279.31	\$ 1,570.93	\$ 2,774.69
3)	Total Electric Spending	\$ 537,929.38	\$ 422,586.60	\$ 486,616.60
	Total Fuel Neutral MMBtu Saved			
	\$/Total Fuel Neutral MMBtu Saved			



**Program Cost-Effectiveness - 2019 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
<b>Residential Programs</b>											
Home Energy Assistance	1.73	1,195.9	690.3	-	173.3	1,697.7	11.2	14.3	72	1,997.7	45,206.9
Energy Star Homes	6.30	1,663.2	185.1	78.9	329.4	7,935.1	32.6	76.8	73	1,171.1	29,189.0
Home Performance with Energy Star	2.03	1,230.5	355.1	250.5	87.8	1,327.8	10.3	16.3	83	2,452.0	49,019.8
Energy Star Products	2.10	728.7	301.6	46.2	987.9	6,469.1	269.2	117.5	14,459	132.0	1,885.7
Home Energy Reports	1.43	184.7	129.3	-	668.0	1,991.0	86.8	63.3	12,000	-	-
ISO-NE Forward Capacity Market Expenses	0.00	-	19.5	-	-	-	-	-	-	-	-
<b>Sub-Total Residential</b>	<b>2.43</b>	<b>5,003.1</b>	<b>1,681.0</b>	<b>375.6</b>	<b>2,246.4</b>	<b>19,420.6</b>	<b>410.2</b>	<b>288.3</b>	<b>26,686</b>	<b>5,752.9</b>	<b>125,301.5</b>
<b>Commercial, Industrial &amp; Municipal</b>											
Large Business Energy Solutions	2.73	6,179.8	1,231.2	1,030.1	4,717.2	67,850.4	521.6	616.6	101	-	-
Small Business Energy Solutions	1.66	2,427.6	877.8	587.3	1,986.2	26,723.9	174.7	247.7	95	-	-
Municipal Energy Solutions	1.36	396.0	167.0	124.8	274.5	3,849.8	25.4	37.0	5	59.4	1,485.2
C&I Education	0.00	-	58.4	-	-	-	-	-	-	-	-
ISO Forward Capacity Market Expenses	0.00	-	45.5	-	-	-	-	-	-	-	-
<b>Sub-Total Commercial &amp; Industrial</b>	<b>2.18</b>	<b>9,003.4</b>	<b>2,379.9</b>	<b>1,742.2</b>	<b>6,977.9</b>	<b>98,424.1</b>	<b>721.7</b>	<b>901.3</b>	<b>202</b>	<b>59.4</b>	<b>1,485.2</b>
<b>Total</b>	<b>2.27</b>	<b>14,006.4</b>	<b>4,060.9</b>	<b>2,117.8</b>	<b>9,224.4</b>	<b>117,844.7</b>	<b>1,131.9</b>	<b>1,189.6</b>	<b>26,888</b>	<b>5,812.3</b>	<b>126,786.7</b>

Note: a 10% NEI adder is applied to total benefits, and an additional 10% NEI adder is applied to total benefits of the Home Energy Assistance program, excluding water.

<b>Annual kWh Savings</b>	9,224,361	84.4%	<b>kWh &gt; 55%</b>	<b>Lifetime kWh Savings</b>	117,844,688	76.0%	<b>kWh &gt; 55%</b>
<b>Annual MMBTU Savings (in kWh)</b>	<u>1,703,417</u>	<u>15.6%</u>		<b>Lifetime MMBTU Savings (in kWh)</b>	<u>37,157,511</u>	<u>24.0%</u>	
	<b>10,927,778</b>	100.0%			<b>155,002,199</b>	100.0%	

Present Value Benefits - 2019 PLAN

	Total Benefits (\$000)	CAPACITY				ENERGY				Electric DRIPE	Gas Benefits	Gas DRIPE	Other Fuels	Fossil Emissions	Water Benefits	Other Non-Resource Benefits
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak							
<b>Residential Programs</b>																
Home Energy Assistance	\$ 1,196	\$ 15	\$ -	\$ 18	\$ 16	\$ 34	\$ 31	\$ 13	\$ 12	\$ 7	\$ 21	\$ 1	\$ 783	\$ 56	\$ -	\$ 190.03
Energy Star Homes	\$ 1,663	\$ 116	\$ -	\$ 127	\$ 113	\$ 118	\$ 152	\$ 49	\$ 62	\$ 33	\$ 0	\$ 0	\$ 710	\$ 34	\$ 2	\$ 148
Home Performance with Energy Star	\$ 1,230	\$ 17	\$ -	\$ 21	\$ 18	\$ 22	\$ 27	\$ 8	\$ 10	\$ 7	\$ -	\$ -	\$ 940	\$ 54	\$ -	\$ 107
Energy Star Products	\$ 729	\$ 39	\$ -	\$ 69	\$ 61	\$ 156	\$ 102	\$ 65	\$ 40	\$ 28	\$ 4	\$ 0	\$ 26	\$ 2	\$ 77	\$ 59
Home Energy Reports	\$ 185	\$ 8	\$ -	\$ 17	\$ 15	\$ 48	\$ 41	\$ 17	\$ 15	\$ 8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17
ISO-NE Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Residential</b>	<b>\$ 5,003</b>	<b>\$ 195</b>	<b>\$ -</b>	<b>\$ 252</b>	<b>\$ 223</b>	<b>\$ 377</b>	<b>\$ 352</b>	<b>\$ 152</b>	<b>\$ 139</b>	<b>\$ 83</b>	<b>\$ 26</b>	<b>\$ 1</b>	<b>\$ 2,458</b>	<b>\$ 146</b>	<b>\$ 80</b>	<b>\$ 521</b>
<b>Commercial/Industrial Programs</b>																
Large Business Energy Solutions	\$ 6,180	\$ 518	\$ -	\$ 679	\$ 601	\$ 1,411	\$ 1,091	\$ 590	\$ 434	\$ 294	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 561.80
Small Business Energy Solutions	\$ 2,428	\$ 193	\$ -	\$ 260	\$ 230	\$ 551	\$ 445	\$ 231	\$ 177	\$ 119	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 221
Municipal Energy Solutions	\$ 396	\$ 31	\$ -	\$ 40	\$ 36	\$ 83	\$ 61	\$ 34	\$ 23	\$ 17	\$ -	\$ -	\$ 33	\$ 2	\$ -	\$ 36
C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Commercial &amp; Industrial</b>	<b>\$ 9,003</b>	<b>\$ 742</b>	<b>\$ -</b>	<b>\$ 979</b>	<b>\$ 866</b>	<b>\$ 2,045</b>	<b>\$ 1,598</b>	<b>\$ 855</b>	<b>\$ 634</b>	<b>\$ 431</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 33</b>	<b>\$ 2</b>	<b>\$ -</b>	<b>\$ 818</b>
<b>Total</b>	<b>\$ 14,006</b>	<b>\$ 937</b>	<b>\$ -</b>	<b>\$ 1,230</b>	<b>\$ 1,089</b>	<b>\$ 2,422</b>	<b>\$ 1,950</b>	<b>\$ 1,007</b>	<b>\$ 773</b>	<b>\$ 514</b>	<b>\$ 26</b>	<b>\$ 1</b>	<b>\$ 2,490</b>	<b>\$ 148</b>	<b>\$ 80</b>	<b>\$ 1,339</b>

**Performance Incentive Calculation  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	2.12	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>98,424,088</b>	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	63,975,657	
5. Implementation Expenses	\$2,379,917	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>8. Commercial &amp; Industrial Performance Incentive</b>	\$130,895	
<b>9. Maximum Commercial &amp; Industrial Performance Incentive (6.875%)</b>	\$163,619	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>2.33</b>	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>19,420,600</b>	
13. Threshold Lifetime kWh Savings (65%)	12,623,390	
14. Implementation Expenses	\$1,680,951	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>17. Residential Performance Incentive</b>	\$92,452	
<b>18. Maximum Residential Performance Incentive (6.875%)</b>	\$115,565	
<b>19. TOTAL PLANNED / EARNED INCENTIVE</b>	<b>\$223,348</b>	

**Notes**

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

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
1. Benefits (Value) From Eligible Programs	\$ 9,003,375	\$ -
2. Implementation Expenses	\$ 2,379,917	\$ -
3. Customer Contribution	\$ 1,742,184	\$ -
4. Performance Incentive	\$ 130,895	\$ -
5. Total Costs	\$ 4,252,996	\$ -
6. Benefit/Cost Ratio - Commercial & Industrial Sector	<b>2.12</b>	
<b>Residential</b>		
7. Benefits (Value) From Eligible Programs	\$ 5,003,058	\$ -
8. Implementation Expenses	\$ 1,680,951	\$ -
9. Customer Contribution	\$ 375,617	\$ -
10. Performance Incentive	\$ 92,452	\$ -
11. Total Costs	\$ 2,149,021	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>2.33</b>	



**Lifetime Energy Savings by Sector and Program  
2019**

	Lifetime kWh Savings	
	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
Large Business Energy Solutions	67,850,378	
Small Business Energy Solutions	26,723,868	
Municipal Energy Solutions	3,849,842	
<b>Total Commercial &amp; Industrial</b>	<b>98,424,088</b>	
<b>Residential</b>		
Home Energy Assistance	1,697,671	
Energy Star Homes	7,935,055	
Home Performance with Energy Star	1,327,806	
Energy Star Products	6,469,068	
Home Energy Reports	1,991,000	
<b>Total Residential</b>	<b>19,420,600</b>	



Liberty Utilities Electric ENERGY STAR® Homes Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Actual	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Propane Heated Home	35	1	47	463	74	50	25	25	25	100.0%	100.0%	401,597	1,850	59,303	32	32	24	100%	100%	27,607	795	28,024
Electric Heated Home			9			31,688			25		100.0%			7,044,169			-		100%			-
LED Lighting Products			511			25			17		100.0%			217,109			-		100%			-
LED Bulbs (Installed by Builder or HERS Rater)	367	54	-	25	25	-	8	8	-	100.0%	-	72,385	10,643	-	-	-	-	100%	-	-	-	-
Interior hard-wired fixtures	73	-	-	25	25	-	8	8	-	100.0%	-	14,477	-	-	-	-	-	100%	-	-	-	-
Thermostat (Programmable/WiFi)	31	-	-	-	-	-	15	15	-	100.0%	-	-	-	-	-	-	-	100%	-	-	-	-
Clothes Washer	5	1	11	124	124	172	11	11	14	100.0%	100.0%	7,008	1,363	26,391	0	0	0	100%	100%	15	3	41
Refrigerator	33	5	65	41	41	95	12	12	12	100.0%	100.0%	16,406	2,482	73,941	-	-	-	100%	100%	-	-	-
MF - Propane			5			848			24		100.0%			100,853			9		100%			1,124
MF - Electric			12			1,417			24		100.0%			413,290			-		100%			-
Split System ASHP-SF Heated Home (heating)	2	4	-	9,570	24,325	-	25	25	-	100.0%	-	478,500	2,432,500	-	-	-	-	100%	-	-	-	-
Split System ASHP-SF Heated Home (cooling)	2	4	-	71	-	-	25	25	-	100.0%	-	3,550	-	-	-	-	-	100%	-	-	-	-
Split System ASHP-SF Heated Home (water)	2	4	-	520	-	-	25	25	-	100.0%	-	26,000	-	-	-	-	-	100%	-	-	-	-
Split System ASHP-Lights and Appliances	2	4	-	(79)	-	-	25	25	-	100.0%	-	(3,950)	-	-	-	-	-	100%	-	-	-	-
				<b>49,090</b>	<b>99,035</b>	<b>329,428</b>						<b>1,015,973</b>	<b>2,448,838</b>	<b>7,935,055</b>	<b>1,106</b>	<b>32</b>	<b>1,171</b>			<b>27,622</b>	<b>798</b>	<b>29,189</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Lighting & Appliance Energy Savings have been updated per the EPA Energy Star Appliance Calculators and NH evaluation results.

Liberty Utilities Electric Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Oil-Wxn: Air Sealing, Insulation, Water measures	34	15	34	-	300	292	23	24	23	86.2%	86.9%	90,976	193,832	21	35	33	100%	98%	16,163	11,521	24,525	
Propane-Wxn: Air Sealing, Insulation, Water measures	3	9	19	-	89	148	22	24	22	86.2%	86.9%	16,210	53,555	21	17	18	100%	98%	1,356	3,178	7,507	
Kerosene-Wxn: Air Sealing, Insulation, Water measures	2	4	9	-	829	476	19	22	24	86.2%	86.9%	59,702	88,260	20	27	28	100%	98%	761	2,344	5,881	
Electric-Wxn: Air Sealing, Insulation, Water measures	1	7	9	5,418	3,017	3,017	13	19	19	86.2%	86.9%	59,489	321,832	456,519	-	4	-	100%	98%	-	467	-
Wood Pellets-Wxn: Air Sealing, Insulation, Water measures	2	7	1	-	121	382	21	22	22	86.2%	86.9%	-	15,843	9,048	21	3	57	100%	98%	865	475	1,524
Baseload SF Homes	29	38	55	382	36	-	21	21	20	86.2%	86.9%	197,588	24,409	-	-	0	-	100%	98%	-	284	-
LED Lighting Products	37	-	431	369	-	231	8	-	5	86.2%	86.9%	94,681	-	433,573	-	-	-	100%	100%	-	-	-
Refrigerator	17	4	23	586	147	842	12	12	12	86.2%	86.9%	100,207	6,062	201,887	-	-	-	100%	100%	-	-	-
Oil Boiler Replacement, >=85% AFUE	3	-	8	40	40	77	20	20	25	98.1%	86.9%	2,365	-	12,857	16	16	16	100%	100%	951	-	3,073
Thermostat, Standard - 7 Day		27	-		288	-		15	-		0.0%		101,345	-		3	-	100%	100%		1,020	-
Heating System (Other - Furnace)		3	-		4	-		18	-		0.0%		172	-		68	-	100%	100%		3,672	-
Heating System (Other - Boiler)		6	-		-	-		18	-		0.0%		-	-		46	-	100%	100%		5,061	-
Oil Furnace Replacement, >=85% ECM			5			7			20		86.9%			572			17		100%			1,635
Propane Furnace Replacement, >=90% ECM			2			131			20		86.9%			5,629			17		100%			830
LP Boiler Replacement AFUE>=85%	2	-	-	57	57	-	20	20	-	98.1%		2,237	-	-	24	24	-	100%		948	-	-
Kerosene Furnace Replacement, >=85% ECM			1			88			20		86.9%			1,888			9		100%			234
Kerosene Boiler Replacement AFUE>=85%	3	-	-	-	-	-	20	20	-	98.1%	-	-	-	-	6	6	-	100%	-	384	-	-
WXn Quality Assurance	1	-	1	100	-	-	1	1	1	86.9%	0.0%	87	-	-	-	-	-	100%	100%	-	-	-
Baseload SF DHW	5	-	-	1,122	-	-	10	-	-	86.2%	0.0%	45,953	-	-	-	-	-	100%	-	-	-	-
Baseload SF Lighting	5	256	330	369	67	61	8	8	5	86.2%	86.9%	12,727	112,882	87,218	-	(0.1)	-	100%	-	-	(150)	-
Baseload SF Fridge	3	32	28	586	662	533	12	12	12	86.2%	86.9%	15,154	219,251	152,832	-	(0.3)	-	100%	-	-	(116)	-
<b>Program Summary*</b>				<b>42,396</b>	<b>65,579</b>	<b>173,347</b>						<b>530,488</b>	<b>968,684</b>	<b>1,697,671</b>	<b>967</b>	<b>1,344</b>	<b>1,998</b>			<b>21,427</b>	<b>27,755</b>	<b>45,207</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. US DOE WAP Collaboration: The federal Weatherization Assistance Program is expected to fund additional work and achieve additional MMBTU Savings.

Liberty Utilities Electric Home Performance with ENERGY STAR®

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Actual	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Oil-Wxn: Air Sealing, Insulation, Water measures			52			29			21	100.0%	100.0%			31,528			34	100%	100%			36,679
Propane-Wxn: Air Sealing, Insulation, Water measures	22	3	20	511	37	893	23	20	18	100.0%	100.0%	250,244	2,100	315,533	24	1	30	100%	100%	11,576	72	10,582
Cord Wood-Wxn: Air Sealing, Insulation, Water measures			4			3,652			19		100.0%			271,709			14		100%			1,019
Electric-Wxn: Air Sealing, Insulation, Water measures	8	5	7	4,866	1,881	3,361	20	21	19	100.0%	100.0%	783,983	179,535	456,446	-	6	-	100%	100%	-	572	-
Air Sealing & Insulation, Kerosene (includes insulation, water, etc)	1	27	-	2,108	255	-	21	21	-	100.0%	-	44,267	147,465	-	20	8	-	100%	-	414	4,662	-
LED Lighting Products	32	25	495	369	2,348		24	8	19	5	100.0%	100.0%	93,299	1,136,050		-	-	100%	100%	-	-	-
Refrigerator	8	-	13	586	369	804	12	8	12	100.0%	100.0%	55,544	-	127,470	-	-	-	100%	100%	-	-	-
Oil Boiler Replacement, >=87% AFUE			6			142			25		100.0%			19,612			3		100%			373
Oil Furnace Replacment, >=87% ECM			2			168			20		100.0%			7,709			5		100%			211
Propane Furnace Replacment, >=95% ECM			1			168			20		100.0%			4,166			6		100%			156
Baseload SF Lighting	31	-	32	369	1,500	191	8	18	5	100.0%	100.0%	91,543	-	30,586	-	-	-	100%	100%	-	-	-
Baseload SF Fridg	3	28	5	586	385	64	12	9	12	100.0%	100.0%	21,799	97,950	3,840	-	-	-	100%	100%	-	-	-
AS: Boiler Circulator Pump Savings		39	-		9	-		20	-	100.0%	-		7,020	-			-	100%	-			-
AS: Furnace Fan Savings		5	-		84	-		18	-	100.0%	-		7,560	-			-	100%	-			-
AS: Room AC (per unit)		43	-		28	-		20	-	100.0%	-		24,080	-			-	100%	-			-
Air Sealing & Insulation, Oil (includes insulation, water, etc.)	30	32	-	580	-	-	21	21	-	100.0%	-	362,717	-	-	23	17	-	100%	-	14,435	11,496	-
Elec Savings on Fossil Homes (Elec Shell, Secondary Heating)	8	-	-	1,500	586	-	18	12	-	100.0%	-	215,689	-	-	-	-	-	100%	-	-	-	-
<b>Program Summary*</b>				<b>110,909</b>	<b>87,035</b>	<b>87,790</b>						<b>1,919,084</b>	<b>1,601,760</b>	<b>1,327,806</b>	<b>1,224</b>	<b>797</b>	<b>2,452</b>			<b>26,425</b>	<b>16,802</b>	<b>49,020</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

- 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 5 years
- Ancillary kWh Savings are no longer separated as they are included in the weatherization measure savings as appropriate.

Liberty Utilities Electric Home Energy Reports Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Actual	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Behavioral Savings			12,000			55.7			3		100%			1,991,000			0		100%			-
<b>Program Summary*</b>				-	-	<b>668,000</b>						-	-	<b>1,991,000</b>	-	-	-			-	-	-

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual kWh Savings were developed with program implementation support vendor

Liberty Utilities Electric Large Business Energy Solutions Programs

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Actual	2017 Actual	2019 Plan	2017 Plan	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																						
Lighting	14	22	27	49,537	45,363	45,363	13	13	13	99.9%	99.9%	8,793,945	12,955,530	16,116,988	-	-	-	100%	100%	-	-	-
Parking Lot Lights		1	2		9,592	91,207		13	13	100.0%	99.9%		124,699	2,368,007		-	-	100%	100%		-	-
Process	5	13	13	27,794	4,645	4,645	15	13	13	99.9%	99.9%	2,081,647	783,849	783,832	-	-	-	100%	100%	-	-	-
Custom	4	6	2	144,545	162,491	413,247	15	14	13	99.9%	99.9%	8,660,573	13,641,010	10,729,129	-	-	-	100%	100%	-	-	-
<b>New Equipment &amp; Construction Track</b>																						
Cooling	1	-	8	65,170	100	12,594	23	10	15	99.9%	99.9%	1,496,802	-	1,509,139	-	-	-	100%	100%	-	-	-
Lighting	10	14	25	6,743	10,500	6,603	15	15	15	99.9%	99.9%	1,010,000	2,201,913	2,472,780	-	-	-	100%	100%	-	-	-
Parking Lot Lights		9	10		11,672	11,672		15	15	100.0%	99.9%		1,575,743	1,748,332		-	-	100%	100%		-	-
Process		16	16		23,542	23,542		15	15	100.0%	99.9%		5,642,143	5,642,012		-	-	100%	100%		-	-
Custom	3	3	5	279,008	153,520	326,607	15	15	16	99.9%	99.9%	11,135,904	6,898,713	26,272,577	-	-	-	100%	100%	-	-	-
Lighting - Control	4	3	3	21,949	25,288	6,486	10	10	10	99.9%	106.6%	876,720	758,628	207,582	-	-	-	100%	100%	-	-	-
NC - Air Compressor and Controls	2	-	-	2,981	100	-	13	10	-	99.9%	-	71,945	-	-	-	-	-	100%	-	-	-	-
NC - HVAC	2	7	-	8,778	12,318	-	15	15	-	99.9%	-	262,977	1,291,539	-	-	-	-	100%	-	-	-	-
ECMs (< 1 HP)	-	7	-	-	1,288	-	-	15	-	100.0%	-	-	135,253	-	-	-	-	100%	-	-	-	-
<b>Program Summary*</b>				<b>2,378,149</b>	<b>3,298,930</b>	<b>4,717,156</b>						<b>34,390,514</b>	<b>46,009,020</b>	<b>67,850,378</b>	-	-	-			-	-	-

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings were updated based on recent trends and reflect expected project sizes.

Liberty Utilities Electric Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Actual	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																						
Lighting	105	107	24	4,792	7,234	37,685	13	13	13	94.0%	106.6%	6,145,392	9,459,163	12,642,060	-	-	0	100%	100%	-	-	-
Ext. Lighting	6	45	19	23,496	6,686	17,978	13	13	13	100.0%	102.7%	1,832,651	3,911,203	4,560,461	-	-	0	100%	100%	-	-	-
Process			3			20,670			13		99.9%			804,983			0		100%			-
Custom	6	5	5	12,235	51,528	38,977	14	14	14	100.0%	99.9%	976,095	3,575,525	2,779,071	-	-	0	100%	100%	-	-	-
<b>New Equipment &amp; Construction Track</b>																						
Cooling	13	9	20	27,939	1,389	1,358	15	15	15	100.0%	99.9%	5,326,791	187,562	406,889	-	-	0	100%	100%	-	-	-
Lighting	3	24	16	14,981	2,523	14,081	15	15	15	100.0%	106.6%	674,158	908,135	3,602,465			0		100%			-
Ext. Lighting			4			14,988			15		102.7%			923,561			0		100%			-
Process	-	11	1	-	3,762	14,800	-	15	13	100.0%	99.9%	-	620,786	192,126	-	-	0	100%	100%	-	-	-
Custom	-	3	3	-	19,856	18,076	-	15	15	100.0%	99.9%	-	893,535	812,253	-	-	0	100%	100%	-	-	-
NC - Air Compressor and Controls	3	1	-	7,049	18,540	-	13	13	-	100.0%	-	274,911	241,020	-	-	-	-	100%	-	-	-	-
NC - Aerator - Low Flow Faucet	150	-	-	332	332	-	10	10	-	94.0%	-	468,120	-	-	-	-	-	100%	-	-	-	-
NC - LED - 100 Watt Bulb	60	-	-	220	220	-	13	13	-	94.0%	-	161,304	-	-	-	-	-	100%	-	-	-	-
NC - LED - 17 Watt Bulb	40	-	-	192	192	-	13	13	-	94.0%	-	93,850	-	-	-	-	-	100%	-	-	-	-
NC - LED - 7.5 Watt Bulb	40	-	-	168	168	-	13	13	-	94.0%	-	82,118	-	-	-	-	-	100%	-	-	-	-
NC - Lighting - Control	2	2	-	108	7,172	-	10	13	-	94.0%	-	2,028	171,797	-	-	-	-	100%	-	-	-	-
NC - Pipe Insulation	30	-	-	67	67	-	15	15	-	94.0%	-	28,341	-	-	-	-	-	100%	-	-	-	-
NC - Shower Head Fixture	30	-	-	1,016	1,016	-	10	10	-	94.0%	-	286,512	-	-	-	-	-	100%	-	-	-	-
NC - Shower Head Hand Held	20	-	-	1,016	1,016	-	10	10	-	94.0%	-	191,008	-	-	-	-	-	100%	-	-	-	-
NC - Spray Valve	5	-	-	6,544	6,544	-	5	5	-	94.0%	-	153,784	-	-	-	-	-	100%	-	-	-	-
<b>Program Summary*</b>				<b>1,259,303</b>	<b>1,492,157</b>	<b>1,986,225</b>						<b>16,697,063</b>	<b>19,968,727</b>	<b>26,723,868</b>	-	-	-			-	-	-

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings were updated based on recent trends and reflect expected project sizes.



Liberty Utilities Electric Municipal Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Actual	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	
<b>Retrofit Track</b>																							
Lighting	11	6	1	20,526	9,988	11,615	13	13	13	100.0%	106.6%	2,921,514	779,055	239,441	-	-	-	100%	100%	-	-	-	
Ext. Lighting	1	5	4	19,088	18,138	17,978	13	13	13	100.0%	106.6%	248,139	1,178,999	956,099	-	-	-	100%	100%	-	-	-	
<b>New Equipment &amp; Construction Track</b>																							
Lighting	9	25	2	3,178	4,027	69,879	15	15	15	100.0%	106.6%	429,075	1,510,122	2,234,733	-	-	-	100%	100%	-	-	-	
Ext. Lighting			2			4,514			15		106.6%			144,358			-			100%			-
Custom	3	-	-	4,772	4,772	75,968	15	15	15	100.0%	100.0%	214,622	-	-	-	-	-	100%	100%	-	-	-	
Lighting Controls			7			1,469			10		106.6%			116,524			-			100%			-
VFDs	1	-	1	77,887	77,887	15,577	13	13	13	100.0%	100.0%	506,266	-	125,554	-	-	-	100%	100%	-	-	-	
DMSHP (any, SEER >= 20, HSPF >= 10, Cooling)	4	-	2	124	124	124	12	12	12	100.0%	100.0%	5,970	-	3,066	-	-	-	100%	100%	-	-	-	
DMSHP (oil, SEER >= 20, HSPF >= 10, Heating)	2	-	2	536	536	536	12	12	12	100.0%	100.0%	12,874	-	15,964	-	-	-	100%	100%	-	-	-	
DMSHP (LP, SEER >= 20, HSPF >= 10, Heating)	2	2	1	536	536	536	12	12	12	100.0%	100.0%	12,874	12,874	7,982	-	-	-	100%	100%	-	-	-	
Energy Star Wifi Thermostat (DMSHP)	4	-	4	110	110	110	15	15	15	100.0%	100.0%	6,582	-	6,121	-	-	-	100%	100%	-	-	-	
Bolier: LP Condensing AFUE >= 90%. up to 301 - 499 MBH	1	2	1	-	-	-	25	25	25	100.0%	100.0%	-	-	-	-	58	16	100%	100%	-	2,920	492	
Bolier: Oil AFUE >= 85%. up to 301 - 499 MBH	2	-	2	-	-	-	25	25	25	100.0%	100.0%	-	-	-	-	-	24	100%	100%	-	-	994	
Furnace: Oil, w/ ECM. 85% AFUE, up to 150 MBH	1	-	-	168	168	-	18	18	-	100.0%	-	3,024	-	-	-	-	-	100%	-	-	-	-	
Furnace: Oil, w/ ECM. 87% AFUE, up to 150 MBH	1	-	-	168	168	-	18	18	-	100.0%	-	3,024	-	-	-	-	-	100%	-	-	-	-	
HVAC: Unitary HVAC		6	-		2,174	-		15	-	100.0%	-		195,651	-		-	-		-		-	-	
<b>Program Summary*</b>				<b>329,094</b>	<b>265,410</b>	<b>274,540</b>						<b>4,363,964</b>	<b>3,676,700</b>	<b>3,849,842</b>	<b>-</b>	<b>117</b>	<b>59</b>			<b>-</b>	<b>2,920</b>	<b>1,485</b>	

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings were updated based on recent trends and reflect expected project sizes.
2. Since this is funded by RGGI, the 2018-2020 Plan includes some Weatherization Projects and as well as incentives for customers replacing heating systems to upgrade to more efficient models.

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities  
 2019 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)	2018 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
2019	\$ 3,425	\$ 214	\$ 633	\$ -	\$ (163)	\$ 11	\$ 2,730	918,145	0.373	0.150	0.012	0.535

Col. A: Effective year (January 1, 2019 - December 31, 2019)  
 Col. B: Company Forecast  
 Col. C: Company Forecast  
 Col. D: Company Forecast  
 Col. E: Company Forecast  
 Col. F: Page 2, Line 9 Col. N + Line 11 Col. O  
 Col. G: Page 3, Line 11, 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 4, Col. G  
 Col. M: Col. J + Col. K + Col. L

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities  
 Energy Efficiency Expense & SBC Revenue Reconciliation  
 January 1, 2018 to December 31, 2018  
 (\$ in 000's)**

Line	Description	Carryover 12/31/17	Actual Jan-18	Actual Feb-18	Actual Mar-18	Actual Apr-18	Actual May-18	Actual Jun-18	Actual Jul-18	Actual Aug-18	Actual Sep-18	Actual Oct-18	Actual Nov-18	Forecast Dec-18	2018 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		195	204	198	193	190	212	231	248	236	192	180	164	2,443
2	RGGI Revenues		-	-	51	48	-	-	55	-	56	-	-	59	269
3	FCM Revenues		45	44	44	43	55	50	66	66	60	58	66	40	637
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
<b>5</b>	<b>Total Revenues</b>		<b>240</b>	<b>248</b>	<b>293</b>	<b>284</b>	<b>245</b>	<b>263</b>	<b>352</b>	<b>314</b>	<b>352</b>	<b>251</b>	<b>246</b>	<b>263</b>	<b>3,349</b>
6	Program Expenses		107	192	67	129	125	160	236	196	219	155	261	256	2,103
<b>7</b>	<b>Total Program Expenses</b>		<b>107</b>	<b>192</b>	<b>67</b>	<b>129</b>	<b>125</b>	<b>160</b>	<b>236</b>	<b>196</b>	<b>219</b>	<b>155</b>	<b>261</b>	<b>256</b>	<b>2,103</b>
8	Current Month (Over)/Under Recovery		(133)	(55)	(226)	(155)	(120)	(103)	(116)	(118)	(133)	(96)	15	(7)	
9	Cumulative (Over)/Under Recovery	(163)	(296)	(351)	(577)	(732)	(852)	(955)	(1,070)	(1,188)	(1,321)	(1,417)	(1,402)	(1,409)	
10	Interest @ Prime Rate		0.38%	0.38%	0.38%	0.40%	0.40%	0.40%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
<b>11</b>	<b>Interest on Deferral Balance</b>		<b>(1)</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(3)</b>	<b>(4)</b>	<b>(4)</b>	<b>(5)</b>	<b>(5)</b>	<b>(6)</b>	<b>(6)</b>	<b>(6)</b>	<b>(45)</b>
12	Monthly Sales (MWh)		82,892	74,290	71,924	70,283	69,006	77,250	81,180	87,796	76,569	69,399	69,969	76,708	907,266
13	EE SBC Rate		0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	

Line 1: (Line 12 x Line 13) / 100  
 Line 2: Company Forecast  
 Line 3: Company Forecast  
 Line 4: Company Forecast  
 Line 5: Sum of Lines 1 through Lines 4  
 Line 6: Company Forecast  
 Line 7: Sum of Line 6  
 Line 8: | Line 7 - Line 5  
 Line 9: Prior month Line 9 + Current month Line 8  
 Line 10: Prime Rate / 12  
 Line 11: (Prior Month Line 9 + Current Month Line 9) / 2 x Line 10  
 Line 12: Company Forecast  
 Line 13: 2017 approved rate

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities**  
**Energy Efficiency Expense & SBC Revenue Reconciliation**  
**January 1, 2019 to December 31, 2019**  
**(\$ in 000's)**

Line	Description	Carryover 12/31/2018	Forecast Jan 2019	Forecast Feb 2019	Forecast Mar 2019	Forecast Apr 2019	Forecast May 2019	Forecast June 2019	Forecast Jul 2019	Forecast Aug 2019	Forecast Sep 2019	Forecast Oct 2019	Forecast Nov 2019	Forecast Dec 2019	2019 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		\$299	\$271	\$272	\$253	\$263	\$287	\$331	\$334	\$290	\$265	\$268	\$293	\$3,425
2	RGGI Revenues		\$0	\$0	\$53	\$0	\$0	\$53	\$0	\$0	\$53	\$0	\$0	\$53	\$214
3	FCM Revenues		\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$53	\$633
4	Other Revenues		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5	<b>Total Revenues</b>		<b>\$351</b>	<b>\$324</b>	<b>\$378</b>	<b>\$305</b>	<b>\$316</b>	<b>\$393</b>	<b>\$383</b>	<b>\$386</b>	<b>\$396</b>	<b>\$318</b>	<b>\$320</b>	<b>\$399</b>	<b>\$4,271</b>
6	Program Expenses		\$285	\$285	\$285	\$285	\$285	\$285	\$285	\$285	\$285	\$285	\$285	\$285	\$3,425
7	<b>Total Program Expenses</b>		<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$285</b>	<b>\$3,425</b>
8	Current Month (Over)/Under Recovery		(\$66)	(\$38)	(\$93)	(\$20)	(\$30)	(\$108)	(\$98)	(\$101)	(\$111)	(\$32)	(\$35)	(\$114)	
9	Cumulative (Over)/Under Recovery	\$163	\$97	\$59	(\$34)	(\$54)	(\$84)	(\$192)	(\$290)	(\$391)	(\$502)	(\$534)	(\$569)	(\$683)	
10	Interest @ Prime Rate		0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
11	<b>Interest on Deferral Balance</b>		<b>\$1</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$0)</b>	<b>(\$0)</b>	<b>(\$1)</b>	<b>(\$1)</b>	<b>(\$1)</b>	<b>(\$2)</b>	<b>(\$2)</b>	<b>(\$2)</b>	<b>(\$3)</b>	<b>(\$11)</b>
12	<b>Monthly Sales (MWh)</b>		80,095	72,613	72,933	67,755	70,480	76,884	88,660	89,486	77,813	71,040	71,774	78,613	918,145
13	<b>EE SBC Rate</b>		0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	

Line 1: (Line 12 x Line 13) / 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 7 - Line 5  
 Line 9: Prior month Line 9 + Current month Line 8  
 Line 10: Prime Rate / 12  
 Line 11: (Prior Month Line 9 + Current Month Line 9) / 2 x Line 10  
 Line 12: Company Forecast  
 Line 13: Page 1, Col. J

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities  
 2019 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
2019	\$ 114	\$ -	\$ (0)	\$ 113	918,145	0.012

Col. A: Effective year (January 1, 2019 - December 31, 2019)  
 Col. B: Page 5, Line 21, Col. O / 1000  
 Col. C: Page 6, Line 7, Col. N  
 Col. D: Page 7, Line 6, Col. O  
 Col. E: Col. B + Col. C + Col. D  
 Col. F: Company Forecast  
 Col. G: (Col. E \* 100) / Col. F

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities**  
**Monthly and Cumulative Savings and Lost Base Revenue**  
**January 1, 2019 to December 31, 2019**

Line	Description	Cumulative Annual kWh Savings / 12/31/2018	Forecast												2019 Annual MWh and Monthly MW Savings	Cumulative Annual kWh and Monthly kW		
			Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	June 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019				
1	Residential Annual kWh Savings (2017, 2018, & 2019)	-	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	187,203	2,246,440	2,246,440
2	C&I Annual kWh Savings (2017 & 2018)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	C&I Annual kWh Savings (2019)	-	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	581,493	6,977,921	6,977,921
4	C&I Monthly Installed kW Savings*	-	61	61	61	61	61	61	61	61	61	61	61	61	61	61	736	736
			<b>Total 2019</b>															
5	Monthly Residential Savings (2019)	-	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400	14,400		
6	Cumulative Residential Savings	-	14,400	28,800	43,200	57,600	72,000	86,400	100,800	115,200	129,600	144,000	158,400	172,800				
7	Average Residential kWh Distribution Rate	-	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349	0.04349		
8	Total Lost Residential Revenue	-	\$ 626	\$ 1,253	\$ 1,879	\$ 2,505	\$ 3,131	\$ 3,758	\$ 4,384	\$ 5,010	\$ 5,637	\$ 6,263	\$ 6,889	\$ 7,516	\$		\$	48,851
9	Monthly C&I Savings (2017 & 2018)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Average C&I kWh Distribution Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Lost C&I kWh Revenue	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12	Monthly C&I Savings (2019)	-	44,731	48,458	48,458	48,458	48,458	48,458	48,458	48,458	48,458	48,458	48,458	48,458	48,458	48,458		
13	Cumulative C&I Savings	-	44,731	89,463	134,194	178,925	223,656	268,388	313,119	357,850	402,581	447,313	492,044	536,775				
14	Average C&I kWh Distribution Rate	-	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872	0.00872		
15	Lost C&I kWh Revenue	-	\$ 390	\$ 780	\$ 1,170	\$ 1,560	\$ 1,950	\$ 2,340	\$ 2,730	\$ 3,120	\$ 3,510	\$ 3,900	\$ 4,289	\$ 4,679	\$		\$	30,416
16	Monthly C&I kW Savings (2019)	-	31	31	31	31	31	31	31	31	31	31	31	31	31	31		
17	Cumulative Monthly C&I kW Savings	-	31	92	153	215	276	337	399	460	521	583	644	705				
18	Average C&I Demand Rate	-	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77				
19	Lost C&I Demand Revenue	-	\$ 238	\$ 715	\$ 1,191	\$ 1,667	\$ 2,144	\$ 2,620	\$ 3,096	\$ 3,573	\$ 4,049	\$ 4,525	\$ 5,002	\$ 5,478	\$		\$	34,297
20	Total Lost C&I kWh and Demand Revenue	-	\$ 628	\$ 1,494	\$ 2,361	\$ 3,227	\$ 4,093	\$ 4,960	\$ 5,826	\$ 6,692	\$ 7,559	\$ 8,425	\$ 9,291	\$ 10,157	\$		\$	64,714
21	<b>Total Lost Revenue</b>	-	<b>\$ 1,254</b>	<b>\$ 2,747</b>	<b>\$ 4,240</b>	<b>\$ 5,732</b>	<b>\$ 7,225</b>	<b>\$ 8,717</b>	<b>\$ 10,210</b>	<b>\$ 11,703</b>	<b>\$ 13,195</b>	<b>\$ 14,688</b>	<b>\$ 16,180</b>	<b>\$ 17,673</b>	<b>\$</b>		<b>\$</b>	<b>113,565</b>

Lines 1-3: Company Forecast  
 Line 4: Line 1 + Line 2 + Line 3  
 Line 5: Company Forecast  
 Line 6: Line 5  
 Line 7: Line 2 / 12  
 Line 8: Prior Month Line 8 + Current Month Line 7  
 Line 9: Page 8, Column 7  
 Line 10: Line 8 x Line 9  
 Line 11: Line 1 / 12  
 Line 12: Page 8, Column 8  
 Line 14: Line 3 / 12  
 Line 15: Prior Month Line 15 + Current Month Line 14  
 Line 16: Page 8, Column 7  
 Line 17: Line 15 x Line 16  
 Line 18: Line 5 / 12  
 Line 19: Prior Month Line 19 + Current Month Line 18  
 Line 20: Page 8, Column 6  
 Line 21: Line 19 x Line 20  
 Line 22: Line 10 + Line 13 + Line 17 + Line 21

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities**  
**Lost Base Revenue Reconciliation**  
**January 1, 2019 to December 31, 2019**  
**(\$ in 000's)**

Line	Description	Forecast													2019 Total
		Carryover 12/31/2018	Forecast Jan 2019	Forecast Feb 2019	Forecast Mar 2019	Forecast Apr 2019	Forecast May 2019	Forecast Jun 2019	Forecast Jul 2019	Forecast Aug 2019	Forecast Sep 2019	Forecast Oct 2019	Forecast Nov 2019	Forecast Dec 2019	
	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		7	7	7	6	6	7	8	8	7	6	6	7	83
2	Lost Revenues		1	3	4	6	7	9	10	12	13	15	16	18	114
3	Current Month (Over)/Under Recovery		(6)	(4)	(2)	(0)	1	2	2	4	6	8	10	11	31
4	Cumulative (Over)/Under Recovery	-	(6)	(10)	(12)	(12)	(12)	(10)	(8)	(4)	2	11	20	31	
5	Interest @ Prime Rate		0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%	
6	Interest on Deferral Balance		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0	0	(0)
7	Cummulative (Over)/Under Recovery Incl Carrying Charge		(6)	(10)	(12)	(13)	(12)	(10)	(8)	(4)	2	10	20	31	
8	<b>Monthly Sales (MWh)</b>		80,095	72,613	72,933	67,755	70,480	76,884	88,660	89,486	77,813	71,040	71,774	78,613	918,145
9	<b>SBC Rate (LBR Component)</b>		0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	

Line 1: (Line 7 x Line 8) / 100  
 Line 2: Page 5, Line 21 / 1000  
 Line 3: Line 2 - Line 1  
 Line 4: Prior month Line 4 + Current month Line 3  
 Line 5: Prime Rate / 12  
 Line 6: (Prior Month Line 4 + Current Month Line 4) / 2 x Line 5  
 Line 7: Company Forecast  
 Line 8: Company Forecast

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities  
Calculation of Forecasted Average Distribution Rate for Lost Revenue  
Based on Actual Billing Determinants and Distribution Rates for 2017\***

	(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (1) + (4)	(7) = (2) / (5)	(8) = (3) / (5)
<b>For the Period 01/01/17 Through 12/31/17</b>								
<u>Rate Class</u>	<u>Revenue</u>			<u>Delivery kW</u>	<u>Delivery kWh</u>	<u>Average Distribution Rate \$/kW</u>	<u>Average Distribution Rate \$/kWh</u>	<u>Average Distribution Rate \$/kWh</u>
	<u>Demand Charges<sup>(a)</sup></u>	<u>kWh Charges</u>	<u>Total Demand and kWh Charges</u>					
Rate D	\$ -	\$ 12,396,923	\$ 12,396,923	\$ -	285,033,459	<b>N/A</b>	<b>N/A</b>	<b>\$ 0.04349</b>
Rate D-10	\$ -	\$ 196,145	\$ 196,145	\$ -	-			
Rate T	\$ -	\$ 579,942	\$ 579,942	\$ -	-			
<b>Total Residential</b>	\$ -	\$ 13,173,010	\$ 13,173,010	\$ -	-			
Rate G-1	\$ 7,343,205	\$ 816,869	\$ 8,160,074	945,482	338,835,206	\$ 7.77	\$ 0.00241	\$ 0.02408
Rate G-2	\$ -	\$ 297,905	\$ 297,905	-	146,641,437	\$ -	\$ 0.00203	\$ 0.00203
Rate G-3	\$ -	\$ 3,862,813	\$ 3,862,813	-	86,877,874	\$ -	\$ 0.04446	\$ 0.04446
Rate V	\$ -	\$ 14,839	\$ 14,839	-	326,822	\$ -	\$ 0.04540	\$ 0.04540
<b>Total Commercial and Industrial</b>	\$ 7,343,205	\$ 4,992,426	\$ 12,335,631	945,482	572,681,339	<b>\$ 7.77</b>	<b>\$ 0.00872</b>	<b>\$ 0.02154</b>

\* Excludes the outdoor lighting Rate OL and the Customer/Meter charge revenue from each rate

(a) For Rate G-2, the demand charge is excluded from the average rate calculation as ratchet for rate class is under internal review.



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

	<b>Current Rates*</b>	<b>2019</b>
System Benefits Charge (\$/kWh)	\$ 0.00457	\$ 0.00535
 <u>Bill per month, including PSNH default energy service</u>		
Residential Rate D (650 kWh/month)	\$ 123.44	\$ 123.95
Rate G-2, 25 kW, 9,000 kWh per month	\$ 1,428.36	\$ 1,436.20
 <u>Change from previous rate level - \$ per month</u>		
Residential Rate D (650 kWh/month)		\$ 0.51
Rate G-2, 25 kW, 9,000 kWh per month		\$ 7.84
 <u>Change from previous rate level - %</u>		
Residential Rate D (650 kWh/month)		0.41%
Rate G-2, 25 kW, 9,000 kWh per month		0.55%

\* Stated at Liberty's most recent rate levels (effective August 1, 2018). Rate G-2 energy service rate is based on December 1, 2018 rate.

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities  
 Calculation of Distribution Revenue at the Rate Levels in Effect During 2017  
 Based on Billing Determinants for the Twelve Months Ending December 2017**

Residential Rate D									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	138,699	\$ 12.12	\$ 1,681,032	280,699	\$ 14.54	\$ 4,081,363	419,398	\$ 5,762,395
	First 250 kWh	30,668,090	\$ 0.03356	\$ 1,029,221	64,412,248	\$ 0.04061	\$ 2,615,781	95,080,338	\$ 3,645,002
	Excess 250 kWh	57,407,781	\$ 0.05002	\$ 2,871,537	109,286,196	\$ 0.05273	\$ 5,762,661	166,693,977	\$ 8,634,198
Off Peak kWh 16 Hour	All kWh	466,825	\$ 0.03208	\$ 14,976	760,386	\$ 0.04185	\$ 31,822	1,227,211	\$ 46,798
Farm kWh	All kWh	346,145	\$ 0.04179	\$ 14,465	596,995	\$ 0.04576	\$ 27,318	943,140	\$ 41,784
D-6 kWh	All kWh	271,795	\$ 0.03346	\$ 9,094	470,356	\$ 0.04262	\$ 20,047	742,151	\$ 29,141
Total Residential	Customer/Meter	138,699		\$ 1,681,032	280,699		\$ 4,081,363	419,398	\$ 5,762,395
	Demand	-		\$ -	-		\$ -	-	\$ -
	kWh	89,160,636		\$ 3,939,294	175,526,181		\$ 8,457,630	264,686,817	\$ 12,396,923
				\$ 5,620,326			\$ 12,538,993		\$ 18,159,319

Residential Rate D-10									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	1,747	\$ 12.28	\$ 21,453	3,522	\$ 14.54	\$ 51,210	5,269	\$ 72,663
	On Peak kWh	740,473	\$ 0.09	\$ 69,301	1,167,020	\$ 0.10	\$ 121,627	1,907,493	\$ 190,928
	Off Peak kWh	1,556,833	\$ 0.00	\$ 2,569	1,878,578	\$ 0.00	\$ 2,649	3,435,411	\$ 5,218
Total Rate D-10	Customer/Meter	1,747		\$ 21,453	3,522		\$ 51,210	5,269	\$ 72,663
	Demand	-		\$ -	-		\$ -	-	\$ -
	kWh	2,297,306		\$ 71,870	3,045,598		\$ 124,276	5,342,904	\$ 196,145
				\$ 93,323			\$ 175,485		\$ 268,808

Commercial & Industrial Rate G-1									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	543	\$ 333.68	\$ 181,188	1,089	\$ 378.73	\$ 412,437	1,632	\$ 593,625
	Demand Charge	298,786	\$ 7.11	\$ 2,124,368	646,696	\$ 8.07	\$ 5,218,837	945,482	\$ 7,343,205
	On Peak kWh	49,493,794	\$ 0.00	\$ 244,004	82,981,478	\$ 0.01	\$ 428,184	132,475,272	\$ 672,189
	Off Peak kWh	63,406,470	\$ 0.00173	\$ 109,693	142,540,667	\$ 0.00152	\$ 216,662	205,947,037	\$ 326,355
	Credit for High Voltage Delivery	110,121	\$ (0.44)	\$ (48,453)	302,776	\$ (0.44)	\$ (133,221)	412,897	\$ (181,675)
Total Rate G-1	Customer/Meter	543		\$ 181,188	1,089		\$ 412,437	1,632	\$ 593,625
	Demand	298,786		\$ 2,124,368	646,696		\$ 5,218,837	945,482	\$ 7,343,205
	kWh	113,010,385		\$ 305,244	225,824,821		\$ 511,625	338,835,206	\$ 818,869
				\$ 2,610,801			\$ 6,142,898		\$ 8,753,699

Commercial Rate G-2									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	3,473	\$ 55.64	\$ 193,238	7,134	\$ 63.15	\$ 450,512	10,607	\$ 643,750
	Demand Charge	164,862	\$ 7.15	\$ 1,178,763	338,414	\$ 8.12	\$ 2,747,922	503,276	\$ 3,926,685
	All kWh	48,189,518	\$ 0.00213	\$ 102,644	98,448,203	\$ 0.00200	\$ 196,896	146,637,721	\$ 299,540
	Credit for High Voltage Delivery	1,530	\$ (0.44)	\$ (673)	2,186	\$ (0.44)	\$ (962)	3,716	\$ (1,635)
Total Rate G-2	Customer/Meter	3,473		\$ 193,238	7,134		\$ 450,512	10,607	\$ 643,750
	Demand	164,862		\$ 1,178,763	338,414		\$ 2,747,922	503,276	\$ 3,926,685
	kWh	48,191,048		\$ 101,970	98,450,389		\$ 195,935	146,641,437	\$ 297,905
				\$ 1,473,971			\$ 3,394,368		\$ 4,868,340

General Service Rate G-3									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	22,190	\$ 12.03	\$ 266,946	44,834	\$ 14.54	\$ 651,886	67,024	\$ 918,832
	All kWh	30,261,252	\$ 0.04153	\$ 1,256,750	56,616,622	\$ 0.04603	\$ 2,606,063	86,877,874	\$ 3,862,813
Total Rate G-3	Customer/Meter	22,190		\$ 266,946	44,834		\$ 651,886	67,024	\$ 918,832
	Demand	-		\$ -	-		\$ -	-	\$ -
	kWh	30,261,252		\$ 1,256,750	56,616,622		\$ 2,606,063	86,877,874	\$ 3,862,813
				\$ 1,523,695			\$ 3,257,949		\$ 4,781,645

Electric Heat Rate T									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	3,950	\$ 12.25	\$ 48,388	7,934	\$ 14.54	\$ 115,360	11,884	\$ 163,748
	All kWh	6,890,108	\$ 0.03702	\$ 255,072	8,113,630	\$ 0.04004	\$ 324,870	15,003,738	\$ 579,942
Total Rate T	Customer/Meter	3,950		\$ 48,388	7,934		\$ 115,360	11,884	\$ 163,748
	Demand	-		\$ -	-		\$ -	-	\$ -
	kWh	6,890,108		\$ 255,072	8,113,630		\$ 324,870	15,003,738	\$ 579,942
				\$ 303,459			\$ 440,230		\$ 743,689

Electric Heat Rate V									
Rate	Source	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
Standard	Customer Charge	71	\$ 12.07	\$ 857	144	\$ 14.54	\$ 2,094	215	\$ 2,951
	All kWh	131,803	\$ 0.04257	\$ 5,611	195,019	\$ 0.04732	\$ 9,228	326,822	\$ 14,839
Total Rate V	Customer/Meter	71		\$ 857	144		\$ 2,094	215	\$ 2,951
	Demand	-		\$ -	-		\$ -	-	\$ -
	kWh	131,803		\$ 5,611	195,019		\$ 9,228	326,822	\$ 14,839
				\$ 6,468			\$ 11,322		\$ 17,790

Outdoor Lighting Rate OL									
Type	Fixture	January 1, 2017 - April 30, 2017			May 1, 2017 - December 31, 2017			2017 Total	
		Units	Rate/Charge	Revenue	Units	Rate/Charge	Revenue	Units	Revenue
High Pressure Sodium	HPS RWY 50W	9,808	\$ 6.71	\$ 65,812	19566	\$ 7.64	\$ 149,484	29,374	\$ 215,296
	HPS RWY 100W	7,304	\$ 8.14	\$ 59,455	14423	\$ 9.27	\$ 133,701	21,727	\$ 193,156
	HPS RWY 250W	2,279	\$ 14.30	\$ 32,590	4215	\$ 16.28	\$ 68,620	6,494	\$ 101,210
	HPS RWY 400W	980	\$ 18.63	\$ 18,257	1926	\$ 21.21	\$ 40,850	2,906	\$ 59,108
	HPS POST 100W	1,644	\$ 9.38	\$ 15,421	3226	\$ 10.67	\$ 34,421	4,870	\$ 49,842
	HPS FLD 250W	1,069	\$ 14.42	\$ 15,415	2106	\$ 16.42	\$ 34,581	3,175	\$ 49,996
	HPS FLD 400W	1,717	\$ 19.91	\$ 34,185	3434	\$ 22.67	\$ 77,849	5,151	\$ 112,034
Incandescent	INC RWY 103W	69	\$ 8.96	\$ 618	207	\$ 10.21	\$ 2,113	276	\$ 2,732
Mercury	MV RWY 100W	246	\$ 6.49	\$ 1,597	696	\$ 7.38	\$ 5,136	942	\$ 6,733
	MV RWY 175W	595	\$ 7.89	\$ 4,695	1185	\$ 8.99	\$ 10,653	1,780	\$ 15,348
	MV RWY 400W	204	\$ 14.92	\$ 3,044	407	\$ 16.99	\$ 6,915	611	\$ 9,959
	MV RWY 1000W	4	\$ 28.31	\$ 113	8	\$ 32.23	\$ 258	12	\$ 371
	MV FLD 400W	88	\$ 16.50	\$ 1,452	174	\$ 18.78	\$ 3,268	262	\$ 4,720
	MV FLD 1000W	-	\$ 28.50	\$ -	0	\$ 32.44	\$ -	-	\$ -
POLES	WOOD	488	\$ 7.91	\$ 3,860	957	\$ 9.01	\$ 8,623	1,445	\$ 12,483
	POLE FIBER DIRECT EMBEDDED	735	\$ 8.19	\$ 6,020	2205	\$ 9.33	\$ 20,573	2,940	\$ 26,592
	POLE FIBER RWY <25FT	524	\$ 13.90	\$ 7,284	1056	\$ 15.83	\$ 16,716	1,580	\$ 24,000
	POLE FIBER RWY =>25FT	-	\$ 23.22	\$ -	8	\$ 26.44	\$ 212	8	\$ 212
	POLE METAL EMBEDDED	677	\$ 16.57	\$ 11,218	1319	\$ 18.86	\$ 24,876	1,996	\$ 36,094
	POLE METAL =>25FT	296	\$ 19.97	\$ 5,911	781	\$ 22.74	\$ 17,760	1,077	\$ 23,671
LED	LED 30W	-	\$ -	\$ -	0	\$ 11.28	\$ -	-	\$ -
	LED 50W	-	\$ -	\$ -	0	\$ 11.74	\$ -	-	\$ -
Incandescent	LED 130W	-	\$ -	\$ -	0	\$ 13.57	\$ -	-	\$ -
	LED 190W	-	\$ -	\$ -	0	\$ 17.86	\$ -	-	\$ -
	LED 50W URD	-	\$ -	\$ -	0	\$ 12.90	\$ -	-	\$ -
	LED 90W FLOOD	-	\$ -	\$ -	0	\$ 13.01	\$ -	-	\$ -
	LED 130W FLOOD	-	\$ -	\$ -	0	\$ 14.24	\$ -	-	\$ -
	LED 50W BARN	-	\$ -	\$ -	0	\$ 4.97	\$ -	-	\$ -
	All kWh	-	\$ -	\$ -	0	\$ -	\$ -	-	\$ -
Total Rate OL	Fixtures	28,727		\$ 286,945	57,899		\$ 656,610	86,626	\$ 943,555
	Demand kWh	-		\$ -	-		\$ -	-	\$ -
				\$ 286,945			\$ 656,610		\$ 943,555

Total Retail							
Type	Source	January 1, 2017 - June 30, 2017		July 1, 2017 - December 31, 2017		2017 Total	
		Units	Revenue	Units	Revenue	Units	Revenue
Total Retail	Customer/Meter	170,673	\$ 2,393,101.17	341,834	\$ 5,764,863	512,507	\$ 8,157,964
	Fixtures	28,727	\$ 286,945	57,899	\$ 656,610	86,626	\$ 943,555
	Demand	463,648	\$ 3,303,132	985,110	\$ 7,832,575	1,448,758	\$ 11,135,707
	kWh	289,942,538	\$ 5,935,811	567,772,260	\$ 12,229,626	857,714,798	\$ 18,165,436
			\$ 11,918,989		\$ 26,483,674		\$ 38,402,662

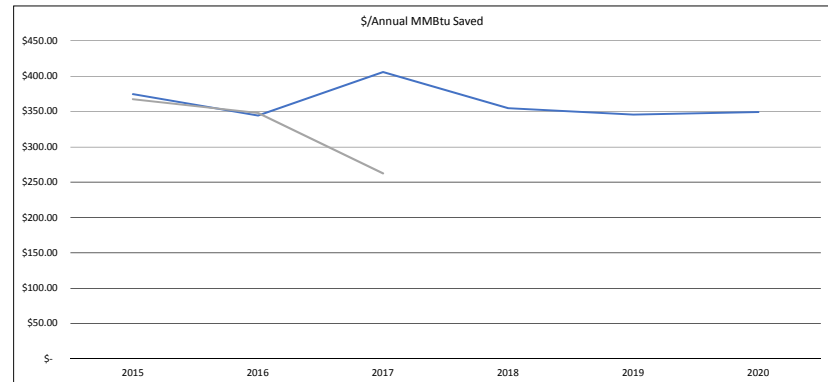
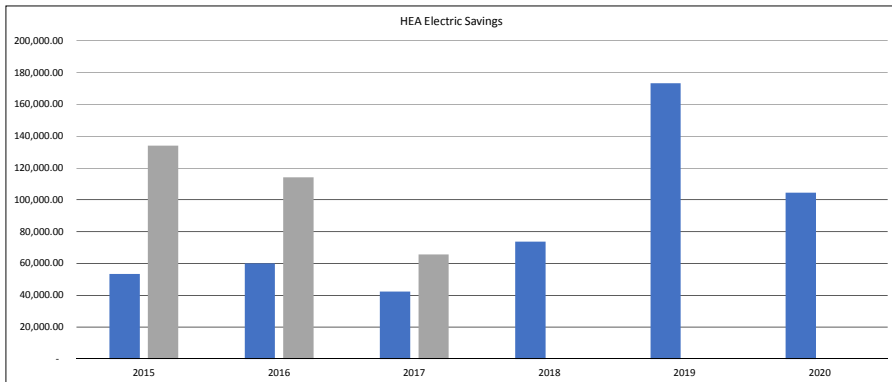
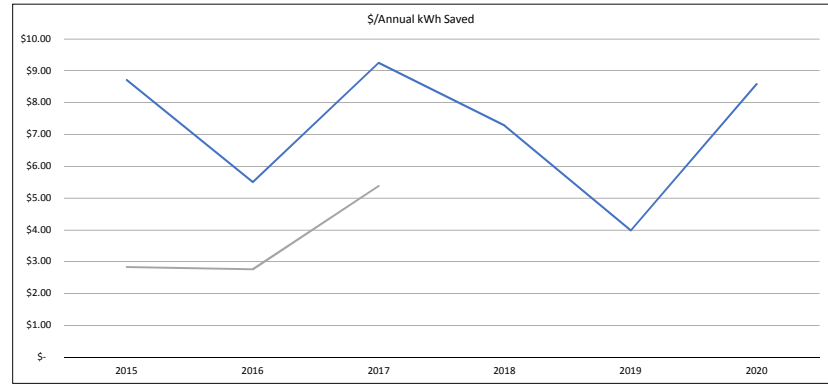
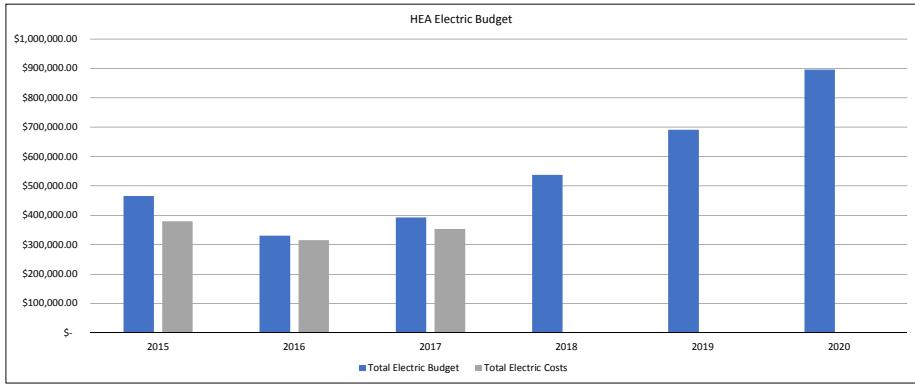
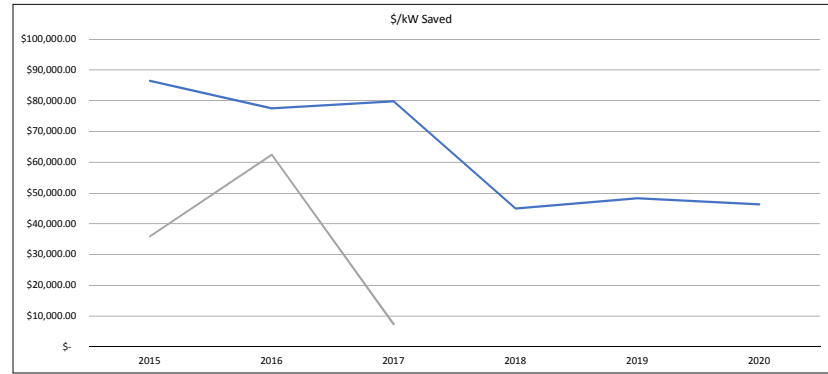
Lost Base Revenue							
Summary of Data Included in the Calculation of the Average Distribution Rates*							
Type	Source	January 1, 2017 - June 30, 2017		July 1, 2017 - December 31, 2017		2017 Total	
		Units	Revenue	Units	Revenue	Units	Revenue
Total Rate D	Demand kWh	-	\$ -	-	\$ -	-	\$ -
		89,160,636	\$ 3,939,294	175,526,181	\$ 8,457,630	264,686,817	\$ 12,396,923
			\$ 3,939,294		\$ 8,457,630		\$ 12,396,923
Total Rate D-10	Demand kWh	-	\$ -	-	\$ -	-	\$ -
		2,297,306	\$ 71,870	3,045,598	\$ 124,276	5,342,904	\$ 196,145
			\$ 71,870		\$ 124,276		\$ 196,145
Total Rate G-1	Demand kWh	298,786	\$ 2,124,368	646,696	\$ 5,218,837	945,482	\$ 7,343,205
		113,010,385	\$ 305,244	225,824,821	\$ 511,625	338,835,206	\$ 816,869
			\$ 2,429,613		\$ 5,730,461		\$ 8,160,074
Total Rate G-2	Demand kWh	164,862	\$ 1,178,763	338,414	\$ 2,747,922	503,276	\$ 3,926,685
		48,191,048	\$ 101,970	98,450,389	\$ 195,935	146,641,437	\$ 297,905
			\$ 1,280,734		\$ 2,943,856		\$ 4,224,590
Total Rate G-3	Demand kWh	-	\$ -	-	\$ -	-	\$ -
		30,261,252	\$ 1,256,750	56,616,622	\$ 2,606,063	86,877,874	\$ 3,862,813
			\$ 1,256,750		\$ 2,606,063		\$ 3,862,813
Total Rate T	Demand kWh	-	\$ -	-	\$ -	-	\$ -
		6,890,108	\$ 255,072	8,113,630	\$ 324,870	15,003,738	\$ 579,942
			\$ 255,072		\$ 324,870		\$ 579,942
Total Rate V	Demand kWh	-	\$ -	-	\$ -	-	\$ -
		131,803	\$ 5,611	195,019	\$ 9,228	326,822	\$ 14,839
			\$ 5,611		\$ 9,228		\$ 14,839
Total	Demand kWh	463,648	\$ 3,303,132	176,511,291	\$ 7,966,758	1,448,758	\$ 11,269,890
		259,681,286	\$ 4,679,061	511,155,638	\$ 9,623,563	755,506,364	\$ 18,165,436
			\$ 7,982,193		\$ 17,590,321		\$ 29,435,327

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 465,548.53	\$ 330,589.02	\$ 392,167.81	\$ 536,897.99	\$ 690,347.57	\$ 895,463.27
	Annual Electric Savings Plan (kWh)	53,434.31	60,075.89	42,395.61	73,782.18	173,346.85	104,399.48
	\$/Annual kWh Plan	\$ 8.71	\$ 5.50	\$ 9.25	\$ 7.28	\$ 3.98	\$ 8.58
2)	Total Electric Budget	\$ 465,548.53	\$ 330,589.02	\$ 392,167.81	\$ 536,897.99	\$ 690,347.57	\$ 895,463.27
	Total summer peak kW Plan	5.38	4.26	4.92	11.95	14.29	19.35
	\$/kW Plan	\$ 86,467.08	\$ 77,552.06	\$ 79,786.89	\$ 44,945.12	\$ 48,311.93	\$ 46,271.20
3)	Total Electric Budget	\$ 465,548.53	\$ 330,589.02	\$ 392,167.81	\$ 536,897.99	\$ 690,347.57	\$ 895,463.27
	Total Annual MMBtu Plan	1,242.74	960.66	966.87	1,513.48	1,997.75	2,563.93
	\$/Annual MMBtu Plan	\$ 374.61	\$ 344.13	\$ 405.61	\$ 354.74	\$ 345.56	\$ 349.25

Home Energy Assistance		2015	2016	2017
1)	Total Electric Costs	\$ 378,874.12	\$ 314,957.99	\$ 352,987.37
	Annual Electric Savings Actual (kWh)	134,001.08	114,076.40	65,578.70
	\$/Annual kWh Actual	\$ 2.83	\$ 2.76	\$ 5.38
2)	Total Electric Costs	\$ 378,874.12	\$ 314,957.99	\$ 352,987.37
	Total summer peak kW Actual	10.54	5.04	48.06
	\$/kW Actual	\$ 35,939.11	\$ 62,434.91	\$ 7,345.02
3)	Total Electric Costs	\$ 378,874.12	\$ 314,957.99	\$ 352,987.37
	Total Annual MMBtu Actual	1,031.25	905.27	1,344.94
	\$/Annual MMBtu Actual	\$ 367.39	\$ 347.91	\$ 262.45

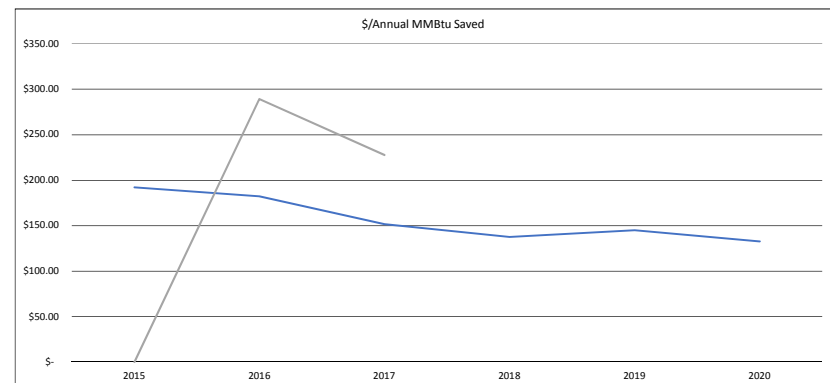
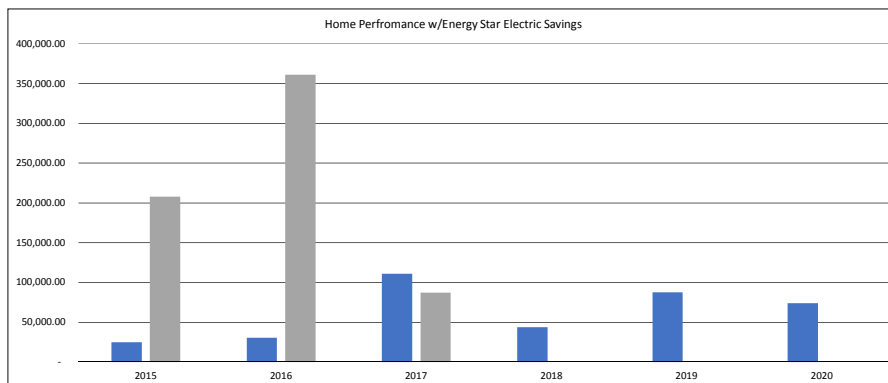
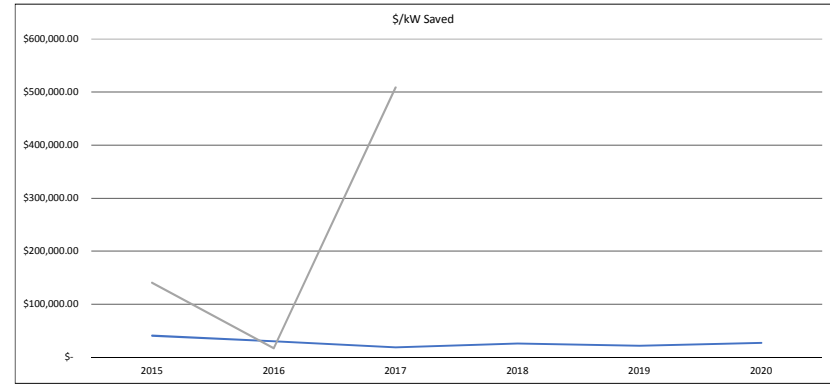
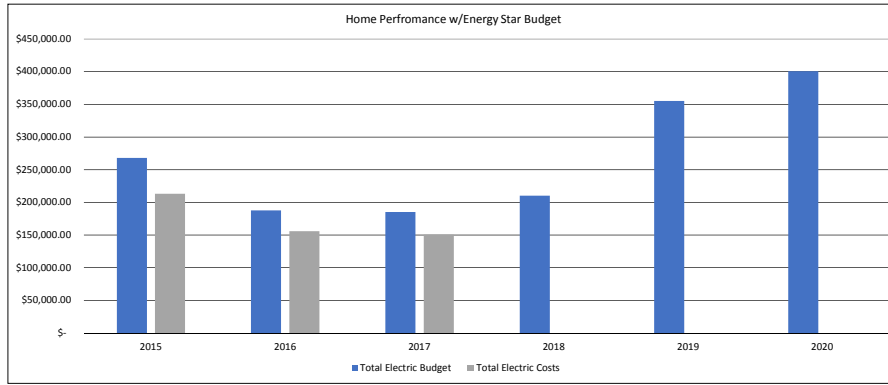
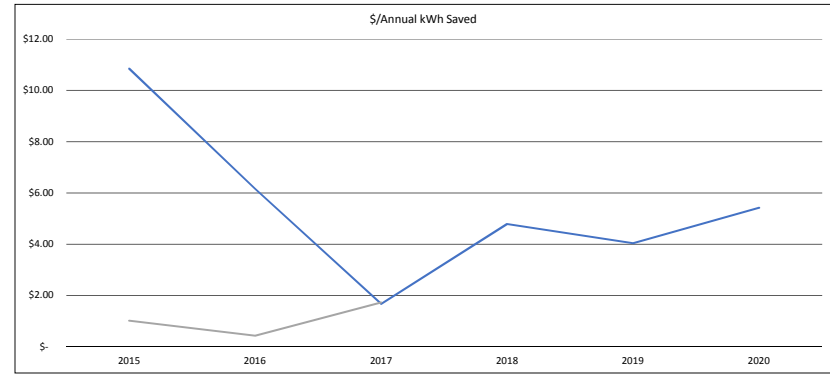


Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 267,815.68	\$ 187,613.45	\$ 185,502.63	\$ 210,304.44	\$ 355,054.17	\$ 400,645.08
	Annual Electric Savings Plan (kWh)	24,689.24	30,442.48	110,909.35	43,887.81	87,789.63	73,852.00
	\$/Annual kWh Plan	\$ 10.85	\$ 6.16	\$ 1.67	\$ 4.79	\$ 4.04	\$ 5.42
2)	Total Electric Budget	\$ 267,815.68	\$ 187,613.45	\$ 185,502.63	\$ 210,304.44	\$ 355,054.17	\$ 400,645.08
	Total summer peak kW Plan	6.62	6.20	9.94	8.10	16.29	14.74
	\$/kW Plan	\$ 40,437.10	\$ 30,241.93	\$ 18,661.03	\$ 25,963.96	\$ 21,799.23	\$ 27,185.69
3)	Total Electric Budget	\$ 267,815.68	\$ 187,613.45	\$ 185,502.63	\$ 210,304.44	\$ 355,054.17	\$ 400,645.08
	Total Annual MMBtu Plan	1,394.32	1,029.31	1,224.48	1,530.01	2,452.03	3,020.38
	\$/Annual MMBtu Plan	\$ 192.08	\$ 182.27	\$ 151.49	\$ 137.45	\$ 144.80	\$ 132.65

Home Performance w/Energy Star Actuals		2015	2016	2017
1)	Total Electric Costs	\$ 213,206.14	\$ 155,978.47	\$ 150,522.13
	Annual Electric Savings Actual (kWh)	208,056.02	361,214.88	87,034.75
	\$/Annual kWh Actual	\$ 1.02	\$ 0.43	\$ 1.73
2)	Total Electric Costs	\$ 213,206.14	\$ 155,978.47	\$ 150,522.13
	Total summer peak kW Actual	1.52	9.32	0.30
	\$/kW Actual	\$ 140,107.53	\$ 16,730.56	\$ 508,674.12
3)	Total Electric Costs	\$ 213,206.14	\$ 155,978.47	\$ 150,522.13
	Total Annual MMBtu Actual	737.17	685.57	796.59
	\$/Annual MMBtu Actual	\$ 289.22	\$ 227.52	\$ 188.96

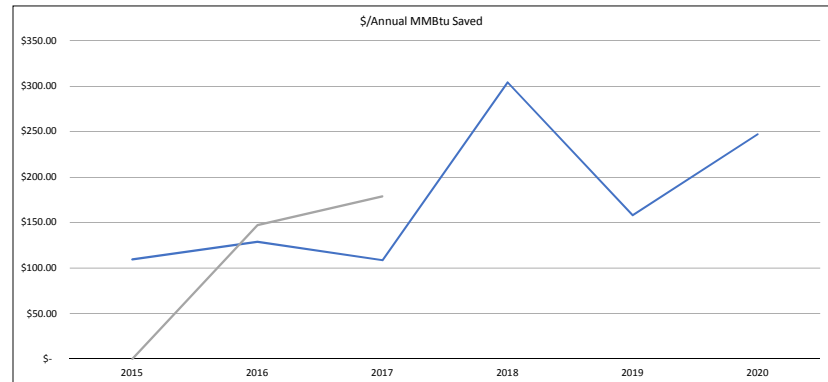
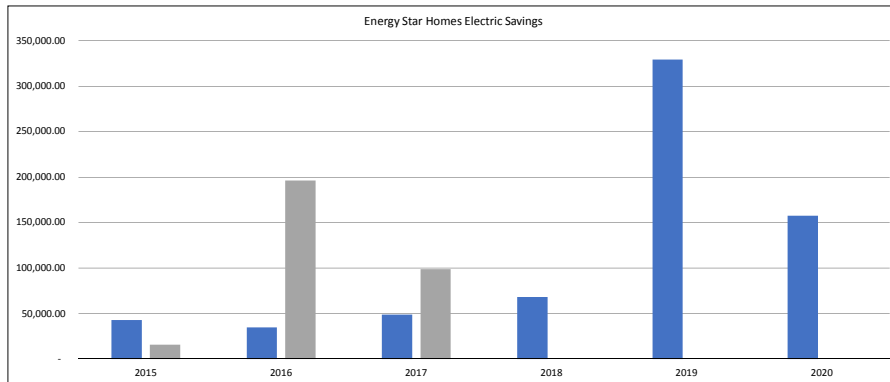
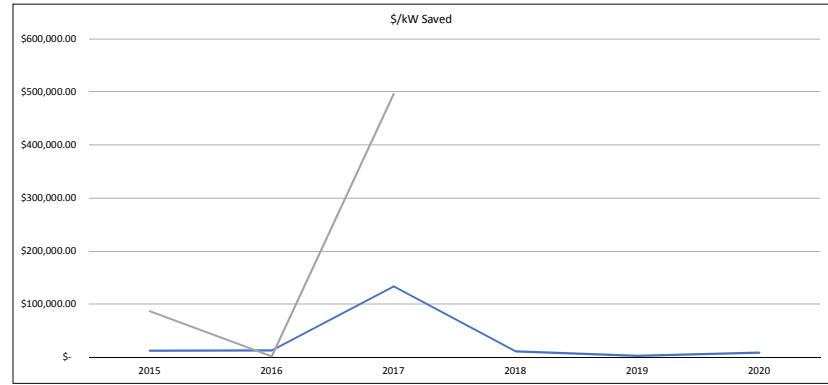
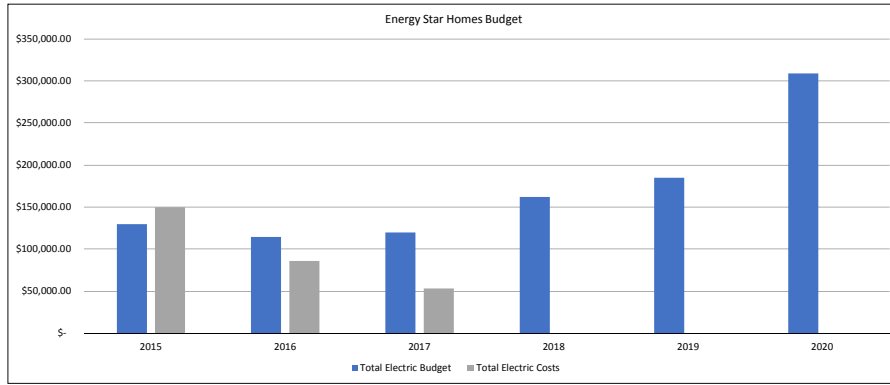
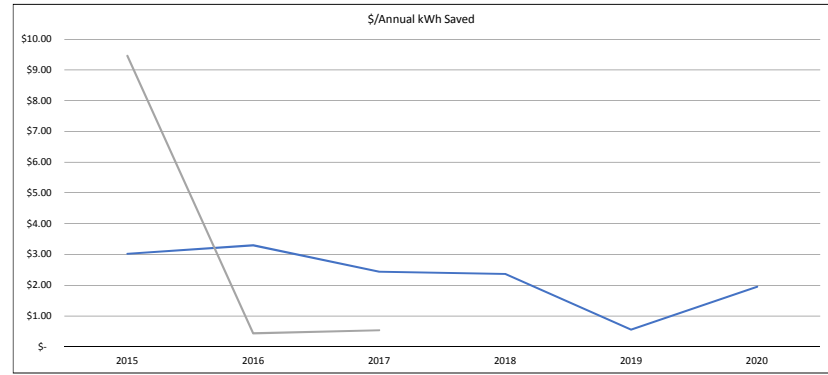


**Energy Star Homes**

<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
1)	Total Electric Budget	\$ 129,850.03	\$ 114,652.66	\$ 120,031.11	\$ 162,234.85	\$ 185,137.81	\$ 309,069.06
	Annual Electric Savings Plan (kWh)	42,970.69	34,754.68	49,089.91	68,431.30	329,428.18	157,822.24
	\$/Annual kWh Plan	\$ 3.02	\$ 3.30	\$ 2.45	\$ 2.37	\$ 0.56	\$ 1.96
2)	Total Electric Budget	\$ 129,850.03	\$ 114,652.66	\$ 120,031.11	\$ 162,234.85	\$ 185,137.81	\$ 309,069.06
	Total summer peak kW Plan	10.91	9.11	0.90	14.91	76.83	36.62
	\$/kW Plan	\$ 11,899.51	\$ 12,590.64	\$ 133,400.23	\$ 10,880.75	\$ 2,409.86	\$ 8,438.84
3)	Total Electric Budget	\$ 129,850.03	\$ 114,652.66	\$ 120,031.11	\$ 162,234.85	\$ 185,137.81	\$ 309,069.06
	Total Annual MMBtu Plan	1,186.87	888.95	1,105.64	533.16	1,171.12	1,251.52
	\$/Annual MMBtu Plan	\$ 109.41	\$ 128.98	\$ 108.56	\$ 304.29	\$ 158.09	\$ 246.96

<b>Energy Star Homes Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>
1)	Total Electric Costs	\$ 149,953.01	\$ 85,986.60	\$ 53,359.58
	Annual Electric Savings Actual (kWh)	15,851.36	196,439.12	99,035.15
	\$/Annual kWh Actual	\$ 9.46	\$ 0.44	\$ 0.54
2)	Total Electric Costs	\$ 149,953.01	\$ 85,986.60	\$ 53,359.58
	Total summer peak kW Actual	1.72	64.41	0.11
	\$/kW Actual	\$ 87,032.94	\$ 1,334.91	\$ 496,168.23
3)	Total Electric Costs	\$ 149,953.01	\$ 85,986.60	\$ 53,359.58
	Total Annual MMBtu Actual	1,017.91	480.69	32.07
	\$/Annual MMBtu Actual	\$ 147.32	\$ 178.88	\$ 1,663.95

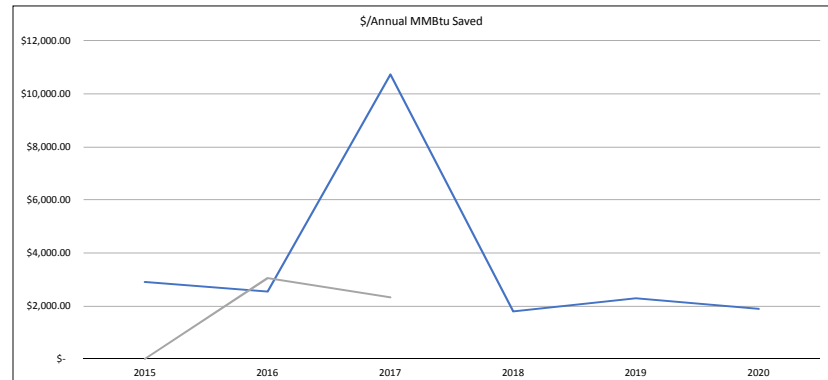
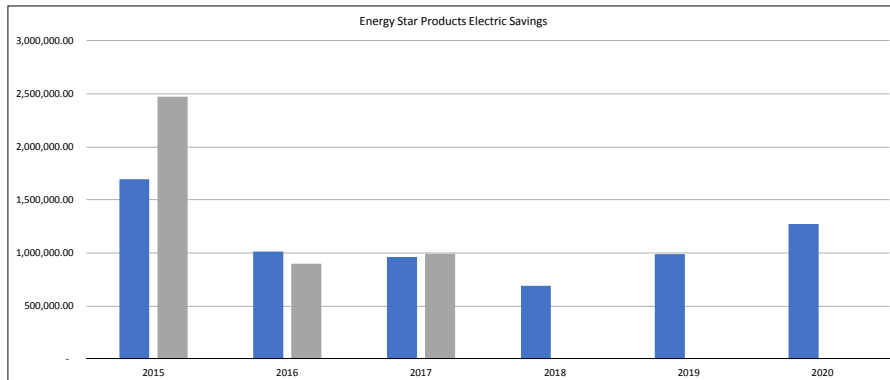
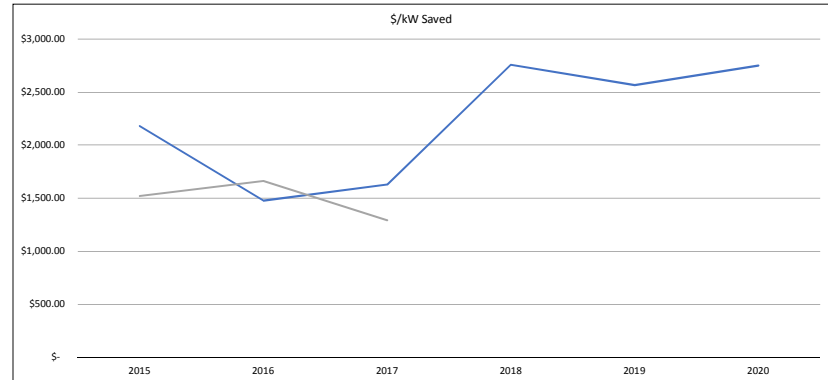
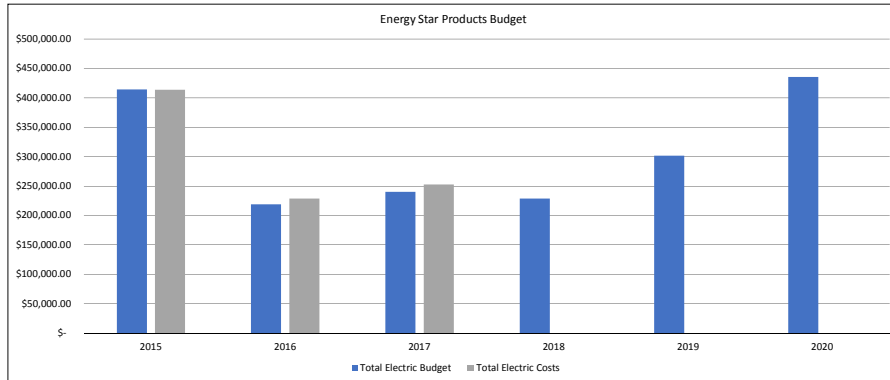
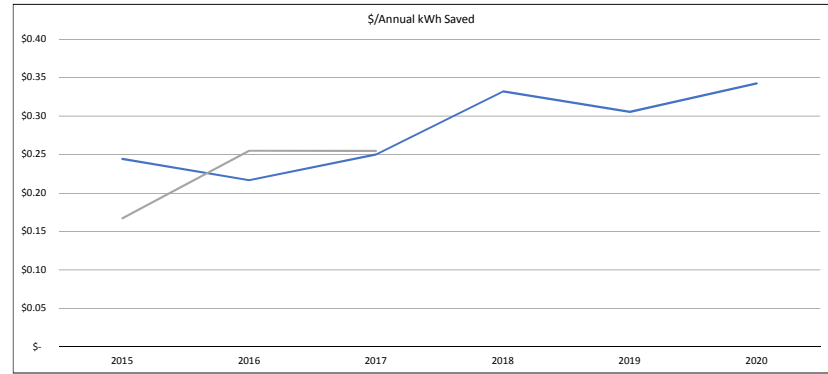


**Energy Star Products**

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 413,896.97	\$ 218,882.36	\$ 240,062.22	\$ 228,330.53	\$ 301,611.91	\$ 434,986.08
	Annual Electric Savings Plan (kWh)	1,694,349.54	1,010,711.28	959,637.02	687,811.49	987,874.85	1,270,027.21
	\$/Annual kWh Plan	\$ 0.24	\$ 0.22	\$ 0.25	\$ 0.33	\$ 0.31	\$ 0.34
2)	Total Electric Budget	\$ 413,896.97	\$ 218,882.36	\$ 240,062.22	\$ 228,330.53	\$ 301,611.91	\$ 434,986.08
	Total summer peak kW Plan	189.91	148.30	147.58	82.84	117.55	158.17
	\$/kW Plan	\$ 2,179.47	\$ 1,475.95	\$ 1,626.67	\$ 2,756.42	\$ 2,565.89	\$ 2,750.12
3)	Total Electric Budget	\$ 413,896.97	\$ 218,882.36	\$ 240,062.22	\$ 228,330.53	\$ 301,611.91	\$ 434,986.08
	Total Annual MMBtu Plan	142.88	86.18	22.38	127.38	131.99	230.11
	\$/Annual MMBtu Plan	\$ 2,896.73	\$ 2,539.71	\$ 10,728.47	\$ 1,792.52	\$ 2,285.09	\$ 1,890.30

Energy Star Products		2015	2016	2017
1)	Total Electric Costs	\$ 413,643.25	\$ 228,647.55	\$ 252,360.43
	Annual Electric Savings Actual (kWh)	2,473,522.93	896,766.75	990,531.96
	\$/Annual kWh Actual	\$ 0.17	\$ 0.25	\$ 0.25
2)	Total Electric Costs	\$ 413,643.25	\$ 228,647.55	\$ 252,360.43
	Total summer peak kW Actual	272.18	137.68	195.41
	\$/kW Actual	\$ 1,519.74	\$ 1,660.70	\$ 1,291.44
3)	Total Electric Costs	\$ 413,643.25	\$ 228,647.55	\$ 252,360.43
	Total Annual MMBtu Actual	135.63	98.49	27.12
	\$/Annual MMBtu Actual	\$ 3,049.87	\$ 2,321.58	\$ 9,305.12



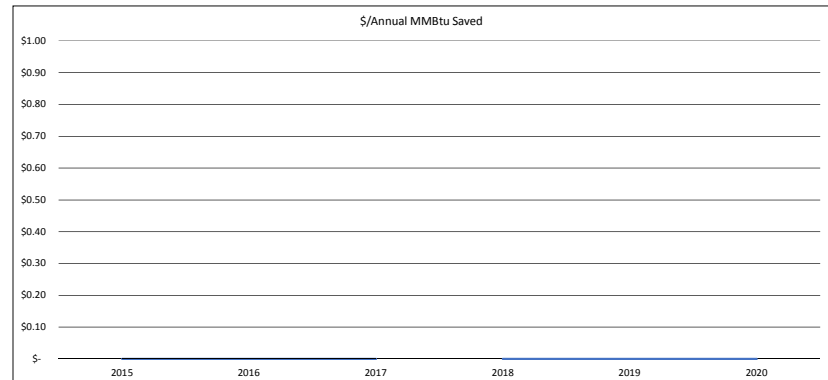
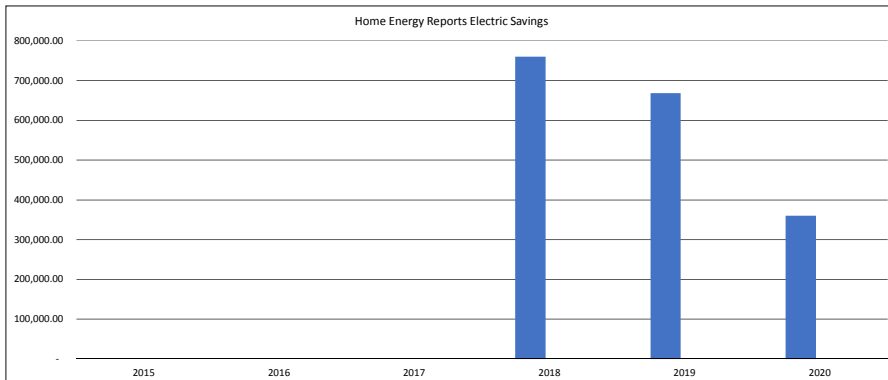
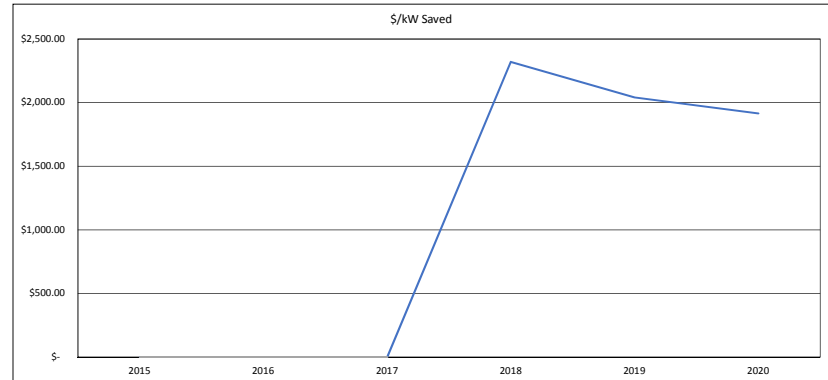
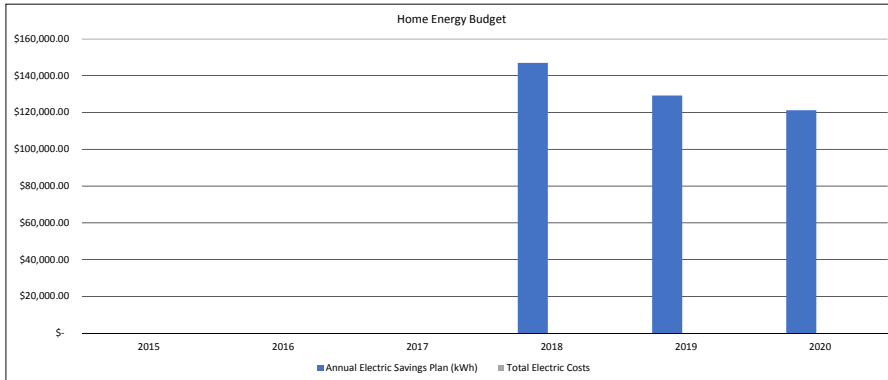
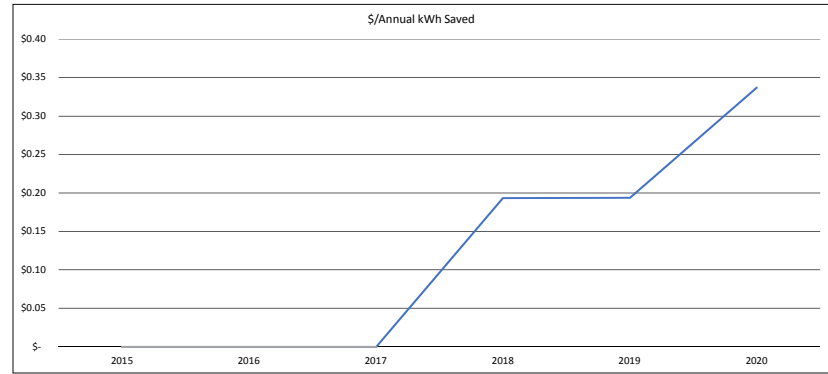


Home Energy Reports

Planned		2015	2016	2017	2018	2019	2020
1)	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ -	\$ 146,950.00	\$ 129,300.00	\$ 121,310.00
	Annual Electric Savings Plan (kWh)	-	-	-	760,000.00	668,000.00	360,000.00
	\$/Annual kWh Plan	\$ -	\$ -	\$ -	\$ 0.19	\$ 0.19	\$ 0.34
2)	Total Electric Budget	\$ -	\$ -	\$ -	\$ 146,950.00	\$ 129,300.00	\$ 121,310.00
	Total summer peak kW Plan	-	-	-	63.33	63.33	63.33
	\$/kW Plan	\$ -	\$ -	\$ -	\$ 2,320.26	\$ 2,041.58	\$ 1,915.42
3)	Total Electric Budget	\$ -	\$ -	\$ -	\$ 146,950.00	\$ 129,300.00	\$ 121,310.00
	Total Annual MMBtu Plan	-	-	-	-	-	-
	\$/Annual MMBtu Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Home Energy Reports		2015	2016	2017
1)	Total Electric Costs	\$ -	\$ -	\$ -
	Annual Electric Savings Actual (kWh)	-	-	-
	\$/Annual kWh Actual	\$ -	\$ -	\$ -
2)	Total Electric Costs	\$ -	\$ -	\$ -
	Total summer peak kW Actual	-	-	-
	\$/kW Actual	\$ -	\$ -	\$ -
3)	Total Electric Costs	\$ -	\$ -	\$ -
	Total Annual MMBtu Actual	-	-	-
	\$/Annual MMBtu Actual	\$ -	\$ -	\$ -

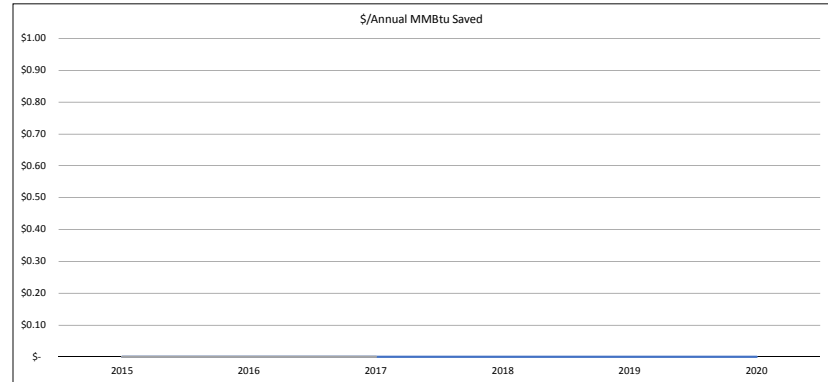
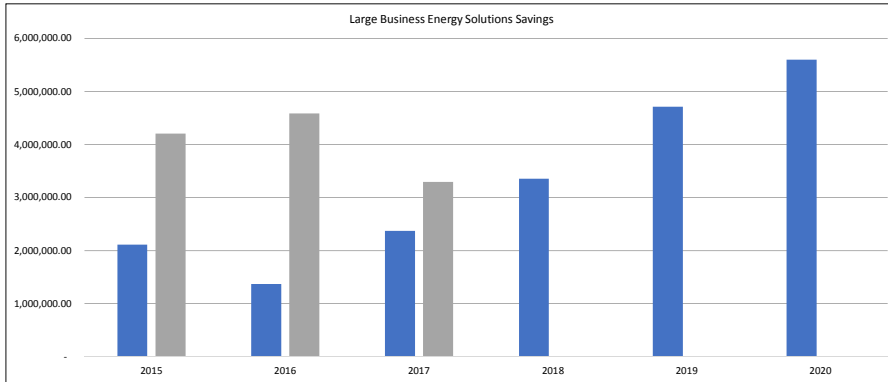
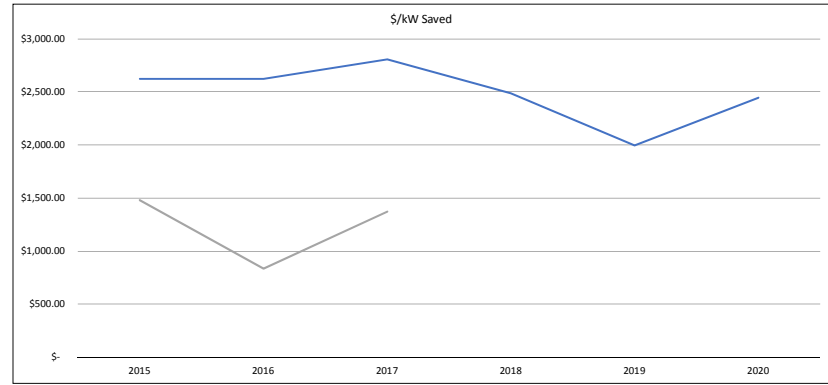
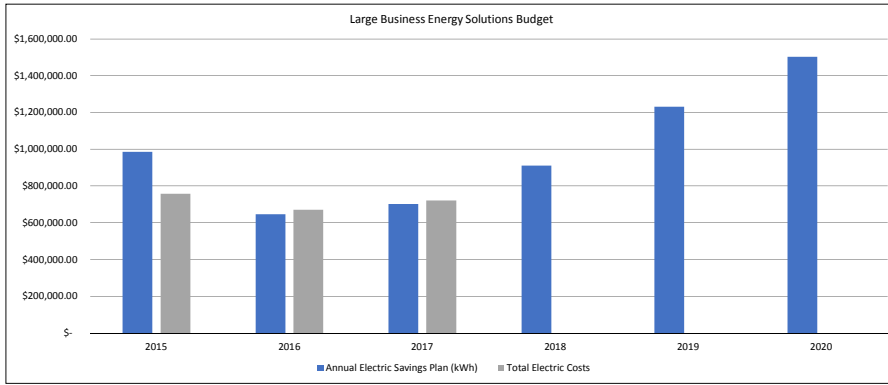
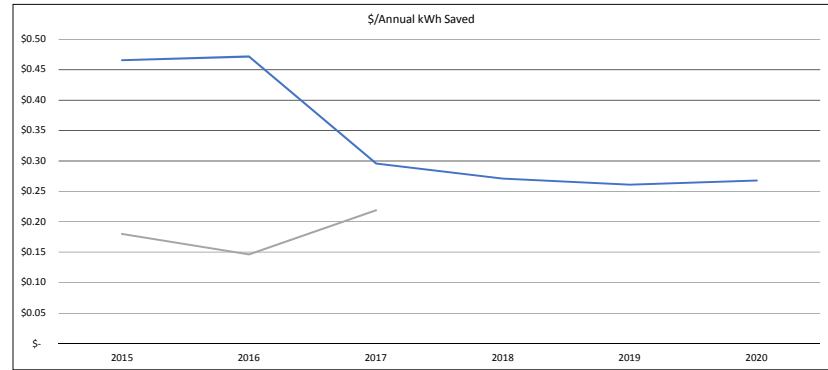


Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Annual Electric Savings Plan (kWh)	\$ 986,516.79	\$ 648,100.80	\$ 703,049.76	\$ 912,650.57	\$ 1,231,211.44	\$ 1,503,054.79
	Annual Electric Savings Plan (kWh)	2,119,438.41	1,374,366.90	2,378,148.71	3,363,034.81	4,717,156.03	5,604,938.50
	\$/Annual kWh Plan	\$ 0.47	\$ 0.47	\$ 0.30	\$ 0.27	\$ 0.26	\$ 0.27
2)	Total Electric Budget	\$ 986,516.79	\$ 648,100.80	\$ 703,049.76	\$ 912,650.57	\$ 1,231,211.44	\$ 1,503,054.79
	Total summer peak kW Plan	375.77	246.88	250.40	366.51	616.65	614.25
	\$/kW Plan	\$ 2,625.32	\$ 2,625.16	\$ 2,807.71	\$ 2,490.11	\$ 1,996.63	\$ 2,446.96
3)	Total Electric Budget	\$ 986,516.79	\$ 648,100.80	\$ 703,049.76	\$ 912,650.57	\$ 1,231,211.44	\$ 1,503,054.79
	Total Annual MMBtu Plan	-	-	-	-	-	-
	\$/Annual MMBtu Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Large Business Energy Solutions		2015	2016	2017
1)	Total Electric Costs	\$ 758,942.69	\$ 671,700.75	\$ 722,352.73
	Annual Electric Savings Actual (kWh)	4,209,731.13	4,591,503.58	3,298,929.54
	\$/Annual kWh Actual	\$ 0.18	\$ 0.15	\$ 0.22
2)	Total Electric Costs	\$ 758,942.69	\$ 671,700.75	\$ 722,352.73
	Total summer peak kW Actual	512.42	804.65	525.73
	\$/kW Actual	\$ 1,481.09	\$ 834.77	\$ 1,374.01
3)	Total Electric Costs	\$ 758,942.69	\$ 671,700.75	\$ 722,352.73
	Total Annual MMBtu Actual	-	-	-
	\$/Annual MMBtu Actual	\$ -	\$ -	\$ -

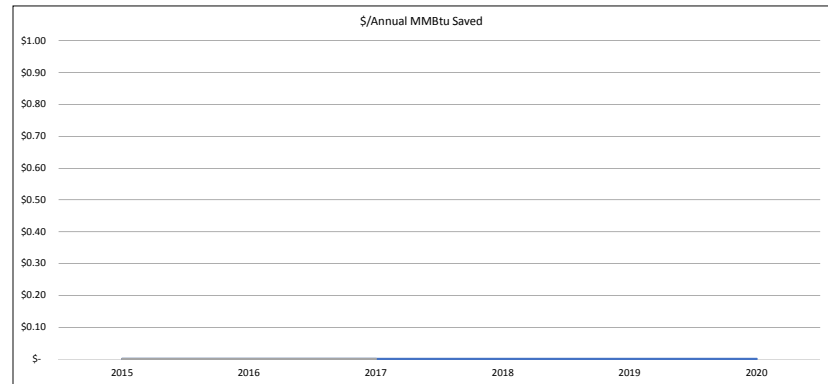
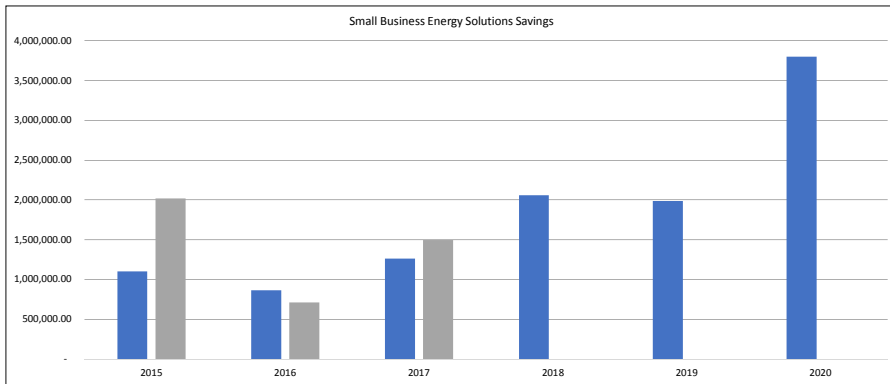
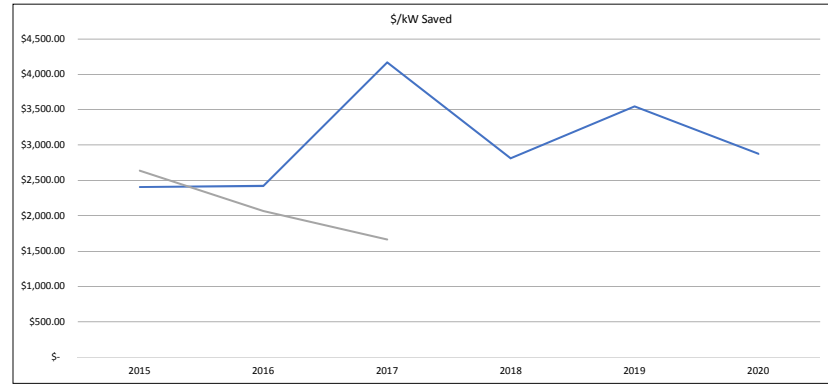
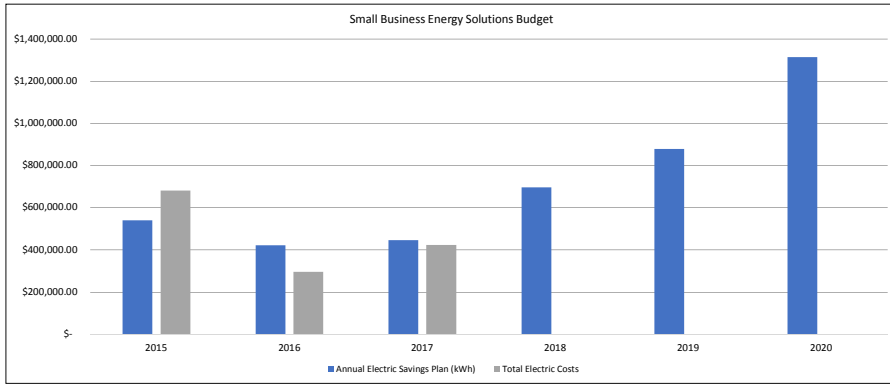
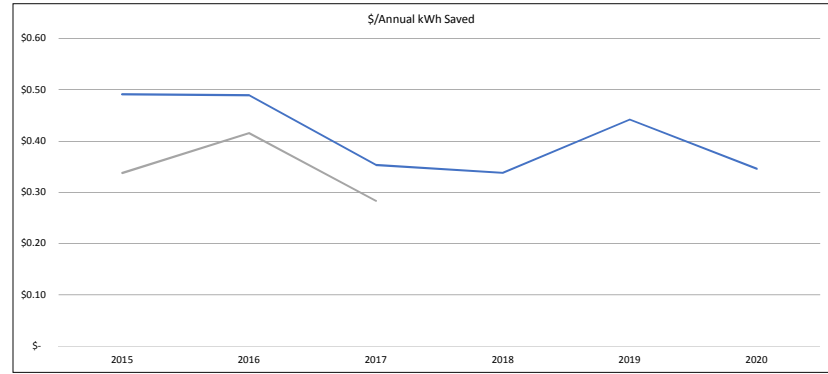


**Small Business Energy Solutions**

<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
1)	Annual Electric Savings Plan (kWh)	\$ 539,501.37	\$ 421,265.52	\$ 445,264.85	\$ 695,978.13	\$ 877,784.36	\$ 1,313,376.74
	Annual Electric Savings Actual (kWh)	1,097,858.23	860,961.22	1,259,303.25	2,058,733.62	1,986,225.15	3,797,079.49
	\$/Annual kWh Plan	\$ 0.49	\$ 0.49	\$ 0.35	\$ 0.34	\$ 0.44	\$ 0.35
2)	Total Electric Budget	\$ 539,501.37	\$ 421,265.52	\$ 445,264.85	\$ 695,978.13	\$ 877,784.36	\$ 1,313,376.74
	Total summer peak kW Plan	224.27	173.92	106.80	247.48	247.65	457.04
	\$/kW Plan	\$ 2,405.55	\$ 2,422.14	\$ 4,169.17	\$ 2,812.23	\$ 3,544.45	\$ 2,873.68
3)	Total Electric Budget	\$ 539,501.37	\$ 421,265.52	\$ 445,264.85	\$ 695,978.13	\$ 877,784.36	\$ 1,313,376.74
	Total Annual MMBtu Plan	-	-	-	-	-	-
	\$/Annual MMBtu Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

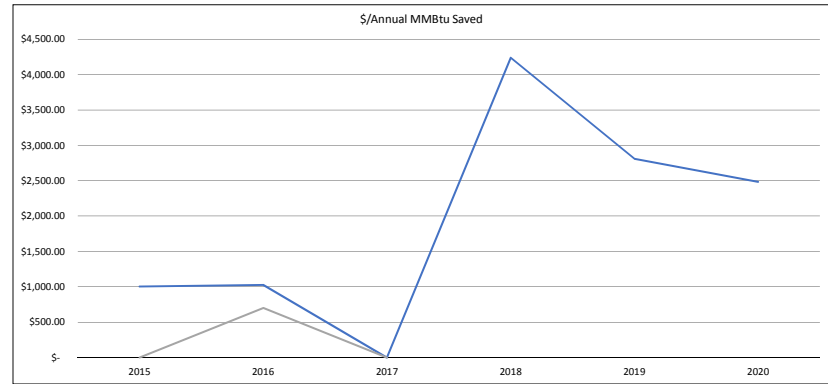
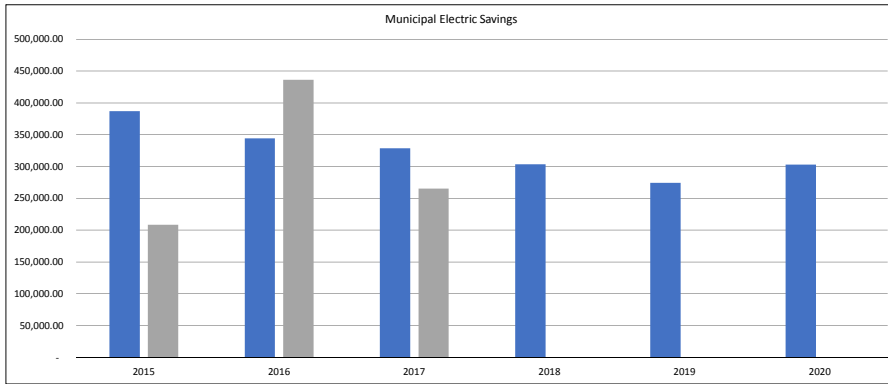
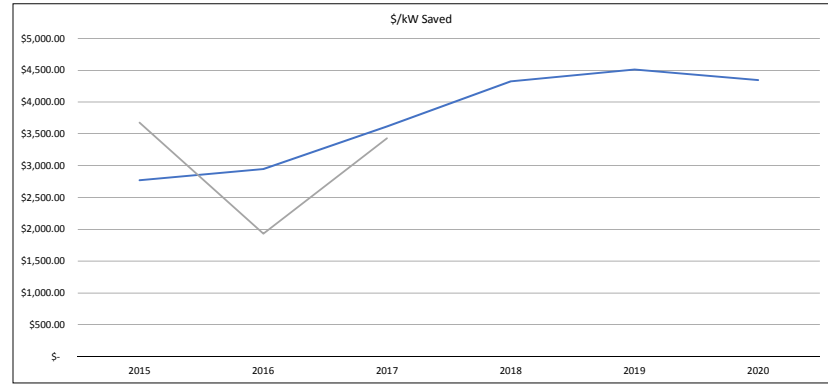
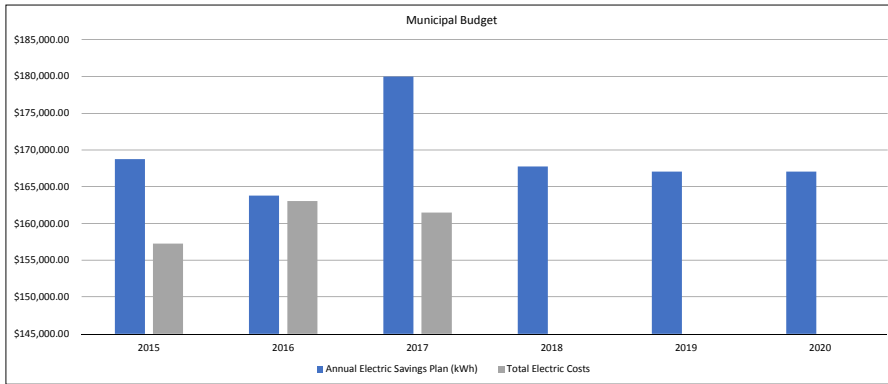
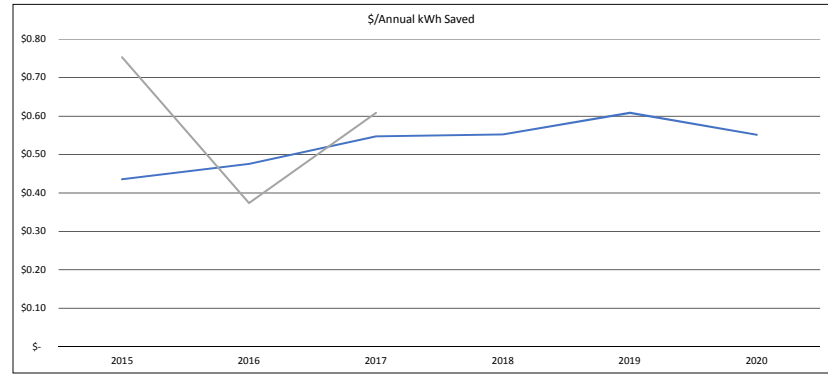
  

<b>Small Business Energy Solutions Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>
1)	Total Electric Costs	\$ 681,255.21	\$ 295,732.97	\$ 423,319.49
	Annual Electric Savings Actual (kWh)	2,015,429.01	711,323.10	1,492,157.24
	\$/Annual kWh Actual	\$ 0.34	\$ 0.42	\$ 0.28
2)	Total Electric Costs	\$ 681,255.21	\$ 295,732.97	\$ 423,319.49
	Total summer peak kW Actual	258.17	143.16	254.31
	\$/kW Actual	\$ 2,638.78	\$ 2,065.69	\$ 1,664.55
3)	Total Electric Costs	\$ 681,255.21	\$ 295,732.97	\$ 423,319.49
	Total Annual MMBtu Actual	-	-	-
	\$/Annual MMBtu Actual	\$ -	\$ -	\$ -



Municipal

Planned		2015	2016	2017	2018	2019	2020
1)	Annual Electric Savings Plan (kWh)	\$ 168,757.07	\$ 163,787.53	\$ 179,990.30	\$ 167,754.53	\$ 167,047.78	\$ 167,047.78
	Annual Electric Savings Plan (kWh)	387,462.02	344,320.92	329,094.14	303,814.79	274,539.99	303,207.08
	\$/Annual kWh Plan	\$ 0.44	\$ 0.48	\$ 0.55	\$ 0.55	\$ 0.61	\$ 0.55
2)	Total Electric Budget	\$ 168,757.07	\$ 163,787.53	\$ 179,990.30	\$ 167,754.53	\$ 167,047.78	\$ 167,047.78
	Total summer peak kW Plan	60.88	55.57	49.75	38.77	37.03	38.44
	\$/kW Plan	\$ 2,771.77	\$ 2,947.59	\$ 3,618.26	\$ 4,327.39	\$ 4,510.93	\$ 4,346.07
3)	Total Electric Budget	\$ 168,757.07	\$ 163,787.53	\$ 179,990.30	\$ 167,754.53	\$ 167,047.78	\$ 167,047.78
	Total Annual MMBtu Plan	167.47	159.50	-	39.55	59.41	67.19
	\$/Annual MMBtu Plan	\$ 1,007.71	\$ 1,026.91	\$ -	\$ 4,241.36	\$ 2,811.83	\$ 2,486.16
<b>Municipal</b>							
<b>Actuals</b>							
		2015	2016	2017			
1)	Total Electric Costs	\$ 157,291.46	\$ 163,041.91	\$ 161,504.59			
	Annual Electric Savings Actual (kWh)	208,878.40	436,335.10	265,410.20			
	\$/Annual kWh Actual	\$ 0.75	\$ 0.37	\$ 0.61			
2)	Total Electric Costs	\$ 157,291.46	\$ 163,041.91	\$ 161,504.59			
	Total summer peak kW Actual	42.75	84.37	47.08			
	\$/kW Actual	\$ 3,679.72	\$ 1,932.35	\$ 3,430.31			
3)	Total Electric Costs	\$ 157,291.46	\$ 163,041.91	\$ 161,504.59			
	Total Annual MMBtu Actual	224.40	-	116.80			
	\$/Annual MMBtu Actual	\$ 700.94	\$ -	\$ 1,382.74			



**Program Cost-Effectiveness - 2019 PLAN**

	Total Resource Benefit / Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
<b>Residential Programs</b>											
Home Energy Assistance	1.77	885.6	499.4	-	65.6	766.2	6.7	9.3	63	1,773.7	35,336.1
Energy Star Homes	1.71	540.2	246.7	69.6	65.0	1,479.6	8.4	12.8	33	559.3	13,933.8
Home Performance with Energy Star	2.44	2,304.9	519.5	425.0	166.0	2,767.6	12.3	30.6	169	4,506.4	94,091.3
Energy Star Products	1.60	1,579.4	602.9	382.8	2,244.5	13,751.6	615.3	270.9	129,153	162.8	2,278.8
Home Energy Reports	0.00	-	-	-	-	-	-	-	-	-	-
Res Customer Engagement Platform	0.00	-	-	-	-	-	-	-	-	-	-
ISO-NE Forward Capacity Market Expenses	0.00	-	6.0	-	-	-	-	-	-	-	-
<b>Sub-Total Residential</b>	<b>1.93</b>	<b>5,310.1</b>	<b>1,874.5</b>	<b>877.4</b>	<b>2,541.1</b>	<b>18,764.9</b>	<b>642.7</b>	<b>323.6</b>	<b>129,418</b>	<b>7,002.2</b>	<b>145,640.0</b>
<b>Commercial, Industrial &amp; Municipal</b>											
Large Business Energy Solutions	2.00	1,974.7	381.5	606.8	1,581.5	20,560.0	239.8	218.0	24	-	-
Small Business Energy Solutions	1.32	1,248.0	500.0	445.5	1,144.7	15,089.6	70.9	105.3	116	-	-
Municipal Energy Solutions	1.04	301.6	159.4	129.7	166.0	2,158.3	13.0	19.2	24	379.9	4,938.5
C&I Customer Partnerships	0.00	-	-	-	-	-	-	-	-	-	-
Energy Rewards RFP Program	0.00	-	-	-	-	-	-	-	-	-	-
C&I Customer Engagement Platform	0.00	-	-	-	-	-	-	-	-	-	-
Education	0.00	-	60.5	-	-	-	-	-	-	-	-
ISO Forward Capacity Market Expenses	0.00	-	14.0	-	-	-	-	-	-	-	-
<b>Sub-Total Commercial &amp; Industrial</b>	<b>1.53</b>	<b>3,524.3</b>	<b>1,115.4</b>	<b>1,182.0</b>	<b>2,892.3</b>	<b>37,807.9</b>	<b>323.7</b>	<b>342.5</b>	<b>163</b>	<b>379.9</b>	<b>4,938.5</b>
Smart Start	0.00	-	5.0	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1.75</b>	<b>8,834.4</b>	<b>2,994.9</b>	<b>2,059.4</b>	<b>5,433.4</b>	<b>56,572.9</b>	<b>966.4</b>	<b>666.1</b>	<b>129,582</b>	<b>7,382.1</b>	<b>150,578.5</b>

Note: a 10% NEI adder is applied to total benefits, and an additional 10% NEI adder is applied to total benefits of the Home Energy Assistance program, excluding water.

<b>Annual kWh Savings</b>	5,433,375	71.5%	<b>kWh &gt; 55%</b>	<b>Lifetime kWh Savings</b>	56,572,854	56.2%	<b>kWh &gt; 55%</b>
<b>Annual MMBTU Savings (in kWh)</b>	<u>2,163,491</u>	<u>28.5%</u>		<b>Lifetime MMBTU Savings (in kWh)</b>	<u>44,130,211</u>	<u>43.8%</u>	
	<b>7,596,866</b>	100.0%			<b>100,703,066</b>	100.0%	

Present Value Benefits - 2019 PLAN

	Total Benefits (\$000)	CAPACITY				ENERGY				Electric DRIPE	Gas Benefit	Gas DRIPE	Other Fuels	Fossil Emissions	Water Benefit	Other Non- Resource Benefit
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak							
<b>Residential Programs</b>																
Home Energy Assistance	\$ 886	\$ 8	\$ -	\$ 11	\$ 9	\$ 14	\$ 15	\$ 5	\$ 6	\$ 4	\$ -	\$ -	\$ 634	\$ 38	\$ -	\$ 141.25
Energy Star Homes	\$ 540	\$ 19	\$ -	\$ 21	\$ 18	\$ 24	\$ 26	\$ 10	\$ 11	\$ 5	\$ 0	\$ 0	\$ 338	\$ 16	\$ 4	\$ 47
Home Performance with Energy Star	\$ 2,305	\$ 38	\$ -	\$ 45	\$ 39	\$ 44	\$ 54	\$ 17	\$ 21	\$ 13	\$ -	\$ -	\$ 1,736	\$ 94	\$ -	\$ 201
Energy Star Products	\$ 1,579	\$ 83	\$ -	\$ 157	\$ 136	\$ 338	\$ 207	\$ 145	\$ 89	\$ 63	\$ 8	\$ 0	\$ 21	\$ 2	\$ 207	\$ 125
Home Energy Reports	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Res Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISO-NE Forward Capacity Market Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Residential</b>	<b>\$ 5,310</b>	<b>\$ 148</b>	<b>\$ -</b>	<b>\$ 234</b>	<b>\$ 202</b>	<b>\$ 420</b>	<b>\$ 303</b>	<b>\$ 178</b>	<b>\$ 127</b>	<b>\$ 86</b>	<b>\$ 8</b>	<b>\$ 0</b>	<b>\$ 2,729</b>	<b>\$ 151</b>	<b>\$ 211</b>	<b>\$ 514</b>
<b>Commercial/Industrial Programs</b>																
Large Business Energy Solutions	\$ 1,975	\$ 163	\$ -	\$ 227	\$ 197	\$ 453	\$ 398	\$ 150	\$ 104	\$ 102	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 179.52
Small Business Energy Solutions	\$ 1,248	\$ 81	\$ -	\$ 112	\$ 97	\$ 295	\$ 238	\$ 141	\$ 114	\$ 56	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 113
Municipal Energy Solutions	\$ 302	\$ 14	\$ -	\$ 20	\$ 17	\$ 47	\$ 34	\$ 19	\$ 13	\$ 9	\$ -	\$ -	\$ 93	\$ 5	\$ -	\$ 27
C&I Customer Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Rewards RFP Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Commercial &amp; Industrial</b>	<b>\$ 3,524</b>	<b>\$ 259</b>	<b>\$ -</b>	<b>\$ 359</b>	<b>\$ 311</b>	<b>\$ 796</b>	<b>\$ 670</b>	<b>\$ 310</b>	<b>\$ 232</b>	<b>\$ 167</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 93</b>	<b>\$ 5</b>	<b>\$ -</b>	<b>\$ 320</b>
Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 8,834</b>	<b>\$ 407</b>	<b>\$ -</b>	<b>\$ 593</b>	<b>\$ 514</b>	<b>\$ 1,216</b>	<b>\$ 973</b>	<b>\$ 488</b>	<b>\$ 359</b>	<b>\$ 253</b>	<b>\$ 8</b>	<b>\$ 0</b>	<b>\$ 2,822</b>	<b>\$ 156</b>	<b>\$ 211</b>	<b>\$ 834</b>

**Performance Incentive Calculation  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.49	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	<b>37,807,916</b>	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	24,575,145	
5. Implementation Expenses	\$1,115,387	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>8. Commercial &amp; Industrial Performance Incentive</b>	\$61,346	
<b>9. Maximum Commercial &amp; Industrial Performance Incentive (6.875%)</b>	\$76,683	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	1.86	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	<b>18,764,939</b>	
13. Threshold Lifetime kWh Savings (65%)	12,197,210	
14. Implementation Expenses	\$1,874,496	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>17. Residential Performance Incentive</b>	\$103,097	
<b>18. Maximum Residential Performance Incentive (6.875%)</b>	\$128,872	
<b>19. TOTAL PLANNED / EARNED INCENTIVE</b>	<b>\$164,444</b>	

**Notes**

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

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
1. Benefits (Value) From Eligible Programs	\$ 3,524,345	\$ -
2. Implementation Expenses	\$ 1,115,387	\$ -
3. Customer Contribution	\$ 1,181,975	\$ -
4. Performance Incentive	\$ 61,346	\$ -
5. Total Costs	\$ 2,358,708	\$ -
6. Benefit/Cost Ratio - Commercial & Industrial Sector	<b>1.49</b>	
<b>Residential</b>		
7. Benefits (Value) From Eligible Programs	\$ 5,310,102	\$ -
8. Implementation Expenses	\$ 1,874,496	\$ -
9. Customer Contribution	\$ 877,397	\$ -
10. Performance Incentive	\$ 103,097	\$ -
11. Total Costs	\$ 2,854,990	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>1.86</b>	



**Lifetime Energy Savings by Sector and Program  
 2019**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial</b>		
Large Business Energy Solutions	20,560,046	
Small Business Energy Solutions	15,089,568	
Municipal Energy Solutions	2,158,302	
C&I Customer Partnerships	-	
Energy Rewards RFP Program	-	
C&I Customer Engagement Platform	-	
Education	-	
ISO Forward Capacity Market Expenses	-	
<b>Total Commercial &amp; Industrial</b>	<b>37,807,916</b>	
<b>Residential</b>		
Home Energy Assistance	766,167	
Energy Star Homes	1,479,559	
Home Performance with Energy Star	2,767,602	
Energy Star Products	13,751,611	
Home Energy Reports	-	
Res Customer Engagement Platform	-	
ISO-NE Forward Capacity Market Expenses	-	
<b>Total Residential</b>	<b>18,764,939</b>	

New Hampshire Electric Cooperative Inc Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan
Oil-Wxn: Air Sealing, Insulation, Water measures	17	11	63				18.0	22.1	18.7						22	27	9.09	98.1%	98.1%	6,437	6,478	10,464
Propane-Wxn: Air Sealing, Insulation, Water measures	9	14	63				21.0	14.0	21.4						17	22	3.69	98.1%	98.1%	3,143	4,181	4,880
Kerosene-Wxn: Air Sealing, Insulation, Water measures	11	9	63				19.0	21.8	20.1						22	28	8.63	98.1%	98.1%	4,388	5,447	10,724
Electric-Wxn: Air Sealing, Insulation, Water measures			57			580			16.2		86.9%			461,046								
Cord Wood-Wxn: Air Sealing, Insulation, Water measures	7	5	63				21.0	22.7	19.7	86.9%	86.9%				24	23	3.41	98.1%	98.1%	3,243	2,570	4,143
All Fuels- Thermostat	20	14	35	46	42	44	15.0	15.0	15.0	86.9%	86.9%	12,004.46	7,664.58	20,210								
LED Lighting Products	31	26	42	579	475	567	8.0	8.0	5.0	86.9%	86.9%	123,658.50	85,843.30	102,313								
Refrigerator	14	14	23	754	699	773	12.0	12.0	12.0	86.9%	86.9%	108,562.04	102,048.41	182,598								
Direct Install Water Measures (if broken out from Wxn)	30	24		212	231		7.0	7.0		86.9%		38,282.28	33,657.24									
Oil Boiler Replacement, >=87% AFUE	3	2	3				20.0	20.0	25.0	86.9%	86.9%				16	12	17.26	100%	100.0%	1,125	468	1,330
Propane Boiler Replacement, >=95% AFUE		1						20.0	25.0	86.9%						30		100%			600	
Kerosene Boiler Replacement, >=87% AFUE			1						25.0	86.9%							7.73		100.0%			149
Oil Furnace Replacment, >=87% ECM	2	1	8				18.0	18.0	20.0	86.9%	86.9%				10	5	10.52	100%	100.0%	303	96	1,621
Propane Furnace Replacment, >=95% ECM			2						20.0	86.9%							36.75		100.0%			1,133
Kerosene Furnace Replacment, >=87% ECM		1	4					18.0	20.0	86.9%						2	11.566	100%	100.0%		37	891
WXn Admin Fee (if not captured above)	35	32	63																			
Health and Safety	32	32	59																			
Water Heater Replacement		1			30			19.0		86.9%	86.9%		495.33									
Electric Savings-Air Sealing	31	32		161	101		15.0	15.0		86.9%		65,921.02	42,298.60									
Electric Savings-Insulation	32	31		213	311		25.0	25.0		86.9%		150,145.69	209,124.83									

New Hampshire Electric Cooperative Inc Home Performance with ENERGY STAR®

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 & 2019	2017 Plan	2017 Actual	2019 Plan
Oil-Wxn: Air Sealing, Insulation, Water measures	26	19	169				20.0	20.5	21.1						27	29	14.84	100%	14,050	11,416	52,655
Propane-Wxn: Air Sealing, Insulation, Water measures	15	4	169				20.0	19.8	20.6					14	19	6.47	100%	4,066	1,539	22,490	
Kerosene-Wxn: Air Sealing, Insulation, Water measures		1	169					21.2	21.7						11	0.45	100%		231	1,647	
Electric-Wxn: Air Sealing, Insulation, Water measures			152			803			20.6		100%										
Cord Wood-Wxn: Air Sealing, Insulation, Water measures	18	6	169				20.0	21.7	20.6	100%	100%			17	14	4.98	100%	6,172	1,851	17,300	
All Fuels- Thermostat	15	5	19	400	769	210	15.0	15.0	15.0	100%	100%	90,761	57,675	58,407							
LED Lighting Products	41	26	86	565	312	469	8.0	8.0	5.0	100%	100%	185,974	64,880	201,593							
Refrigerator	7			338			12.0	12.0	12.0	100%		29,450									
Direct Install Water Measures (if broken out from Wxn)	22	9		141	191		4.0	4.0		100%		12,627	6,864								
Electric Savings-Air Sealing	59	29		384	760		15.0	15.0		100%		338,065	330,405								
Electric Savings-Insulation	58	28		736	908		25.0	25.0		100%		1,068,796	635,698								
Tankless Water Heater		1						20.0		100%											
Wxn Admin Fee (if not captured above)	61	34	169							100%	100%				10		100%			194	
Furnace Ancillary Savings		4			126			20.0		100%			10,080								
Boiler Ancillary Savings		11			18			20.0	5.0	100%			3,960								
Cooling system Ancillary Savings		7			64			20.0	12.0	100%			8,920								
Health & Safety	39	5	89						1.0	100%	100%										
Custom			47						1.0	100%	100%										

New Hampshire Electric Cooperative Inc ENERGY STAR® Homes Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 & 2019	2017 Plan	2017 Actual	2019 Plan
SF-Oil Heated Home		1					25		100%						85		100%		2,126	
SF-Propane Heated Home	8	4	23		800		25	25	100%	100%		79,975		108	108	23.76	100%	21,255	10,761	13,871
SF-Oil Hot Water		1					25		100%						4		100%		104	
SF-Electric Heated Home			10			3,625.0		25		100%			906,970				100%			
SF-Cord Wood Heated Home		2					25		100%						76		100%		3,800	
GSHP Heating	7	2		15,166.0	20,841		25		100%		2,558,409	1,042,050								
GSHP Cooling	7	2		(39.0)	153		25		100%		(6,579)	7,650								
GSHP Water	7	2		1,969.0	2,020		25		100%		332,158	101,000								
Air Source Heating (including DHPs)	7	2		12,397.0	11,459.5		25		100%		2,091,296	572,975								
Heat Pump Cooling (including DHPs)	8	2		(48.0)	(296.5)		25		100%		(9,447)	(14,825)								
Heat Pump Water	8	3	10	2,206.0	2,471.0	2,043.0	25	25	100%	100%	434,161	185,325	511,156							
LED Lighting Products	202	143	367	24.6	24.6	20.3	8	5	100%	100%	39,899	28,185	37,195							
LED Fixture		6			24.6		8		100%			1,183								
Clothes Washer	8	9	17	123.9	123.9	88.7	11	14	100%	100%	10,730	12,267	20,705	0.454	0.454	0.269	100%	39	45	63
Refrigerator	19	6	23	41.4	41.4	41.0	12	12	100%	100%	9,490	2,978	11,489							
ES Homes (Net Zero Competition & QA)			1																	
SF-Propane Cooling	4	1		(59.0)	77.0		25		100%		(5,806)	1,925		8	5		100%	-	-	
SF-Propane HW	8	5					25								156		100%			
SF-Hybrid HP Heat		1			18,803.0		25		100%			470,075					100%			
SF-Hybrid HP Cool		1			274.0		25		100%			6,850								
Ventilation	22	12		(348.0)	(203.7)		25		100%		(195,685)	(61,100)								

New Hampshire Electric Cooperative Inc ENERGY STAR® Products Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)		Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 & 2019	2017 Plan	2017 Actual	2019 Plan
LED Single Bulbs	6,416	7,397		24.61		8.0		95%		1,199,856	1,383,410								
LED Multi-Packs (per bulb)	18,107	38,525		24.61		8.0		62%		2,220,828	4,725,005								
LED Globe/Candelabra	8,284	1,137		24.61		8.0		95%		1,549,242	212,645								
LED Reflector	5,509	5,088		24.61		8.0		95%		1,030,317	951,573								
LED Interior Fixture	2,356	1,214		24.61		8.0		96%		447,069	230,392								
LED Exterior Fixture	786	247		24.61		5.0		100%		96,712	30,391								
CFL Coupon Multipack		174		28.98		5.0		62%			15,632								
LED Lighting Products			126,722		15.9		5		89%			8,983,099							
ES Dehumidifier	161	217	269	162	214.0	12.0	12	100%	100%	314,293	422,548	689,765							
ES Pool Pumps (2 speed)	2		37	782	842.0	10.0	10	100%	100%	17,662		308,402							
ES Pool Pumps (Variable Speed)	1	21	18	946	1,062.0	10.0	10	100%	100%	8,638	198,634	194,491							
ES Clothes Washers	459	465	440	124	88.7	11.0	14	100%	100%	625,075	633,800	545,602	0.110	0.110	0.27	100%	554	562	1,661
ES Clothes Dryers	21	197	366	160	93.3	12.0	12	100%	100%	40,646	378,667	410,079							
ES Room AC (room)	157	110	244	16	16.2	9.0	9	100%	100%	22,773	15,995	35,514							
ES Room Air Purifier	12	29	122	390	390.5	9.0	9	100%	50%	43,698	101,903	214,544							
ES Refrigerator	294	222	244	41	64.3	12.0	12	100%	100%	145,756	110,191	188,411							
Primary Refrigerator Recycling/Pickup/Turnin	26	18	49	491.64	491.6	8.0	8	100%	100%	103,748	70,796	192,064							
2nd Refrigerator Pickup/Turnin	75	86	122	755.00	755.0	8.0	8	100%	100%	455,214	519,440	737,429							
2nd Freezer Pickup/Turnin	8	19	49	658.00	658.0	8.0	8	100%	100%	39,673	100,016	257,075							
Room AC Pickup/Turnin	2		4	16.16	16.2	5.0	5	100%	100%	170		302							
ECM Motors for FHA Furnace Fans			2		168.0		18		100%			4,958							
ECM Motor for FWH Circulating Pump			2		142.0		15		100%			3,492							
CEE Tier 2+ Clothes Washers			293		155.9		14		100%			639,541			0.44	100%			1,805
Energy Star Clothes Dryers (Electric, Hybrid)			24		229.4		12		100%			67,218							
Energy Star Clothes Dryers (Electric, Heat Pump)			24		472.3		12		100%			138,392							
Energy Star Refrigerators CEE Tier 2+			122		96.4		12		100%			141,235							

New Hampshire Electric Cooperative Inc Large Business Energy Solutions Programs

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 & 2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																				
Snowmaking	2	3	2	89,099	101,720	118,798	13	13	99.86%	99.86%	2,176,185	3,961,514	3,700,135							
Lighting-LED	13	9	18	66,599	67,281	67,281	13	13	99.86%	99.86%	11,386,460	7,860,882	15,716,728							
LightingOS Only					2,731				13	99.86%		70,894								
Park Lot Lights	4	1		3,556	2,130				13	99.86%	173,706	27,651								
Process		1	4		114,600	24,469			13	99.86%		1,487,714	1,143,183							
Refrigeration		3			73,751				13	99.86%		2,872,262								
<b>New Equipment &amp; Construction Track</b>																				
Cooling		1			5,453				15	99.86%		81,680								

New Hampshire Electric Cooperative Inc Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 & 2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																				
Lighting	30	20	69	16,391	11,898	11,898	13	13	100%	102.7%	6,344,355	3,093,363	11,008,795							
Ext. Lighting	20	9	35	11,586	5,442	5,442	13	13	100%	102.7%	2,989,677	636,714	2,517,644							
Process		1			28,250		13		100%	100%		367,250								
Motors		1			10,672		13		100%	100%		138,736								
Refrigeration		2			2,222		13		100%	100%		57,759								
<b>New Equipment &amp; Construction Track</b>																				
Cooling		6	12		9,022	9,022	15	15	100%	100%		812,010	1,563,129							
Lighting		6			10,272		15		100%	100%		924,480								
Ext. Lighting		2			20,279		15		100%	100%		608,355								
Lighting - Control		1			630		15		100%	100%		9,450								

New Hampshire Electric Cooperative Inc Municipal Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 & 2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																				
Boiler Replacement		2					13		100%								100%		7,438	
Park Lot Lights	8	4		4,638	5,759		13		100%	488,391										
Lighting-LED	13	7	16	11,083	20,805	10,027	13	13	100%	1,833,955	3,576,491	2,158,302								
Weatherization-Oil	2	1					13		100%					121	124	47.6	100%	3,640	1,615	4,939
Weatherization-Propane		2					13		100%						67		100%		1,746	



**New Hampshire Electric Cooperative, Inc.  
 2019 System Benefits Charge ("SBC") Calculation  
 (\$ in 000's)**

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Carryforward with Interest	SBC Requirement	Forecasted Distribution (MWH)	SBC Rate EE Portion (cents/kWh)	SBC Rate EAP Portion (cents/kWh)	2018 Total SBC Rate (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. F	Col. H	Col. I	Col. J	Col. K	Col. M
2019	\$ 3,159	\$ 201	\$ 75	\$ 57	\$ 2,826	757,675	0.373	0.150	0.523

- Col. A: Effective year (January 1, 2018 - December 31, 2018)
- Col. B: Budget Projections
- Col. C: Budget Projections
- Col. D: Budget Projections
- Col. F: Budget Projections
- 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. M: Col. J + Col. K

**2019 System Benefits Charge ("SBC") Calculation  
 Energy Efficiency Expense & SBC Revenue Reconciliation  
 January 1, 2019 to December 31, 2019  
 (\$ in 000's)**

Line	Description	Carryover 12/31/17	Forecast Jan 2019	Forecast Feb 2019	Forecast Mar 2019	Forecast Apr 2019	Forecast May 2019	Forecast June 2019	Forecast Jul 2019	Forecast Aug 2019	Forecast Sep 2019	Forecast Oct 2019	Forecast Nov 2019	Forecast Dec 2019	2019 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	56,949	303	289	239	235	179	202	226	224	265	201	213	251	2,826
2	RGGI Revenues		17	17	17	17	17	17	17	17	17	17	17	17	201
3	FCM Revenues		6	6	6	6	6	6	6	6	6	6	6	6	75
5	<b>Total Revenues</b>		<b>326</b>	<b>312</b>	<b>263</b>	<b>258</b>	<b>202</b>	<b>225</b>	<b>249</b>	<b>247</b>	<b>288</b>	<b>224</b>	<b>236</b>	<b>274</b>	<b>3,102</b>
6	Program Expenses		263	263	263	263	263	263	263	263	263	263	263	263	3,159
7	<b>Total Program Expenses</b>		<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>263</b>	<b>3,159</b>
8	Current Month Over/(Under) Recovery		62	49	(1)	(5)	(61)	(38)	(14)	(17)	25	(39)	(28)	11	
9	Cummulative Over/(Under) Recovery	57	119	168	167	162	101	63	48	32	56	17	(11)	0	
12	Interest @ Prime Rate			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
13	<b>Interest</b>		-	-	-	-	-	-	-	-	-	-	-	-	-
14	<b>Monthly Sales (MWh)</b>		81,153	77,433	64,207	63,119	47,981	54,134	60,534	59,957	71,013	53,897	56,974	67,272	757,676
15	<b>EE SBC Rate</b>		0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373	

Line 1: (Line 14 x Line 15) / 100  
 Line 2: Page 1, Col. C  
 Line 3: Page 1, Col. D  
 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 9  
 Line 12: Prime Rate / 12  
 Line 13: (Prior Month Line 9 + Current Month Line 9) / 2 x Line 12  
 Line 14: Company Forecast  
 Line 15: Page 1, Col. J

**2019 System Benefits Charge ("SBC") Calculation**

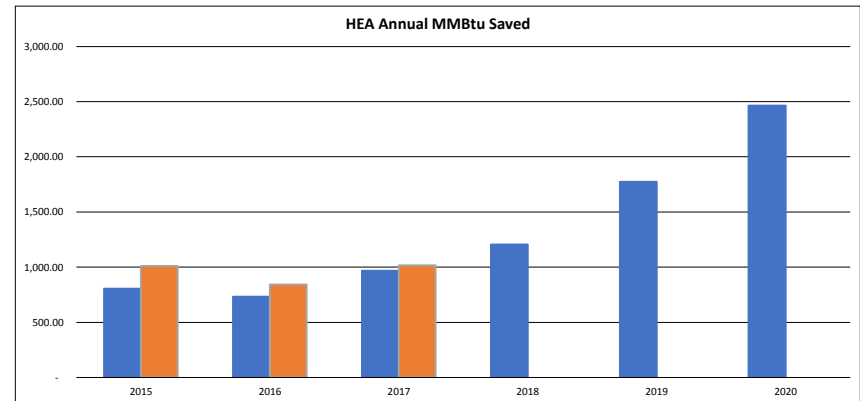
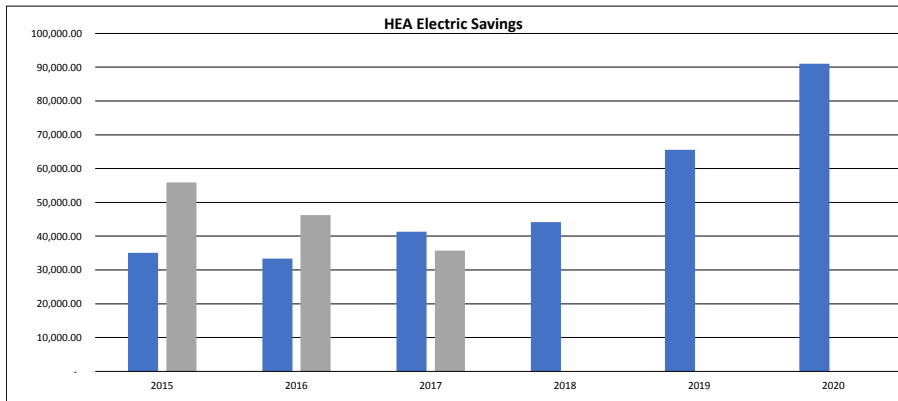
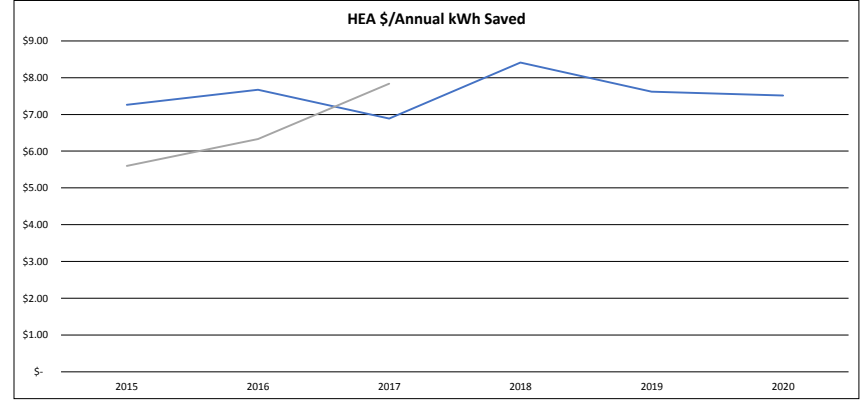
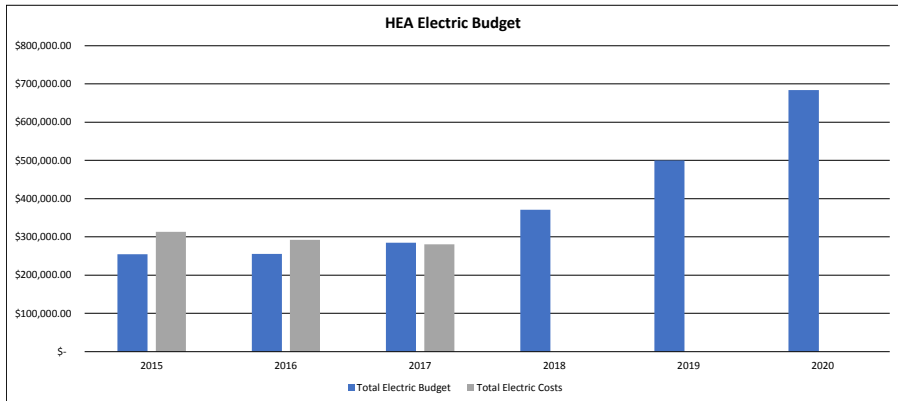
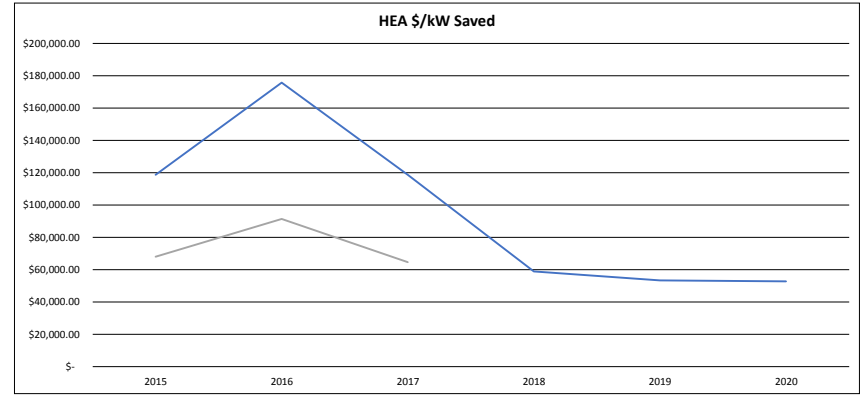
	<u>1/1/2018</u>	<u>2019</u>
System Benefits Charge (\$/kWh)	\$ 0.00425	\$ 0.00523
<u>Bill per month, including NHEC default energy service</u>		
Residential Rate Basic (625 kWh/month)	\$ 200.29	\$ 200.90
Commercial B3, three-phase service ( <50 kW, 10,000 kWh/month)	\$ 1,825.60	\$ 1,835.40
<u>Change from previous rate level - \$ per month</u>		
Residential Rate R (625 kWh/month)		\$ 0.61
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		\$ 9.80
<u>Change from previous rate level - %</u>		
Residential Rate R (625 kWh/month)		0.3%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		0.5%

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 254,857.00	\$ 255,703.00	\$ 284,308.00	\$ 371,084.55	\$ 499,415.73	\$ 683,916.26
	Annual Electric Savings Plan (kWh)	35,100.20	33,320.82	41,277.05	44,118.52	65,569.58	91,013.19
	\$/Annual kWh Plan	\$ 7.26	\$ 7.67	\$ 6.89	\$ 8.41	\$ 7.62	\$ 7.51
2)	Total Electric Budget	\$ 254,857.00	\$ 255,703.00	\$ 284,308.00	\$ 371,084.55	\$ 499,415.73	\$ 683,916.26
	Total Summer Peak kW Plan	2.15	1.45	2.39	6.28	9.34	12.96
	\$/kW Plan	\$ 118,803.99	\$ 175,764.94	\$ 118,738.52	\$ 59,056.07	\$ 53,477.66	\$ 52,760.78
3)	Total Annual MMBtu Plan	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 5,960,136.00	\$ 7,927,639.00
	\$/Annual MMBtu Plan	803.73	732.78	965.66	1,204.43	1,773.71	2,462.74
	\$/Annual MMBtu Plan	\$ 3,311.38	\$ 3,754.56	\$ 3,573.08	\$ 3,828.60	\$ 3,360.27	\$ 3,219.04

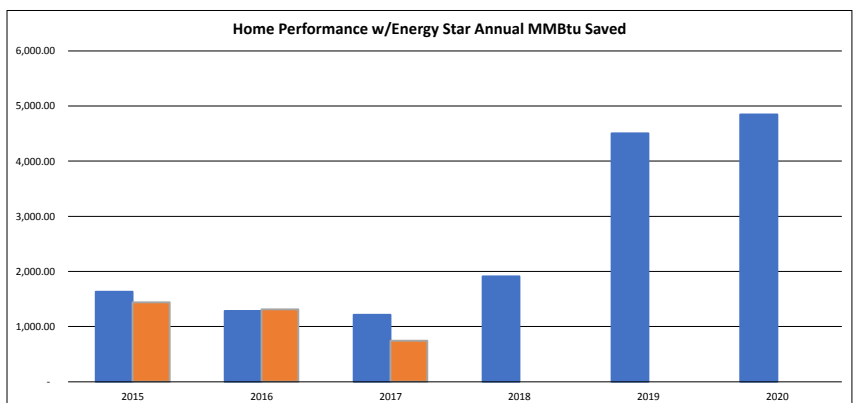
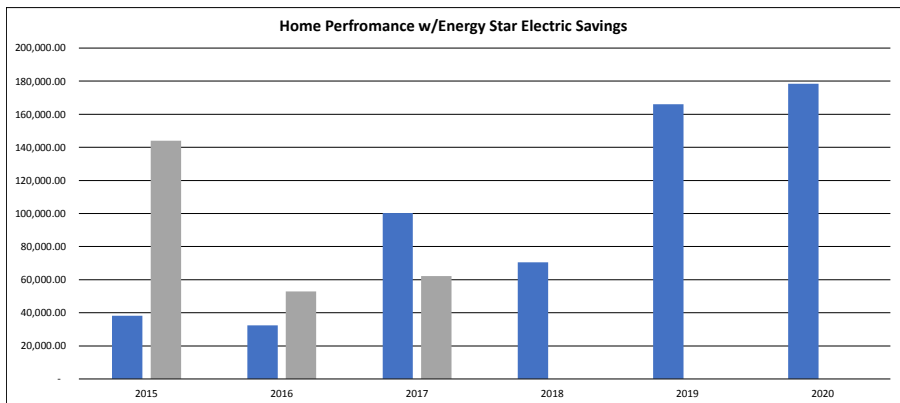
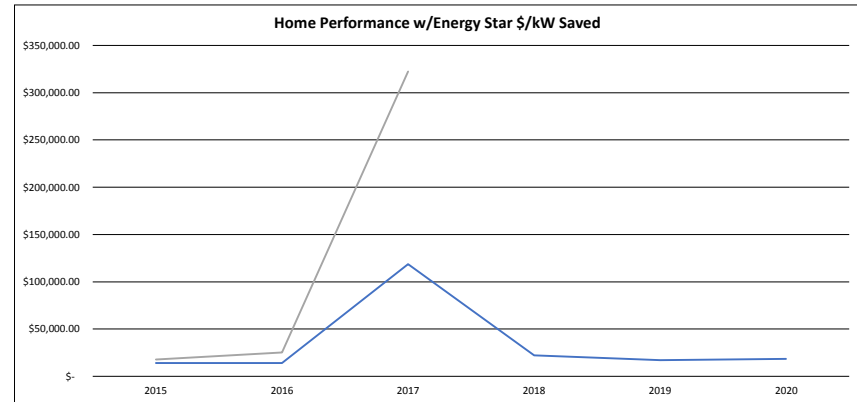
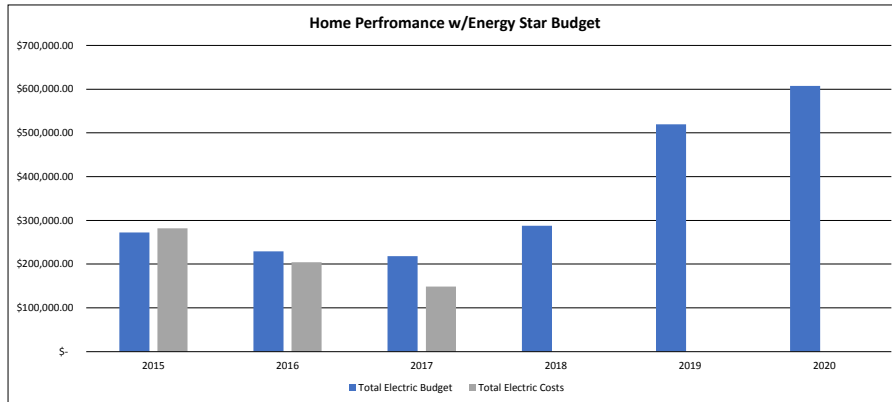
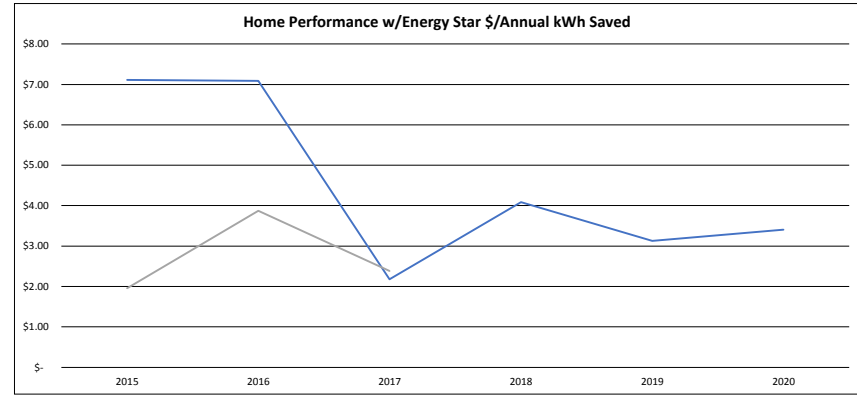
  

Actuals		2015	2016	2017
1)	Total Electric Costs	\$ 313,005.00	\$ 292,376.00	\$ 280,148.40
	Annual Electric Savings Actual (kWh)	55,900.00	46,200.00	35,764.57
	\$/Annual kWh Actual	\$ 5.60	\$ 6.33	\$ 7.83
2)	Total Electric Costs	\$ 313,005.00	\$ 292,376.00	\$ 280,148.40
	Total Summer Peak kW Actual	4.60	3.20	4.33
	\$/kW Actual	\$ 68,044.57	\$ 91,367.50	\$ 64,654.44
3)	Total Annual MMBtu Actual	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,630,800.37
	\$/Annual MMBtu Actual	1,010.08	842.90	1,015.69
	\$/Annual MMBtu Actual	\$ 2,576.65	\$ 3,121.13	\$ 2,590.16



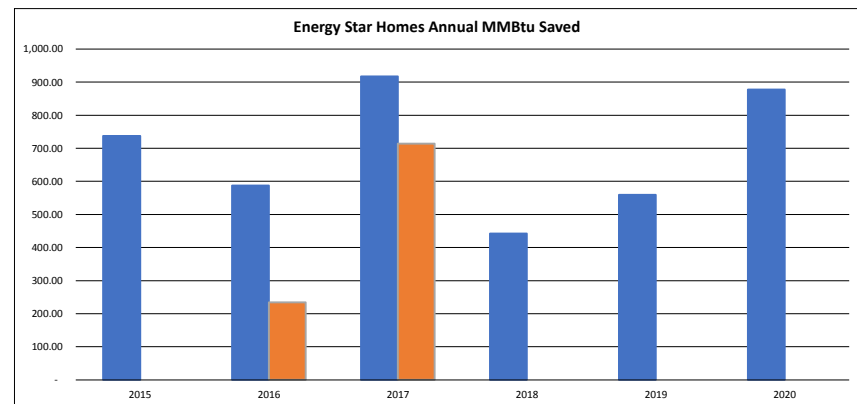
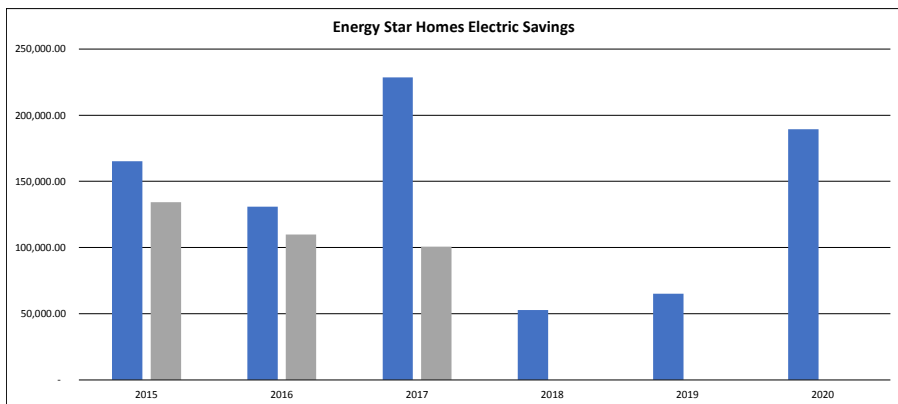
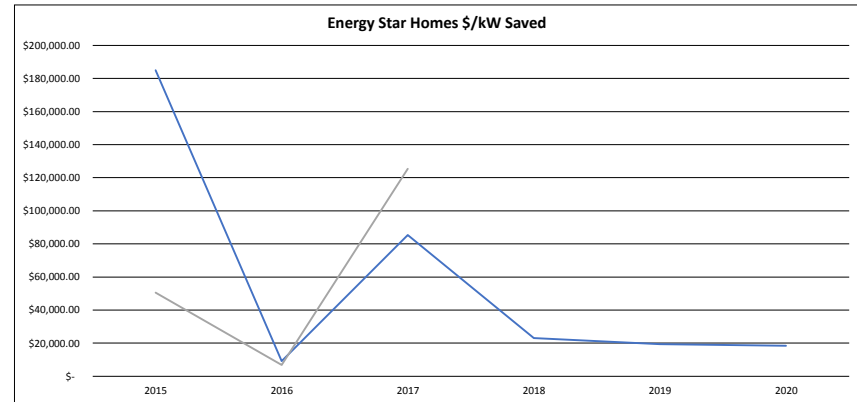
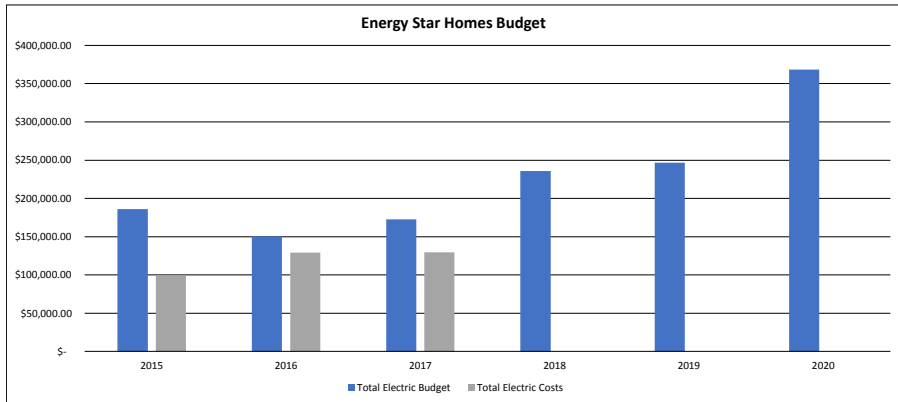
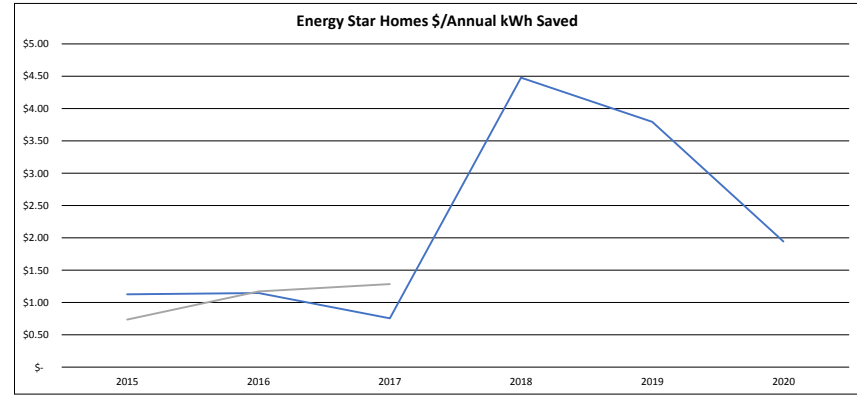
Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 272,233.00	\$ 229,205.00	\$ 218,456.00	\$ 287,669.67	\$ 519,510.90	\$ 607,369.67
	Annual Electric Savings Plan (kWh)	38,271.72	32,355.03	100,197.78	70,460.53	166,032.86	178,487.22
	\$/Annual kWh Plan	\$ 7.11	\$ 7.08	\$ 2.18	\$ 4.08	\$ 3.13	\$ 3.40
2)	Total Electric Budget	\$ 272,233.00	\$ 229,205.00	\$ 218,456.00	\$ 287,669.67	\$ 519,510.90	\$ 607,369.67
	Total Summer Peak kW Plan	19.43	16.31	1.84	12.99	30.65	32.91
	\$/kW Plan	\$ 14,008.04	\$ 14,051.07	\$ 118,668.66	\$ 22,145.49	\$ 16,952.03	\$ 18,457.94
3)	Total Annual MMBtu Plan	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,935,216.60	\$ 5,890,311.74
	\$/Annual MMBtu Plan	\$ 1,633.55	\$ 1,281.68	\$ 1,214.38	\$ 1,912.43	\$ 4,506.44	\$ 4,844.48
	\$/Annual MMBtu Plan	\$ 1,348.76	\$ 1,451.53	\$ 1,779.58	\$ 1,263.18	\$ 873.24	\$ 1,215.88
Actuals		2015	2016	2017			
1)	Total Electric Costs	\$ 281,645.00	\$ 204,480.00	\$ 148,636.84			
	Annual Electric Savings Actual (kWh)	144,000.00	52,805.00	62,273.93			
	\$/Annual kWh Actual	\$ 1.96	\$ 3.87	\$ 2.39			
2)	Total Electric Costs	\$ 281,645.00	\$ 204,480.00	\$ 148,636.84			
	Total Summer Peak kW Actual	15.90	8.10	0.46			
	\$/kW Actual	\$ 17,713.52	\$ 25,244.44	\$ 322,270.51			
3)	Total Annual MMBtu Actual	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,599,052.72			
	\$/Annual MMBtu Actual	\$ 1,437.92	\$ 1,310.31	\$ 741.02			
	\$/Annual MMBtu Actual	\$ 1,633.77	\$ 1,220.36	\$ 2,157.91			



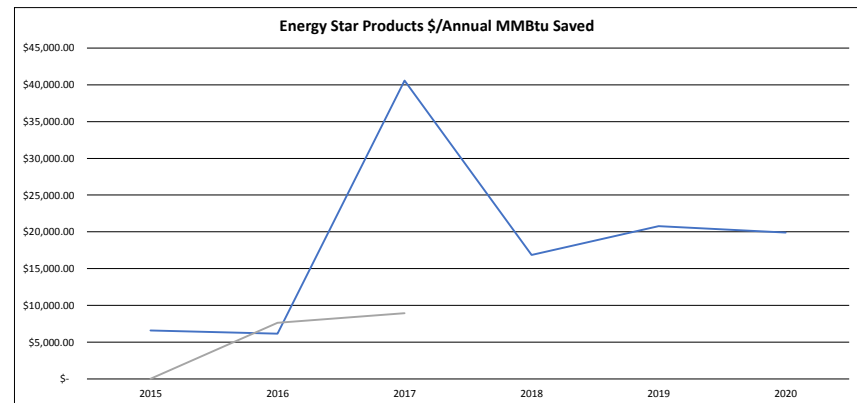
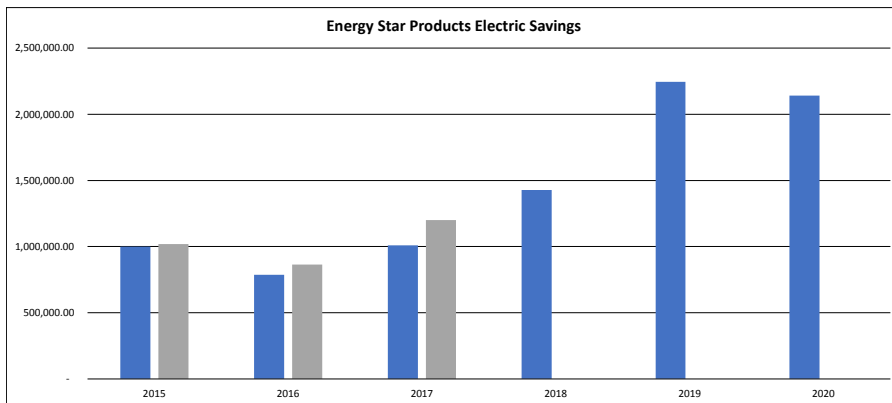
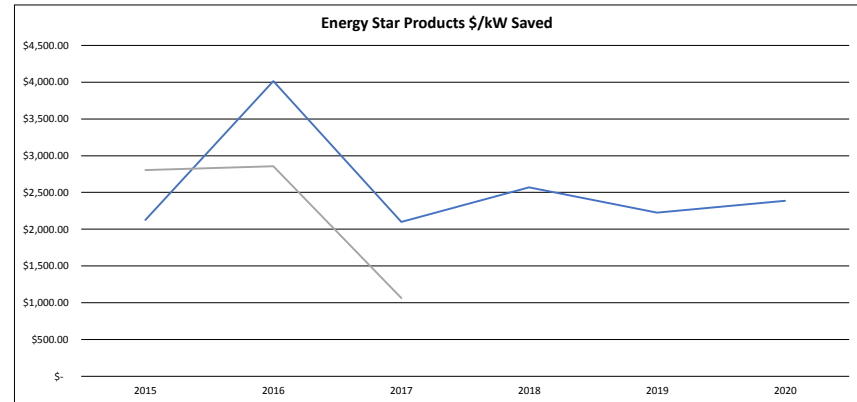
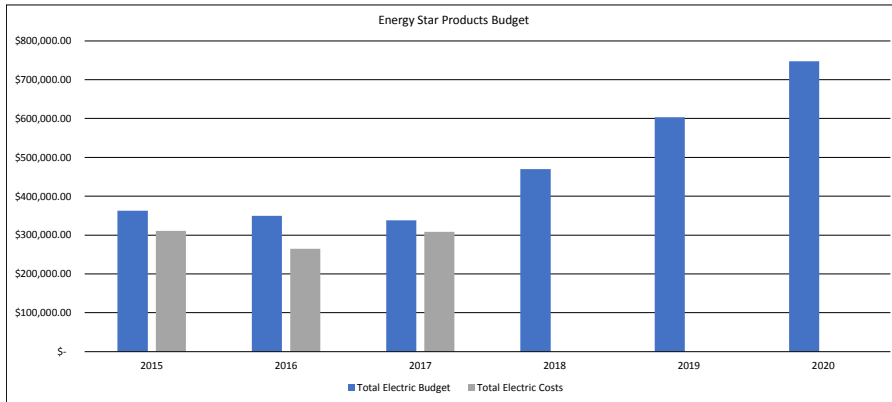
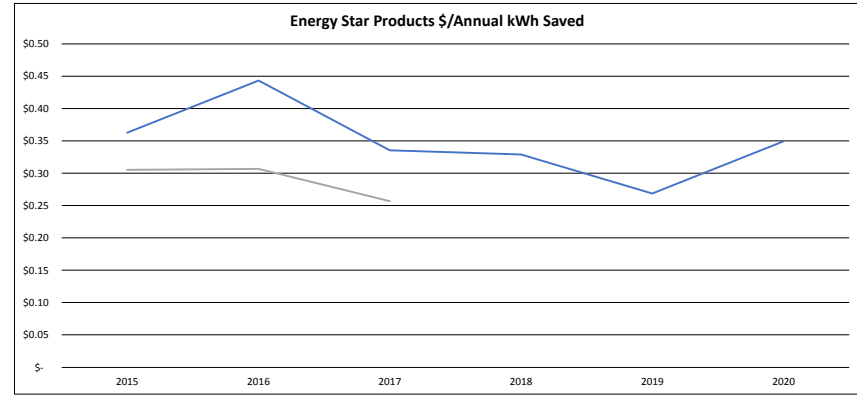
Energy Star Homes

<b>Planned</b>		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 186,042.00	\$ 150,426.00	\$ 172,764.00	\$ 235,909.21	\$ 246,674.96	\$ 368,142.19
	Annual Electric Savings Plan (kWh)	165,241.44	130,931.27	228,636.03	52,681.05	65,009.21	189,324.56
	\$/Annual kWh Plan	\$ 1.13	\$ 1.15	\$ 0.76	\$ 4.48	\$ 3.79	\$ 1.94
2)	Total Electric Budget	\$ 186,042.00	\$ 150,426.00	\$ 172,764.00	\$ 235,909.21	\$ 246,674.96	\$ 368,142.19
	Total Summer Peak kW Plan	1.01	16.55	2.03	10.22	12.76	20.00
	\$/kW Plan	\$ 185,056.05	\$ 9,089.54	\$ 85,266.64	\$ 23,075.53	\$ 19,333.56	\$ 18,402.81
3)	Total Annual MMBtu Plan	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,105,505.53	\$ 2,889,907.63
	\$/Annual MMBtu Plan	737.56	587.75	916.77	442.43	559.33	877.30
	\$/Annual MMBtu Plan	\$ 1,364.79	\$ 1,628.70	\$ 1,251.37	\$ 3,623.67	\$ 3,764.35	\$ 3,294.09
<b>Actuals</b>		2015	2016	2017			
1)	Total Electric Costs	\$ 99,069.00	\$ 129,039.00	\$ 129,650.82			
	Annual Electric Savings Actual (kWh)	134,300.00	109,900.00	100,710.35			
	\$/Annual kWh Actual	\$ 0.74	\$ 1.17	\$ 1.29			
2)	Total Electric Costs	\$ 99,069.00	\$ 129,039.00	\$ 129,650.82			
	Total Summer Peak kW Actual	1.96	18.80	1.03			
	\$/kW Actual	\$ 50,501.18	\$ 6,863.78	\$ 125,444.95			
3)	Total Annual MMBtu Actual	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,309,689.49			
	\$/Annual MMBtu Actual	234.69	713.60	966.41			
	\$/Annual MMBtu Actual	\$ 4,263.80	\$ 1,835.33	\$ 1,355.22			



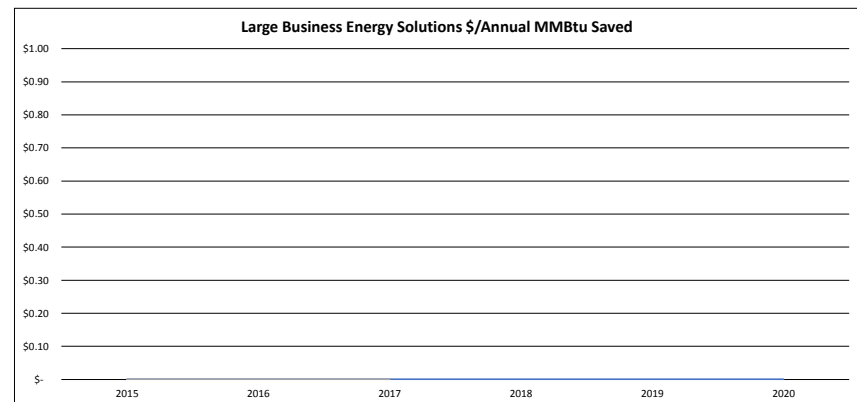
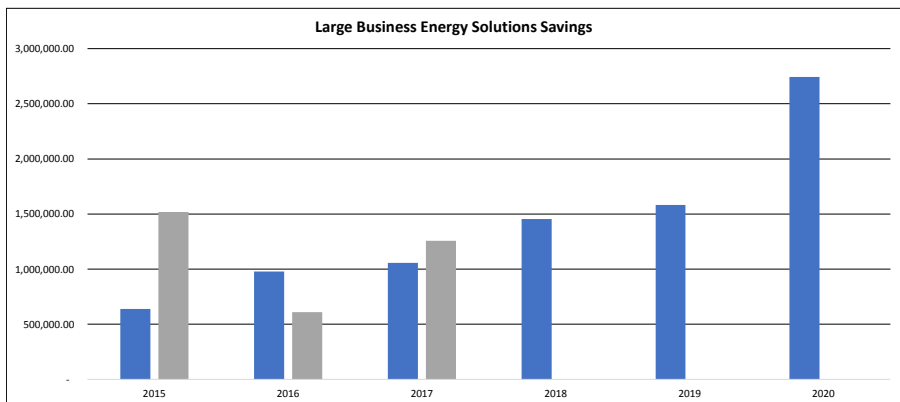
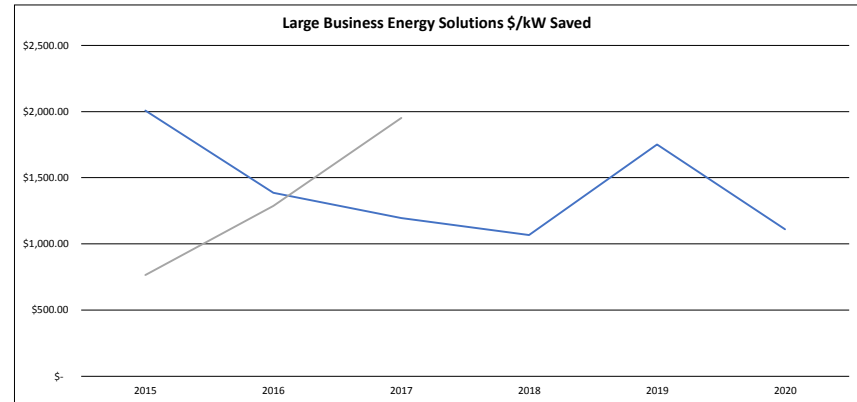
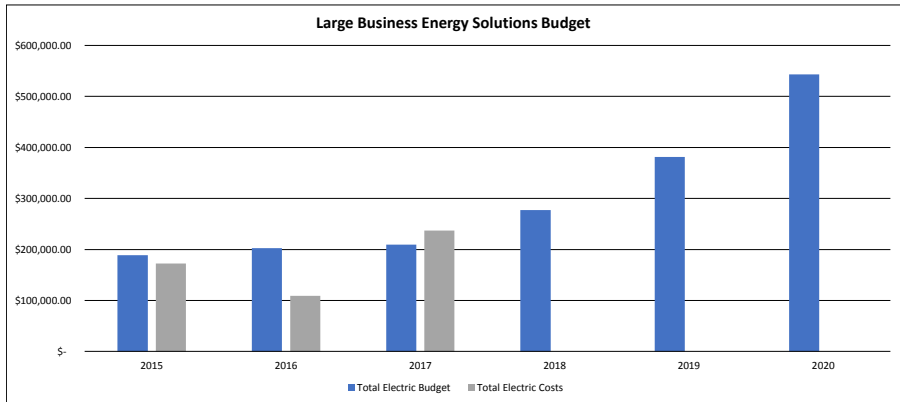
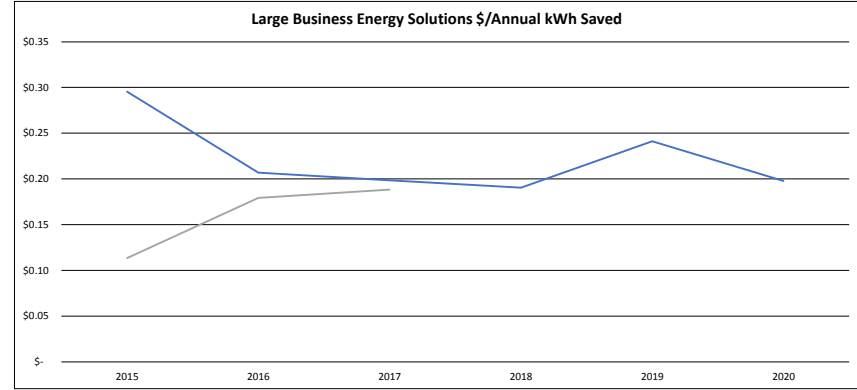
Energy Star Products

<b>Planned</b>		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 362,250.00	\$ 349,270.00	\$ 338,248.00	\$ 469,558.56	\$ 602,894.51	\$ 747,640.19
	Annual Electric Savings Plan (kWh)	999,269.23	787,893.83	1,008,685.09	1,426,971.51	2,244,494.09	2,139,876.53
	\$/Annual kWh Plan	\$ 0.36	\$ 0.44	\$ 0.34	\$ 0.33	\$ 0.27	\$ 0.35
2)	Total Electric Budget	\$ 362,250.00	\$ 349,270.00	\$ 338,248.00	\$ 469,558.56	\$ 602,894.51	\$ 747,640.19
	Total Summer Peak kW Plan	170.49	86.98	161.13	182.83	270.89	313.14
	\$/kW Plan	\$ 2,124.74	\$ 4,015.30	\$ 2,099.27	\$ 2,568.30	\$ 2,225.57	\$ 2,387.56
3)	Total Annual MMBtu Plan	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,383,946.99	\$ 3,767,565.68
	\$/Annual MMBtu Plan	364.14	300.17	50.35	191.64	162.77	189.11
	\$/Annual MMBtu Plan	\$ 6,583.89	\$ 6,173.33	\$ 40,597.68	\$ 16,881.23	\$ 20,789.55	\$ 19,922.27
<b>Actuals</b>		2015	2016	2017			
1)	Total Electric Costs	\$ 310,934.00	\$ 264,733.00	\$ 308,155.35			
	Annual Electric Savings Actual (kWh)	1,018,400.00	863,500.00	1,199,911.22			
	\$/Annual kWh Actual	\$ 0.31	\$ 0.31	\$ 0.26			
2)	Total Electric Costs	\$ 310,934.00	\$ 264,733.00	\$ 308,155.35			
	Total Summer Peak kW Actual	110.80	92.60	289.14			
	\$/kW Actual	\$ 2,806.26	\$ 2,858.89	\$ 1,065.76			
3)	Total Annual MMBtu Actual	\$ 2,159,065.92	\$ 1,799,457.82	\$ 1,799,457.82			
	\$/Annual MMBtu Actual	283.50	201.40	51.06			
	\$/Annual MMBtu Actual	\$ 7,615.75	\$ 8,934.75	\$ 35,244.10			



Large Business Energy Solutions

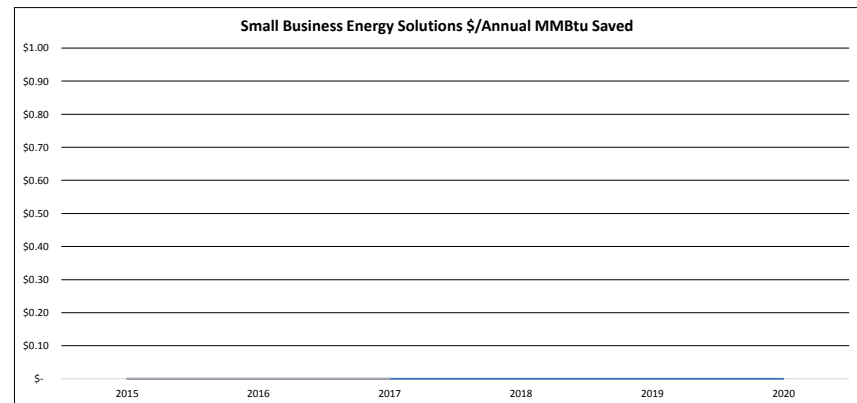
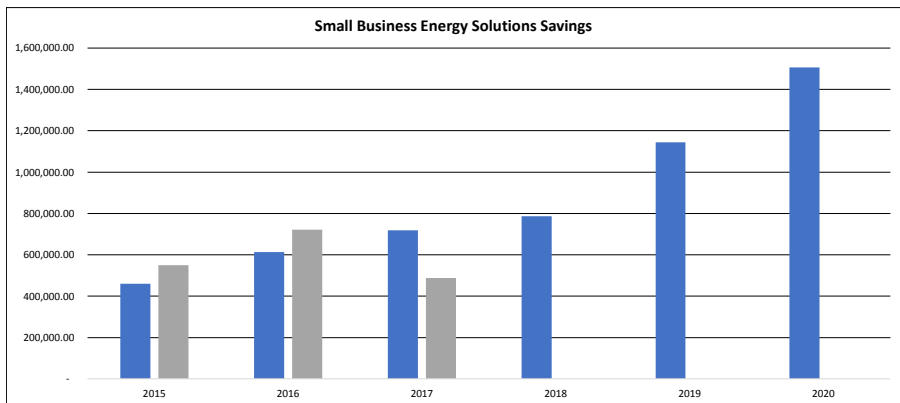
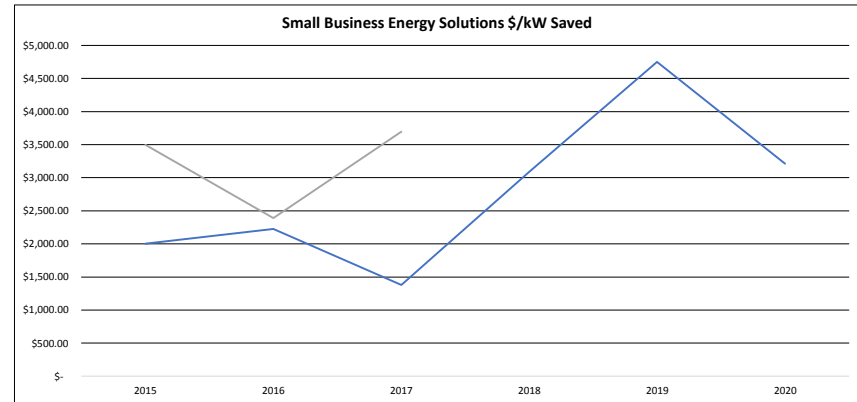
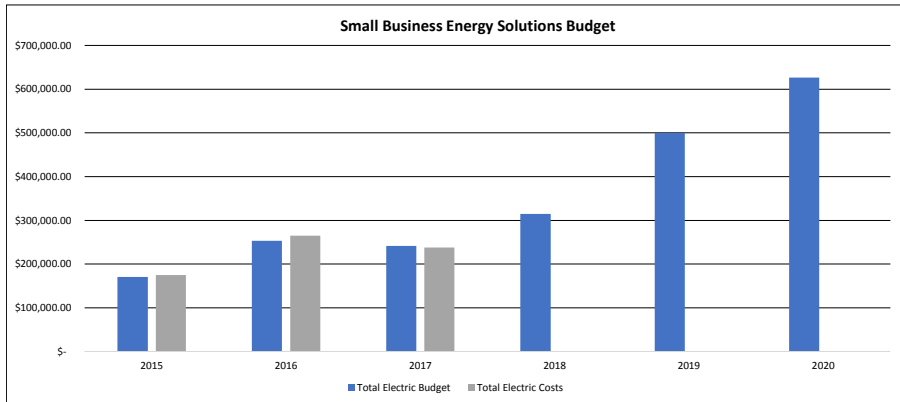
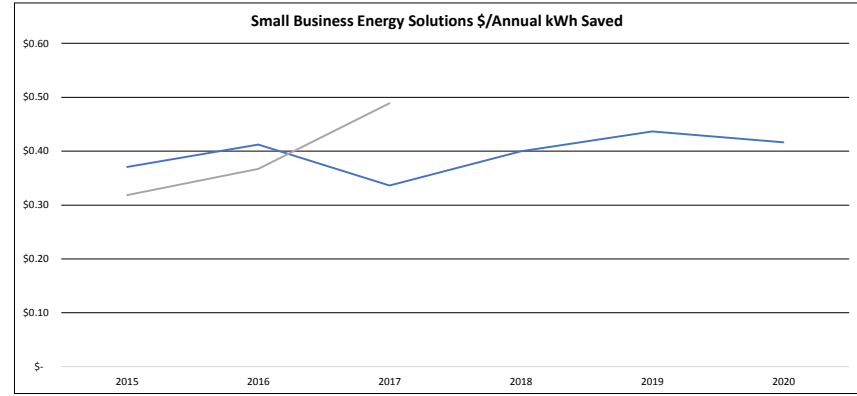
<b>Planned</b>		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 188,981.00	\$ 202,403.00	\$ 209,679.00	\$ 277,067.46	\$ 381,523.59	\$ 543,330.70
	Annual Electric Savings Plan (kWh)	639,637.22	978,279.40	1,056,642.38	1,456,171.75	1,581,541.99	2,744,681.41
	\$/Annual kWh Plan	\$ 0.30	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.24	\$ 0.20
2)	Total Electric Budget	\$ 188,981.00	\$ 202,403.00	\$ 209,679.00	\$ 277,067.46	\$ 381,523.59	\$ 543,330.70
	Total Summer Peak kW Plan	94.11	146.13	175.61	259.47	218.04	489.07
	\$/kW Plan	\$ 2,008.02	\$ 1,385.12	\$ 1,194.04	\$ 1,067.80	\$ 1,749.79	\$ 1,110.94
3)	Total Annual MMBtu Plan	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,477,437.58	\$ 12,710,056.63
	\$/Annual MMBtu Plan	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
<b>Actuals</b>		2015	2016	2017			
1)	Total Electric Costs	\$ 172,179.00	\$ 109,309.00	\$ 236,808.93			
	Annual Electric Savings Actual (kWh)	1,519,000.00	609,900.00	1,258,258.52			
	\$/Annual kWh Actual	\$ 0.11	\$ 0.18	\$ 0.19			
2)	Total Electric Costs	\$ 172,179.00	\$ 109,309.00	\$ 236,808.93			
	Total Summer Peak kW Actual	225.50	84.90	121.28			
	\$/kW Actual	\$ 763.54	\$ 1,287.50	\$ 1,952.66			
3)	Total Annual MMBtu Actual	\$ 4,674,280.43	\$ 4,476,682.34	\$ 4,476,682.34			
	\$/Annual MMBtu Actual	#DIV/0!	#DIV/0!	#DIV/0!			





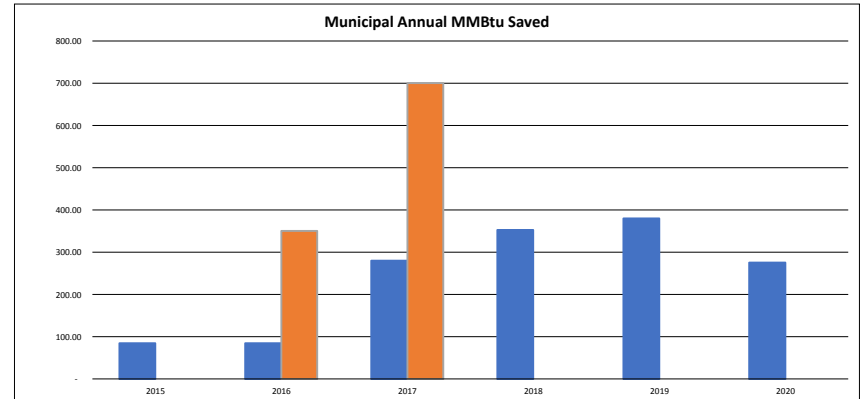
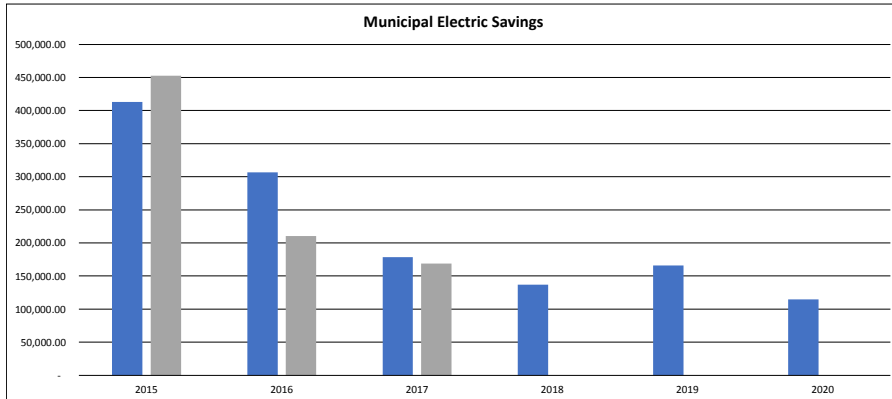
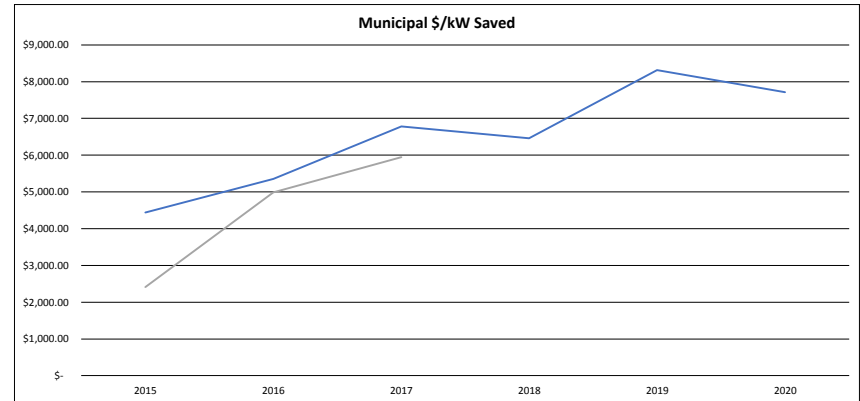
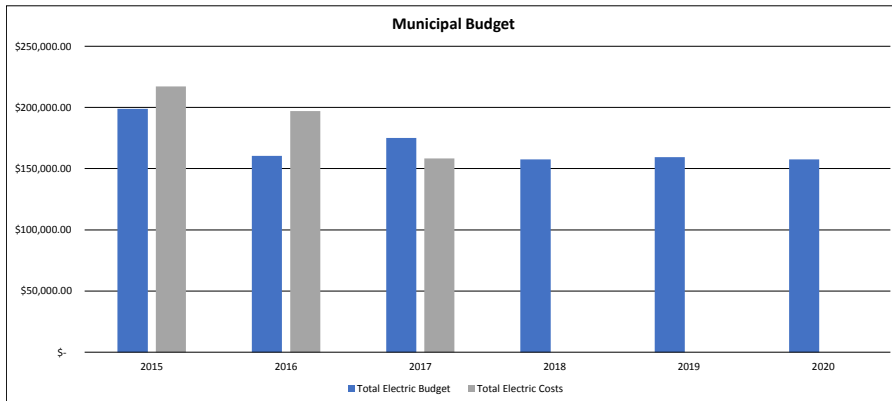
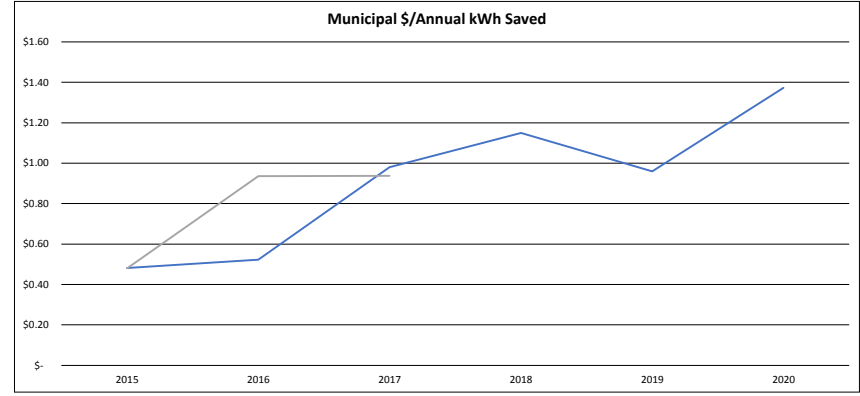
Small Business Energy Solutions

<b>Planned</b>		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 170,507.00	\$ 253,038.00	\$ 241,342.00	\$ 314,465.22	\$ 499,966.58	\$ 626,671.90
	Annual Electric Savings Plan (kWh)	459,727.00	614,054.23	718,002.42	786,162.50	1,144,703.92	1,505,843.91
	\$/Annual kWh Plan	\$ 0.37	\$ 0.41	\$ 0.34	\$ 0.40	\$ 0.44	\$ 0.42
2)	Total Electric Budget	\$ 170,507.00	\$ 253,038.00	\$ 241,342.00	\$ 314,465.22	\$ 499,966.58	\$ 626,671.90
	Total Summer Peak kW Plan	85.06	113.62	175.08	101.83	105.30	195.04
	\$/kW Plan	\$ 2,004.49	\$ 2,227.11	\$ 1,378.49	\$ 3,088.21	\$ 4,748.00	\$ 3,212.97
3)	Total Annual MMBtu Plan	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,422,730.78	\$ 7,269,237.07
	\$/Annual MMBtu Plan	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
<b>Actuals</b>		2015	2016	2017			
1)	Total Electric Costs	\$ 175,186.00	\$ 265,112.00	\$ 238,151.99			
	Annual Electric Savings Actual (kWh)	550,600.00	721,700.00	487,246.98			
	\$/Annual kWh Actual	\$ 0.32	\$ 0.37	\$ 0.49			
2)	Total Electric Costs	\$ 175,186.00	\$ 265,112.00	\$ 238,151.99			
	Total Summer Peak kW Actual	50.10	111.00	64.46			
	\$/kW Actual	\$ 3,496.73	\$ 2,388.40	\$ 3,694.33			
3)	Total Annual MMBtu Actual	\$ 3,059,995.12	\$ 2,401,441.56	\$ 2,401,441.56			
	\$/Annual MMBtu Actual	#DIV/0!	#DIV/0!	#DIV/0!			



Municipal

<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
1)	Total Electric Budget	\$ 198,828.00	\$ 160,393.00	\$ 174,968.00	\$ 157,518.81	\$ 159,402.78	\$ 157,519.01
	Annual Electric Savings Plan (kWh)	413,076.33	306,456.75	178,641.98	137,004.63	166,023.21	114,757.64
	\$/Annual kWh Plan	\$ 0.48	\$ 0.52	\$ 0.98	\$ 1.15	\$ 0.96	\$ 1.37
2)	Total Electric Budget	\$ 198,828.00	\$ 160,393.00	\$ 174,968.00	\$ 157,518.81	\$ 159,402.78	\$ 157,519.01
	Total Summer Peak kW Plan	44.77	29.96	25.80	24.38	19.17	20.42
	\$/kW Plan	\$ 4,441.47	\$ 5,353.27	\$ 6,781.68	\$ 6,461.52	\$ 8,315.74	\$ 7,714.16
3)	Total Annual MMBtu Plan	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,456,555.00	\$ 1,456,555.00
	\$/Annual MMBtu Plan	84.60	84.60	280.03	353.15	379.89	275.67
		\$ 21,245.78	\$ 17,180.41	\$ 5,186.67	\$ 4,124.50	\$ 3,834.17	\$ 5,283.65
<b>Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>			
1)	Total Electric Costs	\$ 217,200.00	\$ 197,081.00	\$ 158,370.45			
	Annual Electric Savings Actual (kWh)	452,700.00	210,600.00	168,841.99			
	\$/Annual kWh Actual	\$ 0.48	\$ 0.94	\$ 0.94			
2)	Total Electric Costs	\$ 217,200.00	\$ 197,081.00	\$ 158,370.45			
	Total Summer Peak kW Actual	90.20	39.50	26.63			
	\$/kW Actual	\$ 2,407.98	\$ 4,989.39	\$ 5,946.23			
3)	Total Annual MMBtu Actual	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,447,065.12			
	\$/Annual MMBtu Actual	350.53	700.35	830.79			
		\$ 5,129.76	\$ 2,066.20	\$ 1,741.78			



Program Cost-Effectiveness - 2019 PLAN

	Total Resource Benefit / Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
<b>Residential Programs</b>											
Home Energy Assistance	1.86	1,824.5	980.094	-	85.9	1,148.6	10.7	12.6	115	3,103	62,053
Energy Star Homes	1.81	441.2	205.783	38.110	65.1	1,216.2	6.9	15.1	29	436	10,856
Home Performance with Energy Star	1.76	1,832.2	704.300	334.443	89.0	1,503.7	11.6	17.6	113	3,291	66,075
Energy Star Products	2.04	1,443.0	617.955	88.518	1,840.7	12,023.8	503.0	230.9	28,092	485	7,122
Home Energy Reports	1.12	207.0	184.985	-	917.0	2,423.6	90.0	60.7	25,800	-	-
ISO-NE Forward Capacity Market Expenses		-	13.500	-	-	-	-	-	-	-	-
<b>Sub-Total Residential</b>	<b>1.81</b>	<b>5,747.9</b>	<b>2,706.617</b>	<b>461.070</b>	<b>2,997.6</b>	<b>18,315.9</b>	<b>622.3</b>	<b>336.9</b>	<b>54,149</b>	<b>7,315</b>	<b>146,106</b>
<b>Commercial, Industrial &amp; Municipal</b>											
Large Business Energy Solutions	1.87	5,186.9	1,353.124	1,419.776	4,148.2	56,285.9	496.4	532.6	59	-	-
Small Business Energy Solutions	1.67	2,699.0	1,008.203	605.344	2,535.5	32,911.0	143.6	224.4	56	-	-
Municipal Energy Solutions	1.14	393.5	220.642	123.771	411.5	5,481.1	9.4	9.9	26	90	1,800
Education		-	70.209	-	-	-	-	-	-	-	-
ISO Forward Capacity Market Expenses		-	19.990	-	-	-	-	-	-	-	-
<b>Sub-Total Commercial &amp; Industrial</b>	<b>1.72</b>	<b>8,279.5</b>	<b>2,672.168</b>	<b>2,148.891</b>	<b>7,095.3</b>	<b>94,678.0</b>	<b>649.3</b>	<b>767.0</b>	<b>141</b>	<b>90</b>	<b>1,800</b>
<b>Total</b>	<b>1.76</b>	<b>14,027.4</b>	<b>5,378.785</b>	<b>2,609.962</b>	<b>10,092.9</b>	<b>112,993.9</b>	<b>1,271.6</b>	<b>1,103.9</b>	<b>54,290</b>	<b>7,405</b>	<b>147,906</b>

Note: a 10% NEI adder (20% for Home Energy Assistance) is applied to total benefits excluding water.

Annual kWh Savings	10,092,917	82.3%	kWh > 55%	Lifetime kWh Savings	112,993,926	72.2%	kWh > 55%
Annual MMBTU Savings (in kWh)	<u>2,177,884</u>	<u>17.7%</u>		Lifetime MMBTU Savings (in kWh)	<u>43,501,780</u>	<u>27.8%</u>	
	<b>12,270,801</b>	<b>100.0%</b>			<b>156,495,706</b>	<b>100.0%</b>	

Present Value Benefits - 2019 PLAN

	Total Benefits (\$000)	CAPACITY				ENERGY						Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Fossil Emissions	Water Benefit	Other Non-Resource Benefit
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit							
<b>Residential Programs</b>																		
Home Energy Assistance	\$ 1,824.5	\$ 12.9	\$ -	\$ 15.7	\$ 13.9	\$ 20.3	\$ 22.4	\$ 7.7	\$ 8.3	\$ 5.3	\$ 106.4	\$ -	\$ -	\$ -	\$ 1,354.0	\$ 72.0	\$ -	\$ 292.1
Energy Star Homes	\$ 441.2	\$ 17.6	\$ -	\$ 20.8	\$ 18.4	\$ 18.6	\$ 24.3	\$ 7.5	\$ 9.5	\$ 6.3	\$ 123.0	\$ 0.1	\$ 0.0	\$ 0.1	\$ 263.3	\$ 12.8	\$ 3.3	\$ 38.6
Home Performance with Energy Star	\$ 1,832.2	\$ 20.5	\$ -	\$ 24.1	\$ 21.3	\$ 23.6	\$ 28.5	\$ 10.7	\$ 11.7	\$ 7.2	\$ 147.5	\$ -	\$ -	\$ -	\$ 1,448.2	\$ 76.9	\$ -	\$ 159.6
Energy Star Products	\$ 1,443.0	\$ 79.0	\$ -	\$ 138.5	\$ 122.7	\$ 290.0	\$ 184.1	\$ 124.6	\$ 75.5	\$ 56.0	\$ 1,070.3	\$ 14.0	\$ 0.5	\$ 14.5	\$ 103.9	\$ 7.3	\$ 128.2	\$ 118.9
Home Energy Reports	\$ 207.0	\$ 6.9	\$ -	\$ 14.5	\$ 12.8	\$ 52.6	\$ 53.2	\$ 19.4	\$ 19.7	\$ 9.1	\$ 188.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18.8
<b>Sub-Total Residential</b>	<b>\$ 5,747.9</b>	<b>\$ 136.9</b>	<b>\$ -</b>	<b>\$ 213.5</b>	<b>\$ 189.0</b>	<b>\$ 405.2</b>	<b>\$ 312.5</b>	<b>\$ 169.8</b>	<b>\$ 124.7</b>	<b>\$ 83.9</b>	<b>\$ 1,635.5</b>	<b>\$ 14.1</b>	<b>\$ 0.5</b>	<b>\$ 14.6</b>	<b>\$ 3,169.4</b>	<b>\$ 169.0</b>	<b>\$ 131.5</b>	<b>\$ 628.0</b>
<b>Commercial/Industrial Programs</b>																		
Large Business Energy Solutions	\$ 5,186.9	\$ 425.5	\$ -	\$ 566.6	\$ 501.7	\$ 1,182.7	\$ 969.4	\$ 462.3	\$ 352.2	\$ 254.9	\$ 4,715.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 471.5
Small Business Energy Solutions	\$ 2,699.0	\$ 168.0	\$ -	\$ 228.9	\$ 202.7	\$ 655.3	\$ 557.5	\$ 282.6	\$ 238.3	\$ 120.4	\$ 2,453.7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 245.4
Municipal Energy Solutions	\$ 393.5	\$ 7.4	\$ -	\$ 10.1	\$ 9.0	\$ 106.8	\$ 119.3	\$ 29.8	\$ 35.3	\$ 10.6	\$ 328.3	\$ -	\$ -	\$ -	\$ 27.4	\$ 2.3	\$ -	\$ 35.6
<b>Sub-Total Commercial &amp; Industrial</b>	<b>\$ 8,279.5</b>	<b>\$ 600.9</b>	<b>\$ -</b>	<b>\$ 805.6</b>	<b>\$ 713.4</b>	<b>\$ 1,944.9</b>	<b>\$ 1,646.2</b>	<b>\$ 774.6</b>	<b>\$ 625.8</b>	<b>\$ 385.9</b>	<b>\$ 7,497.3</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 27.4</b>	<b>\$ 2.3</b>	<b>\$ -</b>	<b>\$ 752.5</b>
<b>Total</b>	<b>\$ 14,027.4</b>	<b>\$ 737.8</b>	<b>\$ -</b>	<b>\$ 1,019.1</b>	<b>\$ 902.4</b>	<b>\$ 2,350.0</b>	<b>\$ 1,958.7</b>	<b>\$ 944.4</b>	<b>\$ 750.6</b>	<b>\$ 469.8</b>	<b>\$ 9,132.8</b>	<b>\$ 14.1</b>	<b>\$ 0.5</b>	<b>\$ 14.6</b>	<b>\$ 3,196.8</b>	<b>\$ 171.2</b>	<b>\$ 131.5</b>	<b>\$ 1,380.5</b>

**Performance Incentive Calculation  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.67	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime kWh Savings	94,678,039	
4. Threshold Lifetime kWh Savings (65%) <sup>2</sup>	61,540,725	
5. Implementation Expenses	\$2,672,168	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>8. Commercial &amp; Industrial Performance Incentive</b>	\$146,969	
<b>9. Maximum Commercial &amp; Industrial Performance Incentive (6.875%)</b>	\$183,712	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	1.73	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime kWh Savings	18,315,887	
13. Threshold Lifetime kWh Savings (65%)	11,905,327	
14. Implementation Expenses	\$2,706,617	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime kWh Percentage of Implementation Expenses	2.75%	
<b>17. Residential Performance Incentive</b>	\$148,864	
<b>18. Maximum Residential Performance Incentive (6.875%)</b>	\$186,080	
<b>19. TOTAL PLANNED / EARNED INCENTIVE</b>	<b>\$295,833</b>	

**Notes**

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

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
1. Benefits (Value) From Eligible Programs	\$ 8,279,460	
2. Implementation Expenses	\$ 2,672,168	
3. Customer Contribution	\$ 2,148,891	
4. Performance Incentive	\$ 146,969	
5. Total Costs	\$ 4,968,029	
6. Benefit/Cost Ratio - Commercial & Industrial Sector	<b>1.67</b>	
<b>Residential</b>		
7. Benefits (Value) From Eligible Programs	\$ 5,747,921	
8. Implementation Expenses	\$ 2,706,617	
9. Customer Contribution	\$ 461,070	
10. Performance Incentive	\$ 148,864	
11. Total Costs	\$ 3,316,552	
12. Benefit/Cost Ratio - Residential Sector	<b>1.73</b>	

**Lifetime Energy Savings by Sector and Program  
 2019**

	<b>Lifetime kWh Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial</b>		
Large Business Energy Solutions	56,285,881	
Small Business Energy Solutions	32,911,026	
Municipal Energy Solutions	5,481,132	
<b>Total Commercial &amp; Industrial</b>	<b>94,678,039</b>	
<b>Residential</b>		
Home Energy Assistance	1,148,575	
Energy Star Homes	1,216,159	
Home Performance with Energy Star	1,503,708	
Energy Star Products	12,023,832	
Home Energy Reports	2,423,614	
<b>Total Residential</b>	<b>18,315,887</b>	

Unitil Energy Systems Inc Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017*	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Oil-Wxn: Air Sealing, Insulation, Water measures	9		45	-		200.0	20	20	87%	87%	-	-	156,420	28.0		28	100%	98%	5,040	-	24,721
Propane-Wxn: Air Sealing, Insulation, Water measures	35		60	-		200.0	20	20	87%	87%	-	-	208,560	28.0		25	100%	98%	19,600	-	29,430
Kerosene-Wxn: Air Sealing, Insulation, Water measures	21		8	-		200.0	20	20	87%	87%	-	-	27,808	22.0		20	100%	98%	9,240	-	3,139
Electric-Wxn: Air Sealing, Insulation, Water measures	6		2	2,000.0		10,000.0	20	20	92%	87%	219,840	-	347,600			-	100%	98%	-	-	-
Weatherization - All Fuels		37			235.0	-	21	20	87%	87%	-	208,044			22.89	-	100%	100%	-	18,792	-
All Fuels- Thermostat	10	7		171.1	13.6	-	12		99%	87%	20,224	1,123		0.0	1.97	-	100%	100%	-	165	-
LED bulb	426	188	920	37.0	37.0	35.0	8	5	89%	87%	112,093	49,468	139,909			-	100%	100%	-	-	-
Refrigerator	9	25	30	762.0	733.9	714.0	12	12	100%	87%	77,724	220,164	223,368			-	100%	100%	-	-	-
Direct Install Water Measures (if broken out from Wxn)	15	26		49.0	112.5	-	7		88%	87%	4,528	18,018			0.17	-	100%	100%	-	31	-
Oil Boiler Replacement, >=87% AFUE	2	4		-		142.0	20	25	87%	87%	-	-		15.0	28.21	16	100%	100%	600	2,257	-
Propane Boiler Replacement, >=95% AFUE			4			142.0	20	20	87%	87%	-	-	9,872			17	100%	100%	-	-	1,335
Oil Furnace Replacement, >=87% ECM	9	5	2	168.0	168.0	168.0	18	20	99%	87%	26,808	14,893	5,840	12.0	12.93	17	100%	100%	1,944	1,164	666
Propane Furnace Replacement, >=95% ECM			6	168.0	168.0	168.0	18	20	99%	87%	-	-	17,519			17	100%	100%	-	-	2,007
Kerosene Furnace Replacement, >=87% ECM	5		4	168.0	168.0	168.0	18	20	99%	87%	14,893	-	11,679	12.0		9	100%	100%	1,080	-	754
DHW Pipe Wrap - Electric		3			160.0		10		87%		-	4,195	-		8.83		100%	100%	-	265	-
Heating System Tune Up		1			-		1		100%		-	-	-		2.52		100%	100%	-	-	-
custom - exterior door		1			-		15		100%		-	-	-		2.29		100%	100%	-	-	-
<b>Program Summary*</b>											<b>476,110</b>	<b>515,905</b>	<b>1,148,575</b>						<b>37,504</b>	<b>22,674</b>	<b>62,053</b>



Unitil Energy Systems Inc Energy Star Homes

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	
SF-Propane Heated Home	11	2	24	1,276.2	1,403.0	800	25	25	100%	100%	31,905	70,150	480,000	46.6	119	18	100%	100%	12,825	5,950	10,800	
SF-Electric Heated Home			5			8,000	20	17	100%	100%	-	-	680,000			-	100%	100%	-	-	-	
Air Source Heating (including DHPs)	7	4		4,014.7	7,677.8	-	17		100%	100%	477,750	522,087				-	100%	100%	-	-	-	
Heat Pump Cooling (including DHPs)	7	4		126.1	(5.8)	-	17		100%	100%	15,000	(391)				-	100%	100%	-	-	-	
LED bulb	253	73	174	39.6	37.0	16	8	5	100%	100%	80,069	21,582	13,859				100%	100%	-	-	-	
Clothes Washer	5	2	15	123.9	123.9	162	11	14	100%	100%	6,815	2,726	33,936	0.5	0.5	0	100%	100%	25	10	56	
Refrigerator	5	31	17	39.6	39.6	41	12	12	100%	100%	2,378	14,742	8,364				100%	100%	-	-	-	
MF-Propane Heated Home	6			100.0			25	25	100%	100%	15,000	-		25.0			-	100%	100%	3,750	-	-
MF-Gas Heated Home		25			62.6		25	25	100%	100%	-	39,100			9.9		100%	100%	-	6,200	-	
Lights and Appliances	18	31		100.0	(103.4)		15		100%		(34,600)	(48,090)					100%				-	
Water Heating Savings	11	31		552.7	283.5		15		100%		91,200	131,804			7.8		100%				3,627	
<b>Program Summary*</b>											<b>685,517</b>	<b>753,711</b>	<b>1,216,159</b>						<b>16,600</b>	<b>15,787</b>	<b>10,856</b>	

Unitil Energy Systems Inc Home Performance with Energy Star

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Oil-Wxn: Air Sealing, Insulation, Water measures	15	27	52	145.0	1.2	200	21	20	100%	100%	42,375	647,516	208,000	28.5	30	30	100%	100%	9,113	16,943	31,200
Propane-Wxn: Air Sealing, Insulation, Water measures	43	5	56	145.0	1.2	200	21	20	100%	100%	121,475	127,000	224,000	29.5	30	30	100%	100%	27,198	3,132	33,600
Gas-Wxn: Air Sealing, Insulation, Water measures		4		-	-		20	20	100%	100%	-	-			56	-	100%	100%	-	4,515	
Electric-Wxn: Air Sealing, Insulation, Water measures	3		5	5,500.0		7,500	21	20	100%	100%	352,506	-	750,000				100%	100%	-	-	-
Oil- Thermostat	3	2		20.0		-	15	15	100%	100%	900	-		3.2	3.1	5	100%	100%	144	93	
LED bulb	488	180	760	37.0	37.0	24	8	5	100%	100%	144,276	53,217	90,820				100%	100%	-	-	-
Refrigerator	5		6	714.0		804	12	12	100%	100%	42,840	-	57,888				100%	100%	-	-	-
Direct Install Water Measures (if broken out from Wxn)	17			29.4		-	4		100%	0%	2,000	-		0.7			100%	0%	48	-	-
Ancillary Savings heating	58	25	108	100.0	23.8	25	19	25	100%	100%	110,200	11,302	67,500				100%	100%	-	-	-
Ancillary Savings cooling	35	13	54	75.0	66.7	65	20	25	100%	100%	52,200	17,340	87,750				100%	100%	-	-	-
Oil Boiler Replacement, >=87% AFUE		1		-	-	142	20	25	100%	100%	-	-			14.98	3	100%	100%	-	300	
Propane Boiler Replacement, >=95% AFUE			5			142		25	100%	100%	-	-	17,750			10	100%	100%	-	-	1,275
<b>Program Summary*</b>											<b>868,772</b>	<b>856,375</b>	<b>1,503,708</b>						<b>36,502</b>	<b>24,982</b>	<b>66,075</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Unitil Energy Systems Inc Energy Star Products

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
LED Bulbs and Fixtures	59,016	53,653	103,000	29.2	24.6	16	8	5	68%	100%	9,309,483	7,154,143	8,203,950			-	100%	100%	-	-	-
Mini Split HP (assumed 1.5 ton) (cooling)-Mini S	82	60	95	120.0	206.4	103	12	18	100%	100%	118,117	148,608	176,008			-	100%	100%	-	-	-
Mini Split HP (assumed 1.5 ton) (heating) -Mini S	82	60	95	520.6	1,058.3	328	12	18	100%	100%	512,225	761,976	561,396			-	100%	100%	-	-	-
Air Source Heat Pump (heating) (assumed 3 ton)		1			3,114.0		12	18	100%	100%	-	37,368				-	100%	100%	-	-	-
DHW Heat Pump Water Heater 50 gal		10	45		1,775.0	1,384	10	13	100%	100%	-	177,500	809,640			-	100%	100%	-	-	-
DHW Heat Pump Water Heater 80 gal		4	8		2,672.0	1,640	10	13	100%	100%	-	106,880	170,560			-	100%	100%	-	-	-
Wifi Thermostat (Heating&Cooling)		4	50		32.3	25	15	15	100%	100%	-	1,936	18,642			7	100%	100%	-	-	4,950
ES Dehumidifier	46	176	85	162.3	162.3	214	12	12	100%	100%	89,573	342,714	218,280			-	100%	100%	-	-	-
ES Pool Pumps (2 speed)		2	13		781.7	842	10	10	100%	100%	-	15,634	109,460			-	100%	100%	-	-	-
ES Pool Pumps (Variable Speed)	5	12	20	945.8	945.9	1,062	10	10	100%	100%	47,290	113,506	212,400			-	100%	100%	-	-	-
ES Clothes Washers	870	510	380	123.9	123.9	89	11	14	100%	100%	1,185,819	695,135	471,724	0.5	0.5	0.3	100%	100%	4,341	2,545	1,431
ES Clothes Dryers	30	167	50	160.2	160.2	93	12	12	100%	100%	57,665	321,001	55,980			-	100%	100%	-	-	-
ES Dishwasher						23		13	100%	100%	-	-				0.1	100%	100%	-	-	-
ES AC (central) 3 ton	10	2	18	199.9	200.0	200	12	12	100%	100%	23,988	4,800	43,179			-	100%	100%	-	-	-
ES Room AC (room)	378	200	550	16.2	16.2	16	9	9	100%	100%	54,964	29,088	79,992			-	100%	100%	-	-	-
ES Room Air Purifier	35	33	61	390.4	390.4	391	9	9	100%	50%	122,985	115,958	107,192			-	100%	100%	-	-	-
ES Refrigerator	300	205	400	41.4	41.4	64	12	12	100%	100%	148,907	101,746	308,592			-	100%	100%	-	-	-
ES Freezers			30			53		16	100%	100%	-	-	25,200			-	100%	100%	-	-	-
Primary Refrigerator Recycling/Pickup/Turnin	20	80	30	533.0	533.0	492	8	8	100%	100%	85,280	341,120	117,984			-	100%	100%	-	-	-
2nd Refrigerator Pickup/Turnin	5		25	755.0		755	8	8	100%	100%	30,200	-	151,000			-	100%	100%	-	-	-
2nd Freezer Pickup/Turnin	5	18	15	663.0	663.0	658	8	8	100%	100%	26,520	95,472	78,960			-	100%	100%	-	-	-
Room AC Pickup/Turnin			50			16		5	100%	100%	-	-	4,050			-	100%	100%	-	-	-
ECM Motors for FHA Furnace Fans			15			168		18	100%	100%	-	-	45,360			-	100%	100%	-	-	-
ECM Motor for FWH Circulating Pump			12			142		15	100%	100%	-	-	25,560			-	100%	100%	-	-	-
ES AC (central) 3 ton			20	199.9		200	12	14	100%	100%	-	-	55,973			-	100%	100%	-	-	-
Refrigerator CEE Tier 2+			120			96		12	100%	100%	-	-	138,816			-	100%	100%	-	-	-
Washer Tier CEE Tier 2+			120			156		14	100%	100%	-	-	261,912			0.4	100%	100%	-	-	741
Dryer Hybrid			90			229		12	100%	100%	-	-	247,752			-	100%	100%	-	-	-
Dryer Heat Pump			40			472		12	100%	100%	-	-	226,704			-	100%	100%	-	-	-
Advanced Power Strips	50			79.1			5		100%		19,770										
<b>Program Summary*</b>											<b>11,832,786</b>	<b>10,564,583</b>	<b>12,926,266</b>						<b>4,341</b>	<b>2,545</b>	<b>7,122</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Unitil Energy Systems Inc Home Energy Reports

	Quantity	Gross Annual Savings per Unit (kWh)	Measure Life	Installation or Electric Realization Rate	Net Total Lifetime Savings (kWh)	Gross Annual Savings Per Unit (MMBTU)	Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)
Measure	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan
Behavioral Savings	25,800	35.5	3	100%	2,423,614			-
<b>Program Summary</b>					<b>2,423,614</b>			<b>-</b>

Unitil Energy Systems Inc Large Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																					
Lighting-Custom			5			81,081		13	100%	100%	-	-	-								
Lighting-LED	5	10	10	320,000.0	120,630.6	125,000	13	13	98%	100%	20,800,000	15,305,611	16,226,870								
Lighting OS Only		3			10,316.7	-	9	9	104%	100%	-	288,578	-								
Park Lot Lights	4	9	8	100,000.0	22,960.0	52,632	13	13	104%	100%	5,200,000	2,783,028	5,465,893								
Process	2	1		425,531.9	425,981.0	-	13	13	104%	100%	11,063,830	5,737,112	-								
Custom: Other			4			224,123	13	13	100%	100%	-	-	11,637,798								
						-			0%	0%	-	-	-								
<b>New Equipment &amp; Construction Track</b>																					
Lighting-Custom			5			121,951		15	100%	100%	-	-	9,133,323								
Lighting-LED			8			71,429		15	100%	100%	-	-	8,559,228								
Lighting OS Only						-		9	100%	100%	-	-	-								
Park Lot Lights						-		15	100%	100%	-	-	-								
Process		1		142,642.0		-	15	15	100%	100%	-	2,139,630	-								
HVAC		1		54,410.0		-	15		104%			845,531	-								
VFDs		3		87,461.0		-	13		98%			3,329,116	-								
<b>Program Summary*</b>											<b>37,063,830</b>	<b>30,428,605</b>	<b>56,285,881</b>								

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Unitil Energy Systems Inc Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
<b>Retrofit Track</b>																					
Cooling	3		3	50,000.0		52,963	13	13	100%	100%	1,950,000	-	2,065,556								
Lighting - Retrofit		50	6		30,690.4	72,679	13	13	100%	107%	-	19,948,747	6,043,078								
Ext. Lighting		27			15,865.2	-	13	13	100%	103%	-	5,568,668									
Compressed Air		1			20,387.0	-	13		100%	100%	-	265,031									
<b>New Equipment &amp; Construction Track</b>																					
Lighting	4	5		22,222.2	21,477.6	-	15	15	100%	107%	1,333,333	1,610,820									
Ext. Lighting		3			40,229.7	-	15	15	100%	103%	-	1,810,335									
Compressed Air - New		2			17,246.5		15		100%		-	517,395									
Custom - Compressed Air		2			2,419.5		15		100%		-	72,585									
HVAC: Air Conditioning		1			3,931.0		15	13	100%	103%	-	58,965									
HVAC: Mini Split (Heating)		18			1,326.3		12	13	100%	107%	-	286,476									
HVAC: Mini Split (Cooling)		18			434.8		12	13	100%	100%	-	93,912									
Lighting: Controls (Dimming, OS)		9			5,978.0		9		100%	100%	-	484,218									
Refrigeration Evap Fan		1			5,389.0		15		100%	107%	-	80,835									
Motor control		1			4,192.0		10		100%	107%	-	41,920									
VFDs		1			32,038.0		13		100%	107%	-	416,494									
<b>Direct Install Track</b>																					
Ext Lighting	20			17,592.6		-	13	13	100%	103%	4,574,073	-									
Lighting - Direct Install	30		28	33,555.6		41,465	13	13	100%	107%	13,086,668	-	16,089,373								
SCI-DR: Exterior Lighting			16			37,931	13	100%	103%				8,102,676								
SCI-DR: Refrigeration			3			16,954	12	100%	100%				610,344								
<b>Program Summary*</b>											<b>20,944,075</b>	<b>31,256,402</b>	<b>32,911,026</b>								

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Unitil Energy Systems Inc Municipal Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)				
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan		
<b>Retrofit Track</b>																							
Cooling	3			23,333		-	13		100%	100%	-	-	-										
Lighting-LED		16			44,093	-	13		100%	107%	910,000	-	-						100%	-	-	-	
Lighting OS Only		5			4,159	-	9		100%	103%	-	187,173	-						100%	-	-	-	
STREET LIGHTS			2			88,889		13	100%	103%	-	-	2,373,511						100%	-	-	-	
Lighting-LED	8		5	72,368		16,129	13	13	100%	107%	7,526,316	-	1,117,581						100%	-	-	-	
Park Lot Lights	4		5	17,500		24,194	13	13	100%	103%	910,000	-	1,615,040						100%	-	-	-	
Lighting: Exterior (Wall packs, Parking Lot)		13			11,114		13		100%			1,878,291											
																			0%	-	-	-	
																			0%	-	-	-	
<b>New Equipment &amp; Construction Track</b>																							
Lighting-LED		1			17,246	-	15		100%	107%	-	258,690	-						100%	-	-	-	
Process		6			375,060	-	13		100%	100%	-	4,766,813	-						100%	-	-	-	
Lighting: Exterior (Wall packs, Parking Lot)		1			30,593	-	15		100%		-	458,895	-						0%	-	-	-	
																				-	-	-	
<b>Weatherization Track</b>																							
Weatherization - Other	2		2	-		9,375	20	20	100%	100%	-	-	375,000	150.0		45.0	100%	100%			6,000	-	1,800
																				-	-	-	
																				-	-	-	
<b>Direct Install Track</b>																							
HVAC		1			9,577	-	15		100%	100%	-	143,655	-								100%	-	-
<b>Program Summary*</b>											<b>9,346,316</b>	<b>16,864,861</b>	<b>5,481,132</b>								<b>6,000.0</b>	<b>0.0</b>	<b>1,800.0</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Unitil Energy System, Inc.  
2019 System Benefits Charge ("SBC") Calculation**

Unitil Energy Systems, Inc.  
NHPUC Docket No. DE 17-136  
Attachment H3 (2019 Update-Compliance Filing)  
Page 1 of 11  
REVISED

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Other Revenues	Prior Year Deferral with Interest	Current Year Interest	Projected Ending Balance	SBC Requirement	Forecasted Distribution (kWh)	SBC Rate EE Portion (\$/kWh)	SBC Rate EAP Portion (\$/kWh)	SBC Rate LBR Portion (\$/kWh)	2018 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	Col. N
2019	\$ 5,674,619	\$ 284,017	\$ 650,000	\$ (375,000)	\$ (751,289)	\$ -	\$ (116,217)	4,480,530	1,201,214,515	\$0.00373	\$0.00150	\$0.00053	\$0.00576

Col. A: Effective year (January 1, 2019 - December 31, 2019)  
 Col. B: Company Forecast  
 Col. C: Company Forecast  
 Col. D: Company Forecast  
 Col. E: Company Forecast  
 Col. F: Page 2, Line 15  
 Col. G: Page 3, Line 14 (2019)  
 Col. H: Page 3, Line 15 - Line 14 (2019)  
 Col. I: Col. B - Col. C - Col. D - Col. E + Col. F - Col. H.  
 Col. J: Company Forecast  
 Col. K: Col. I / Col. J  
 Col. L: EAP Portion of SBC Rate  
 Col. M: Page 4, Col. G  
 Col. N: Col. K + Col. L + Col. M



**Unitil Energy System, Inc.**  
**Energy Efficiency Expense & SBC Revenue Reconciliation**  
**January 1, 2018 to December 31, 2018**

Unitil Energy Systems, Inc.  
NHPUC Docket No. DE 17-136  
Attachment H3 (2019 Update-Compliance Filing)  
Page 2 of 11

	Jan-18 <u>Actual</u>	Feb-18 <u>Actual</u>	Mar-18 <u>Actual</u>	Apr-18 <u>Actual</u>	May-18 <u>Actual</u>	Jun-18 <u>Actual</u>	Jul-18 <u>Estimate</u>	Aug-18 <u>Estimate</u>	Sep-18 <u>Estimate</u>	Oct-18 <u>Estimate</u>	Nov-18 <u>Estimate</u>	Dec-18 <u>Estimate</u>	Total
1 Beginning Balance -- (Over)/Under Recovery	\$ (902,211)	\$ (1,123,339)	\$ (1,372,966)	\$ (1,517,981)	\$ (1,458,772)	\$ (1,570,773)	\$ (1,636,334)	\$ (1,518,546)	\$ (1,417,310)	\$ (1,311,413)	\$ (1,129,810)	\$ (979,521)	
<b>2 Total Costs</b>	192,289	94,952	186,137	440,025	206,876	279,686	459,592	475,140	505,072	501,055	516,603	551,718	\$ 4,409,145
<b>Revenues</b>													
3 Class Sales (inc. LI) -- kWh	118,288,676	101,459,074	96,543,317	90,962,753	89,782,560	99,348,233	106,831,221	118,664,655	102,211,561	99,131,725	90,622,227	101,145,878	1,214,991,881
4 Charge -- \$/kWh	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275	\$ 0.00275
5 Energy Efficiency Revenues	\$ 280,310	\$ 278,976	\$ 265,486	\$ 250,115	\$ 246,857	\$ 273,208	\$ 293,786	\$ 326,328	\$ 281,082	\$ 272,612	\$ 249,211	\$ 278,151	\$ 3,296,122
6 Forward Capacity Market Revenue	\$ 62,392	\$ 61,540	\$ 62,058	\$ 61,507	\$ 66,241	\$ 66,120	\$ 41,667	\$ 41,667	\$ 41,667	\$ 41,667	\$ 41,667	\$ 41,667	\$ 629,858
7 RGGI Funding	\$ 67,066	\$ -	\$ -	\$ 63,698	\$ -	\$ -	\$ -	\$ -	\$ 71,111	\$ -	\$ 71,111	\$ -	\$ 272,987
8 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>9 Total Revenues</b>	\$ 409,768	\$ 340,517	\$ 327,544	\$ 375,321	\$ 313,098	\$ 339,327	\$ 335,453	\$ 367,994	\$ 393,860	\$ 314,279	\$ 361,989	\$ 319,818	\$ 4,198,967
10 (Over)/Under Recovery (excluding interest)	\$ (1,119,690)	\$ (1,368,903)	\$ (1,514,373)	\$ (1,453,277)	\$ (1,564,994)	\$ (1,630,414)	\$ (1,512,195)	\$ (1,411,400)	\$ (1,306,097)	\$ (1,124,638)	\$ (975,196)	\$ (747,622)	
<b>Interest Calculation</b>													
11 Average Monthly Balance	\$ (1,010,950)	\$ (1,246,121)	\$ (1,443,670)	\$ (1,485,629)	\$ (1,511,883)	\$ (1,600,593)	\$ (1,574,264)	\$ (1,464,973)	\$ (1,361,704)	\$ (1,218,026)	\$ (1,052,503)	\$ (863,571)	
12 Interest Rate	4.25%	4.25%	4.25%	4.50%	4.50%	4.50%	4.75%	4.75%	4.75%	5.00%	5.00%	5.00%	
13 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
14 Computed Interest	\$ (3,649)	\$ (4,063)	\$ (3,608)	\$ (5,495)	\$ (5,778)	\$ (5,920)	\$ (6,351)	\$ (5,910)	\$ (5,316)	\$ (5,172)	\$ (4,325)	\$ (3,667)	\$ (59,255)
<b>15 Ending Balance</b>	\$ (1,123,339)	\$ (1,372,966)	\$ (1,517,981)	\$ (1,458,772)	\$ (1,570,773)	\$ (1,636,334)	\$ (1,518,546)	\$ (1,417,310)	\$ (1,311,413)	\$ (1,129,810)	\$ (979,521)	\$ (751,289)	

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.**  
**Energy Efficiency Expense & SBC Revenue Reconciliation**  
**January 1, 2019 to December 31, 2019**

Unitil Energy Systems, Inc.  
 NHPUC Docket No. DE 17-136  
 Attachment H3 (2019 Update-Compliance Filing)

Page 3 of 11

REVISED

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
1 Beginning Balance -- (Over)/Under Recovery	\$ (751,289)	\$ (473,872)	\$ (518,337)	\$ (575,133)	\$ (545,865)	\$ (485,140)	\$ (470,435)	\$ (474,904)	\$ (478,903)	\$ (448,240)	\$ (367,029)	\$ (289,588)	
<b>2 Total Costs</b>	<b>380,327</b>	<b>396,253</b>	<b>429,731</b>	<b>428,105</b>	<b>444,030</b>	<b>477,508</b>	<b>475,882</b>	<b>491,808</b>	<b>525,286</b>	<b>518,350</b>	<b>534,276</b>	<b>573,063</b>	\$ 5,674,619
<b>Revenues</b>													
3 Class Sales (inc. LI) -- kWh	112,908,398	103,123,873	96,257,212	91,788,542	87,655,211	89,992,803	113,721,294	117,860,381	98,538,970	102,210,521	88,557,184	98,600,127	1,201,214,515
4 Charge -- \$/kWh	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373	\$ 0.00373
5 Energy Efficiency Revenues	\$ 421,148	\$ 384,652	\$ 359,039	\$ 342,371	\$ 326,954	\$ 335,673	\$ 424,180	\$ 439,619	\$ 367,550	\$ 381,245	\$ 330,318	\$ 367,778	\$ 4,480,530
6 Forward Capacity Market Revenue	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 54,167	\$ 650,000
7 RGGI Funding	\$ -	\$ -	\$ 71,004	\$ -	\$ -	\$ 71,004	\$ -	\$ -	\$ 71,004	\$ -	\$ 71,004	\$ -	\$ 284,017
8 Other Revenues	\$ (375,000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (375,000)
<b>9 Total Revenues</b>	<b>\$ 100,315</b>	<b>\$ 438,819</b>	<b>\$ 484,210</b>	<b>\$ 396,538</b>	<b>\$ 381,121</b>	<b>\$ 460,844</b>	<b>\$ 478,347</b>	<b>\$ 493,786</b>	<b>\$ 492,721</b>	<b>\$ 435,412</b>	<b>\$ 455,489</b>	<b>\$ 421,945</b>	<b>\$ 5,039,547</b>
10 (Over)/Under Recovery (excluding interest)	\$ (471,276)	\$ (516,438)	\$ (572,816)	\$ (543,567)	\$ (482,955)	\$ (468,476)	\$ (472,901)	\$ (476,882)	\$ (446,339)	\$ (365,301)	\$ (288,242)	\$ (138,471)	
<b>Interest Calculation</b>													
11 Average Monthly Balance	\$ (611,283)	\$ (495,155)	\$ (545,577)	\$ (559,350)	\$ (514,410)	\$ (476,808)	\$ (471,668)	\$ (475,893)	\$ (462,621)	\$ (406,771)	\$ (327,635)	\$ (214,030)	
12 Interest Rate	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
13 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
14 Computed Interest	\$ (2,596)	\$ (1,899)	\$ (2,317)	\$ (2,299)	\$ (2,184)	\$ (1,959)	\$ (2,003)	\$ (2,021)	\$ (1,901)	\$ (1,727)	\$ (1,346)	\$ (909)	\$ (23,162)
<b>15 Ending Balance</b>	<b>\$ (473,872)</b>	<b>\$ (518,337)</b>	<b>\$ (575,133)</b>	<b>\$ (545,865)</b>	<b>\$ (485,140)</b>	<b>\$ (470,435)</b>	<b>\$ (474,904)</b>	<b>\$ (478,903)</b>	<b>\$ (448,240)</b>	<b>\$ (367,029)</b>	<b>\$ (289,588)</b>	<b>\$ (139,380)</b>	

Line 1: Prior period ending balance  
 Line 2: Page 1, Col. B  
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**Unitil Energy System, Inc.  
2019 System Benefits Charge Calculation (LBR Component)**

Unitil Energy Systems, Inc.  
NHPUC Docket No. DE 17-136  
Attachment H3 (2019 Update-Compliance Filing)  
Page 4 of 11  
REVISED

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
2019	\$ 625,998	\$ 26,475	\$ 158	\$ 652,631	1,201,214,515	\$ 0.00053

- Col. A: Effective year (January 1, 2019 - December 31, 2019)
- Col. B: Page 5, Line 12, Col. O
- Col. C: Prior Year LBR Component Over/(Under) recovery, with interest, Page 6 Line 9
- Col. D: Page 7, Col. O, Line 8
- Col. E: Col. B + Col. C + Col. D
- Col. F: Company Forecast
- Col. G: Input, Approved Rate

**Unitil Energy System, Inc.**  
**Estimated Monthly and Cumulative Savings (kWh) and Lost Base Revenue**  
**January 1, 2018 to December 31, 2019**

Unitil Energy Systems, Inc.  
 NHPUC Docket No. DE 17-136  
 Attachment H3 (2019 Update-Compliance Filing)  
 Page 5 of 11  
 REVISED

Line	Description	12/31/2017	Forecast Jan 2018	Forecast Feb 2018	Forecast Mar 2018	Forecast Apr 2018	Forecast May 2018	Forecast June 2018	Forecast Jul 2018	Forecast Aug 2018	Forecast Sep 2018	Forecast Oct 2018	Forecast Nov 2018	Forecast Dec 2018	2018 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		207,085	216,358	225,630	234,903	244,175	253,448	262,720	271,993	281,265	287,447	296,719	309,083	3,090,828
2	C&I Annualized Savings		376,202	393,046	409,891	426,736	443,581	460,426	477,271	494,115	510,960	522,190	539,035	561,495	5,614,948
3	Total		583,287	609,404	635,522	661,639	687,756	713,874	739,991	766,108	792,226	809,637	835,754	870,578	8,705,776
			Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Cumulative LBR Savings
4	Monthly Residential Savings		17,257	18,030	18,803	19,575	20,348	21,121	21,893	22,666	23,439	23,954	24,727	25,757	
5	Cumulative Residential Savings	112,018	129,275	147,305	166,108	185,683	206,031	227,152	249,045	271,711	295,150	319,104	343,830	369,587	2,909,980
6	Average Residential Distribution Rate		0.03682	0.03682	0.03682	0.03682	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	
7	Lost Residential Revenue		\$ 4,760	\$ 5,424	\$ 6,116	\$ 6,837	\$ 7,287	\$ 8,034	\$ 8,809	\$ 9,610	\$ 10,439	\$ 11,287	\$ 12,161	\$ 13,072	\$ 103,837
8	Monthly C&I Savings		31,350	32,754	34,158	35,561	36,965	38,369	39,773	41,176	42,580	43,516	44,920	46,791	
9	Cumulative C&I Savings	500,407	531,757	564,511	598,668	634,230	671,195	709,564	749,336	790,512	833,092	876,608	921,528	968,319	8,849,319
10	Average C&I Distribution Rate		0.03351	0.03351	0.03351	0.03351	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	
11	Lost C&I Revenue		\$ 17,819	\$ 18,917	\$ 20,061	\$ 21,253	\$ 21,559	\$ 22,791	\$ 24,069	\$ 25,391	\$ 26,759	\$ 28,157	\$ 29,599	\$ 31,102	\$ 287,478
12	Total Lost Revenue		\$ 22,579	\$ 24,341	\$ 26,177	\$ 28,090	\$ 28,846	\$ 30,826	\$ 32,877	\$ 35,002	\$ 37,198	\$ 39,443	\$ 41,761	\$ 44,175	\$ 391,315

Line	Description	12/31/2018	Forecast Jan-19	Forecast Feb-19	Forecast Mar-19	Forecast Apr-19	Forecast May-19	Forecast Jun-19	Forecast Jul-19	Forecast Aug-19	Forecast Sep-19	Forecast Oct-19	Forecast Nov-19	Forecast Dec-19	2019 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		200,842	209,835	218,827	227,820	236,813	245,806	254,799	263,792	272,785	278,780	287,773	299,764	2,997,636
2	C&I Annualized Savings (2019)		475,384	496,670	517,955	541,031	560,527	581,813	603,099	624,385	645,671	661,147	681,147	709,528	7,095,280
3	Total		676,225	706,504	736,783	767,062	797,340	827,619	857,898	888,177	918,455	938,641	968,920	1,009,292	10,092,917
			Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Cumulative LBR Savings
4	Monthly Residential Savings		16,737	17,486	18,236	18,985	19,734	20,484	21,233	21,983	22,732	23,232	23,981	24,980	
5	Cumulative Residential Savings	369,587	386,324	403,810	422,046	441,031	460,765	481,249	502,482	524,465	547,197	570,429	594,410	619,390	5,953,599
6	Average Residential Distribution Rate		0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	0.03537	
7	Lost Residential Revenue		\$ 13,664	\$ 14,283	\$ 14,928	\$ 15,599	\$ 16,297	\$ 17,022	\$ 17,773	\$ 18,550	\$ 19,354	\$ 20,176	\$ 21,024	\$ 21,908	\$ 210,579
8	Monthly C&I Savings (2017 & 2018)	968,319	968,319	968,319	968,319	968,319	968,319	968,319	968,319	968,319	968,319	968,319	968,319	968,319	
9	Average C&I Distribution Rate		0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	0.03212	
10	Lost C&I Revenue		\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 31,102	\$ 373,229
11	Monthly C&I Savings (2019)		39,615	41,389	43,163	44,937	46,711	48,484	50,258	52,032	53,806	54,988	56,762	59,127	
12	Cumulative C&I Savings (2019)	-	39,615	81,004	124,167	169,104	215,815	264,299	314,557	366,589	420,395	475,384	532,146	591,273	
13	Average C&I Distribution Rate		0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	
14	Lost C&I Revenue		\$ 10	\$ 19	\$ 30	\$ 41	\$ 52	\$ 63	\$ 75	\$ 88	\$ 101	\$ 114	\$ 128	\$ 142	\$ 863
15	Monthly C&I kW Savings (2019)		31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	
16	Cumulative C&I kW Savings (2019)	-	31.5	94.5	157.5	220.5	283.5	346.5	409.5	472.6	535.6	598.6	661.6	724.6	
17	Average C&I Demand Rate		\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	\$ 9.11	
18	Lost C&I Demand Revenue		\$ 287	\$ 861	\$ 1,435	\$ 2,009	\$ 2,583	\$ 3,157	\$ 3,731	\$ 4,305	\$ 4,879	\$ 5,453	\$ 6,027	\$ 6,601	\$ 41,327
19	Total Lost Revenue		\$ 45,063	\$ 46,266	\$ 47,495	\$ 48,751	\$ 50,034	\$ 51,345	\$ 52,682	\$ 54,046	\$ 55,437	\$ 56,845	\$ 58,281	\$ 59,753	\$ 625,998

2019  
 Line 1: Estimated Savings per 2019 Core Filing - Compliance Filing Updated BCR Model. See tab [P5a LBR Savings Calc](#) for summary savings  
 Line 2: Estimated Savings per 2019 Core Filing - Compliance Filing Updated BCR Model. See tab [P5a LBR Savings Calc](#) for summary savings.  
 Line 3: Line 1 + Line 2  
 Line 4: Line 1 / 12  
 Line 5: Prior Month Line 5 + Current Month Line 4. 12/31/17 Cumulative savings shown in Col. B from 2017 Annual Report.  
 Line 6: Page 8, Line 1, Col. 5  
 Line 7: Line 5 x Line 6  
 Line 8: Prior Month Line 9 + Current Month Line 8. 12/31/17 Cumulative savings shown in Col. B from 2017 Annual Report.  
 Line 9: Page 8, line 2, column (b)  
 Line 10: Line 8 x Line 9  
 Line 11: Line 2/12  
 Line 12: Prior month Line 12 + current month Line 11  
 Line 13: Page 8 Line 4, Column (a)  
 Line 14: Line 12 x Line 13  
 Line 15: Page 5a Line 29  
 Line 16: Prior month Line 16 + Current month Line 15  
 Line 17: Page 8 Line 4 Column 6  
 Line 18: Line 16 x Line 17  
 Line 19: Line 7 + Line 10 + Line 14 + Line 18

**UNITIL ENERGY SYSTEM, INC.**  
**Electric Savings for LBR Calculation**

**PLAN SAVINGS PROGRAM YEAR 2019**

	Revised Annual kWh	Revised kW Peak for LBR Calc
1. Residential Programs		
2. Home Energy Assistance	85,861	
3. EnergyStar Homes	65,093	
4. Home Performance w/EnergyStar	89,008	
5. Energy Star Products	1,840,675	
6. Home Energy Reports	917,000	
7. Residential	2,997,636	n/a (1)
8.		
9. Commercial & Industrial Programs		
10. Large Business Energy Solutions	4,148,221	526
11. Small Business Energy Solutions	2,535,530	220
12. Municipal Energy Solutions	411,529	10
13. Commercial & Industrial	7,095,280	756
14.		
15. Total 2019 Portfolio	10,092,917	756

LBR Savings Allocation		Estimate Jan-19	Estimate Feb-19	Estimate Mar-19	Estimate Apr-19	Estimate May-19	Estimate Jun-19	Estimate Jul-19	Estimate Aug-19	Estimate Sep-19	Estimate Oct-19	Estimate Nov-19	Estimate Dec-19	Total
16. Residential Programs														
17. Annualized kWh by Month	L. 7 * L. 34	200,842	209,835	218,827	227,820	236,813	245,806	254,799	263,792	272,785	278,780	287,773	299,764	2,997,636
18.														
19. Monthly Incremental	L. 17 ÷ 12 Mo.	16,737	17,486	18,236	18,985	19,734	20,484	21,233	21,983	22,732	23,232	23,981	24,980	249,803
20. Monthly Cumulative	Sum of L. 19	16,737	34,223	52,459	71,444	91,178	111,662	132,895	154,878	177,610	200,842	224,823	249,803	1,518,553
21.														
22. Commercial & Industrial Programs														
23. Annualized kWh by Month	L. 13 * L. 34	475,384	496,670	517,955	539,241	560,527	581,813	603,099	624,385	645,671	659,861	681,147	709,528	7,095,280
24. Annualized kW by Mo. -Year 1 @ 50%	L. 13 "kW" / 12	63	63	63	63	63	63	63	63	63	63	63	63	756
25.														
26. Monthly Incremental kWh	L. 23 ÷ 12 Mo.	39,615	41,389	43,163	44,937	46,711	48,484	50,258	52,032	53,806	54,988	56,762	59,127	591,273
27. Monthly Cumulative kWh - Current Yr	Sum of L. 26	39,615	81,004	124,167	169,104	215,815	264,299	314,557	366,589	420,395	475,384	532,146	591,273	3,594,351
28.														
29. Monthly Incremental kW - Year 1 @ 50%	L. 24 ÷ 12 Mo.	31.50	31.50	31.50	31.50	31.50	31.50	31.50	31.50	31.50	31.50	31.50	31.50	378.04
30. Monthly Cumulative kW - Current Yr	Sum of L. 29	31.50	94.51	157.52	220.52	283.53	346.54	409.54	472.55	535.56	598.56	661.57	724.58	
31.														
32.														
33. Cumulative Annualized kWh by Mo.	Sum L. 17 + L. 23	676,225	1,382,730	2,119,513	2,886,574	3,683,915	4,511,534	5,369,432	6,257,608	7,176,064	8,114,705	9,083,625	10,092,917	
34. Percent of Plan Savings	(L. 17 + L. 23) ÷ L. 15	<u>6.7%</u>	<u>7.0%</u>	<u>7.3%</u>	<u>7.6%</u>	<u>7.9%</u>	<u>8.2%</u>	<u>8.5%</u>	<u>8.8%</u>	<u>9.1%</u>	<u>9.3%</u>	<u>9.6%</u>	<u>10.0%</u>	

**NOTES:**

(1) LBR associated with residential peak reductions is not applicable.

**Unitil Energy System, Inc.**  
**Lost Base Revenue Reconciliation**  
**January 1, 2018 to December 31, 2018**

Line	Description	Recast Jan-18	Recast Feb-18	Recast Mar-18	Recast Apr-18	Recast May-18	Recast Jun-18	Forecast Jul-18	Forecast Aug-18	Forecast Sep-18	Forecast Oct-18	Forecast Nov-18	Forecast Dec-18	2018 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
1	Beginning Balance	\$ 227	\$ (986)	\$ (8,107)	\$ (11,900)	\$ (12,057)	\$ (11,088)	\$ (11,106)	\$ (12,448)	\$ (14,286)	\$ (8,818)	\$ (125)	\$ 13,571	
2	Lost Revenues	\$ 22,579	\$ 24,341	\$ 26,177	\$ 28,090	\$ 28,846	\$ 30,826	\$ 32,877	\$ 35,002	\$ 37,198	\$ 39,443	\$ 41,761	\$ 44,175	391,315
<b>REVENUE</b>														
3	Revenue (\$)	\$ 23,791	\$ 31,447	\$ 29,934	\$ 28,203	\$ 27,833	\$ 30,802	\$ 34,172	\$ 36,786	\$ 31,686	\$ 30,731	\$ 28,093	\$ 31,355	\$ 364,832
4	Cumulative Over/(Under) Recovery	\$ (985)	\$ (8,093)	\$ (11,864)	\$ (12,013)	\$ (11,044)	\$ (11,065)	\$ (12,401)	\$ (14,232)	\$ (8,773)	\$ (106)	\$ 13,543	\$ 26,390	
<b>INTEREST</b>														
5	Average Monthly Balance	\$ (379)	\$ (4,539)	\$ (9,986)	\$ (11,957)	\$ (11,551)	\$ (11,077)	\$ (11,753)	\$ (13,340)	\$ (11,530)	\$ (4,462)	\$ 6,709	\$ 19,980	
6	Interest Rate	4.25%	4.25%	4.25%	4.50%	4.50%	4.50%	4.75%	4.75%	4.75%	5.00%	5.00%	5.00%	5.00%
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ (1)	\$ (15)	\$ (36)	\$ (44)	\$ (44)	\$ (41)	\$ (47)	\$ (54)	\$ (45)	\$ (19)	\$ 28	\$ 85	\$ (234)
9	<b>Ending Balance</b>	\$ (986)	\$ (8,107)	\$ (11,900)	\$ (12,057)	\$ (11,088)	\$ (11,106)	\$ (12,448)	\$ (14,286)	\$ (8,818)	\$ (125)	\$ 13,571	\$ 26,475	

Line 1: Prior period ending balance  
Line 2: Page 5, Line 12  
Line 3: Actual revenue through June 2018. Estimated revenue July through December.  
Line 4: Line 1 + Line 2 - Line 3  
Line 5: (Line 1 + Line 4)/2  
Line 6: Prime Rate  
Line 8: Line 7 \* ((Line 5/# days per year) \* Line 9)  
Line 9: Line 4 + Line 8

**Unitil Energy System, Inc.**  
**Lost Base Revenue Reconciliation**  
**January 1, 2019 to December 31, 2019**

e 7 of 11

Line	Description	Estimate Jan-19	Estimate Feb-19	Estimate Mar-19	Estimate Apr-19	Estimate May-19	Estimate Jun-19	Estimate Jul-19	Estimate Aug-19	Estimate Sep-19	Estimate Oct-19	Estimate Nov-19	Estimate Dec-19	2019 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
1	Beginning Balance	\$ 26,475	\$ 11,778	\$ 3,417	\$ (98)	\$ 6	\$ 3,590	\$ 7,261	\$ (315)	\$ (8,754)	\$ (5,573)	\$ (2,917)	\$ 8,440	
2	Lost Revenues	\$ 45,063	\$ 46,266	\$ 47,495	\$ 48,751	\$ 50,034	\$ 51,345	\$ 52,682	\$ 54,046	\$ 55,437	\$ 56,845	\$ 58,281	\$ 59,753	625,998
	<b>REVENUE</b>													
3	Revenue (\$)	\$ 59,841	\$ 54,656	\$ 51,016	\$ 48,648	\$ 46,457	\$ 47,696	\$ 60,272	\$ 62,466	\$ 52,226	\$ 54,172	\$ 46,935	\$ 52,258	636,644
4	Cumulative Over/(Under) Recovery	\$ 11,697	\$ 3,388	\$ (105)	\$ 6	\$ 3,583	\$ 7,239	\$ (330)	\$ (8,735)	\$ (5,544)	\$ (2,899)	\$ 8,429	\$ 15,935	
	<b>INTEREST</b>													
5	Average Monthly Balance	\$ 19,086	\$ 7,583	\$ 1,656	\$ (46)	\$ 1,794	\$ 5,415	\$ 3,466	\$ (4,525)	\$ (7,149)	\$ (4,236)	\$ 2,756	\$ 12,188	
6	Interest Rate	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ 81	\$ 29	\$ 7	\$ (0)	\$ 8	\$ 22	\$ 15	\$ (19)	\$ (29)	\$ (18)	\$ 11	\$ 52	158
9	<b>Ending Balance</b>	\$ 11,778	\$ 3,417	\$ (98)	\$ 6	\$ 3,590	\$ 7,261	\$ (315)	\$ (8,754)	\$ (5,573)	\$ (2,917)	\$ 8,440	\$ 15,987	

Line 1: Prior period ending balance  
Line 2: Page 5, Line 12  
Line 3: Estimated revenue  
Line 4: Line 1 + Line 2 - Line 3  
Line 5: (Line 1 + Line 4)/2  
Line 6: Prime Rate  
Line 8: Line 7 \* ((Line 5/# days per year) \* Line 9)  
Line 9: Line 4 + Line 8

**Unitil Energy Systems, Inc.**  
**Calculation of Forecasted Average Distribution Rate for Lost Revenue**  
**Based on Actual Billing Determinants for January - December 2017 and Distribution Rates effective May 1, 2018**

	(1)	(2)	(3)	(4)	(5)	(6) = (1) / (4)	(7) = (2) / (5)	(8) = (3) / (5)
	<u>Revenue*</u>			<u>Units</u>				
<u>Rate Class</u>	<u>Demand Charges</u>	<u>kWh Charges</u>	<u>Total Demand and kWh Charges</u>	<u>Delivery kW</u>	<u>Delivery kWh</u>	<u>Average Distribution Rate \$/kW</u>	<u>Average Distribution Rate \$/kWh<sup>(a)</sup></u>	<u>Average Distribution Rate \$/kWh<sup>(b)</sup></u>
1 Residential D	\$ -	\$ 17,131,066	\$ 17,131,066	-	484,338,873	N/A	N/A	\$ 0.03537
2 Regular General G2	\$ 13,997,246	\$ 165,112	\$ 14,162,358	1,341,173	326,470,379	10.44	\$ 0.00051	\$ 0.04338
3 Large General Service Rate G1	\$ 7,615,522	\$ -	\$ 7,615,522	1,032,033	351,603,664	7.38	\$ -	\$ 0.02166
4 Commercial and Industrial	\$ 21,612,769	\$ 165,112	\$ 21,777,881	2,373,206	678,074,043	\$ 9.11	\$ 0.00024	\$ 0.03212

Note: See page 10 for details.

\* Revenues include demand charges and kWh charges only.

Customer, meter and per luminaire charges are excluded.

(a) For 2019 C&I Savings.

(b) For 2017 and 2018 C&I Savings (in 2019 calculation).



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

	<u>2018</u>	<u>2019</u>
System Benefits Charge (\$/kWh)	\$ 0.00456	0.00576
<u>Bill per month, including UES Default Service Charge</u>		
Residential Rate R (625 kWh/month)	\$ 108.04	\$ 108.79
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)	\$ 1,477.52	\$ 1,489.52
<u>Change from previous rate level - \$ per month</u>		
Residential Rate R (625 kWh/month)		\$ 0.75
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		\$ 12.00
<u>Change from previous rate level - %</u>		
Residential Rate R (625 kWh/month)		0.7%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		0.8%

**Unitil Energy Systems, Inc.**  
**Calculation of Distribution Revenue at the Rate Level Effective January 1, 2017 - December 31, 2017**  
Based on Billing Determinants for the Twelve Months Ending December 31, 2017

Unitil Energy Systems, Inc.  
NHPUC Docket No. DE 17-136  
Attachment H3 (2019 Update-Compliance Filing)  
Page 10 of 11

Rate Class	Customer Group		(a)	(b)	(c)			
			05/01/2018 Monthly Distribution Charge (1)	Jan - Dec Billing Determinants (2)	Customer/ Meter/ Luminaire	Demand	kWh	Total
Residential Rate R	Standard Rate	Customer Charge	\$ 16.12	786,611	\$ 12,680,169			
		All kWh	\$ 0.03537	484,338,873		\$ 17,131,066	\$ 29,811,235	
<b>Total Rate R</b>		<b>Customers</b>		<b>786,611</b>				
		<b>Meters</b>		<b>n/a</b>				
		<b>KWH</b>		<b>484,338,873</b>				
		<b>Revenue</b>			<b>\$ 12,680,169</b>	<b>\$ -</b>	<b>\$ 17,131,066</b>	<b>\$ 29,811,235</b>
General Rate G2	Standard Rate	Customer Charge	\$ 29.02	122,372	\$ 3,551,235			
		Demand charge (All KW)	\$ 10.45	1,341,173		\$ 14,015,260		
		All KWH	\$ -	320,931,860			\$ -	
		Transformer Ownership Credit, G2	\$ (0.50000)	36,028		\$ (18,014)		\$ 17,548,482
		G2 - kWh Meter	Customer Charge	\$ 18.27	5,062	\$ 92,483		
		All KWH	\$ 0.00878	489,369		\$ 4,297	\$ 96,779	
QR Water Heating and/or Space Heat	Standard Rate	Customer Charge	\$ 9.67	3,219	\$ 31,128			
		All KWH	\$ 0.03185	5,049,150		\$ 160,815	\$ 191,943	
<b>Total Rate G2</b>		<b>Customers</b>		<b>130,653</b>				
		<b>Meters</b>		<b>n/a</b>				
		<b>Billing demand</b>		<b>1,341,173</b>				
		<b>KWH</b>		<b>326,470,379</b>				
		<b>Revenue</b>			<b>\$ 3,674,846</b>	<b>\$ 13,997,246</b>	<b>\$ 165,112</b>	<b>\$ 17,837,204</b>
Large General Rate G1	Standard Rate	Customer Charge Secondary Voltage	\$ 161.23	1,501	\$ 242,006			
		Customer Charge Primary Voltage	\$ 85.99	390	\$ 33,536			
		All kVA	\$ 7.55	1,032,033		\$ 7,791,851		
		All KWH	\$ -	351,603,664			\$ -	
		Transformer Ownership Credit, G1	\$ (0.50000)	352,657		\$ (176,328)		\$ 7,891,065
<b>Total Rate G1</b>		<b>Customers Secondary Voltage</b>		<b>1,501</b>				
		<b>Customers Primary Voltage</b>		<b>390</b>				
		<b>Meters</b>		<b>n/a</b>				
		<b>Billing demand</b>		<b>1,032,033</b>				
		<b>KWH</b>		<b>351,603,664</b>				
		<b>Revenue</b>			<b>\$ 275,542</b>	<b>\$ 7,615,522</b>	<b>\$ -</b>	<b>\$ 7,891,065</b>

Outdoor Lighting Rate OL

100	Mercury Vapor Street	\$13.20	16,195	\$	213,769
175	Mercury Vapor Street	\$15.66	837	\$	13,112
250	Mercury Vapor Street	\$17.75	887	\$	15,735
400	Mercury Vapor Street	\$21.13	1,608	\$	33,978
1000	Mercury Vapor Street	\$41.95	24	\$	1,007
250	Mercury Vapor Flood	\$18.90	748	\$	14,142
400	Mercury Vapor Flood	\$22.62	1,140	\$	25,785
1000	Mercury Vapor Flood	\$37.48	182	\$	6,823
100	Mercury Vapor Power Bracket	\$13.33	4,504	\$	60,038
175	Mercury Vapor Power Bracket	\$14.79	651	\$	9,630
50	Sodium Vapor Street	\$13.44	42,395	\$	569,792
100	Sodium Vapor Street	\$15.13	1,289	\$	19,508
150	Sodium Vapor Street	\$15.19	4,293	\$	65,217
250	Sodium Vapor Street	\$19.03	13,711	\$	260,923
400	Sodium Vapor Street	\$23.98	2,945	\$	70,610
1000	Sodium Vapor Street	\$41.42	1,705	\$	70,611
150	Sodium Vapor Flood	\$17.51	2,908	\$	50,911
250	Sodium Vapor Flood	\$20.64	3,904	\$	80,586
400	Sodium Vapor Flood	\$23.45	4,860	\$	113,976
1000	Sodium Vapor Flood	\$41.78	2,683	\$	112,106
50	Sodium Vapor Power Bracket	\$12.44	1,382	\$	17,197
100	Sodium Vapor Power Bracket	\$13.96	859	\$	11,997
175	Metal Halide Street	\$19.79	24	\$	475
250	Metal Halide Street	\$21.52	-	\$	-
400	Metal Halide Street	\$22.32	-	\$	-
175	Metal Halide Flood	\$22.87	-	\$	-
250	Metal Halide Flood	\$24.69	-	\$	-
400	Metal Halide Flood	\$24.73	-	\$	-
1000	Metal Halide Flood	\$32.03	-	\$	-
175	Metal Halide Power Bracket	\$18.52	-	\$	-
250	Metal Halide Power Bracket	\$19.69	-	\$	-
400	Metal Halide Power Bracket	\$21.05	456	\$	9,599
42	LED Area Light Fixture	\$13.08	-	\$	-
57	LED Area Light Fixture	\$13.13	-	\$	-
25	LED Cobra Head Fixture	\$13.03	-	\$	-
88	LED Cobra Head Fixture	\$13.22	-	\$	-
108	LED Cobra Head Fixture	\$13.28	-	\$	-
193	LED Cobra Head Fixture	\$13.54	-	\$	-
123	LED Flood Light Fixture	\$13.33	-	\$	-
194	LED Flood Light Fixture	\$13.54	-	\$	-
297	LED Flood Light Fixture	\$13.85	-	\$	-

Total Rate OL

<b>Luminaires</b>			<b>110,191</b>		
<b>Customers</b>		n/a			
<b>Meters</b>		-			
<b>KWH</b>	\$	-	<b>8,073,290</b>		
<b>Revenue</b>				\$	<b>1,847,525</b>
				\$	<b>-</b>
				\$	<b>1,847,525</b>

Total Retail

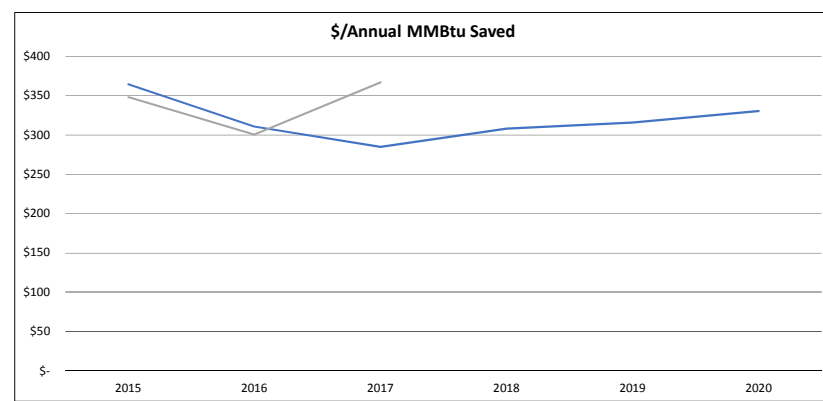
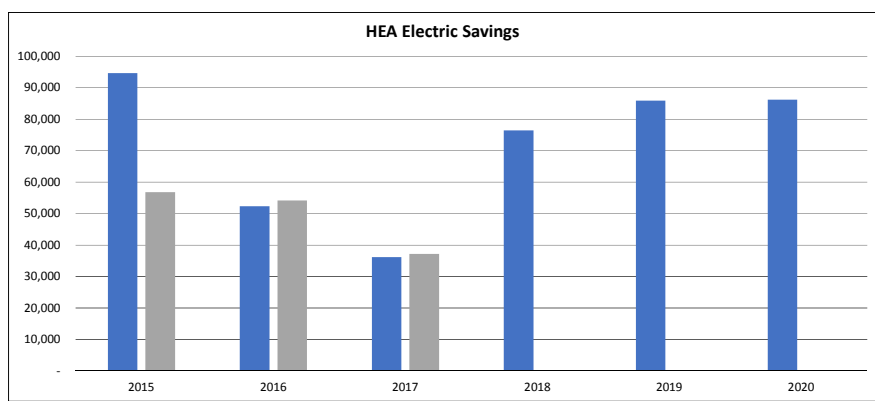
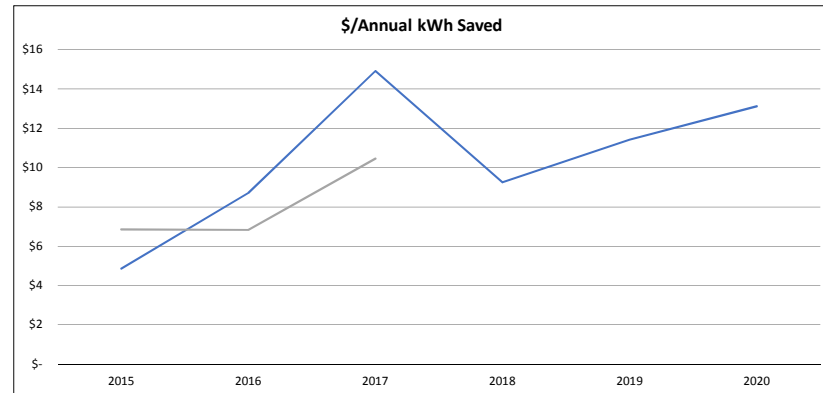
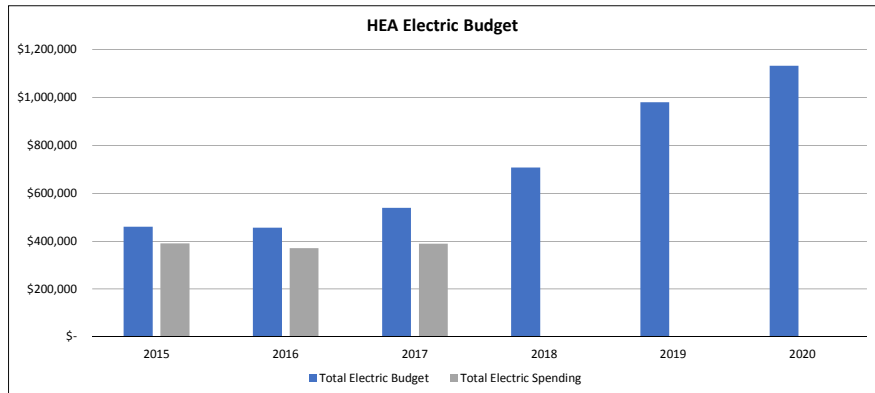
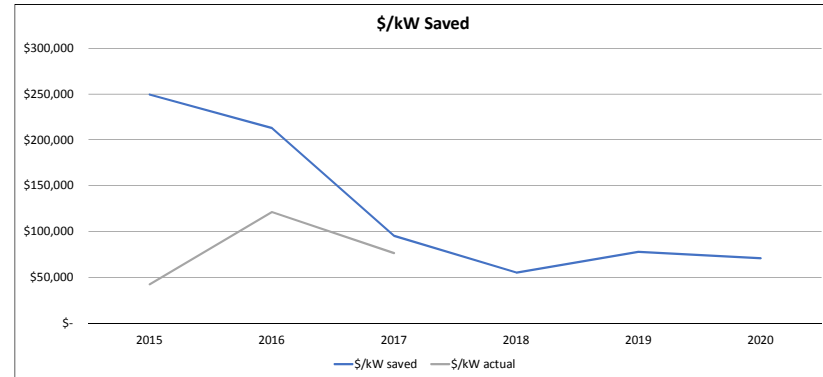
<b>Customers</b>		<b>918,765</b>			
<b>Meters</b>		n/a			
<b>Luminaires</b>		<b>110,191</b>			
<b>Billing Demand</b>		<b>2,373,206</b>			
<b>KWH</b>		<b>1,170,486,207</b>			
<b>Revenue</b>	\$		<b>16,630,558</b>	\$	<b>23,460,294</b>
				\$	<b>17,296,178</b>
				\$	<b>57,387,030</b>

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 459,624	\$ 455,327	\$ 538,874	\$ 706,636	\$ 980,094	\$ 1,131,599
	Total Annual Electric Savings (kWh)	94,642	52,270	36,129	76,371	85,861	86,200
	\$/Annual kWh Saved	\$ 4.86	\$ 8.71	\$ 14.92	\$ 9.25	\$ 11.41	\$ 13.13
2)	Total Electric Budget	\$ 459,624	\$ 455,327	\$ 538,874	\$ 706,636	\$ 980,094	\$ 1,131,599
	Total kW saved	2	2	6	13	13	16
	\$/kW saved	\$ 249,519	\$ 212,854	\$ 95,350	\$ 55,142	\$ 77,735	\$ 70,725
3)	Total Electric Budget	\$ 459,624	\$ 455,327	\$ 538,874	\$ 706,636	\$ 980,094	\$ 1,131,599
	Total Fuel Neutral MMBtu Saved	1,262	1,466	1,892	2,294	3,103	3,424
	\$/Total Fuel Neutral MMBtu Saved	\$ 364	\$ 311	\$ 285	\$ 308	\$ 316	\$ 331

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 389,541	\$ 369,329	\$ 388,231
	Total Annual Electric Savings (kWh)	56,811	54,124	37,140
	\$/Annual kWh Actual	\$ 6.86	\$ 6.82	\$ 10.45
2)	Total Electric Spending	\$ 389,541	\$ 369,329	\$ 388,231
	Total kW saved actual	9	3	5
	\$/kW actual	\$ 42,401	\$ 121,244	\$ 76,538
3)	Total Electric Spending	\$ 389,541	\$ 369,329	\$ 388,231
	Total Fuel Neutral MMBtu Actual	1,119	1,229	1,058
	\$/Total Fuel Neutral MMBtu Actual	\$ 348	\$ 301	\$ 367

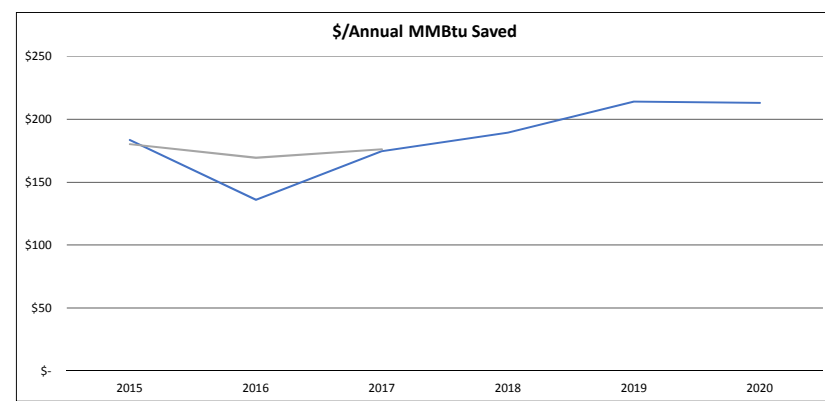
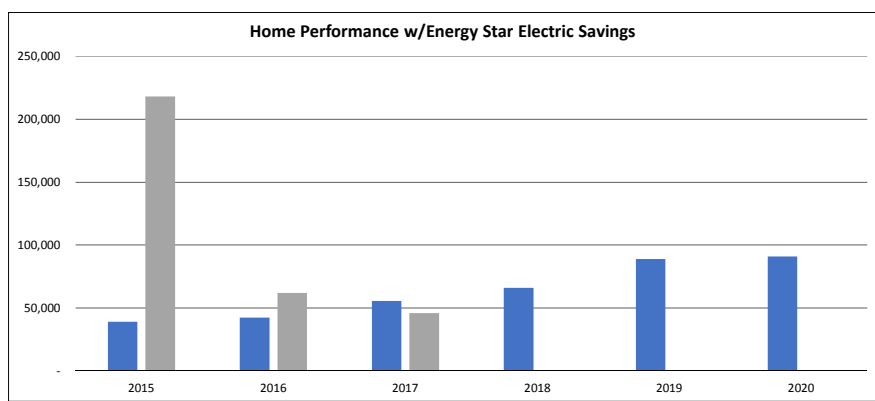
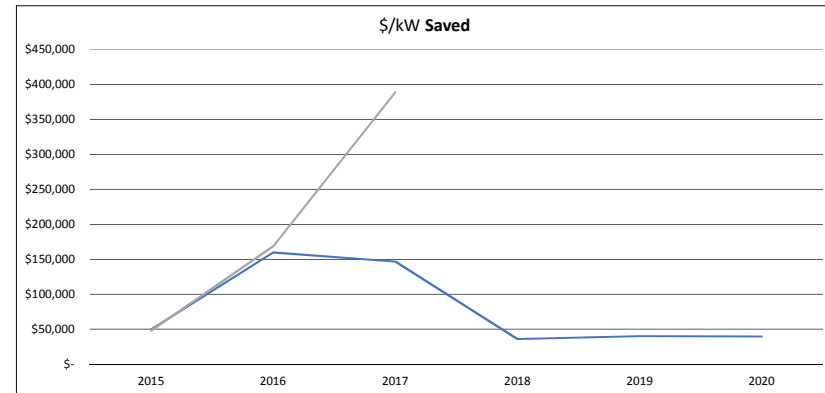
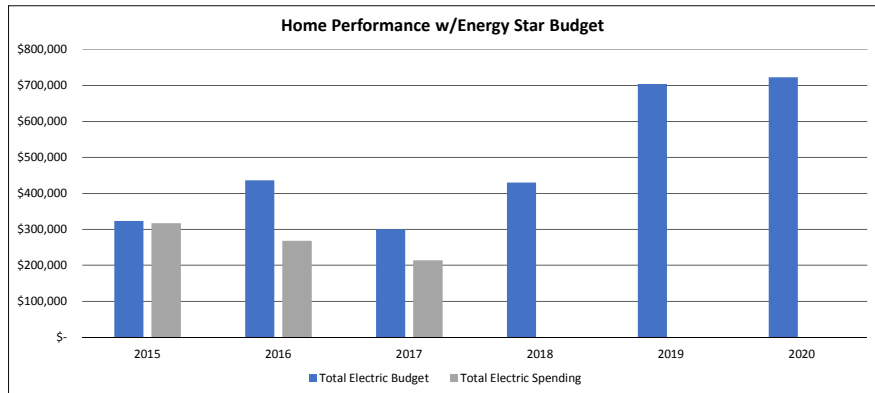
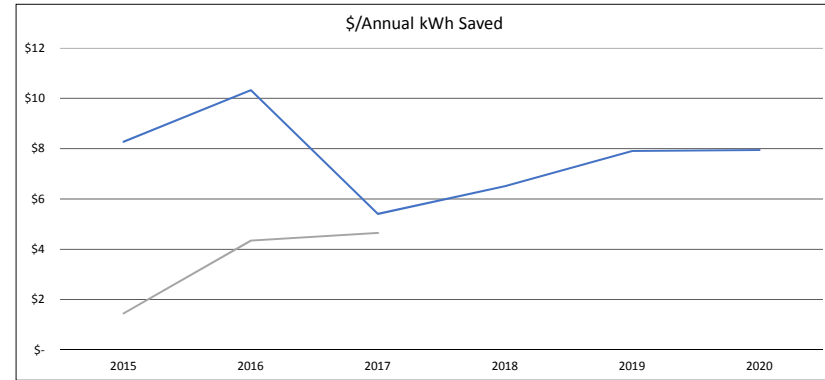


Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 322,990	\$ 436,631	\$ 300,000	\$ 430,000	\$ 704,300	\$ 722,540
	Total Annual Electric Savings (kWh)	39,053	42,289	55,485	66,052	89,008	91,000
	\$/Annual kWh Saved	\$ 8.27	\$ 10.33	\$ 5.41	\$ 6.51	\$ 7.91	\$ 7.94
2)	Total Electric Budget	\$ 322,990	\$ 436,631	\$ 300,000	\$ 430,000	\$ 704,300	\$ 722,540
	Total kW saved	7	3	2	12	18	18
	\$/kW saved	\$ 49,489	\$ 159,701	\$ 146,687	\$ 36,009	\$ 40,013	\$ 39,483
3)	Total Electric Budget	\$ 322,990	\$ 436,631	\$ 300,000	\$ 430,000	\$ 704,300	\$ 722,540
	Total Fuel Neutral MMBtu Saved	1,760	3,211	1,718	2,270	3,291	3,391
	\$/Total Fuel Neutral MMBtu Saved	\$ 184	\$ 136	\$ 175	\$ 189	\$ 214	\$ 213

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 316,629	\$ 268,193	\$ 213,462
	Total Annual Electric Savings (kWh)	218,042	61,812	45,885
	\$/Annual kWh Actual	\$ 1.45	\$ 4.34	\$ 4.65
2)	Total Electric Spending	\$ 316,629	\$ 268,193	\$ 213,462
	Total kW saved actual	7	2	1
	\$/kW actual	\$ 47,749	\$ 168,738	\$ 389,004
3)	Total Electric Spending	\$ 316,629	\$ 268,193	\$ 213,462
	Total Fuel Neutral MMBtu Actual	1,758	1,584	1,212
	\$/Total Fuel Neutral MMBtu Actual	\$ 180	\$ 169	\$ 176

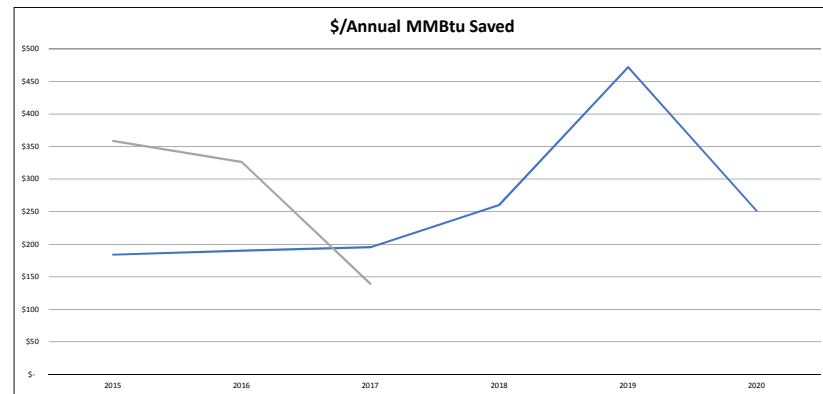
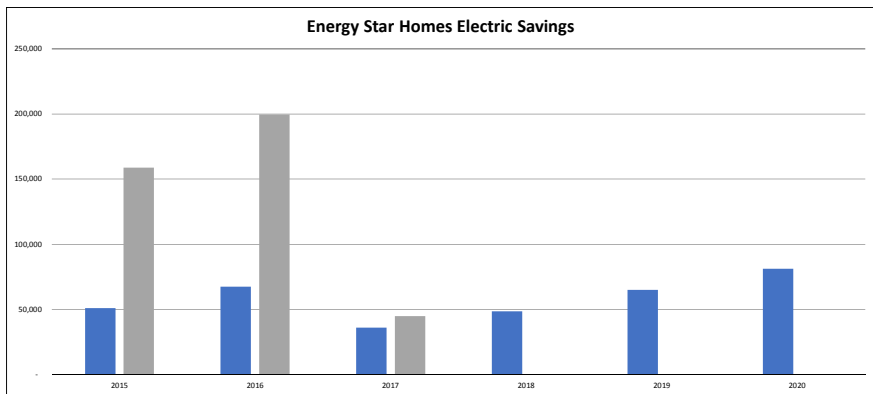
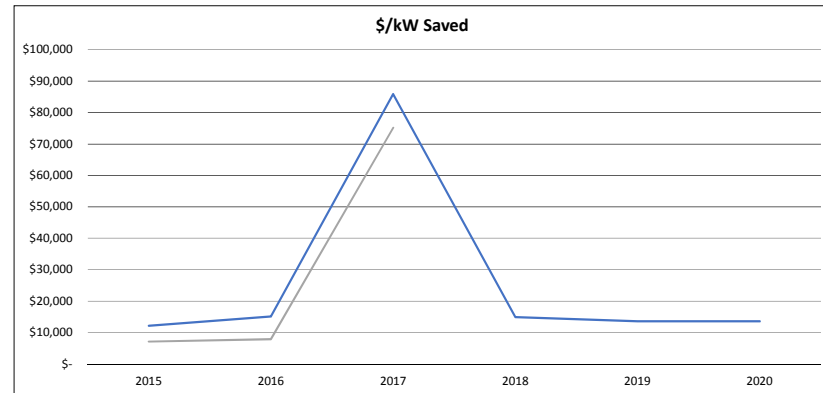
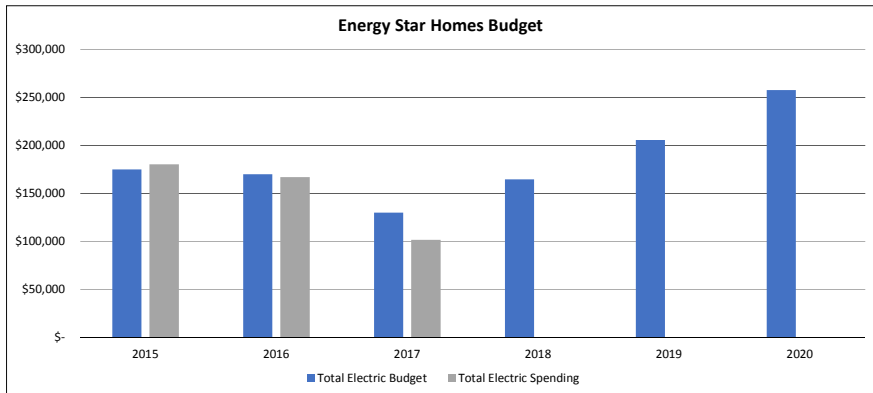
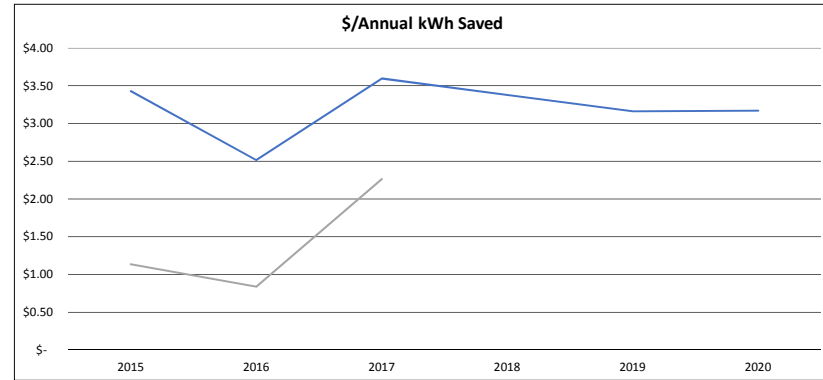


Energy Star Homes

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 175,000	\$ 170,000	\$ 130,000	\$ 164,704	\$ 205,783	\$ 257,650
	Total Annual Electric Savings (kWh)	51,012	67,579	36,136	48,724	65,093	81,200
	\$/Annual kWh Saved	\$ 3.43	\$ 2.52	\$ 3.60	\$ 3.38	\$ 3.16	\$ 3.17
2)	Total Electric Budget	\$ 175,000	\$ 170,000	\$ 130,000	\$ 164,704	\$ 205,783	\$ 257,650
	Total kW saved	14	11	2	11	15	19
	\$/kW saved	\$ 12,206	\$ 15,097	\$ 85,871	\$ 14,897	\$ 13,620	\$ 13,561
3)	Total Electric Budget	\$ 175,000	\$ 170,000	\$ 130,000	\$ 164,704	\$ 205,783	\$ 257,650
	Total Fuel Neutral MMBtu Saved	951	895	665	632	436	1,025
	\$/Total Fuel Neutral MMBtu Saved	\$ 184	\$ 190	\$ 195	\$ 260	\$ 472	\$ 251

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 180,414	\$ 167,126	\$ 101,427
	Total Annual Electric Savings (kWh)	159,007	199,655	44,813
	\$/Annual kWh Actual	\$ 1.13	\$ 0.84	\$ 2.26
2)	Total Electric Spending	\$ 180,414	\$ 167,126	\$ 101,427
	Total kW saved actual	25	21	1
	\$/kW actual	\$ 7,166	\$ 7,902	\$ 75,145
3)	Total Electric Spending	\$ 180,414	\$ 167,126	\$ 101,427
	Total Fuel Neutral MMBtu Actual	503	512	729
	\$/Total Fuel Neutral MMBtu Actual	\$ 359	\$ 326	\$ 139

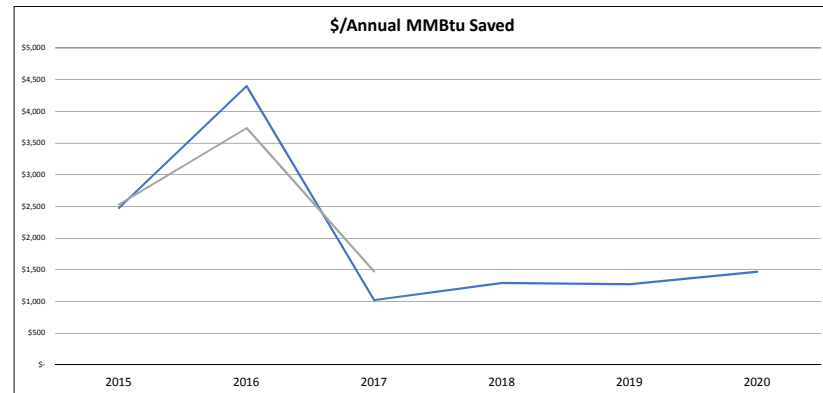
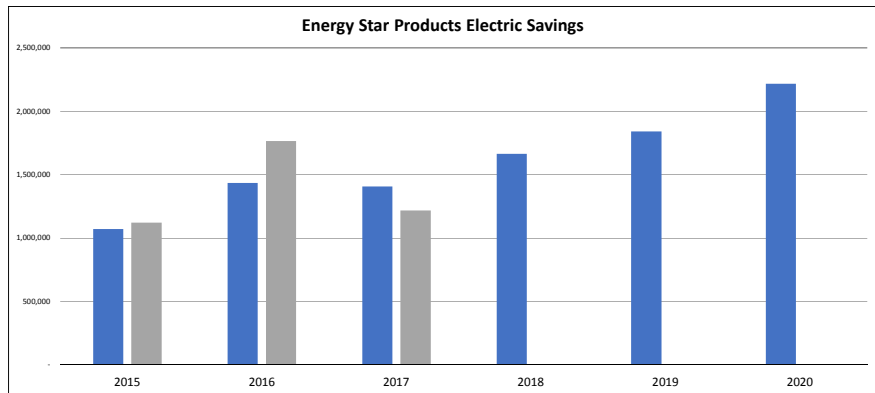
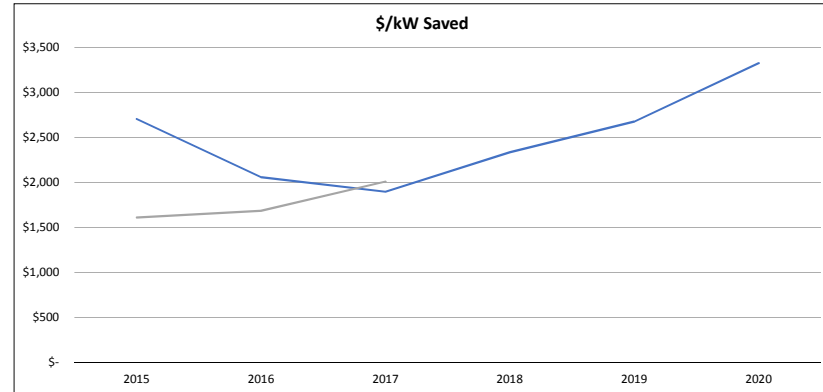
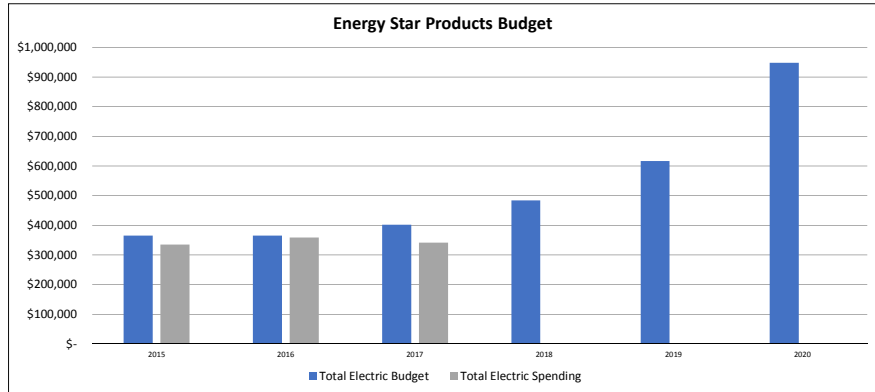
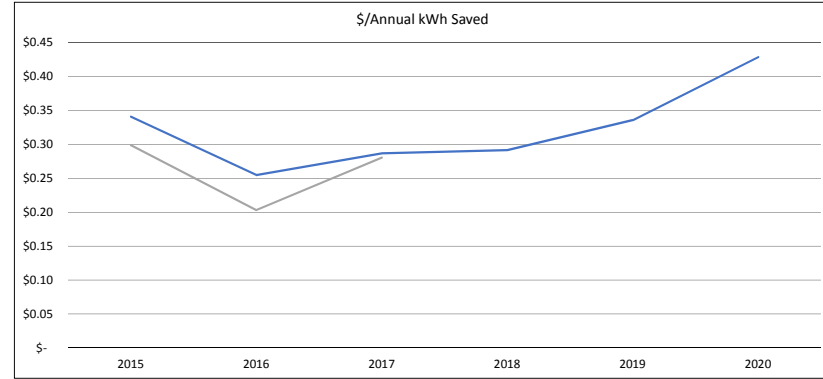


Energy Star Products

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 365,000	\$ 365,000	\$ 402,826	\$ 484,188	\$ 617,955	\$ 949,204
	Total Annual Electric Savings (kWh)	1,070,382	1,433,378	1,406,463	1,662,668	1,840,675	2,215,800
	\$/Annual kWh Saved	\$ 0.34	\$ 0.25	\$ 0.29	\$ 0.29	\$ 0.34	\$ 0.43
2)	Total Electric Budget	\$ 365,000	\$ 365,000	\$ 402,826	\$ 484,188	\$ 617,955	\$ 949,204
	Total kW saved	135	177	213	207	231	285
	\$/kW saved	\$ 2,706	\$ 2,059	\$ 1,895	\$ 2,336	\$ 2,676	\$ 3,326
3)	Total Electric Budget	\$ 365,000	\$ 365,000	\$ 402,826	\$ 484,188	\$ 617,955	\$ 949,204
	Total Fuel Neutral MMBtu Saved	147	83	395	374	485	645
	\$/Total Fuel Neutral MMBtu Saved	\$ 2,475	\$ 4,399	\$ 1,021	\$ 1,295	\$ 1,274	\$ 1,471

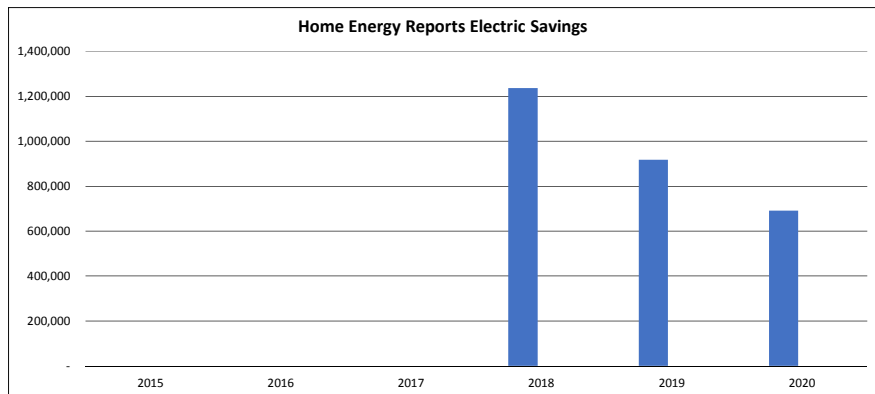
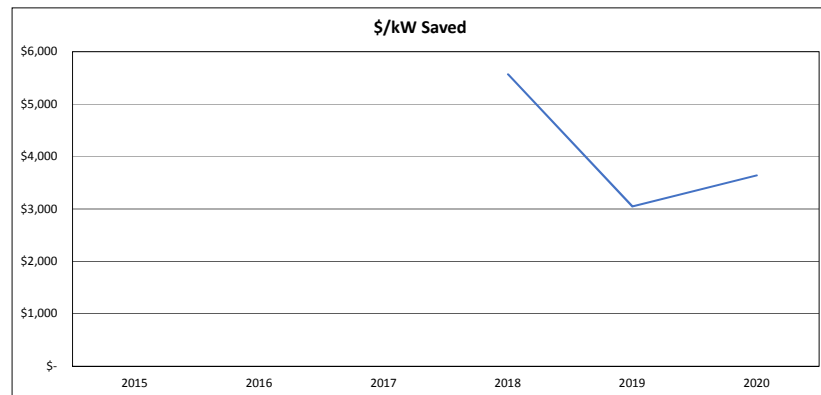
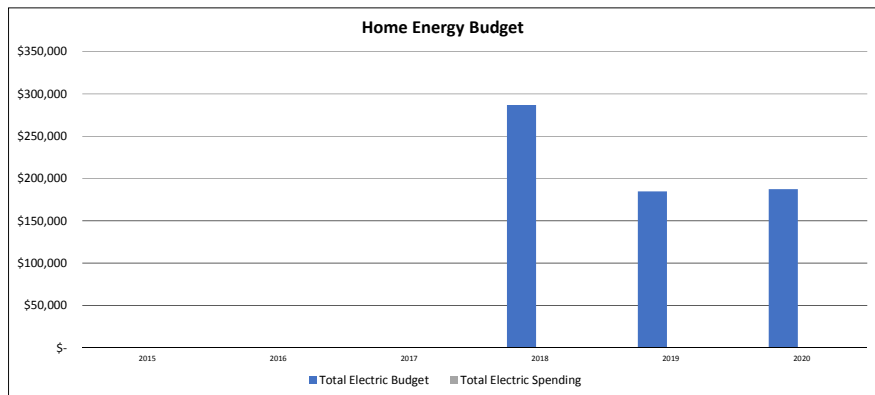
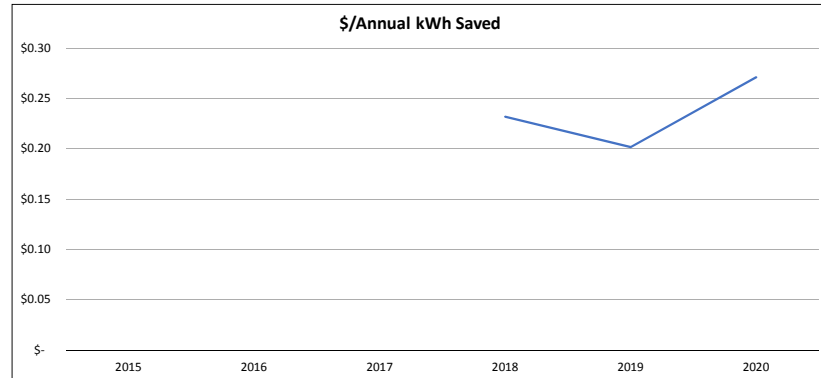
  

Actuals		2015	2016	2017
1)	Total Electric Spending	\$ 334,786	\$ 358,236	\$ 340,905
	Total Annual Electric Savings (kWh)	1,120,564	1,764,104	1,216,380
	\$/Annual kWh Actual	\$ 0.30	\$ 0.20	\$ 0.28
2)	Total Electric Spending	\$ 334,786	\$ 358,236	\$ 340,905
	Total kW saved actual	208	213	170
	\$/kW actual	\$ 1,609	\$ 1,682	\$ 2,009
3)	Total Electric Spending	\$ 334,786	\$ 358,236	\$ 340,905
	Total Fuel Neutral MMBtu Actual	132	96	231
	\$/Total Fuel Neutral MMBtu Actual	\$ 2,529	\$ 3,735	\$ 1,474



Home Energy Reports

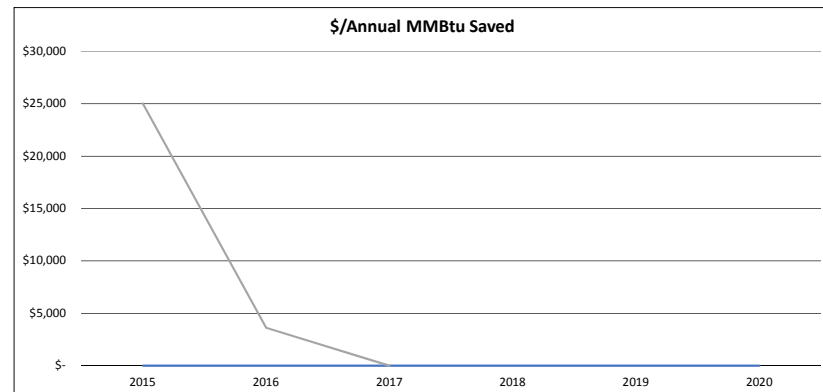
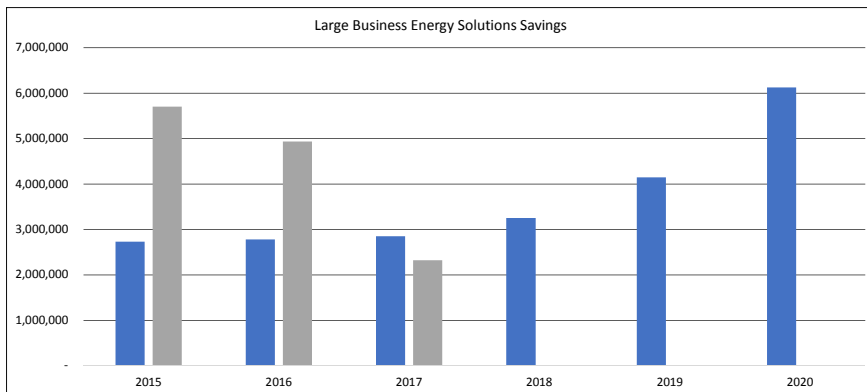
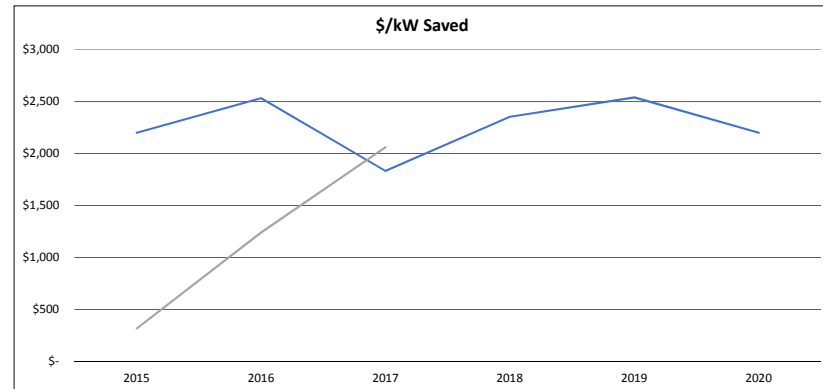
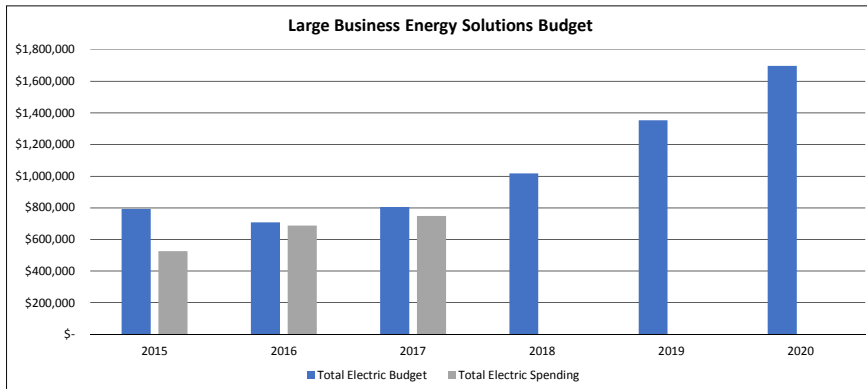
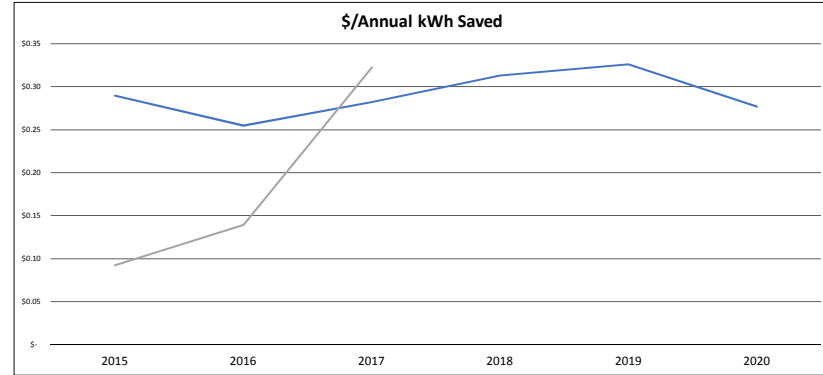
Planned	2015	2016	2017	2018	2019	2020
1) Total Electric Budget				\$ 286,984	\$ 184,985	\$ 187,500
Total Annual Electric Savings (kWh)				1,237,013	917,000	691,600
\$/Annual kWh Saved				\$ 0.23	\$ 0.20	\$ 0.27
2) Total Electric Budget				\$ 286,984	\$ 184,985	\$ 187,500
Total kW saved				52	61	52
\$/kW saved				\$ 5,568	\$ 3,047	\$ 3,641
3) Total Electric Budget				\$ 286,984	\$ 184,985	\$ 187,500
Total Fuel Neutral MMBtu Saved				-	-	-
\$/Total Fuel Neutral MMBtu Saved				-	-	-
<b>Actuals</b>						
1) Total Electric Spending						
Total Annual Electric Savings (kWh)						
\$/Annual kWh Actual						
2) Total Electric Spending						
Total kW saved actual						
\$/kW actual						
3) Total Electric Spending						
Total Fuel Neutral MMBtu Actual						
\$/Total Fuel Neutral MMBtu Actual						





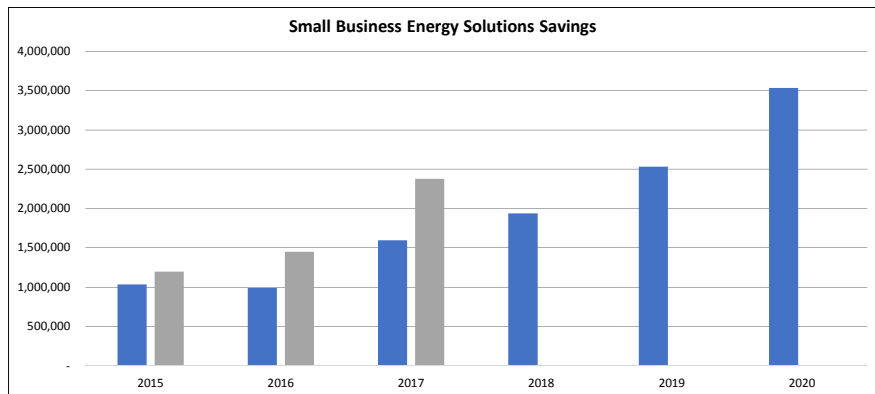
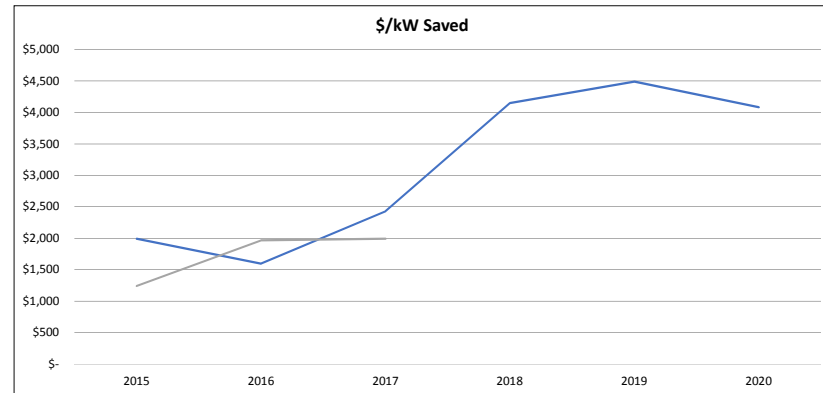
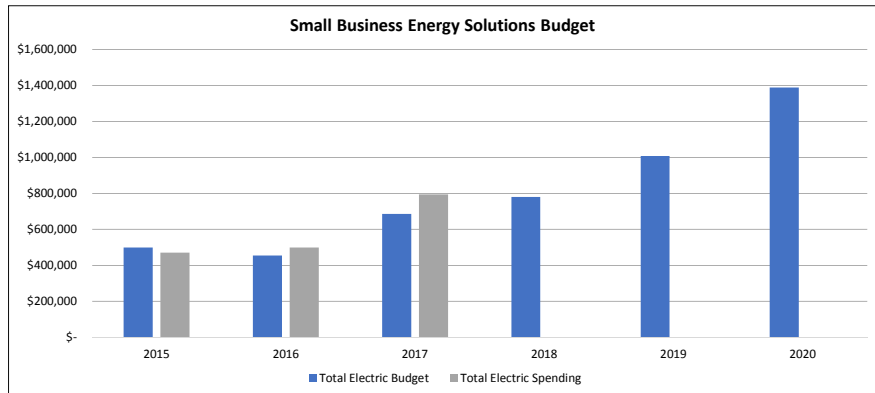
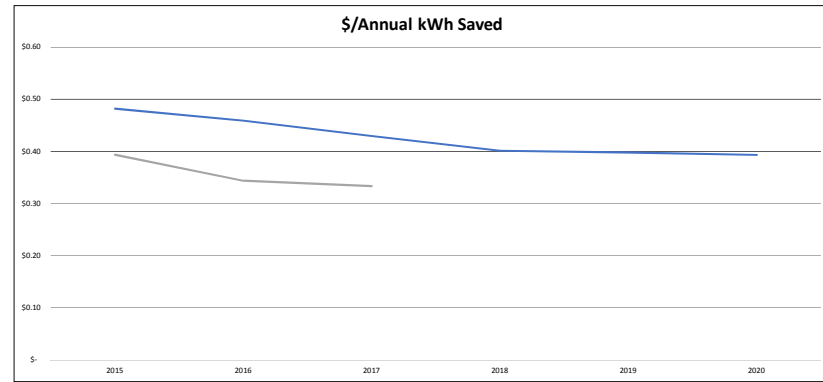
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 792,418	\$ 708,104	\$ 804,856	\$ 1,018,000	\$ 1,353,124	\$ 1,698,407
	Total Annual Electric Savings (kWh)	2,733,709	2,778,532	2,851,064	3,251,318	4,148,221	6,129,100
	\$/Annual kWh Saved	\$ 0.29	\$ 0.25	\$ 0.28	\$ 0.31	\$ 0.33	\$ 0.28
2)	Total Electric Budget	\$ 792,418	\$ 708,104	\$ 804,856	\$ 1,018,000	\$ 1,353,124	\$ 1,698,407
	Total kW saved	360	279	439	432	533	772
	\$/kW saved	\$ 2,201	\$ 2,535	\$ 1,833	\$ 2,354	\$ 2,540	\$ 2,201
3)	Total Electric Budget	\$ 792,418	\$ 708,104	\$ 804,856	\$ 1,018,000	\$ 1,353,124	\$ 1,698,407
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-
Actuals		2015	2016	2017			
1)	Total Electric Spending	\$ 527,212	\$ 688,316	\$ 748,208			
	Total Annual Electric Savings (kWh)	5,704,791	4,938,618	2,319,911			
	\$/Annual kWh Actual	\$ 0.09	\$ 0.14	\$ 0.32			
2)	Total Electric Spending	\$ 527,212	\$ 688,316	\$ 748,208			
	Total kW saved actual	1,660	555	363			
	\$/kW actual	\$ 318	\$ 1,240	\$ 2,062			
3)	Total Electric Spending	\$ 4,674,280	\$ 4,476,682	\$ 4,476,682			
	Total Fuel Neutral MMBtu Actual	187	1,239	-			
	\$/Total Fuel Neutral MMBtu Actual	\$ 25,023	\$ 3,613	-			



Small Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget	\$ 500,000	\$ 455,001	\$ 686,088	\$ 779,756	\$ 1,008,203	\$ 1,390,000
	Total Annual Electric Savings (kWh)	1,037,376	990,500	1,597,407	1,941,463	2,535,530	3,534,500
	\$/Annual kWh Saved	\$ 0.48	\$ 0.46	\$ 0.43	\$ 0.40	\$ 0.40	\$ 0.39
2)	Total Electric Budget	\$ 500,000	\$ 455,001	\$ 686,088	\$ 779,756	\$ 1,008,203	\$ 1,390,000
	Total kW saved	251	285	282	188	224	341
	\$/kW saved	\$ 1,993	\$ 1,597	\$ 2,431	\$ 4,150	\$ 4,492	\$ 4,081
3)	Total Electric Budget	\$ 500,000	\$ 455,001	\$ 686,088	\$ 779,756	\$ 1,008,203	\$ 1,390,000
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-
Actuals		2015	2016	2017			
1)	Total Electric Spending	\$ 471,603	\$ 499,144	\$ 794,503			
	Total Annual Electric Savings (kWh)	1,198,434	1,451,929	2,381,725			
	\$/Annual kWh Actual	\$ 0.39	\$ 0.34	\$ 0.33			
2)	Total Electric Spending	\$ 471,603	\$ 499,144	\$ 794,503			
	Total kW saved actual	380	254	398			
	\$/kW actual	\$ 1,241	\$ 1,967	\$ 1,994			
3)	Total Electric Spending	\$ 3,059,995	\$ 2,401,442	\$ 2,401,442			
	Total Fuel Neutral MMBtu Actual	-	-	-			
	\$/Total Fuel Neutral MMBtu Actual	-	-	-			

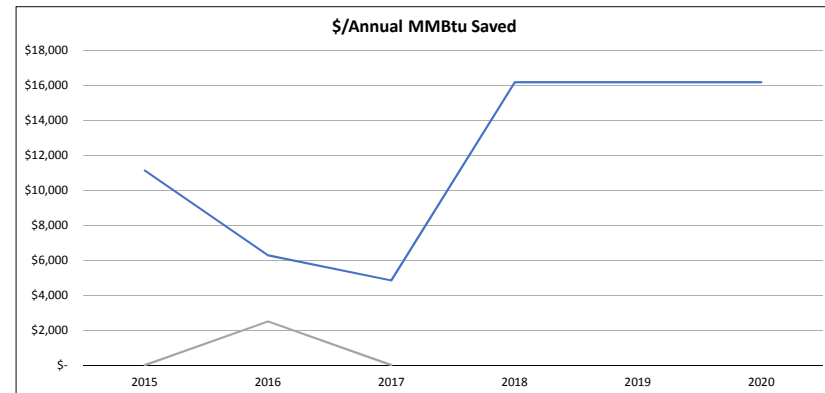
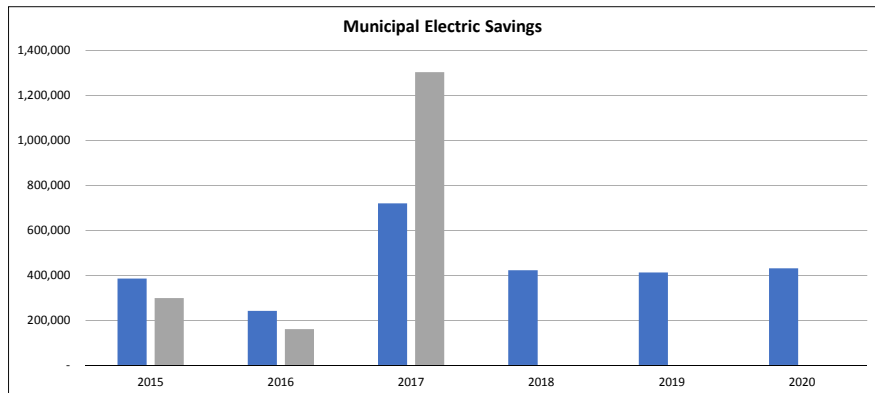
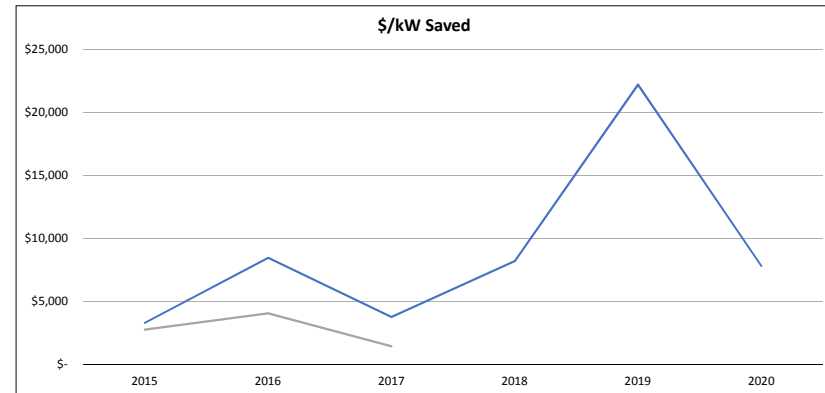
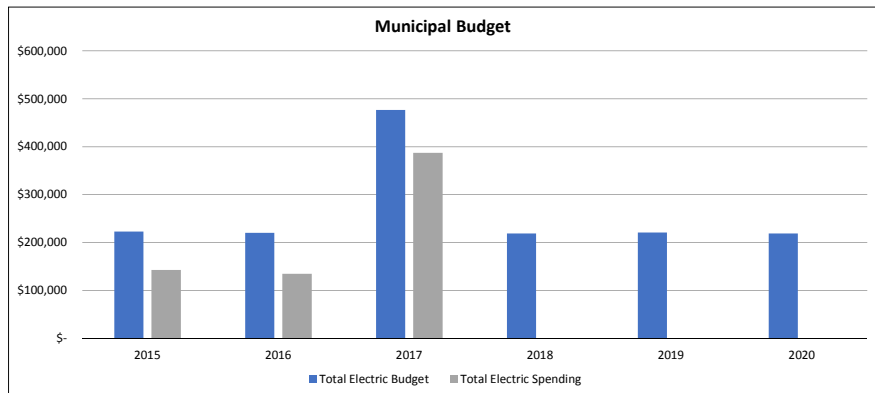
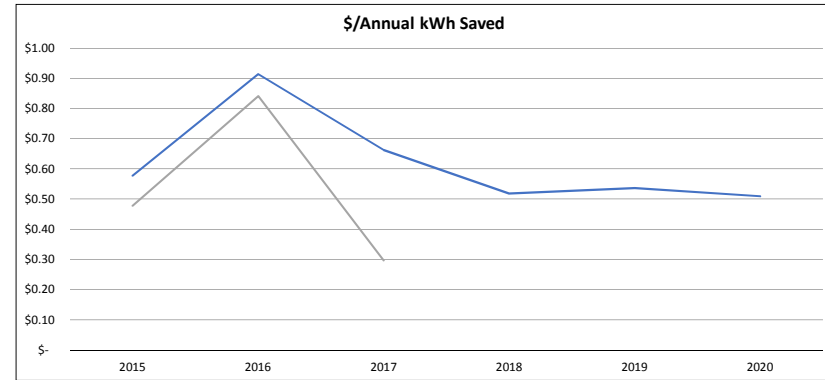


**Municipal**

<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
1)	Total Electric Budget	\$ 222,574	\$ 219,876	\$ 476,529	\$ 218,878	\$ 220,642	\$ 218,878
	Total Annual Electric Savings (kWh)	385,144	240,506	718,947	422,167	411,529	429,700
	\$/Annual kWh Saved	\$ 0.58	\$ 0.91	\$ 0.66	\$ 0.52	\$ 0.54	\$ 0.51
2)	Total Electric Budget	\$ 222,574	\$ 219,876	\$ 476,529	\$ 218,878	\$ 220,642	\$ 218,878
	Total kW saved	68	26	127	27	10	28
	\$/kW saved	\$ 3,285	\$ 8,458	\$ 3,757	\$ 8,201	\$ 22,229	\$ 7,817
3)	Total Electric Budget	\$ 1,797,393	\$ 1,453,463	\$ 1,452,443	\$ 1,456,555	\$ 1,456,555	\$ 1,456,555
	Total Fuel Neutral MMBtu Saved	161	231	300	90	90	90
	\$/Total Fuel Neutral MMBtu Saved	\$ 11,136	\$ 6,292	\$ 4,841	\$ 16,184	\$ 16,184	\$ 16,184

<b>Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>
1)	Total Electric Spending	\$ 142,709	\$ 134,369	\$ 386,763
	Total Annual Electric Savings (kWh)	298,503	159,791	1,303,245
	\$/Annual kWh Actual	\$ 0.48	\$ 0.84	\$ 0.30
2)	Total Electric Spending	\$ 142,709	\$ 134,369	\$ 386,763
	Total kW saved actual	52	33	270
	\$/kW actual	\$ 2,761	\$ 4,053	\$ 1,433
3)	Total Electric Spending	\$ 1,798,133	\$ 1,447,065	\$ 1,447,065
	Total Fuel Neutral MMBtu Actual	-	579	-
	\$/Total Fuel Neutral MMBtu Actual	-	-	-



**Program Cost-Effectiveness - 2019 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
<b>Residential Programs</b>											
Home Energy Assistance	1.19	1,555.0	1,310.3	-	47.5	968.2	24.1	-	245	7,637.0	155,506.8
Energy Star Homes	1.26	678.9	421.4	118.3	47.7	1,192.5	4.5	11.6	121	2,576.8	64,419.4
Home Performance with Energy Star	1.40	2,041.7	1,035.8	417.5	178.0	1,147.1	38.0	27.8	692	10,825.2	201,356.8
Energy Star Products	1.14	1,888.1	925.0	735.7	40.6	689.1	20.6	-	1,470	11,990.0	201,701.3
Home Energy Reports	1.02	277.0	270.8	-	-	-	-	-	38,000	7,384.0	27,356.0
<b>Sub-Total Residential</b>	<b>1.23</b>	<b>6,440.6</b>	<b>3,963.2</b>	<b>1,271.5</b>	<b>313.9</b>	<b>3,996.9</b>	<b>87.2</b>	<b>39.3</b>	<b>40,528</b>	<b>40,412.9</b>	<b>650,340.2</b>
<b>Commercial, Industrial &amp; Municipal</b>											
Large Business Energy Solutions	1.79	9,534.6	2,300.3	3,019.7	-	-	-	-	94	65,862.9	1,155,639.6
Small Business Energy Solutions	1.72	3,988.5	1,362.0	952.7	-	-	-	-	771	31,804.2	486,961.8
C&I Education	0.00	-	82.4	-	-	-	-	-	-	-	-
<b>Sub-Total Commercial &amp; Industrial</b>	<b>1.75</b>	<b>13,523.1</b>	<b>3,744.7</b>	<b>3,972.4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>864</b>	<b>97,667.1</b>	<b>1,642,601.4</b>
<b>Total</b>	<b>1.54</b>	<b>19,963.8</b>	<b>7,707.9</b>	<b>5,243.9</b>	<b>313.9</b>	<b>3,996.9</b>	<b>87.2</b>	<b>39.3</b>	<b>41,392</b>	<b>138,080.0</b>	<b>2,292,941.6</b>

Note: a 10% NEI adder is applied to total benefits, and an additional 10% NEI adder is applied to total benefits of the Home Energy Assistance program, excluding water.

Present Value Benefits - 2019 PLAN

	Total Benefits (\$000)	CAPACITY				ENERGY				Electric DRIPE	Gas Benefits	Gas DRIPE	Other Fuels Benefits	Fossil Emissions	Water Benefits	Other Non- Resource Benefits
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak							
<b>Residential Programs</b>																
Home Energy Assistance	\$ 1,555	\$ -	\$ -	\$ -	\$ -	\$ 25	\$ 24	\$ 0	\$ 0	\$ 1	\$ 1,091	\$ 36	\$ -	\$ 143	\$ -	\$ 235.30
Energy Star Homes	\$ 679	\$ 18	\$ -	\$ 19	\$ 17	\$ 17	\$ 23	\$ 7	\$ 9	\$ 5	\$ 431	\$ 12	\$ -	\$ 65	\$ -	\$ 56
Home Performance with Energy Star	\$ 2,042	\$ 8	\$ -	\$ 15	\$ 13	\$ 25	\$ 21	\$ 9	\$ 8	\$ 5	\$ 1,404	\$ 47	\$ -	\$ 181	\$ 149	\$ 156
Energy Star Products	\$ 1,888	\$ -	\$ -	\$ -	\$ -	\$ 18	\$ 18	\$ 0	\$ 0	\$ 1	\$ 1,466	\$ 56	\$ -	\$ 173	\$ -	\$ 156
Home Energy Reports	\$ 277	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 218	\$ 18	\$ -	\$ 17	\$ -	\$ 24
<b>Sub-Total Residential</b>	<b>\$ 6,441</b>	<b>\$ 26</b>	<b>\$ -</b>	<b>\$ 34</b>	<b>\$ 30</b>	<b>\$ 85</b>	<b>\$ 86</b>	<b>\$ 17</b>	<b>\$ 18</b>	<b>\$ 11</b>	<b>\$ 4,609</b>	<b>\$ 169</b>	<b>\$ -</b>	<b>\$ 580</b>	<b>\$ 149</b>	<b>\$ 626</b>
<b>Commercial/Industrial Programs</b>																
Large Business Energy Solutions	\$ 9,535	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,445	\$ 303	\$ -	\$ 1,011	\$ -	\$ 774.83
Small Business Energy Solutions	\$ 3,989	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,953	\$ 111	\$ -	\$ 417	\$ 202	\$ 306
C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-Total Commercial &amp; Industrial</b>	<b>\$ 13,523</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 10,398</b>	<b>\$ 415</b>	<b>\$ -</b>	<b>\$ 1,428</b>	<b>\$ 202</b>	<b>\$ 1,081</b>
<b>Total</b>	<b>\$ 19,964</b>	<b>\$ 26</b>	<b>\$ -</b>	<b>\$ 34</b>	<b>\$ 30</b>	<b>\$ 85</b>	<b>\$ 86</b>	<b>\$ 17</b>	<b>\$ 18</b>	<b>\$ 11</b>	<b>\$ 15,007</b>	<b>\$ 584</b>	<b>\$ -</b>	<b>\$ 2,008</b>	<b>\$ 351</b>	<b>\$ 1,707</b>

**Performance Incentive Calculation  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	1.71	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime MMBtu Savings	<b>1,642,601</b>	
4. Threshold Lifetime MMBtu Savings (65%) <sup>2</sup>	1,067,691	
5. Implementation Expenses	\$3,744,684	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
<b>8. Commercial &amp; Industrial Performance Incentive</b>	\$205,958	
<b>9. Maximum Commercial &amp; Industrial Performance Incentive (6.875%)</b>	\$257,447	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.18</b>	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime MMBtu Savings	<b>650,340</b>	
13. Threshold Lifetime MMBtu Savings (65%)	422,721	
14. Implementation Expenses	\$3,963,210	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
<b>17. Residential Performance Incentive</b>	\$217,977	
<b>18. Maximum Residential Performance Incentive (6.875%)</b>	\$272,471	
<b>19. TOTAL PLANNED / EARNED INCENTIVE</b>	<b>\$423,934</b>	

**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.
3. Benefit Cost ratios are Nominal\$/Nominal\$

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
1. Benefits (Value) From Eligible Programs	\$ 13,523,142	\$ -
2. Implementation Expenses	\$ 3,744,684	\$ -
3. Customer Contribution	\$ 3,972,387	\$ -
4. Performance Incentive	\$ 205,958	\$ -
5. Total Costs	\$ 7,923,028	\$ -
6. Benefit/Cost Ratio - Commercial & Industrial Sector	<b>1.71</b>	
<b>Residential</b>		
7. Benefits (Value) From Eligible Programs	\$ 6,440,637	\$ -
8. Implementation Expenses	\$ 3,963,210	\$ -
9. Customer Contribution	\$ 1,271,476	\$ -
10. Performance Incentive	\$ 217,977	\$ -
11. Total Costs	\$ 5,452,662	\$ -
12. Benefit/Cost Ratio - Residential Sector	<b>1.18</b>	

**Lifetime Energy Savings by Sector and Program  
 2019**

	<b>Lifetime MMBtu Savings</b>	
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Commercial &amp; Industrial</b>		
Large Business Energy Solutions	1,155,640	
Small Business Energy Solutions	486,962	
Municipal Energy Solutions	-	
C&I Customer Partnerships	-	
Energy Rewards RFP Program	-	
C&I Customer Engagement Platform	-	
C&I Education	-	
ISO Forward Capacity Market Expenses	-	
<b>Total Commercial &amp; Industrial</b>	<b>1,642,601</b>	
<b>Residential</b>		
Home Energy Assistance	155,507	
Energy Star Homes	64,419	
Home Performance with Energy Star	201,357	
Energy Star Products	201,701	
Home Energy Reports	27,356	
Res Customer Engagement Platform	-	
ISO-NE Forward Capacity Market Expenses	-	
<b>Total Residential</b>	<b>650,340</b>	



Liberty Utilities Gas Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan
Boiler - NG Boiler Replacement AFUE>=90%			20			142.0			20		86.9%			49,359			19.40		100.0%			7,760
Furnace - NG Furnace Replacement AFUE>=90%			20			162.0			18		86.9%			50,680			18.59		100.0%			6,693
Multifamily weatherization	118	146	130	179	19	170.6	21	20	21	100.0%	86.9%	436,989	55,640	400,135	18.30	6.98	8.63	100%	98.1%	44,601	20,541	22,860
Single Family weatherization	80	81	115	368	482	215.6	20	21	21	100.0%	86.9%	577,899	829,072	446,229	39.10	42.69	48.89	100%	98.1%	61,432	73,414	114,219
Thermostat - Standard, 7-Day Programmable			89			18.9			15		86.9%			21,831			3.05		98.1%			3,975
LED lighting			-						5		86.9%								98.1%			
Non-Energy Saving Measures audits			-						1		86.9%								98.1%			
<b>Program Summary*</b>				<b>50,719</b>	<b>41,806</b>	<b>47,539</b>						<b>1,014,887</b>	<b>884,712</b>	<b>#####</b>	<b>5,302</b>	<b>4,476</b>	<b>7,623</b>			<b>106,032</b>	<b>93,955</b>	<b>155,507</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings based on recent trends and reflect expected project sizes.
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.

Liberty Utilities Gas Home Performance with ENERGY STAR®

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	
Baseload Audit - Thermal Savings			500			-		14		100%			-			7.71		100%				54,345	
Single Family Weatherization	207	93	192	895	52	-	21.2	21.8	21	100%	3,707,398	249,500	-	35.58	37.72	34.32	100%	100%	156,463	76,319	140,203		
Thermostat - Standard, 7-Day Programmable			67			-		15		100%			-			5.67		100%				5,715	
Non-Energy Saving Measures			192			-		1		100%			-			0.00		100%				-	
Electric Measures			192			87.7		20		100%			341,365					100%					
Baseload Audit - Electric Savings			500			322.3		5		100%			805,700					100%					
<b>Program Summary*</b>				<b>185,370</b>	<b>4,817</b>	<b>16,845</b>							<b>3,707,398</b>	<b>249,500</b>	<b>1,147,065</b>	<b>7,369</b>	<b>3,508</b>	<b>9,723</b>			<b>156,463</b>	<b>76,319</b>	<b>200,263</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings based on recent trends and reflect expected project sizes.

Liberty Utilities Gas ENERGY STAR® Homes Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan
Clothes washer			-			-			11		100%			-			3		75%			-
Water Heating Savings			-			-			20		100%			-					75%			-
ES Homes	44	44	-	656	47	-	25	25	25	100%	100%	718,062	51,266	-	42	48		100%	75%	45,716	52,587	
LED lighting			-			-			5		100%			-					75%			-
Lighting and Appliances			-			-			20		100%			-					75%			-
HERS Raters			-			-			1		100%			-					75%			-
Single-Family			21			1,892			25		100%			993,038			34		100%			17,994
Multi-Family			100			80			25		100%			199,487			19		100%			46,425
<b>Program Summary*</b>				<b>28,722</b>	<b>2,051</b>	<b>47,701</b>						<b>718,062</b>	<b>51,266</b>	<b>1,192,524</b>	<b>1,829</b>	<b>2,103</b>	<b>2,577</b>			<b>45,716</b>	<b>52,587</b>	<b>64,419</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings based on recent trends and reflect expected project sizes.

Liberty Utilities Gas ENERGY STAR® Products Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	66	30		0	0		20	20		100%		-	-		8.00	8.00		100%		10,560	4,800	
Condensing Boiler w/On-Demand DHW >= 90% AFUE	115	6	40	0	0	0.0	19	19	19	100%	100%	-	-	-	10.30	10.30	10.30	100%	100%	22,481	1,174	7,828
Condensing Boiler w/On-Demand DHW >= 95% AFUE	5	113	160	0	0	0.0	19	19	19	100%	100%	-	-	-	12.80	12.80	12.80	100%	100%	1,216	27,482	38,912
Water Heater - Tankless, On-Demand >=.94	111	333		0	0		19	19		100%		-	-		9.90	9.90		100%		20,879	62,637	
Water Heater - Condensing (EF 0.95)	0	1		0	0		15	15		100%		-	-		0.00	8.50		100%		0	128	
Boiler - Early Replacement, FHW - EE 90 AFUE (80%-90%)	38	25		0	0		10	10		100%		-	-		7.00	7.00		100%		2,660	1,750	
Boiler - Early Replacement, FHW - Retirement: 90 AFUE (65%-90%)	38	25		0	0		20	20		100%		-	-		11.40	11.40		100%		8,664	5,700	
Boiler - Early Replacement, Steam - EE: 82%+ AFUE	2	1		0	0		10	10		100%		-	-		2.90	2.90		100%		58	29	
Boiler - Early Replacement, Steam - Retirement: 82%+ AFUE	2	1		0	0		20	20		100%		-	-		8.00	8.00		100%		320	160	
Boiler Reset Controls	5	1	2	0	0	0.0	15	15	15	100%	100%	-	-	-	4.50	4.50	4.50	100%	100%	338	68	135
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	50	30	60	0	0	0.0	20	20	18	100%	100%	-	-	-	11.40	11.40	11.40	100%	100%	11,400	6,840	12,312
Condensing Boiler >= 95% AFUE (Up to 300 MBH)	45	61	99	0	0	0.0	20	20	19	100%	100%	-	-	-	14.10	14.10	14.10	100%	100%	12,690	17,202	26,575
Furnace 95+ AFUE (<150) w/ECM Motor	145	98	135	168	168	168.0	17	17	17	100%	100%	414,120	279,888	385,560	8.10	8.10	8.10	100%	100%	19,967	13,495	18,590
Furnace 97+ AFUE (<150) w/ECM Motor	90	66	110	168	168	168.0	17	17	17	100%	100%	257,040	188,496	314,160	9.20	9.20	9.20	100%	100%	14,076	10,322	17,204
Heat Recovery Ventilator (-133 kWh penalty)	0	1	4	0	-133	(133.0)	0	20	20	100%	100%	-	(2,660)	(10,640)	0.00	7.00	7.70	100%	100%	0	140	616
Thermostat - Standard, 7-Day Programmable	170	108	110	0	0	0.0	15	15	15	100%	100%	-	-	-	2.30	2.30	3.20	100%	100%	5,865	3,726	5,280
Thermostat - WiFi (Heating Only)	480	524	750	0	0	0.0	15	15	15	100%	100%	-	-	-	6.60	6.60	6.60	100%	100%	47,520	51,876	74,250
<b>Program Summary*</b>				<b>39,480</b>	<b>27,419</b>	<b>40,628</b>						<b>671,160</b>	<b>465,724</b>	<b>689,080</b>	<b>10,384</b>	<b>11,846</b>	<b>11,990</b>			<b>178,693</b>	<b>207,528</b>	<b>201,701</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Liberty Utilities Gas Home Energy Reports Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan
Home Energy Reports	38,000	38,000	38,000	-	-	-	3.4	3.5	3.7	100%	100%	-	-	-	0.26	0.26	0.19	100%	100%	32,600	33,878	27,356
<b>Program Summary*</b>				-	-	-									<b>9,700</b>	<b>9,708</b>	<b>7,384</b>			<b>32,600</b>	<b>33,878</b>	<b>27,356</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual MMBtu Savings developed with program implementation support vendor

Liberty Utilities Gas Large Business Energy Solutions Programs

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan
Large Business Custom	39	27	45				13	18	18	100%	100%	-	-	-	1,133.00	1,329.39	1,508.11	100%	91%	572,222	654,147	1,104,835
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	3	0					25	25		0%		-	-		30.60	0.00		100%		2,295	0	
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	2	2	4				25	25	25	100%	100%	-	-		58.40	58.40	28.00	100%	102%	2,920	2,920	2,859
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	5	0	4				25	25	25	100%	100%	-	-		107.30	0.00	51.40	100%	102%	13,413	0	5,248
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	3	0	4				25	25	25	100%	100%	-	-	-	197.20	0.00	94.50	100%	102%	14,790	0	9,648
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	3	0	4				25	25	25	100%	100%	-	-	-	345.10	0.00	165.30	100%	102%	25,883	0	16,130
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	0	1					20	20		0%		-	-		31.80	31.80		100%		0	636	
Infrared Heater, Low Intensity (all sizes)			21				17	17	17	100%	100%						12.00	100%	102%			4,374
Steam Trap	140	139	200				6	6	6	100%	100%	-	-		25.70	56.95	12.20	100%	91%	21,588	47,499	12,545
Thermostat - Standard, 7-Day Programmable	30	0					15	15	15	100%	100%	-	-		3.20	0.00		100%		1,440	0	
Kitchen - Combination Oven (>= 44% efficiency)	0	1					12	12	12	100%	100%	-	-		112.00	112.00		100%	102%	0	1,344	
Kitchen - Griddle	0	1					12	12	12	100%	100%	-	-		13.10	13.10		100%	102%	0	157	
Kitchen - Steamer (ES >= 38% efficiency)	0	1					12	12	12	100%	100%	-	-		105.40	105.40		100%	102%	0	1,265	
<b>Program Summary*</b>				-	-	-									<b>50,253</b>	<b>44,189</b>	<b>65,863</b>			<b>654,550</b>	<b>707,968</b>	<b>1,155,640</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings based on recent trends and reflect expected project sizes.
2. Approximate number of Steam Traps per project is 17

Liberty Utilities Gas Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life			Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan	2017 Actuals	2019 Plan	2017 Plan + Actual	2019 Plan	2017 Plan	2017 Actuals	2019 Plan
Small Business Custom	39	47	120	0	1,914	0	12	18	17	100%	100%	-	1,594,392	-	639.00	104.82	84.23	100%	100%	309,238	87,297	174,268
Aerator	1305	2,704	160	0	0	0	10	10	10	100%	100%	-	-	-	1.70	1.70	1.70	100%	100%	22,185	45,968	2,720
Salon Sprayer	20	87	110	0	0	0	8	5	5	100%	100%	-	-	-	11.40	13.20	13.20	100%	100%	1,824	5,742	7,260
Shower Head	1000	776	25	0	0	0	10	10	10	100%	100%	-	-	-	2.65	2.65	2.65	100%	100%	26,500	20,564	663
Shower Head Hand Handle	16	376	12	0	0	0	10	10	10	100%	100%	-	-	-	2.65	2.65	2.65	100%	100%	424	9,964	318
Evolve Shower Head Base-Model	0	6	0	0	0	0	7	7	7	100%	100%	-	-	-	1.66	1.66	1.66	100%	100%	0	70	0
Water Heater - Storage >=75 MBTUH, 90% TE	0	5	28	0	0	0	15	15	15	100%	100%	-	-	-	23.05	23.05	23.05	100%	100%	0	1,729	9,681
Water Heater - Volume >=75 MBTUH, 92% TE	0	2	0	0	0	0	15	15	15	100%	100%	-	-	-	233.68	233.68	233.68	100%	100%	0	7,010	0
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	0	5	18	0	0	0	15	15	15	100%	100%	-	-	-	19.00	19.00	19.00	100%	100%	0	1,425	5,130
Condensing Boiler w/On-Demand DHW >= 90% AFUE			3						20	100%	100%						24.60		100%			1,476
Condensing Boiler w/On-Demand DHW >= 95% AFUE			3						20	100%	100%						30.50		100%			1,830
Water Heater - Volume >=75 MBTUH, 92% TE			31						15	100%	100%						233.68		100%			108,661
Water Heater - Tankless, On-Demand >=90	0	7	19	0	0	0	20	20	20	100%	100%	-	-	-	9.40	9.40	8.90	100%	100%	0	1,316	3,382
Boiler Reset Controls	4	1	1	0	0	0	15	15	15	100%	100%	-	-	-	35.50	35.50	11.40	100%	100%	2,130	533	171
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	31	15	32	0	0	0	25	25	25	100%	100%	-	-	-	30.60	30.60	14.70	100%	100%	23,715	11,475	11,760
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	7	7	6	0	0	0	25	25	25	100%	100%	-	-	-	197.20	303.89	94.50	100%	100%	34,510	53,180	14,175
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	5	2	9	0	0	0	25	25	25	100%	100%	-	-	-	345.10	345.10	165.30	100%	100%	43,138	17,255	37,193
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	5	17	9	0	0	0	25	25	25	100%	100%	-	-	-	58.40	58.40	28.00	100%	100%	7,300	24,820	6,300
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	5	14	9	0	0	0	25	25	25	100%	100%	-	-	-	107.30	138.89	51.40	100%	100%	13,413	48,613	11,565
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	6	0	0	0	0	0	25	25	25	100%	100%	-	-	-	27.80	27.80	17.70	100%	100%	4,170	0	0
Furnace 95+ AFUE (<150) w/ECM Motor	5	0	0	168	168	168	18	18	18	100%	100%	15,120	-	-	5.70	5.70	5.70	100%	100%	513	0	0
Furnace 97+ AFUE (<150) w/ECM Motor	3	4	0	168	168	168	18	18	18	100%	100%	9,072	12,096	-	6.70	6.70	6.70	100%	100%	362	482	0
Infrared Heater, Low Intensity (all sizes)	0	70	26	0	0	0	17	17	17	100%	100%	-	-	-	12.00	12.00	12.00	100%	100%	0	14,280	5,304
Steam Trap	60	18	40	0	0	0	6	6	6	100%	100%	-	-	-	25.70	9.62	12.20	100%	100%	9,252	1,039	2,928
Thermostat - Standard, 7-Day Programmable	200	493	0	0	0	15	15	15	15	100%	100%	-	-	-	3.20	3.20	3.20	100%	100%	9,600	23,664	0
Thermostat - WiFi (Cooling & Heating)			120			0			15	100%	100%						6.60		100%			11,880
Thermostat - WiFi (Heating Only)			0			0			15	100%	100%						6.60		100%			0
Kitchen - Combination Oven (>= 44% efficiency)	0	1	1	0	0	0	12	12	12	100%	100%	-	-	-	112.00	112.00	110.30	100%	100%	0	1,344	1,324
Kitchen - Convection Oven (>= 44% efficiency)	2	5	25	0	0	0	12	12	12	100%	100%	-	-	-	12.90	32.72	35.70	100%	100%	310	1,963	10,710
Kitchen - Conveyor Oven (>= 44% efficiency)			1			0			12	100%	100%						88.40		100%			1,061
Kitchen - Fryer	0	11	30	0	0	0	12	12	12	100%	100%	-	-	-	50.80	50.80	78.30	100%	100%	0	6,706	28,188
Kitchen - Griddle	0	1	1	0	0	0	12	12	12	100%	100%	-	-	-	13.10	13.10	37.90	100%	100%	0	157	455
Kitchen - Pre Rinse Sprayers	75	133	160	0	0	0	5	5	8	100%	100%	-	-	-	11.40	11.40	11.40	100%	100%	4,275	7,649	14,592
Kitchen - Rack Oven (>= 50% efficiency)			2			0			12	100%	100%						211.30		100%			5,071
Kitchen - Steamer (ES >= 38% efficiency)			2			0			12	100%	100%						370.70		100%			8,897
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	7	1	0	0	0	20	20	20	20	100%	100%	-	-	-	24.60	24.60	24.60	100%	100%	3,444	492	0
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	2	3	0	0	0	20	17	17	17	100%	100%	-	-	-	31.80	27.27	27.27	100%	100%	1,272	1,386	0
<b>Program Summary*</b>				<b>1,344</b>	<b>90,647</b>	-						<b>24,192</b>	<b>1,606,488</b>	-	<b>38,717</b>	<b>25,815</b>	<b>31,804</b>			<b>517,573</b>	<b>396,122</b>	<b>486,962</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings based on recent trends and reflect expected project sizes.
2. Approximate number of Steam Traps per project is 17
3. Approximate number of Aerators per multifamily project is 166
4. Approximate number of Aerators per small direct install project is 5
5. Approximate number of Shower Heads per multifamily project is 116
6. Approximate number of Shower Heads per small direct install project is 1
7. Approximate number of Salon Sprayers per project is 2



REDACTED

**STATE OF NEW HAMPSHIRE**  
**BEFORE THE**  
**PUBLIC UTILITIES COMMISSION**

Docket No. DG 18-XXX

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities  
Winter 2018/2019 Cost of Gas Filing  
Summer 2019 Cost of Gas Filing

**DIRECT TESTIMONY**  
**OF**  
**DAVID B. SIMEK**  
**AND**  
**CATHERINE A. MCNAMARA**

August 31, 2018



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1 **I. INTRODUCTION**

2 **Q. Please state your full name and business address.**

3 A. (DS) My name is David B. Simek. My business address is 15 Buttrick Road,  
4 Londonderry, New Hampshire

5 (CM) My name is Catherine A. McNamara. My business address is 15 Buttrick Road,  
6 Londonderry, New Hampshire.

7 **Q. Please state by whom you are employed.**

8 A. We are employed by Liberty Utilities Service Corp. (“Liberty”), which provides service  
9 to Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities  
10 (“EnergyNorth” or the “Company”).

11 **Q. Please describe your educational background and your business and professional  
12 experience.**

13 A. (DS) I graduated from Ferris State University in 1993 with a Bachelor of Science in  
14 Finance. I received a Master’s of Science in Finance from Walsh College in 2000. I also  
15 received a Master’s of Business Administration from Walsh College in 2001. In 2006, I  
16 earned a Graduate Certificate in Power Systems Management from Worcester  
17 Polytechnic Institute. In August 2013, I joined Liberty as a Utility Analyst and I was  
18 promoted to Manager, Rates and Regulatory Affairs in August 2017. Prior to my  
19 employment at Liberty, I was employed by NSTAR Electric & Gas (“NSTAR”) as a  
20 Senior Analyst in Energy Supply from 2008 to 2012. Prior to my position in Energy

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

3 (CM) I graduated from the University of Massachusetts, Boston, in 1993 with a Bachelor  
4 of Science in Management with a concentration in Accounting. In November 2017, I  
5 joined Liberty as an Analyst in Rates and Regulatory Affairs. Prior to my employment at  
6 Liberty, I was employed by Eversource as a Senior Analyst in the Investment Planning  
7 group from 2015 to 2017. From 2008 to 2015, I was a Supervisor in the Plant  
8 Accounting department. Prior to my position in Plant Accounting, I was a Financial  
9 Analyst/General Ledger System Administrator within the Accounting group from 2000 to  
10 2008.

11 **Q. Have you previously testified in regulatory proceedings before the New Hampshire  
12 Public Utilities Commission (the “Commission”)?**

13 A. (DS) Yes. I have testified on numerous occasions before the Commission.

14 (CM) Yes, I previously testified in EnergyNorth’s Cast Iron/Bare Steel Replacement  
15 Program proceeding, Docket No. DG 18-064.

16 **Q. What is the purpose of your testimony?**

17 A. The purpose of our testimony is to explain the Company’s proposed firm sales cost of gas  
18 rates for the 2018/19 Winter (Peak) Period and the Company’s proposed 2018/19 Local  
19 Delivery Adjustment Clause, both effective November 1, 2018. Our testimony also

1 explains the Company's proposed firm sales cost of gas rates for the 2019 Summer (Off-  
2 Peak) Period.

3 **II. WINTER 2018/19 COST OF GAS FACTOR**

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

5 A. The Company proposes a firm sales cost of gas rate of \$0.7411 per therm for residential  
6 customers, \$0.7403 per therm for commercial/industrial high winter use customers, and  
7 \$0.7456 per therm for commercial/industrial low winter use customers as shown on  
8 Proposed First Revised Page 92 (Bates 050). The Company proposes a firm  
9 transportation cost of gas rate of \$0.0005 per therm as shown on Proposed First Revised  
10 Page 94 (Bates 052).

11 **Q. Please explain tariff page Proposed Original Page 92.1 (Bates 051) and Proposed  
12 First Revised Page 92.**

13 A. Proposed Original Page 92.1 and Proposed First Revised Page 92 contain the calculation  
14 of the 2018/19 Winter Period Cost of Gas Rate and summarize the Company's forecast of  
15 firm gas costs and firm gas sales. As shown on Page 92, the proposed 2018/19 Average  
16 Cost of Gas of \$0.7411 per therm is derived by adding the Direct Cost of Gas Rate of  
17 \$0.7056 per therm to the Indirect Cost of Gas Rate of \$0.0355 per therm. The estimated  
18 total Anticipated Direct Cost of Gas, derived on Page 92.1 and repeated on Page 92, is  
19 \$61,003,856. The estimated Indirect Cost of Gas, also derived on Page 92.1 and repeated  
20 on Page 92, is \$3,070,244. The Direct Cost of Gas Rate of \$0.7056 and the Indirect Cost

1 of Gas Rate of \$0.0355 are determined by dividing each of these total cost figures by the  
2 projected winter period firm sales volumes of 86,451,254 therms.

3 To calculate the total Anticipated Direct Cost of Gas, the Company adds a list of  
4 allowable adjustments from deferred gas cost accounts to the projected demand and  
5 commodity costs for the winter period supply portfolio. These allowable adjustments,  
6 shown on Page 92.1, total \$656,690. These adjustments are added to the Unadjusted  
7 Anticipated Cost of Gas of \$60,347,166 to determine the Total Anticipated Direct Cost of  
8 Gas of \$61,003,856.

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

10 A. The Unadjusted Anticipated Cost of Gas shown on Proposed Original Page 92.1 consists  
11 of the following components:

12	1. Purchased Gas Demand Costs	\$10,308,483
13	2. Purchased Gas Commodity Costs	41,318,346
14	3. Storage Demand and Capacity Costs	922,462
15	4. Storage Commodity Costs	5,125,663
16	5. Produced Gas Cost	<u>2,672,211</u>
17	Total	<u>\$60,347,166*</u>

18 \*\$1 difference due to rounding

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

20 A. The allowable adjustments to gas costs, listed on Proposed Original Page 92.1, are as  
21 follows:

22	1. Deferred Gas Cost Prior Period Under Collection	\$2,599,354
23	2. Interest	63,196

1	3.	Fuel Inventory Revenue Requirement	351,017
2	4.	Broker Revenues	(497,759)
3	5.	Transportation COG Revenue	(26,381)
4	6.	Capacity Release Margin	(1,877,737)
5	7.	Fixed Price Administrative Cost	<u>45,000</u>
6		Total Adjustments	<u>\$656,690</u>

7 These allowable adjustments are standard adjustments made to the deferred gas cost  
8 balance through the operation of the Company's cost of gas adjustment clause. We  
9 discuss the factors contributing to the prior period under collection later in this testimony.

10 **Q. How does the proposed average cost of gas rate in this filing compare to the average**  
11 **cost of gas rate approved by the Commission in Docket No. DG 17-135 for the**  
12 **2017/18 Winter Period?**

13 A. The average cost of gas rate proposed in this filing of \$0.7411 per therm is \$0.0966 per  
14 therm more than the initial rate of \$0.6445<sup>1</sup> per therm approved by the Commission in  
15 Order No. 26,066 (October 31, 2017) in Docket No. DG 17-135. The \$0.0966 per therm  
16 increase in the rate reflects a \$2,530,984 increase in the Total Unadjusted Cost of Gas.

17 **Q. How does the proposed firm transportation winter cost of gas rate compare to the**  
18 **rate approved by the Commission for the 2017/18 winter period?**

19 A. The proposed firm transportation winter cost of gas rate is \$0.0005 per therm. The rate  
20 approved in Docket No. DG 17-135 was \$0.0027 per therm. The decrease in the rate  
21 relates to an estimated \$88,304 decrease in costs due to the difference between the winter

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1 For comparison purposes, by the end of the 2017/18 Winter Period, the residential cost of gas rate increased to \$0.8056 per therm through the operation of the monthly adjustment mechanism.

1 season 2017/2018 beginning balance of \$28,808 (an over-collection) and the winter  
2 season 2018/2019 beginning balance of (\$59,496) (an under-collection).

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

5 A. Yes. The Company used, for pressure support purposes, a rate of 8.7% based on the  
6 marginal cost study used for the rate design approved in Docket No. DG 17-048.  
7 Previously the Company used an estimated percentage of 9.9% for pressure support  
8 purposes.

9 **Q. Did the Company include a fuel inventory revenue requirement calculation in this**  
10 **filing?**

11 A. Yes (Bates 192). The Company is proposing to collect \$351,017 in fuel inventory  
12 revenue requirement consistent with Order No. 26,156 dated July 10, 2018, in Docket  
13 No. DG 17-048. The rate of \$0.0041 per therm is determined by dividing the \$351,017  
14 by the estimated November 2018 through October 2019 COG sales volumes of  
15 86,451,254 therms.

16 **Q. How was the statutory tax rate of 27.24% calculated (Bates 192)?**

17 A. The statutory rate of 27.24% was calculated by using a 21% federal tax rate and a 7.9%  
18 tax rate for the State of New Hampshire  $(0.21 + 0.079 - (0.21 \times 0.079) = 0.2724)$ .

1 **Q. How was the common equity pre-tax rate of 6.290% calculated (Bates 192)?**

2 A. The common equity pre-tax rate of 6.290% was calculated by dividing the 9.30% rate of  
3 return on common equity, approved in Docket No. DG 17-048, by 0.7276 (1 – 0.2724  
4 [statutory tax rate – see previous question]) and multiplied by 49.20% (equity component  
5 of the capital structure approved in DG 17-048) [ $0.930 / 0.7276 \times 0.4920 = 0.0629$ ].

6 **Q. Has the bad debt percentage in this filing of 1.7% changed from the bad debt  
7 percentage calculated in the Winter 2017/2018 Cost of Gas Reconciliation?**

8 A. Yes, the bad debt percentage of 1.7% used in this filing is the calculated rate for the  
9 period of May 2017–April 2018. The Winter 2017/2018 Cost of Gas Reconciliation  
10 included a calculated rate of 1.1%, which was inadvertently carried forward from the  
11 prior period of May 2016–April 2017.

12 **Q. What was the actual weighted average firm sales cost of gas rate for the 2017/18  
13 winter period?**

14 A. The weighted average cost of gas rate was \$0.7321 per therm (Bates 095 Line 54). This  
15 was calculated by applying the actual monthly cost of gas rates for November 2017  
16 through April 2018 to the monthly therm usage of an average residential heating  
17 customer using 778 therms per year, or 636 therms for the six winter period months.

18 **III. PRIOR WINTER PERIOD UNDER-COLLECTION**

19 **Q. Please explain the prior period under collection of \$2,459,330.**

20 A. The prior period under-collection is also detailed in the 2017/18 Winter Period  
21 Reconciliation that was filed with the Commission on July 27, 2018. The \$2,459,330



1 under-collection is the sum of the deferred gas cost, bad debt, and working capital over-  
2 and under-collection balances as of April 30, 2018. The under-collection was driven  
3 mainly by the lag in the timing of monthly cost of gas rate adjustments as compared to  
4 changes in the underlying costs. For three months within the six-month winter period the  
5 calculated COG rate adjustment was higher than the allowable 25% price increase so the  
6 Company held the rate constant at the maximum allowable rate of \$0.8056 per therm.

7 **IV. FIXED PRICE OPTION**

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

10 A. Yes. Pursuant to Order No. 24,515 in Docket No. DG 05-127, the Fixed Price Option  
11 Program (“FPO”) rates are set at \$0.0200 per therm higher than the initial proposed COG  
12 rate. Proposed First Revised Page 91 (Bates 049) contains the FPO rate for the 2018/19  
13 Winter period, which is \$0.7611 per therm for residential customers. This compares to  
14 the FPO rate approved for the 2017/18 winter period of \$0.6645 per therm for residential  
15 customers. This represents a \$0.0966 per therm, or 14.5% increase in the residential FPO  
16 rate. The total bill impact on the winter period bills for an average FPO heating customer  
17 using 636 therms is an increase of approximately \$122.86 or 14.25% compared to last  
18 winter. The total bill impact reflects the implementation of the increases approved in  
19 Docket Nos. DG 17-048 effective May 1, 2018, and DG 18-064 effective July 1, 2018,  
20 relating to permanent distribution rates and the cast iron/bare steel main replacement  
21 program, respectively. The estimated winter period bill for an average residential heating  
22 customer opting for the FPO would be approximately \$12.71 (or 1.3%) higher than the

1 bill under the proposed cost of gas rates, assuming no monthly adjustments to the COG  
2 rate during the course of the winter. Schedule 23 (Bates 189) contains the historical  
3 results of the FPO program.

4 **V. LOCAL DELIVERY ADJUSTMENT CLAUSE (“LDAC”)**

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

6 A. As shown on Proposed First Revised Page 97 (Bates 055), the Company is submitting for  
7 approval an LDAC of \$0.0836 per therm for the residential non-heating class and  
8 residential heating class, and \$0.0772 per therm for the commercial/industrial bundled  
9 sales classes, effective November 1, 2018. The surcharges proposed to be billed under  
10 the LDAC are the Energy Efficiency Charge, the Revenue Decoupling Adjustment  
11 Clause, the Energy Efficiency Resource Standard Lost Revenue Adjustment Mechanism,  
12 the Environmental Surcharge for Manufactured Gas Plant (“MGP”) remediation, the  
13 Residential Low Income Assistance Program charge, and the rate case expense  
14 reconciliation surcharge from Docket No. DG 17-048.

15 **Q. Which customers are billed an LDAC?**

16 A. All EnergyNorth customers including those in Keene are billed an LDAC charge. When  
17 calculating the LDAC charge, the November 1, 2018, through October 31, 2019,  
18 forecasted Keene therm sales of 1,451,361 are added to the EnergyNorth therm sales  
19 forecast of 183,203,513 for a total therm sales forecast of 184,654,874.

1 **Q. Please explain the Energy Efficiency Charge.**

2 A. The Energy Efficiency Charge is designed to recover the projected expenses associated  
3 with the Company's energy efficiency programs for Calendar Year 2019 that will be filed  
4 with the Commission in the near future. In the calculation of the Energy Efficiency  
5 Charge, the Company has also included the projected prior period over-recovery of the  
6 Company's residential and commercial energy efficiency programs as of October 2018.  
7 As shown on Schedule 19 Energy Efficiency (Bates 125-127), the proposed Energy  
8 Efficiency charge is \$0.0450 per therm for Residential customers and \$0.0387 per therm  
9 for commercial and industrial customers.

10 **Q. Please explain the Revenue Decoupling Adjustment Clause ("RDAC").**

11 A. The first RDAC will not take effect until November 1, 2019, after the first decoupling  
12 year is complete. It is designed to recover, on an annual basis, the difference between the  
13 Actual Base Revenue per Customer and the Benchmark Base Revenue per Customer.  
14 The Actual Base Revenue per Customer is calculated after the first decoupling year.  
15 Schedule 19 RDAC (Bates 122) shows the proposed Benchmark Base Revenue per  
16 Customer calculation effective November 1, 2018, through October 31, 2019.

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

19 A. As shown on Schedule 19 LRAM (Bates 120-121), the proposed LRAM charge is  
20 \$0.0003 per therm for residential customers and \$0.0001 per therm for commercial and  
21 industrial customers. It is designed to recover lost revenues associated with energy

1 efficiency measures installed under the EERS programs. Since the Company is  
2 implementing decoupling effective November 1, 2018, the Company will continue to  
3 implement its Lost Revenue Adjustment only as a prior period true-up mechanism  
4 effective November 1, 2018, and ending October 31, 2019.

5 **Q. What is the proposed Residential Low Income Assistance Program (“RLIAP”)**  
6 **charge?**

7 A. As shown on Schedule 19 RLIAP (Bates 123-124), the proposed RLIAP charge is  
8 \$0.0130 per therm. It is designed to recover administrative costs, revenue shortfall, and  
9 the prior period reconciliation adjustment relating to this program. For the 2018/19  
10 Winter Period, the Company is providing a 60% base rate discount, consistent with the  
11 settlement agreement approved by the Commission in Order No. 24,669 (Sept. 22, 2006)  
12 in Docket No. DG 06-120. The current RLIAP charge is designed to recover \$2,409,164,  
13 of which \$1,864,087 is for the revenue shortfall resulting from 5,056 customers receiving  
14 a 60% discount off their base rates, and \$545,077 for the prior year reconciling  
15 adjustment.

16 **Q. In Order No. 24,824 (Feb. 29, 2008) in Docket No. DG 06-122 relating to short-term**  
17 **debt issues, the Company agreed to adjust its short-term debt limits each year as**  
18 **part of the Company’s Winter Period Cost of Gas filing. Did the Company**

1       **calculate the short-term debt limit for fuel and non-fuel purposes in accordance**  
2       **with this settlement?**

3       A.     Yes, the Company included in Schedule 24 (Bates 190) the short-term debt limit for fuel  
4       and non-fuel purposes for the 2018/19 period. As shown, the short-term debt limit for  
5       fuel inventory financing for the period November 1, 2018, through October 31, 2019, is  
6       calculated to be \$19,222,230 and the limit for non-fuel purposes is calculated to be  
7       \$94,878,262.

8       **Q.     Has the Company updated the Environmental Surcharge (Tariff Page 95)?**

9       A.     Yes, it has. The costs submitted for recovery through the MGP remediation cost recovery  
10       mechanism, as well as the third party recoveries, are included in the Environmental Cost  
11       Summary in Schedule 20 (Bates 128) of this filing. The environmental investigation and  
12       remediation costs that underlie these expenses are the result of efforts by the Company to  
13       respond to its legal obligations with regard to these sites, as described by Ms. Casey in  
14       her pre-filed direct testimony in this proceeding and as set forth in the MGP site  
15       summaries included in this filing under Schedule 20. The Summary included in Schedule  
16       20 shows the remediation cost pools for the Concord Pond, Concord MGP, Manchester,  
17       Nashua, and Laconia sites, and a General Pool for costs that cannot be directly assigned  
18       to a specific site.

19       A summary sheet and detailed backup spreadsheets that support the 2017/18 costs are  
20       provided in Schedule 20 of this filing. Consistent with past practice, the Company met  
21       with the Commission Staff and OCA in August of this year to provide an update on the

1 status of environmental matters. Ms. Casey's testimony describes the Company's  
2 activities with regard to all five sites.

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

5 A. The proposed Manufactured Gas Plant Remediation surcharge for the period beginning  
6 November 1, 2018, and ending October 31, 2019, is \$0.0161 per therm. This surcharge  
7 will recover a total of \$2,970,867 in amortized remediation costs. The costs submitted  
8 for recovery are shown in the Environmental Cost Summary included in Schedule 20 of  
9 this filing.

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

11 A. Yes. As shown on Schedule 19 RCE (Bates 118-119), the Company is proposing to  
12 collect \$1,706,158 in uncollected rate case and recoupment expense consistent with  
13 Order No. 26,122 dated April 27, 2018, in Docket No. DG 17-048. The RCE rate of  
14 \$0.0092 per therm is determined by dividing the \$1,706,154 by the estimated November  
15 2018 through October 2019 sales volumes of 184,654,874 therms.

16 **Q. Has the Company also updated its Company Allowance percentage for the period**  
17 **November 2018 through October 2019 in accordance with Section 8 of the**  
18 **Company's Delivery Terms and Condition?**

19 A. Yes, in Schedule 25 (Bates 191) the Company has recalculated its Company Allowance  
20 for the period November 2018 through October 2019. The Company calculated the  
21 Company Allowance of 1.80% based on sendout and throughput data for the twelve-

1 month period ending June 2018. The Company proposes to apply this recalculated  
2 Company Allowance to all supplier deliveries beginning in November 2018.

3 **VI. CUSTOMER BILL IMPACTS**

4 **Q. What are the estimated impacts of the proposed firm sales cost of gas rate and**  
5 **proposed LDAC surcharges on an average heating customer's winter bill as**  
6 **compared to the winter rates in effect last year?**

7 A. The bill impact analysis is presented in Schedule 8 (Bates 095) of this filing. These bill  
8 impacts reflect the implementation of the increases approved in Docket Nos. DG 17-048  
9 effective May 1, 2018, and DG 18-064 effective July 1, 2018, relating to permanent  
10 distribution rate increases and the cast iron/bare steel main replacement program. The  
11 total bill impact over the winter period for an average residential heating customer is an  
12 increase of approximately \$67.17, or 7.42%. The total bill impact over the winter period  
13 for an average commercial/industrial G-41 customer is an increase of approximately  
14 \$86.13, or 3.38% (Bates 096). Schedule 8 of this filing provides more detail of the  
15 impact of the proposed rate adjustments on heating customers.

16 **VII. OTHER TARIFF CHANGES**

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

18 A. Yes. The Company is submitting Proposed First Revised Page 147 (Bates 056) relating  
19 to Supplier Balancing and Peaking Demand Charges and Proposed First Revised Page  
20 148 (Bates 057) relating to Capacity Allocation.

1 **Q. Please describe the changes to tariff Page 147.**

2 A. In Proposed First Revised Page 147, the Company is updating the Peaking Demand  
3 Charge from \$20.06 per MMBtu of Peak MDQ to \$20.41 per MMBtu of Peak MDQ.  
4 This calculation is also presented in Schedule 21 (Bates 180).

5 **Q. Please describe the changes to tariff Page 148.**

6 A. Proposed First Revised Page 148 updates the Capacity Allocator percentages used to  
7 allocate pipeline, storage, and local peaking capacity to high and low load factor  
8 customers under the mandatory capacity assignment requirement for firm transportation  
9 service. Schedule 22 (Bates 183-188) contains the six-page worksheet that backs up the  
10 calculations for the updated allocators.

11 **VIII. SUMMER 2019 COST OF GAS FACTOR**

12 **Q. What are the proposed 2019 summer firm sales cost of gas rates?**

13 A. The Company proposes a firm sales cost of gas rate of \$0.4445 per therm for residential  
14 customers, \$0.4417 per therm for commercial/industrial high winter use customers, and  
15 \$0.4506 per therm for commercial/industrial low winter use customers as shown on  
16 Proposed Seventh Revised Page 89 (Bates 200).

17 **Q. Please explain tariff pages Proposed First Revised Page 88 and Proposed Seventh  
18 Revised Page 89.**

19 A. Proposed First Revised Page 88 (Bates 199) and Proposed Seventh Revised Page 89  
20 contain the calculation of the 2019 Summer Period Cost of Gas Rate and summarize the  
21 Company's forecast of firm gas sales, firm gas sendout, and gas costs. On Proposed



1 Seventh Revised Page 89, the 2019 Average Cost of Gas of \$0.4445 per therm is derived  
 2 by adding the Direct Cost of Gas Rate of \$0.4354 per therm to the Indirect Cost of Gas  
 3 Rate of \$0.0091 per therm. The estimated total Anticipated Direct Cost of gas is  
 4 \$8,661,183 and the estimated Indirect Cost of Gas is \$181,903. The Direct Cost of Gas  
 5 Rate and the Indirect Cost of Gas Rates are determined by dividing each of these total  
 6 cost figures by the projected Summer firm sales volumes of 19,890,267 therms.  
 7 Proposed Seventh Revised Page 89 further shows that the Residential Cost of Gas Rate of  
 8 \$0.4445 per therm is equal to the Average Cost of Gas for all firm sales customers. It  
 9 also shows the calculation of the Commercial/Industrial High Winter Use Cost of Gas  
 10 Rate of \$0.4417 per therm and the Commercial/Industrial Low Winter Use Cost of Gas  
 11 Rate of \$0.4506 per therm.

12 The calculation of the Anticipated Direct Cost of Gas is shown on Proposed First Revised  
 13 Page 88. To derive the total Anticipated Direct Cost of Gas of \$8,661,183, the Company  
 14 starts with the Unadjusted Anticipated Cost of Gas of \$8,002,703 and adds the Net  
 15 Adjustment totaling \$658,480.

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

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

18	1. Purchased Gas Demand Costs	\$4,372,669
19	2. Purchased Gas Supply Costs	3,602,943
20	3. Produced Gas Costs	<u>27,091</u>
21	Total Unadjusted Anticipated Cost of Gas	<u>\$8,002,703</u>

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

2 A. The adjustments to gas costs, listed on proposed First Revised Page 88, are as follows:

3 1. Prior Period (Over)/Under Collection \$617,043

4 2. Interest 41,437

5 Total Adjustments \$658,480

6 **Q. How does the proposed average Residential Summer cost of gas rate in this filing**  
7 **compare to the initial cost of gas rate approved by the Commission for the 2018**  
8 **Summer Period?**

9 A. The cost of gas rate proposed in this filing is \$0.1312 per therm higher than the initial rate  
10 approved by the Commission for the 2018 Summer Period (\$0.4445 vs. \$0.3133)  
11 (Schedule 8, Bates 224). This increase is primarily due to an \$874 thousand anticipated  
12 increase to the Supply Costs.

13 **Q. Does this conclude your testimony?**

14 A. Yes, it does.

**NHPUC NO. 10 - GAS  
LIBERTY UTILITIES**

**Proposed First Revised Page 97  
Superseding Original Page 97**

**Local Delivery Adjustment Clause Calculation**

			<b>Sales Customers</b>			<b>Transportation Customers</b>
<b><u>Residential Non Heating Rates - R-1</u></b>						
Energy Efficiency Charge	\$0.0516		\$0.0450			
Demand Side Management Charge	0.0000		0.0000			
Conservation Charge (CCx)	\$0.0516			\$0.0450		
Relief Holder and pond at Gas Street, Concord, NH	0.0000		0.0000			
Manufactured Gas Plants	0.0163		0.0161			
Environmental Surcharge (ES)	0.0163			0.0161		
Interruptible Transportation Margin Credit (ITMC)	0.0000			0.0000		
Cost Allowance Adjustment Factor	0.0019			0.0003		
Rate Case Expense Factor (RCEF)	0.0062			0.0092		
Residential Low Income Assistance Program (RLIAP)	0.0096			0.0130		
<b>LDAC</b>	<b>\$0.0856</b>		<b>\$0.0836</b>			<b>per therm</b>

<b><u>Residential Heating Rates - R-3, R-4, R-6, R-7</u></b>						
Energy Efficiency Charge	\$0.0516		\$0.0450			
Demand Side Management Charge	0.0000		0.0000			
Conservation Charge (CCx)	\$0.0516			\$0.0450		
Relief Holder and pond at Gas Street, Concord, NH	0.0000		0.0000			
Manufactured Gas Plants	0.0163		0.0161			
Environmental Surcharge (ES)	0.0163			0.0161		
Cost Allowance Adjustment Factor	0.0019			0.0003		
Rate Case Expense Factor (RCEF)	0.0062			0.0092		
Residential Low Income Assistance Program (RLIAP)	0.0096			0.0130		
<b>LDAC</b>	<b>\$0.0856</b>		<b>\$0.0836</b>			<b>per therm</b>

<b><u>Commercial/Industrial Low Annual Use Rates - G-41, G-51, G-44, G-55</u></b>						
Energy Efficiency Charge	\$0.0332		\$0.0387			
Demand Side Management Charge	0.0000		0.0000			
Conservation Charge (CCx)	\$0.0332			\$0.0387	\$0.0332	\$0.0387
Relief Holder and pond at Gas Street, Concord, NH	0.0000		0.0000			
Manufactured Gas Plants	0.0163		0.0161			
Environmental Surcharge (ES)	0.0163			0.0161	0.0163	0.0161
Cost Allowance Adjustment Factor	0.0021			0.0001	0.0021	0.0001
Gas Restructuring Expense Factor (GREF)	0.0000			0.0000	0.0000	0.0000
Rate Case Expense Factor (RCEF)	0.0062			0.0092	0.0062	0.0092
Residential Low Income Assistance Program (RLIAP)	0.0096			0.0130	0.0096	0.0130
<b>LDAC</b>	<b>\$0.0674</b>		<b>\$0.0772</b>	<b>\$0.0674</b>		<b>\$0.0772 per therm</b>

<b><u>Commercial/Industrial Medium Annual Use Rates - G-42, G-52, G-45, G-56</u></b>						
Energy Efficiency Charge	\$0.0332		\$0.0387			
Demand Side Management Charge	0.0000		0.0000			
Conservation Charge (CCx)	\$0.0332			\$0.0387	\$0.0332	\$0.0387
Relief Holder and pond at Gas Street, Concord, NH	0.0000		0.0000			
Manufactured Gas Plants	0.0163		0.0161			
Environmental Surcharge (ES)	0.0163			0.0161	0.0163	0.0161
Cost Allowance Adjustment Factor	0.0021			0.0001	0.0021	0.0001
Gas Restructuring Expense Factor (GREF)	0.0000			0.0000	0.0000	0.0000
Rate Case Expense Factor (RCEF)	0.0062			0.0092	0.0062	0.0092
Residential Low Income Assistance Program (RLIAP)	0.0096			0.0130	0.0096	0.0130
<b>LDAC</b>	<b>\$0.0674</b>		<b>\$0.0772</b>	<b>\$0.0674</b>		<b>\$0.0772 per therm</b>

<b><u>Commercial/Industrial Large Annual Use Rates - G-43, G-53, G-54, G-46, G-56, G-57, G-58</u></b>						
Energy Efficiency Charge	\$0.0332		\$0.0387			
Demand Side Management Charge	0.0000		0.0000			
Conservation Charge (CCx)	\$0.0332			\$0.0387	\$0.0332	\$0.0387
Relief Holder and pond at Gas Street, Concord, NH	0.0000		0.0000			
Manufactured Gas Plants	0.0163		0.0161			
Environmental Surcharge (ES)	0.0163			0.0161	0.0163	0.0161
Cost Allowance Adjustment Factor	0.0021			0.0001	0.0021	0.0001
Gas Restructuring Expense Factor (GREF)	0.0000			0.0000	0.0000	0.0000
Rate Case Expense Factor (RCEF)	0.0062			0.0092	0.0062	0.0092
Residential Low Income Assistance Program (RLIAP)	0.0096			0.0130	0.0096	0.0130
<b>LDAC</b>	<b>\$0.0674</b>		<b>\$0.0772</b>	<b>\$0.0674</b>		<b>\$0.0772 per therm</b>

Issued: ~~November 9, 2017~~ October xx, 2018

Effective: ~~November 1, 2017~~ November 1, 2018

Issued in compliance with NHPUC Order No. xx,xxx dated xxxx xx, 2018 in Docket DG 18-xxx.  
~~Issued in compliance with NHPUC Order No. 26,066 dated October 31, 2017 in Docket DG 17-135.~~

Issued by: \_\_\_\_\_  
Susan L. Fleck  
Title: President

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities  
Lost Revenue Adjustment Factor (LRAM)  
For LDAC effective November 1, 2018 - October 31, 2019

Schedule 19  
LRAM  
Page 1 of 2

<u>Residential</u>		
1	October 31, 2018 Projected Balance (LRAM true-up)	\$18,706
2	Calculated Lost Distribution Revenue - November 2018 through October 2019	\$0
3	Calculated Interest - November 2018 through October 2019	<u>\$957</u>
4		
5	Total to be recovered	\$19,663
6		
7	Estimated November 2018 - October 2019 Sales (therms)	66,050,202
8		
9	LRAM residential rate per therm November 2018 - October 2019	\$0.0003
<u>Commercial &amp; Industrial</u>		
10	October 31, 2018 Projected Balance (LRAM true-up)	\$13,218
11	Calculated Lost Distribution Revenue - November 2018 through October 2019	\$0
12	Calculated Interest - November 2018 through October 2019	<u>\$676</u>
13		
14	Total to be recovered	\$13,894
15		
16	Estimated November 2018 - October 2019 Sales (therms)	118,604,671
17		
18	LRAM C&I rate per therm November 2018 - October 2019	\$0.0001

Liberty Utilities (EnergyNorth Natural Gas) Corp.  
NOVEMBER 2018 THROUGH OCTOBER 2019  
Lost Revenue Adjustment Mechanism

1 FOR THE MONTH OF:	(Estimate) Nov-18 30	(Estimate) Dec-18 31	(Estimate) Jan-19 31	(Estimate) Feb-19 28	(Estimate) Mar-19 31	(Estimate) Apr-19 30	(Estimate) May-19 31	(Estimate) Jun-19 30	(Estimate) Jul-19 31	(Estimate) Aug-19 31	(Estimate) Sep-19 30	(Estimate) Oct-19 31	Total
2 DAYS IN MONTH													
<b>RESIDENTIAL</b>													
3 Beginning Balance (LRAM true-up)	\$ 18,706	\$ 18,783	\$ 18,863	\$ 18,943	\$ 19,015	\$ 19,096	\$ 19,175	\$ 19,256	\$ 19,335	\$ 19,417	\$ 19,500	\$ 19,580	\$ 229,669
4 Add: Lost Distribution Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-
5 Less: Lost Distribution Revenue Collections	-	-	-	-	-	-	-	-	-	-	-	-	-
6 Add: Other	-	-	-	-	-	-	-	-	-	-	-	-	-
7 Ending Balance Pre-Interest	\$ 18,706	\$ 18,783	\$ 18,863	\$ 18,943	\$ 19,015	\$ 19,096	\$ 19,175	\$ 19,256	\$ 19,335	\$ 19,417	\$ 19,500	\$ 19,580	\$ 229,669
8 Month's Average Balance	\$ 18,706	\$ 18,783	\$ 18,863	\$ 18,943	\$ 19,015	\$ 19,096	\$ 19,175	\$ 19,256	\$ 19,335	\$ 19,417	\$ 19,500	\$ 19,580	
9 Interest Rate	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%
10 Interest Applied	\$ 77	\$ 80	\$ 80	\$ 73	\$ 81	\$ 78	\$ 81	\$ 79	\$ 82	\$ 82	\$ 80	\$ 83	957
11 Ending Balance	\$ 18,783	\$ 18,863	\$ 18,943	\$ 19,015	\$ 19,096	\$ 19,175	\$ 19,256	\$ 19,335	\$ 19,417	\$ 19,500	\$ 19,580	\$ 19,663	

1 FOR THE MONTH OF:	(Estimate) Nov-18 30	(Estimate) Dec-18 31	(Estimate) Jan-19 31	(Estimate) Feb-19 28	(Estimate) Mar-19 31	(Estimate) Apr-19 30	(Estimate) May-19 31	(Estimate) Jun-19 30	(Estimate) Jul-19 31	(Estimate) Aug-19 31	(Estimate) Sep-19 30	(Estimate) Oct-19 31	Total
2 DAYS IN MONTH													
<b>COMMERCIAL &amp; INDUSTRIAL</b>													
3 Beginning Balance	\$ 13,218	\$ 13,272	\$ 13,328	\$ 13,385	\$ 13,436	\$ 13,493	\$ 13,549	\$ 13,606	\$ 13,662	\$ 13,720	\$ 13,778	\$ 13,835	\$ 162,283
4 Add: Lost Distribution Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-
5 Less: Lost Distribution Revenue Collections	-	-	-	-	-	-	-	-	-	-	-	-	-
6 Add: Other	-	-	-	-	-	-	-	-	-	-	-	-	-
7 Ending Balance Pre-Interest	\$ 13,218	\$ 13,272	\$ 13,328	\$ 13,385	\$ 13,436	\$ 13,493	\$ 13,549	\$ 13,606	\$ 13,662	\$ 13,720	\$ 13,778	\$ 13,835	\$ 162,283
8 Month's Average Balance	\$ 13,218	\$ 13,272	\$ 13,328	\$ 13,385	\$ 13,436	\$ 13,493	\$ 13,549	\$ 13,606	\$ 13,662	\$ 13,720	\$ 13,778	\$ 13,835	
9 Interest Rate	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%	5 00%
10 Interest Applied	\$ 54	\$ 56	\$ 57	\$ 51	\$ 57	\$ 55	\$ 58	\$ 56	\$ 58	\$ 58	\$ 57	\$ 59	676
11 Ending Balance	\$ 13,272	\$ 13,328	\$ 13,385	\$ 13,436	\$ 13,493	\$ 13,549	\$ 13,606	\$ 13,662	\$ 13,720	\$ 13,778	\$ 13,835	\$ 13,894	

Month	Actual or Forecast	Beginning Balance (Over/Under)	Residential DSM Rate Per Therm	DSM Collections	Forecasted DSM Expenditures	Actual DSM Expenditures		Ending Balance (Over/Under)	Average Balance (Over/Under)	Interest Monthly Federal Prime Rate	Interest @ Fed Reserve Bank Loan Rate	Ending Bal. Plus Interest (Over/Under)	Forecasted Residential Therm Sales	Residential Therm Sales	# of Days
						Residential	Low-Income								
May 18	Actual	(2,240,400)	(\$0.0516)	(227,259)	265,627	169,251	35,820	(2,249,854)	(2,245,127)	4.75%	(6,227)	(2,256,081)	3,348,634	4,405,049	31
June 18	Actual	(2,256,081)	(\$0.0516)	(62,112)	265,627	148,594	32,579	(2,154,245)	(2,205,163)	4.75%	(6,267)	(2,160,512)	1,984,898	1,785,463	30
July 18	Forecast	(2,160,512)	(\$0.0516)	(64,816)	265,627	101,545	8,281	(2,102,728)	(2,131,620)	5.00%	(3,349)	(2,106,077)	1,256,661	1,256,417	31
August 18	Forecast	(2,106,077)	(\$0.0516)	(54,524)	265,627	0	0	(1,894,974)	(2,000,525)	5.00%	(8,495)	(1,903,469)	1,059,675	1,059,675	31
September 18	Forecast	(1,903,469)	(\$0.0516)	(58,985)	265,627	0	0	(1,696,827)	(1,800,148)	5.00%	(7,398)	(1,704,225)	1,143,113	1,143,113	30
October 18	Forecast	(1,704,225)	(\$0.0516)	(87,386)	265,627	0	0	(1,525,984)	(1,615,104)	5.00%	(6,859)	(1,532,843)	1,693,533	1,693,533	0
November 18	Forecast	(1,532,843)	(\$0.0450)	(195,314)	265,627	0	0	(1,462,529)	(1,497,686)	5.00%	(6,155)	(1,468,684)	4,340,302	4,340,302	0
December 18	Forecast	(1,468,684)	(\$0.0450)	(357,114)	265,627	0	0	(1,560,171)	(1,514,428)	5.00%	(6,431)	(1,566,602)	7,935,861	7,935,861	0
January 19	Forecast	(1,566,602)	(\$0.0450)	(509,038)	404,158	0	0	(1,671,483)	(1,619,043)	5.00%	(6,875)	(1,678,358)	11,311,961	11,311,961	0
February 19	Forecast	(1,678,358)	(\$0.0450)	(549,085)	404,158	0	0	(1,823,286)	(1,750,822)	5.00%	(6,715)	(1,830,001)	12,201,886	12,201,886	0
March 19	Forecast	(1,830,001)	(\$0.0450)	(467,012)	404,158	0	0	(1,892,856)	(1,861,428)	5.00%	(7,905)	(1,900,760)	10,376,048	10,376,048	0
April 19	Forecast	(1,900,760)	(\$0.0450)	(318,535)	404,158	0	0	(1,815,138)	(1,857,949)	5.00%	(7,635)	(1,822,773)	7,078,549	7,078,549	0
May 19	Forecast	(1,822,773)	(\$0.0450)	(184,988)	404,158	0	0	(1,603,603)	(1,713,188)	5.00%	(7,275)	(1,610,878)	4,110,878	4,110,878	0
June 19	Forecast	(1,610,878)	(\$0.0450)	(89,586)	404,158	0	0	(1,296,307)	(1,425,593)	5.00%	(5,974)	(1,302,280)	1,990,802	1,990,802	0
July 19	Forecast	(1,302,280)	(\$0.0450)	(50,671)	404,158	0	0	(948,794)	(1,152,537)	5.00%	(4,780)	(1,126,024)	1,126,024	1,126,024	0
August 19	Forecast	(953,574)	(\$0.0450)	(49,093)	404,158	0	0	(598,509)	(776,041)	5.00%	(3,296)	(601,805)	1,090,959	1,090,959	0
September 19	Forecast	(601,805)	(\$0.0450)	(72,894)	404,158	0	0	(270,481)	(436,143)	5.00%	(1,792)	(272,273)	1,618,528	1,618,528	0
October 19	Forecast	(272,273)	(\$0.0450)	(128,980)	404,158	0	0	2,894	(134,690)	5.00%	(572)	2,322	2,866,447	2,866,447	0
November 19	Forecast	2,322	(\$0.0450)	(195,314)	404,158	0	0	211,166	106,744	5.00%	439	211,605	4,340,302	4,340,302	0
December 19	Forecast	211,605	(\$0.0450)	(357,114)	404,158	0	0	258,648	235,127	5.00%	998	259,647	7,935,861	7,935,861	0

Estimated Residential Conservation Charge Effective November 1, 2018 - October 31, 2019	
Beginning Balance	\$ (1,532,843)
Program Budget Nov 18-Oct 19	4,572,829
Projected Interest	(65,405)
Projected Budget with Interest	2,974,581
<b>Total Charges</b>	<b>\$ 2,974,581</b>
Projected Therm Sales	66,050,202
Residential Rate	\$0.0450
<b>Total Charges with Interest</b>	<b>\$ 2,972,259</b>
Projected Therm Sales	66,050,202
<b>Residential Rate</b>	<b>\$0.0450</b>

Estimated Residential Conservation Charge  
Effective November 1, 2018 - October 31, 2019

Beginning Balance	\$ (1,532,842.79)
Program Budget Nov 18-Oct 19	4,182,242.33
Projected Interest	\$ (61,190.00)
Projected Budget with Interest	2,586,209.55
Total Charges	\$ 2,586,209.55

Residential Non Heating Therm Sales	0%	776,066	642,126
Residential Heating Therm Sales	35%	65,862,804	65,408,076
C&I Therm Sales	64%	118,604,671	118,604,671
<b>Total Therms</b>	100%	186,909,214	184,654,874
		Budget	Budget
Low-Income Program Budget		\$ 1,217,300	\$ 1,310,342
Other Refund			
<b>Total Shared Budget</b>		\$ 1,005,700	\$ 1,310,342
Residential Program Budget		\$ 2,362,534	\$ 4,163,210
Residential Program Incentive @ 70%		\$ 196,891	\$ 217,977
<b>Total Residential Program Budget</b>		\$ 2,559,425	\$ 4,381,187
Commercial/Industrial Program Budget		\$ 3,566,741	\$ 4,419,684
Commercial/Industrial Program Incentive at 70%		\$ 196,941	\$ 205,958
<b>Total Commercial/Industrial Program Budget</b>		\$ 3,777,682	\$ 4,625,642
<b>Total Program Budget</b>		\$ 7,554,407	\$ 10,317,171
Shared Expenses Allocation to Residential		\$ 436,990	\$ 468,703
Shared Expenses Allocation to C&I		780,310	841,639
<b>Total Allocated Shared Expenses</b>		\$ 1,217,300	\$ 1,310,342
Total Residential (including allocation of Shared Budget)		\$ 2,996,415	\$ 4,849,890
Total C&I (including allocation of Shared Budget)		4,557,992	5,467,281
<b>Total Budget</b>		\$ 7,554,407	\$ 10,317,171

Liberty Utilities (EnergyNorth Natural Gas) Corp.  
 Energy Efficiency Programs  
 For Commercial/Industrial Classes  
 November 1, 2018 - October 31, 2019  
 Energy Efficiency Charge

Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections	Forecasted DSM Expenditures	Actual DSM Expenditures		Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Fed Reserve Prime Rate	Interest @ Fed Reserve Bank Loan Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Commercial/Industrial Therm Sales	Actual Commercial/Industrial Therm Sales	# of Days
						C&I	Low-Income									
May 18	Actual	(1,094,665)	(\$0.0219)	(153,066)	245,987	106,016	43,216	9,778	(1,083,721)	(1,094,193)	4.75%	(3,717)	(1,097,438)	6,537,363	7,299,008	31
June 18	Actual	(1,097,438)	(\$0.0219)	(131,661)	245,987	198,094	13,943	9,778	(1,007,284)	(1,052,361)	4.75%	(3,676)	(1,010,960)	5,092,563	6,011,635	30
July 18	Forecast	(1,010,960)	(\$0.0219)	(87,792)	245,987	0	0	0	(852,765)	(931,862)	5.00%	(3,957)	(856,722)	4,008,754	0	31
August 18	Forecast	(856,722)	(\$0.0219)	(84,349)	245,987	0	0	0	(695,084)	(775,903)	5.00%	(3,295)	(698,379)	3,851,567	0	31
September 18	Forecast	(698,379)	(\$0.0219)	(91,025)	245,987	0	0	0	(543,418)	(620,898)	5.00%	(2,552)	(545,969)	4,156,413	0	30
October 18	Forecast	(545,969)	(\$0.0219)	(109,234)	245,987	0	0	0	(409,216)	(477,593)	5.00%	(2,028)	(411,245)	4,987,864	0	31
November 18	Forecast	(411,245)	(\$0.0387)	(363,835)	245,987	0	0	0	(529,092)	(470,168)	5.00%	(1,932)	(531,025)	9,401,414	0	30
December 18	Forecast	(531,025)	(\$0.0387)	(504,619)	245,987	0	0	0	(789,657)	(660,341)	5.00%	(2,804)	(792,461)	13,039,253	0	31
January 19	Forecast	(792,461)	(\$0.0387)	(659,996)	455,607	0	0	0	(996,852)	(894,657)	5.00%	(3,799)	(1,000,651)	17,054,214	0	31
February 19	Forecast	(1,000,651)	(\$0.0387)	(688,909)	455,607	0	0	0	(1,233,953)	(1,117,302)	5.00%	(4,286)	(1,238,239)	17,801,261	0	28
March 19	Forecast	(1,238,239)	(\$0.0387)	(603,328)	455,607	0	0	0	(1,385,960)	(1,312,099)	5.00%	(5,572)	(1,391,532)	15,589,859	0	31
April 19	Forecast	(1,391,532)	(\$0.0387)	(477,319)	455,607	0	0	0	(1,413,244)	(1,402,388)	5.00%	(5,763)	(1,419,007)	12,333,818	0	30
May 19	Forecast	(1,419,007)	(\$0.0387)	(318,633)	455,607	0	0	0	(1,282,233)	(1,350,620)	5.00%	(5,736)	(1,287,969)	8,238,574	0	31
June 19	Forecast	(1,287,969)	(\$0.0387)	(221,442)	455,607	0	0	0	(1,053,803)	(1,170,886)	5.00%	(4,812)	(1,058,615)	5,722,003	0	30
July 19	Forecast	(1,058,615)	(\$0.0387)	(168,174)	455,607	0	0	0	(771,183)	(914,889)	5.00%	(3,885)	(775,068)	4,345,591	0	31
August 19	Forecast	(775,068)	(\$0.0387)	(163,556)	455,607	0	0	0	(483,018)	(629,043)	5.00%	(2,671)	(485,689)	4,226,257	0	30
September 19	Forecast	(485,689)	(\$0.0387)	(179,980)	455,607	0	0	0	(210,062)	(347,876)	5.00%	(1,430)	(211,492)	4,650,649	0	31
October 19	Forecast	(211,492)	(\$0.0387)	(240,009)	455,607	0	0	0	4,106	(103,693)	5.00%	(440)	3,666	6,201,778	0	31
November 19	Forecast	3,666	(\$0.0387)	(363,835)	455,607	0	0	0	95,437	49,552	5.00%	204	95,641	9,401,414	0	30
December 19	Forecast	95,641	(\$0.0387)	(504,619)	455,607	0	0	0	46,629	71,135	5.00%	302	46,931	13,039,253	0	31

Total 11/2018 - 10/2019 \$ (4,590,001) \$ 5,048,041 0 \$ (43,130) 118,604,671 0

Estimated C&I Conservation Charge	
November 1, 2018 - October 31, 2019	
Beginning Balance	(411,245)
Program Budget Nov 18-Oct 19	5,048,041
Projected Interest	(43,107)
Program Budget with Interest	4,593,690
<b>Total Charges</b>	<b>\$4,593,690</b>
Projected Therm Sales	118,604,671
C&I Rate	\$0.0387
Total Charges with Interest	\$4,590,001
Projected Therm Sales	118,604,671
<b>C&amp;I Rate</b>	<b>\$0.0387</b>
C&I Rate from Prior Programs	\$0.0000
Combined C&I Rate	\$0.0387

Liberty Utilities (EnergyNorth Natural Gas) Corp.  
Energy Efficiency Programs  
For Residential and Commercial/Industrial Classes  
November 1, 2018 - October 31, 2019  
Energy Efficiency Charge

Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections	Forecasted DSM Expenditures	Actual DSM Expenditures			Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Plus Interest Prime Rate	Interest @ Fed Reserve Bank Loan Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Therm Sales	Actual Therm Sales	# of Days
						Residential	C&I	Low-Income									
May 18	Actual	(3,335,065)	n/a	(385,365)	511,614	169,251	106,016	79,036	22,553	(3,343,575)	(3,339,320)	4.75%	(13,472)	(3,357,046)	9,886,997	11,704,048	31
June 18	Actual	(3,353,519)	n/a	(223,773)	511,614	148,594	198,094	46,522	22,553	(3,161,529)	(3,257,524)	4.75%	(12,718)	(3,174,247)	7,077,460	7,797,098	30
July 18	Forecast	(3,171,472)	n/a	(152,607)	511,614	101,545	0	8,281	0	(3,214,254)	(3,192,863)	5.00%	(13,559)	(3,227,813)	5,261,414	1,256,417	31
August 18	Forecast	(2,962,798)	n/a	(138,874)	511,614	0	0	0	0	(2,590,058)	(2,476,428)	5.00%	(11,790)	(2,601,848)	4,908,241	0	31
September 18	Forecast	(2,601,848)	n/a	(150,010)	511,614	0	0	0	0	(2,240,245)	(2,421,047)	5.00%	(9,950)	(2,250,194)	5,299,526	0	30
October 18	Forecast	(2,250,194)	n/a	(196,621)	511,614	0	0	0	0	(1,955,201)	(2,092,697)	5.00%	(8,887)	(1,944,087)	6,681,398	0	31
November 18	Forecast	(1,944,087)	n/a	(559,148)	511,614	0	0	0	0	(1,991,622)	(1,967,855)	5.00%	(8,087)	(1,999,709)	13,741,716	0	30
December 18	Forecast	(1,999,709)	n/a	(861,733)	511,614	0	0	0	0	(2,349,828)	(2,174,768)	5.00%	(9,235)	(2,359,063)	20,975,114	0	31
January 19	Forecast	(2,359,063)	n/a	(1,169,056)	859,764	0	0	0	0	(2,668,335)	(2,513,699)	5.00%	(10,675)	(2,679,010)	28,366,175	0	31
February 19	Forecast	(2,679,010)	n/a	(1,237,994)	859,764	0	0	0	0	(3,057,239)	(2,868,124)	5.00%	(11,001)	(3,068,240)	30,003,147	0	28
March 19	Forecast	(3,068,240)	n/a	(1,070,340)	859,764	0	0	0	0	(3,278,816)	(3,173,528)	5.00%	(13,477)	(3,292,292)	25,967,908	0	31
April 19	Forecast	(3,292,292)	n/a	(795,853)	859,764	0	0	0	0	(3,228,381)	(3,260,377)	5.00%	(13,399)	(3,241,780)	19,412,367	0	30
May 19	Forecast	(3,241,780)	n/a	(503,820)	859,764	0	0	0	0	(2,885,836)	(3,063,808)	5.00%	(13,011)	(2,898,847)	12,349,409	0	31
June 19	Forecast	(2,898,847)	n/a	(311,028)	859,764	0	0	0	0	(2,350,110)	(2,624,479)	5.00%	(10,786)	(2,360,896)	7,712,805	0	30
July 19	Forecast	(2,360,896)	n/a	(218,845)	859,764	0	0	0	0	(1,719,977)	(2,040,436)	5.00%	(8,665)	(1,728,642)	5,471,615	0	31
August 19	Forecast	(1,728,642)	n/a	(212,649)	859,764	0	0	0	0	(1,081,527)	(1,405,084)	5.00%	(5,967)	(1,087,494)	5,317,216	0	31
September 19	Forecast	(1,087,494)	n/a	(252,814)	859,764	0	0	0	0	(480,543)	(784,018)	5.00%	(3,222)	(483,765)	6,269,177	0	30
October 19	Forecast	(483,765)	n/a	(368,999)	859,764	0	0	0	0	7,000	(238,383)	5.00%	(1,012)	5,988	9,068,225	0	31
November 19	Forecast	(598,149)	n/a	(559,149)	859,764	0	0	0	0	306,603	156,296	5.00%	642	307,246	13,741,716	0	30
December 19	Forecast	(307,246)	n/a	(861,733)	859,764	0	0	0	0	305,277	306,261	5.00%	1,301	306,578	20,975,114	0	31

Total 11/2018 - 10/2019

Residential (R-1 & R-3) and C & I Conservation Charge November 1, 2018 - October 31, 2019	
Beginning Balance	\$ (1,944,087)
Program Budget Nov. 18-Oct. 19	\$ 9,620,871
Projected Interest	\$ (108,512)
Program Budget with Interest	\$ 7,568,271
<b>Total Charges</b>	<b>\$7,568,271</b>

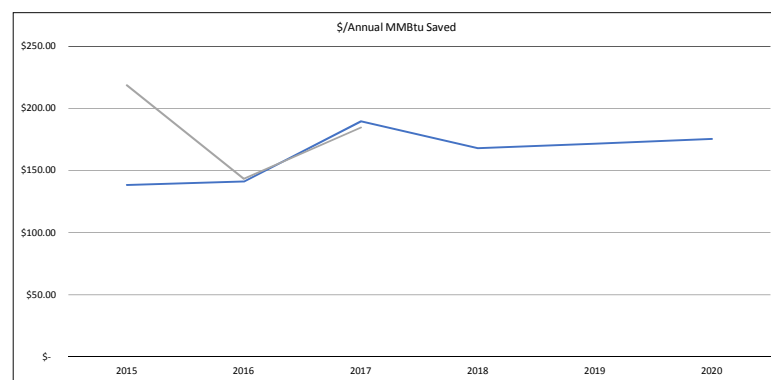
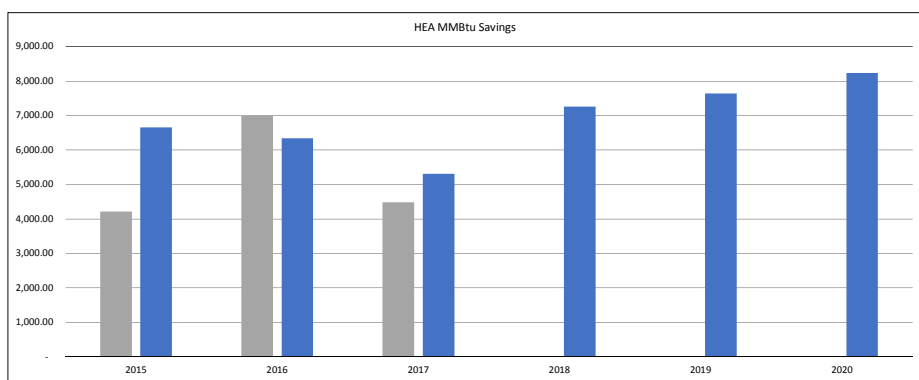
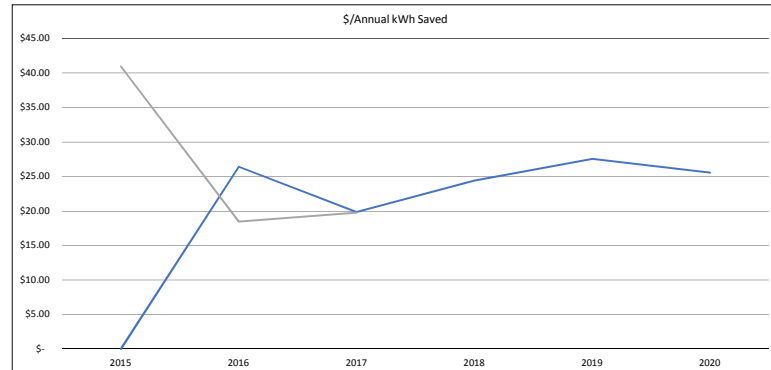
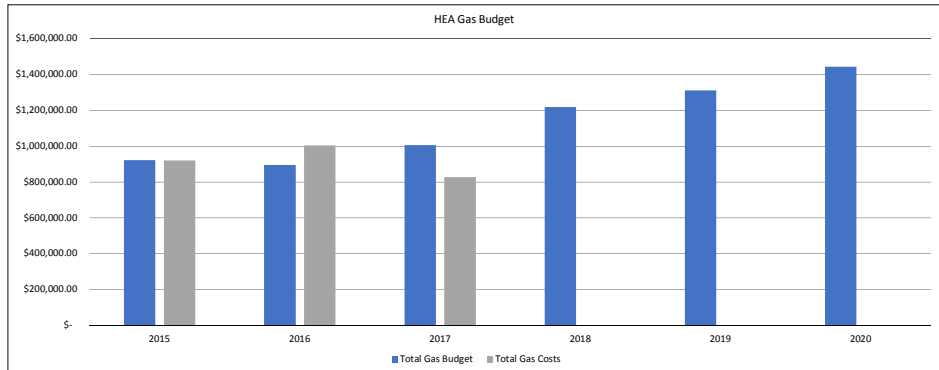
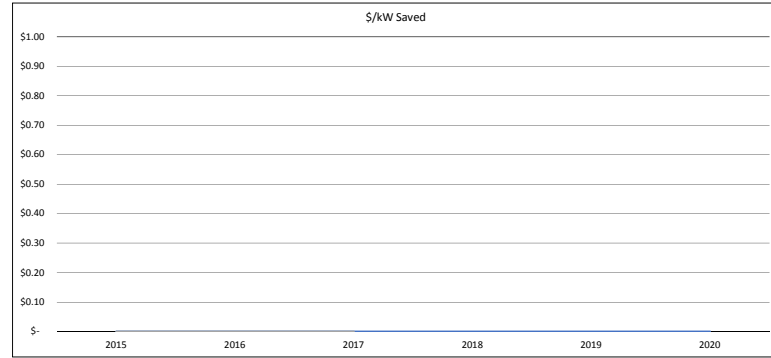


Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020
1)	Total Gas Budget	\$ 921,250.00	\$ 895,000.00	\$ 1,005,700.00	\$ 1,217,300.00	\$ 1,310,342.19	\$ 1,443,218.36
	Annual Electric Savings Plan (kWh)	\$ -	\$ 33,878.44	\$ 50,719.26	\$ 49,935.01	\$ 47,538.87	\$ 56,468.30
	\$/Annual kWh Plan	\$ -	\$ 26.42	\$ 19.83	\$ 24.38	\$ 27.56	\$ 25.56
2)	Total Gas Budget	\$ 921,250.00	\$ 895,000.00	\$ 1,005,700.00	\$ 1,217,300.00	\$ 1,310,342.19	\$ 1,443,218.36
	Total summer peak kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 921,250.00	\$ 895,000.00	\$ 1,005,700.00	\$ 1,217,300.00	\$ 1,310,342.19	\$ 1,443,218.36
	Total Annual MMBtu Plan	6,650.66	6,338.51	5,302.03	7,252.46	7,636.96	8,227.99
	\$/Annual MMBtu Plan	\$ 138.52	\$ 141.20	\$ 189.68	\$ 167.85	\$ 171.58	\$ 175.40

Home Energy Assistance		2015	2016	2017
1)	Total Gas Costs	\$ 919,750.53	\$ 1,003,642.21	\$ 826,371.23
	Annual Electric Savings Actual (kWh)	22,452.20	54,303.44	41,805.90
	\$/Annual kWh Actual	\$ 40.96	\$ 18.48	\$ 19.77
2)	Total Gas Costs	\$ 919,750.53	\$ 1,003,642.21	\$ 826,371.23
	Total summer peak kW Actual	\$ -	\$ -	\$ -
	\$/kW Actual	\$ -	\$ -	\$ -
3)	Total Gas Costs	\$ 919,750.53	\$ 1,003,642.21	\$ 826,371.23
	Total Annual MMBtu Actual	4,206.13	6,997.88	4,476.14
	\$/Annual MMBtu Actual	\$ 218.67	\$ 143.42	\$ 184.62

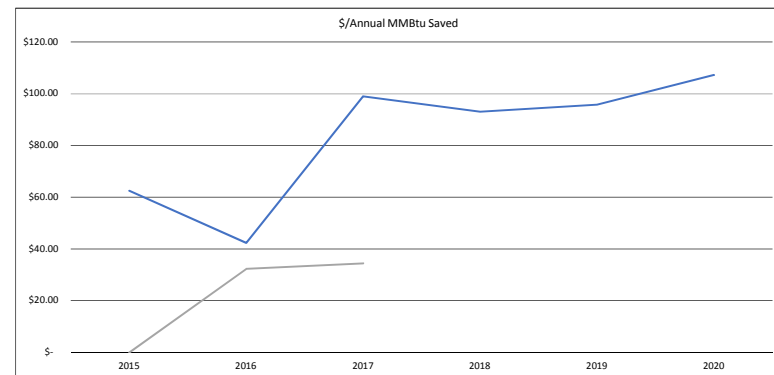
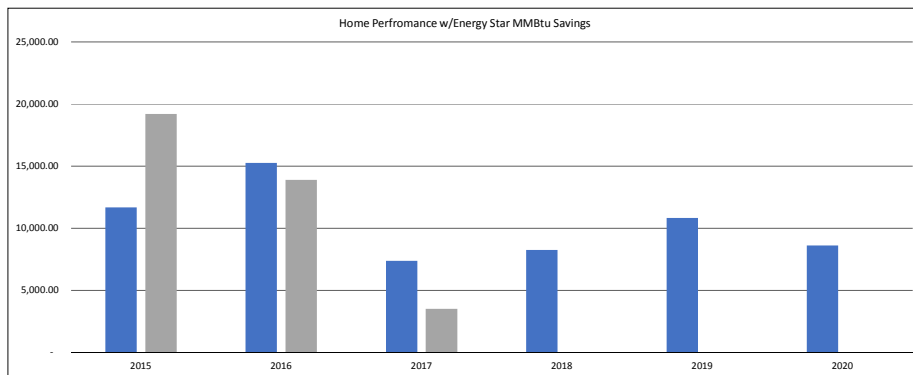
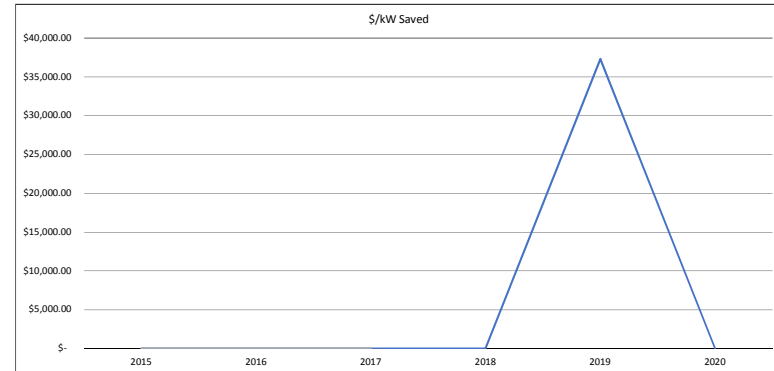
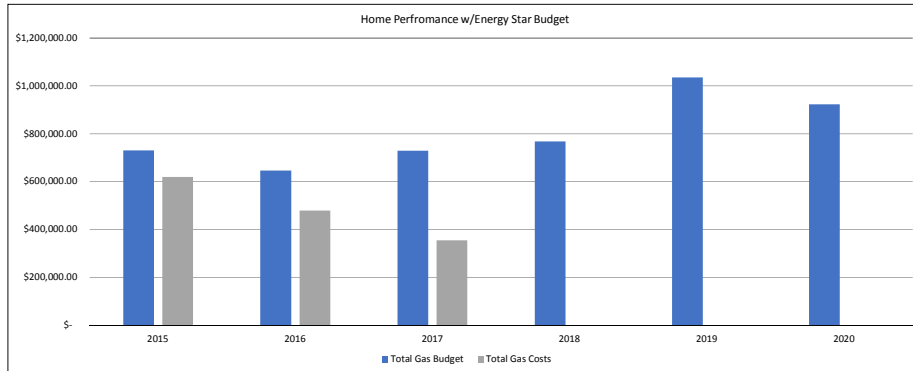
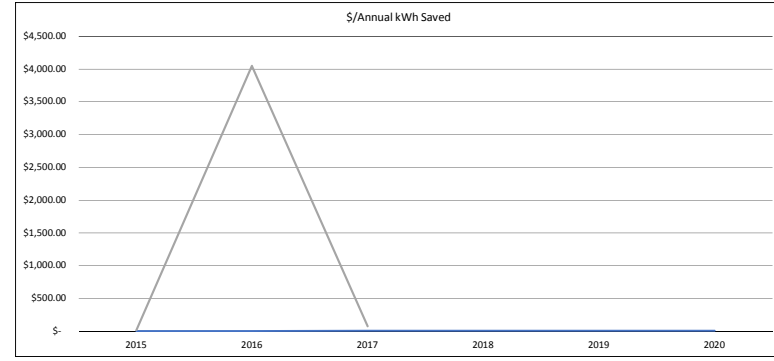


Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020
1)	Total Gas Budget	\$ 730,157.00	\$ 645,815.00	\$ 729,200.00	\$ 767,160.00	\$ 1,035,751.28	\$ 923,161.78
	Annual Electric Savings Plan (kWh)	-	-	185,369.92	119,725.12	177,985.24	125,568.00
	\$/Annual kWh Plan	\$ -	\$ -	\$ 3.93	\$ 6.41	\$ 5.82	\$ 7.35
2)	Total Gas Budget	\$ 730,157.00	\$ 645,815.00	\$ 729,200.00	\$ 767,160.00	\$ 1,035,751.28	\$ 923,161.78
	Total summer peak kW Plan	-	-	-	-	27.77	-
	\$/kW Plan	-	-	-	-	37,302.35	-
3)	Total Gas Budget	\$ 730,157.00	\$ 645,815.00	\$ 729,200.00	\$ 767,160.00	\$ 1,035,751.28	\$ 923,161.78
	Total Annual MMBtu Plan	11,681.19	15,257.70	7,369.27	8,247.88	10,825.20	8,610.24
	\$/Annual MMBtu Plan	\$ 62.51	\$ 42.33	\$ 98.95	\$ 93.01	\$ 95.68	\$ 107.22

Actuals		2015	2016	2017
1)	Total Gas Costs	\$ 619,872.77	\$ 478,819.12	\$ 354,067.20
	Annual Electric Savings Actual (kWh)	45,640.00	118.28	4,817.00
	\$/Annual kWh Actual	\$ 13.58	\$ 4,048.30	\$ 73.50
2)	Total Gas Costs	\$ 619,872.77	\$ 478,819.12	\$ 354,067.20
	Total summer peak kW Actual	-	-	-
	\$/kW Actual	-	-	-
3)	Total Gas Costs	\$ 619,872.77	\$ 478,819.12	\$ 354,067.20
	Total Annual MMBtu Actual	19,203.20	13,900.99	3,507.99
	\$/Annual MMBtu Actual	\$ 32.28	\$ 34.44	\$ 100.93

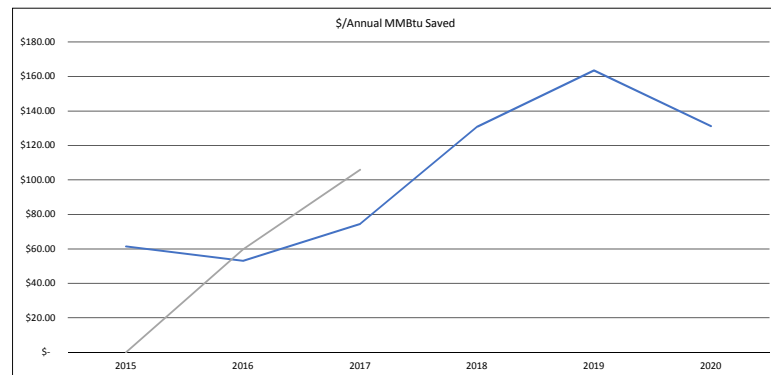
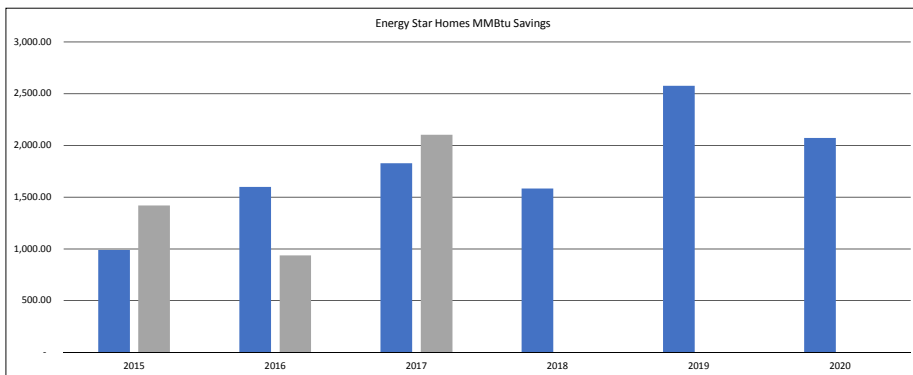
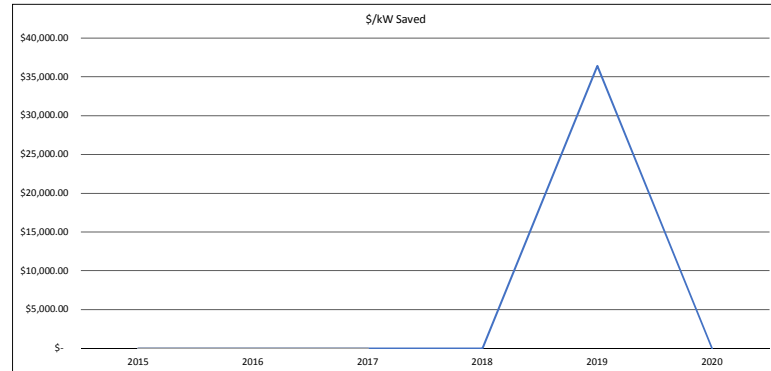
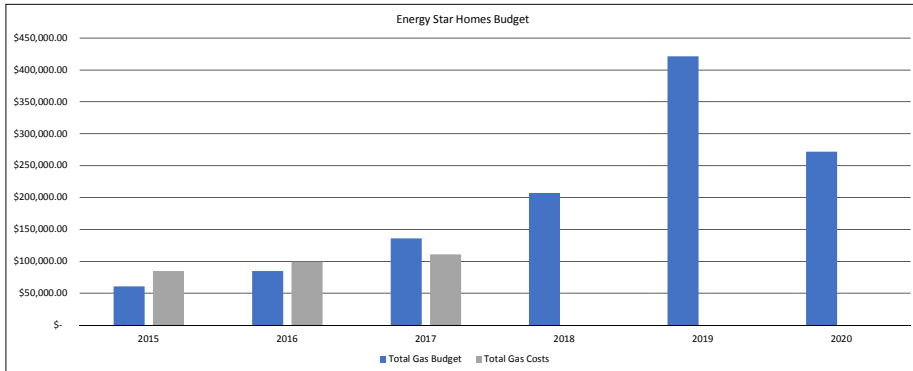
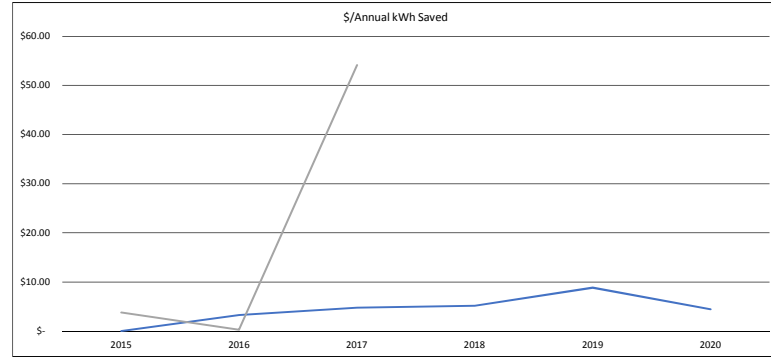


**Energy Star Homes**

<b>Planned</b>		<b>2015</b>		<b>2016</b>		<b>2017</b>		<b>2018</b>		<b>2019</b>		<b>2020</b>	
1)	Total Gas Budget	\$	60,800.00	\$	85,000.00	\$	136,000.00	\$	207,100.00	\$	421,351.15	\$	272,132.22
	Annual Electric Savings Plan (kWh)		-		26,098.44		28,722.49		40,277.27		47,700.96		61,482.42
	\$/Annual kWh Plan	\$	-	\$	3.26	\$	4.73	\$	5.14	\$	8.83	\$	4.43
2)	Total Gas Budget	\$	60,800.00	\$	85,000.00	\$	136,000.00	\$	207,100.00	\$	421,351.15	\$	272,132.22
	Total summer peak kW Plan		-		-		-		-		11.57		-
	\$/kW Plan	\$	-	\$	-	\$	-	\$	-	\$	36,404.46	\$	-
3)	Total Gas Budget	\$	60,800.00	\$	85,000.00	\$	136,000.00	\$	207,100.00	\$	421,351.15	\$	272,132.22
	Total Annual MMBtu Plan		989.66		1,599.35		1,828.65		1,582.72		2,576.78		2,073.04
	\$/Annual MMBtu Plan	\$	61.44	\$	53.15	\$	74.37	\$	130.85	\$	163.52	\$	131.27

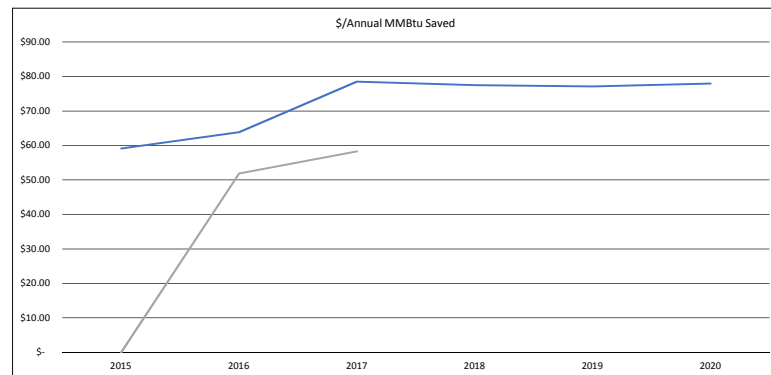
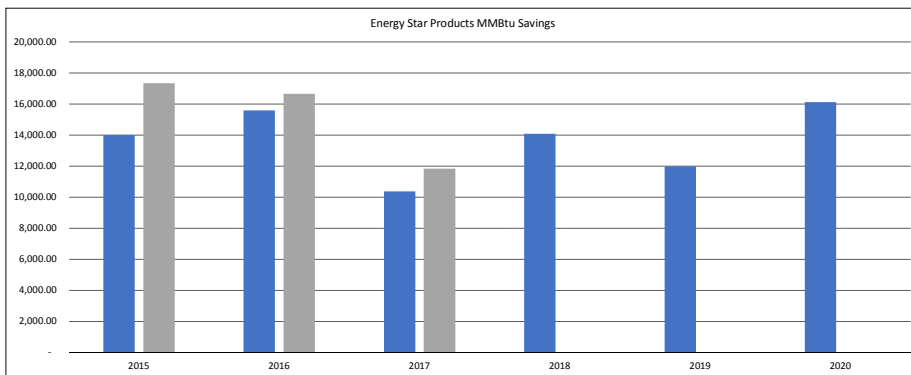
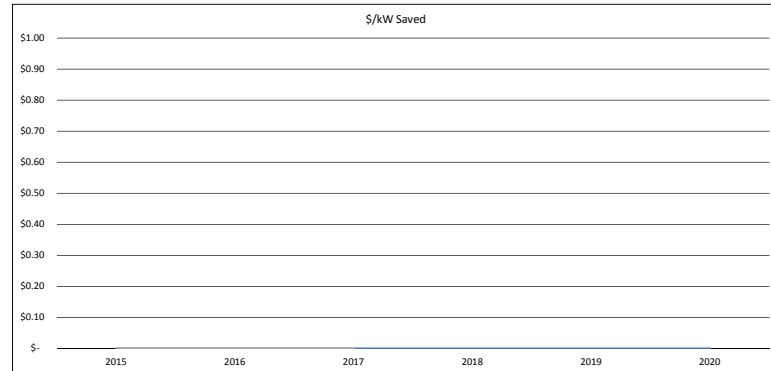
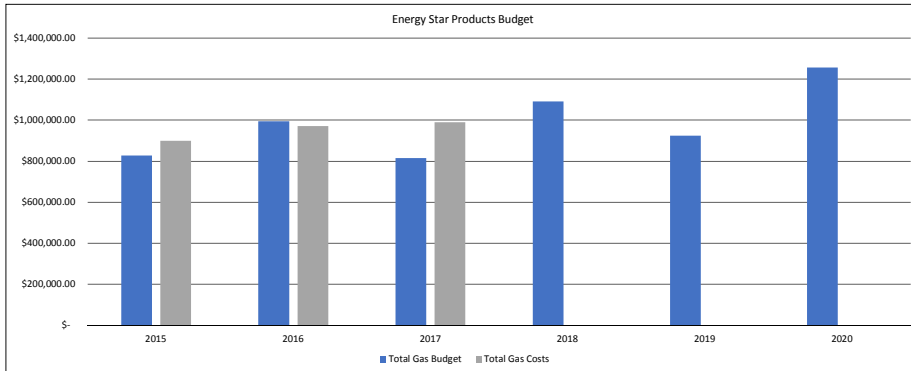
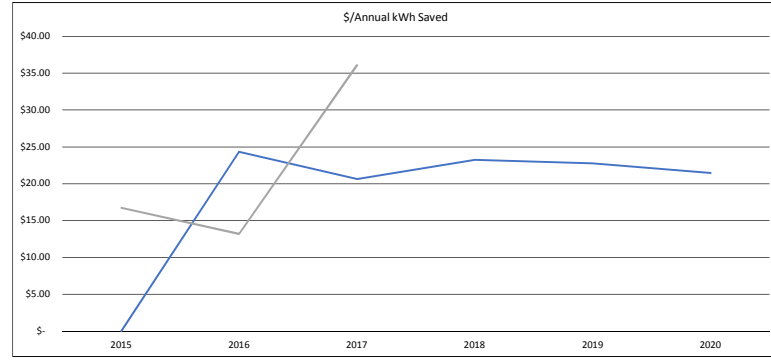
  

<b>Energy Star Homes Actuals</b>		<b>2015</b>		<b>2016</b>		<b>2017</b>	
1)	Total Gas Costs	\$	84,958.18	\$	99,239.80	\$	111,025.37
	Annual Electric Savings Actual (kWh)		22,296.00		348,784.00		2,050.64
	\$/Annual kWh Actual	\$	3.81	\$	0.28	\$	54.14
2)	Total Gas Costs	\$	84,958.18	\$	99,239.80	\$	111,025.37
	Total summer peak kW Actual		-		-		-
	\$/kW Actual	\$	-	\$	-	\$	-
3)	Total Gas Costs	\$	84,958.18	\$	99,239.80	\$	111,025.37
	Total Annual MMBtu Actual		1,419.50		937.50		2,103.50
	\$/Annual MMBtu Actual	\$	59.85	\$	105.86	\$	52.78



**Energy Star Products**

Planned		2015	2016	2017	2018	2019	2020
1)	Total Gas Budget	\$ 828,043.00	\$ 995,000.00	\$ 815,220.00	\$ 1,091,674.00	\$ 925,001.00	\$ 1,257,176.00
	Annual Electric Savings Plan (kWh)	-	40,875.38	39,480.00	46,959.26	40,628.00	58,588.00
	\$/Annual kWh Plan	\$ -	\$ 24.34	\$ 20.65	\$ 23.25	\$ 22.77	\$ 21.46
2)	Total Gas Budget	\$ 828,043.00	\$ 995,000.00	\$ 815,220.00	\$ 1,091,674.00	\$ 925,001.00	\$ 1,257,176.00
	Total summer peak kW Plan	-	-	-	-	-	-
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 828,043.00	\$ 995,000.00	\$ 815,220.00	\$ 1,091,674.00	\$ 925,001.00	\$ 1,257,176.00
	Total Annual MMBtu Plan	14,005.99	15,590.22	10,383.60	14,078.80	11,989.98	16,126.80
	\$/Annual MMBtu Plan	\$ 59.12	\$ 63.82	\$ 78.51	\$ 77.54	\$ 77.15	\$ 77.96
<b>Energy Star Products</b>							
Actuals		2015	2016	2017			
1)	Total Gas Costs	\$ 899,813.80	\$ 970,998.20	\$ 989,619.28			
	Annual Electric Savings Actual (kWh)	53,802.80	73,636.72	27,419.00			
	\$/Annual kWh Actual	\$ 16.72	\$ 13.19	\$ 36.09			
2)	Total Gas Costs	\$ 899,813.80	\$ 970,998.20	\$ 989,619.28			
	Total summer peak kW Actual	-	-	-			
	\$/kW Actual	\$ -	\$ -	\$ -			
3)	Total Gas Costs	\$ 899,813.80	\$ 970,998.20	\$ 989,619.28			
	Total Annual MMBtu Actual	17,351.10	16,657.70	11,845.70			
	\$/Annual MMBtu Actual	\$ 51.86	\$ 58.29	\$ 83.54			

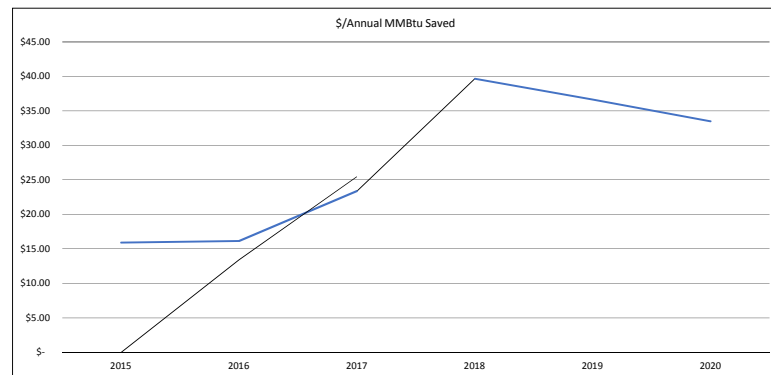
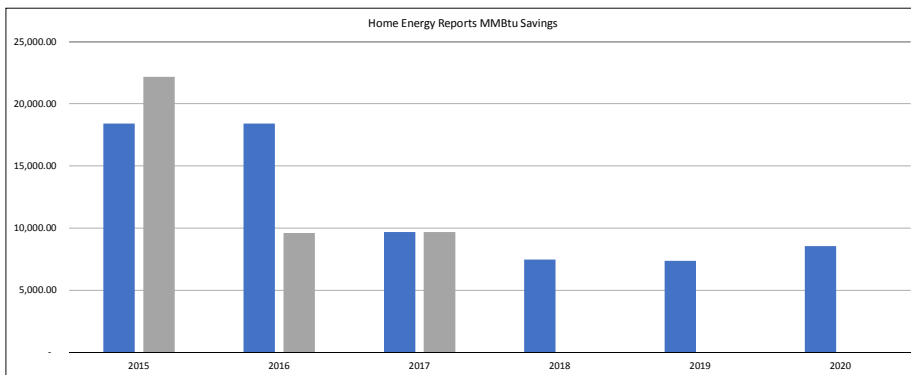
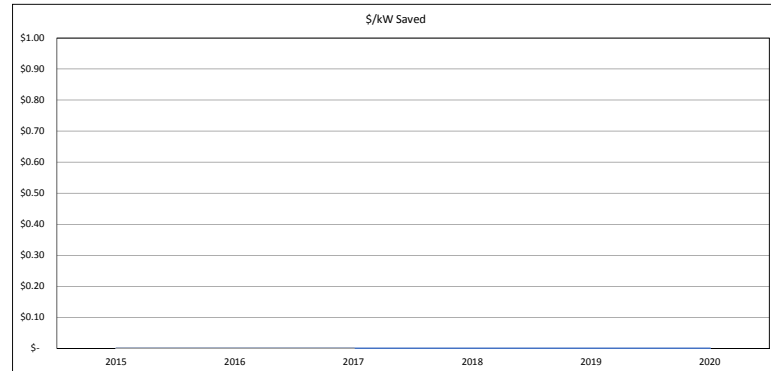
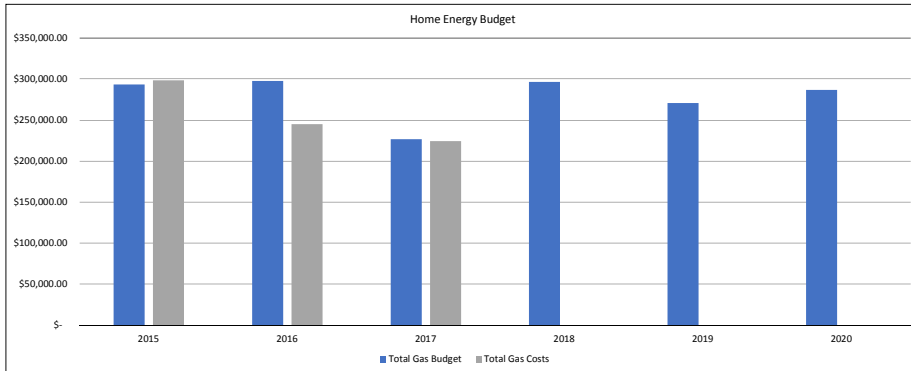
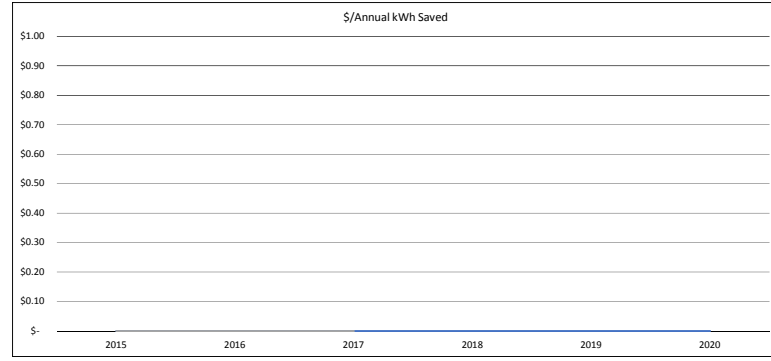


Home Energy Reports

<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
1)	Total Gas Budget	\$ 293,550.00	\$ 298,000.00	\$ 227,000.00	\$ 296,600.00	\$ 270,764.00	\$ 286,994.54
	Annual Electric Savings Plan (kWh)	-	-	-	-	-	-
	\$/Annual kWh Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ 293,550.00	\$ 298,000.00	\$ 227,000.00	\$ 296,600.00	\$ 270,764.00	\$ 286,994.54
	Total summer peak kW Plan	-	-	-	-	-	-
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 293,550.00	\$ 298,000.00	\$ 227,000.00	\$ 296,600.00	\$ 270,764.00	\$ 286,994.54
	Total Annual MMBtu Plan	18,440.10	18,440.10	9,700.00	7,480.00	7,384.00	8,560.00
	\$/Annual MMBtu Plan	\$ 15.92	\$ 16.16	\$ 23.40	\$ 39.65	\$ 36.67	\$ 33.53

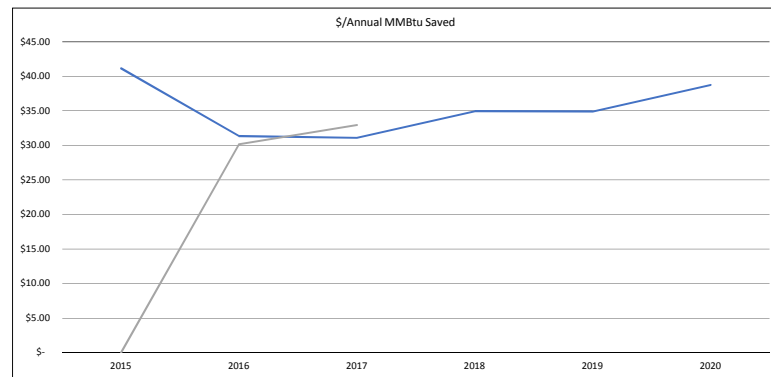
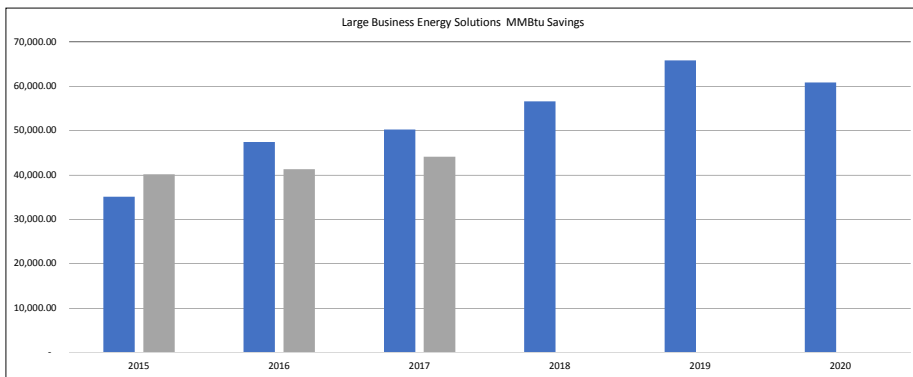
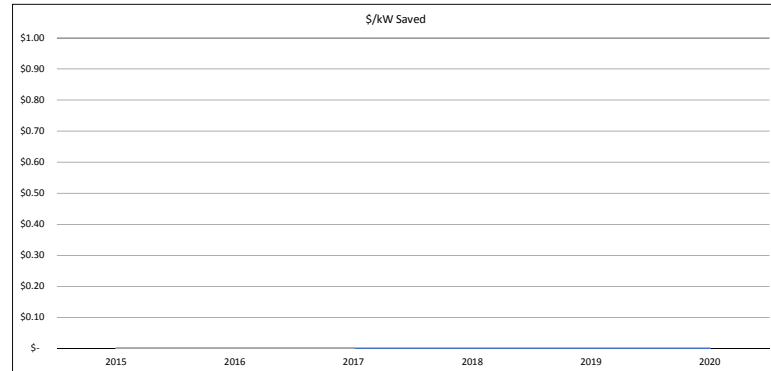
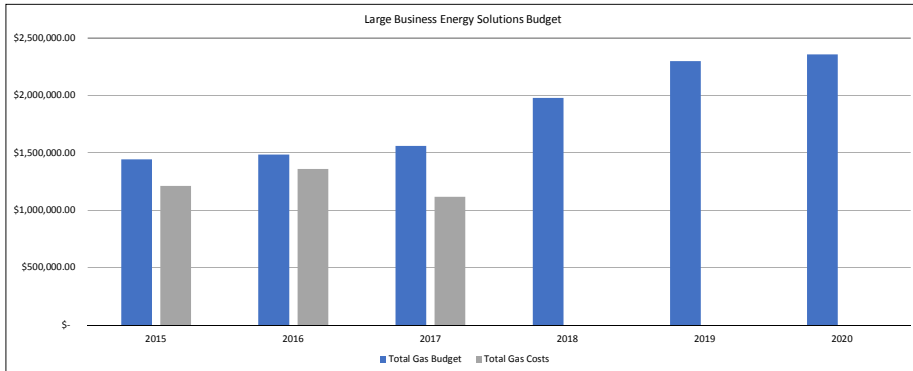
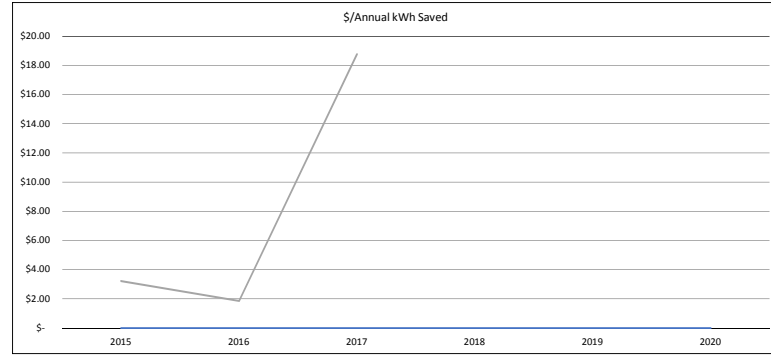
  

<b>Home Energy Reports</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>
1)	Total Gas Costs	\$ 298,541.76	\$ 245,049.37	\$ 224,349.60
	Annual Electric Savings Actual (kWh)	-	-	-
	\$/Annual kWh Actual	\$ -	\$ -	\$ -
2)	Total Gas Costs	\$ 298,541.76	\$ 245,049.37	\$ 224,349.60
	Total summer peak kW Actual	-	-	-
	\$/kW Actual	\$ -	\$ -	\$ -
3)	Total Gas Costs	\$ 298,541.76	\$ 245,049.37	\$ 224,349.60
	Total Annual MMBtu Actual	22,213.10	9,622.40	9,708.30
	\$/Annual MMBtu Actual	\$ 13.44	\$ 25.47	\$ 23.11



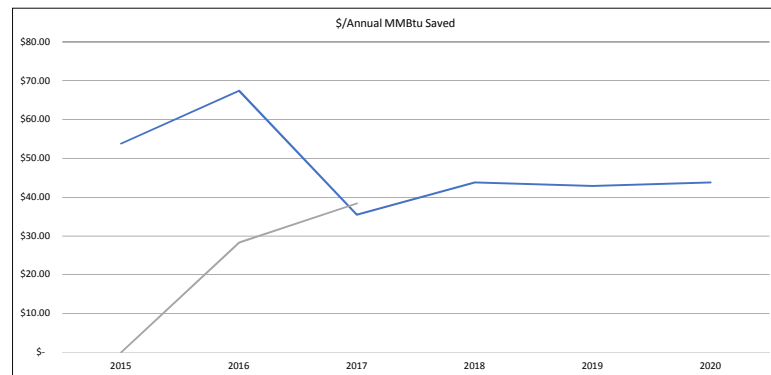
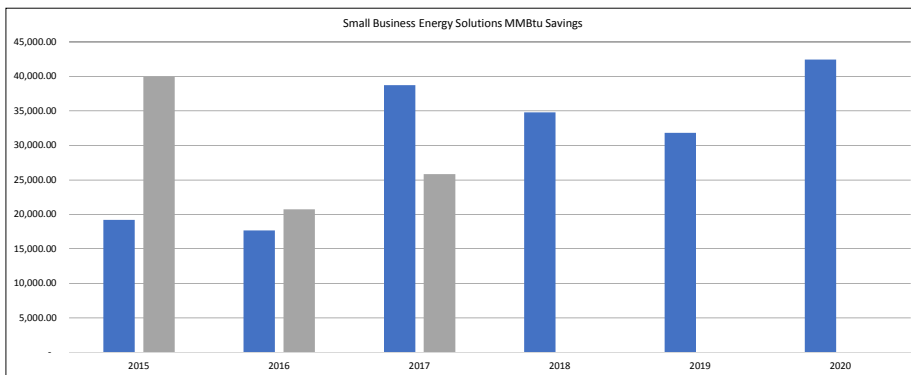
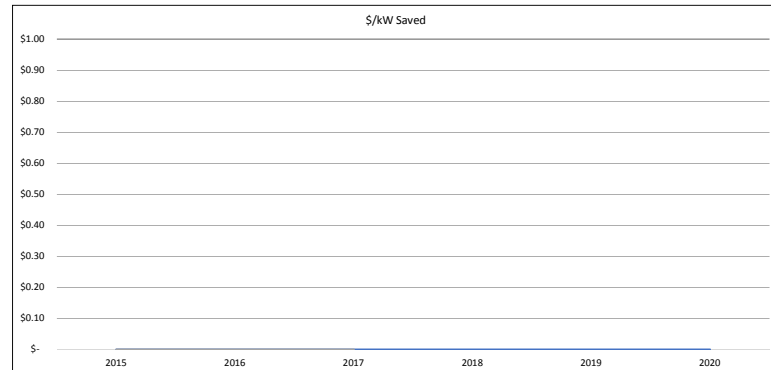
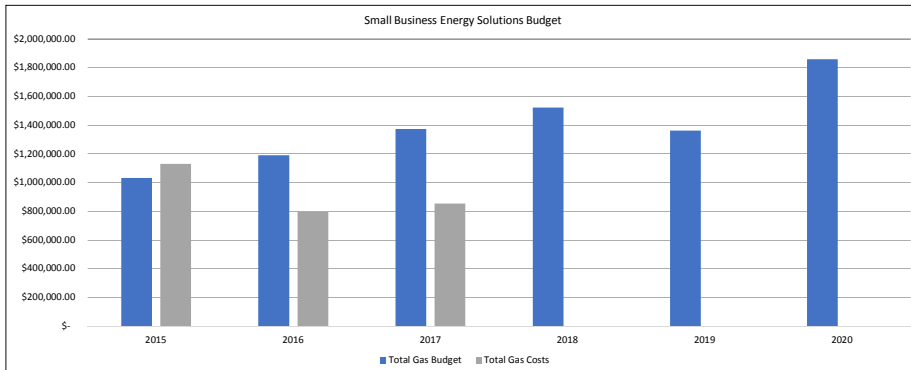
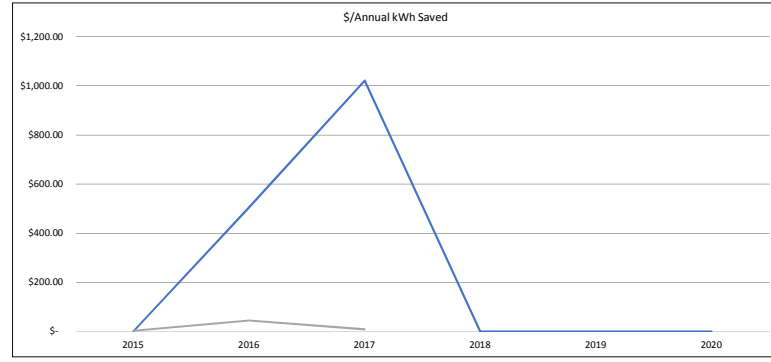
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Total Gas Budget	\$ 1,445,300.00	\$ 1,488,000.00	\$ 1,563,100.00	\$ 1,981,418.00	\$ 2,300,303.00	\$ 2,360,607.00
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$/Annual kWh Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ 1,445,300.00	\$ 1,488,000.00	\$ 1,563,100.00	\$ 1,981,418.00	\$ 2,300,303.00	\$ 2,360,607.00
	Total summer peak kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 1,445,300.00	\$ 1,488,000.00	\$ 1,563,100.00	\$ 1,981,418.00	\$ 2,300,303.00	\$ 2,360,607.00
	Total Annual MMBtu Plan	\$ 35,112.28	\$ 47,470.90	\$ 50,253.00	\$ 56,640.57	\$ 65,862.90	\$ 60,902.63
	\$/Annual MMBtu Plan	\$ 41.16	\$ 31.35	\$ 31.10	\$ 34.98	\$ 34.93	\$ 38.76
<b>Large Business Energy Solutions</b>							
Actuals		2015	2016	2017			
1)	Total Gas Costs	\$ 1,213,707.03	\$ 1,362,062.88	\$ 1,118,669.97			
	Annual Electric Savings Actual (kWh)	\$ 376,025.00	\$ 730,766.77	\$ 59,599.14			
	\$/Annual kWh Actual	\$ 3.23	\$ 1.86	\$ 18.77			
2)	Total Gas Costs	\$ 1,213,707.03	\$ 1,362,062.88	\$ 1,118,669.97			
	Total summer peak kW Actual	\$ -	\$ -	\$ -			
	\$/kW Actual	\$ -	\$ -	\$ -			
3)	Total Gas Costs	\$ 1,213,707.03	\$ 1,362,062.88	\$ 1,118,669.97			
	Total Annual MMBtu Actual	\$ 40,175.50	\$ 41,329.60	\$ 44,189.10			
	\$/Annual MMBtu Actual	\$ 30.21	\$ 32.96	\$ 25.32			



Small Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020
1)	Total Gas Budget	\$ 1,032,710.00	\$ 1,190,000.00	\$ 1,373,000.00	\$ 1,521,323.00	\$ 1,361,981.00	\$ 1,858,158.00
	Annual Electric Savings Plan (kWh)	-	2,352.00	1,344.00	-	-	-
	\$/Annual kWh Plan	\$ -	\$ 505.95	\$ 1,021.58	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ 1,032,710.00	\$ 1,190,000.00	\$ 1,373,000.00	\$ 1,521,323.00	\$ 1,361,981.00	\$ 1,858,158.00
	Total summer peak kW Plan	-	-	-	-	-	-
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 1,032,710.00	\$ 1,190,000.00	\$ 1,373,000.00	\$ 1,521,323.00	\$ 1,361,981.00	\$ 1,858,158.00
	Total Annual MMBtu Plan	19,194.68	17,647.10	38,717.41	34,789.57	31,804.20	42,428.29
	\$/Annual MMBtu Plan	\$ 53.80	\$ 67.43	\$ 35.46	\$ 43.73	\$ 42.82	\$ 43.80
<b>Small Business Energy Solutions</b>							
<b>Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>			
1)	Total Gas Costs	\$ 1,129,097.52	\$ 795,988.77	\$ 852,560.30			
	Annual Electric Savings Actual (kWh)	316,732.00	17,924.79	90,646.55			
	\$/Annual kWh Actual	\$ 3.56	\$ 44.41	\$ 9.41			
2)	Total Gas Costs	\$ 1,129,097.52	\$ 795,988.77	\$ 852,560.30			
	Total summer peak kW Actual	-	-	-			
	\$/kW Actual	\$ -	\$ -	\$ -			
3)	Total Gas Costs	\$ 1,129,097.52	\$ 795,988.77	\$ 852,560.30			
	Total Annual MMBtu Actual	39,916.08	20,731.54	25,814.51			
	\$/Annual MMBtu Actual	\$ 28.29	\$ 38.40	\$ 33.03			



Program Cost-Effectiveness - 2019 PLAN

	Total Resource Benefit / Cost Ratio	Benefit (\$000)	Utility Costs (\$000)	Customer Costs (\$000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
<b>Residential Programs</b>											
Home Energy Assistance	1.04	388.3	374.026	-	11.8	114.2	1.2	0.9	62	1,947.4	39,469.7
Energy Star Homes	1.10	303.5	191.400	85.0	5.4	37.5	2.1	0.8	43	1,440.5	35,260.0
Home Performance with Energy Star	1.00	299.7	204.237	95.8	24.4	279.7	2.2	3.0	100	1,655.2	28,946.4
Energy Star Products	1.19	642.2	315.236	224.1	22.6	351.9	11.5	-	502	4,032.4	68,316.2
Home Energy Reports	1.06	86.7	81.756	-	-	-	-	-	11,600	3,252.0	8,745.6
<b>Sub-Total Residential</b>	<b>1.09</b>	<b>1,720.5</b>	<b>1,166.655</b>	<b>404.9</b>	<b>64.3</b>	<b>783.3</b>	<b>16.9</b>	<b>4.7</b>	<b>12,307</b>	<b>12,327.5</b>	<b>180,737.9</b>
<b>Commercial, Industrial &amp; Municipal</b>											
Large Business Energy Solutions	1.84	1,961.4	623.035	442.3	-	-	-	-	72	16,150.3	236,973.5
Small Business Energy Solutions	1.71	1,059.6	380.546	239.4	1.5	27.2	0.1	-	317	8,229.1	130,383.7
Education	-	-	18.370	-	-	-	-	-	-	-	-
<b>Sub-Total Commercial &amp; Industrial</b>	<b>1.77</b>	<b>3,020.9</b>	<b>1,021.951</b>	<b>681.7</b>	<b>1.5</b>	<b>27.2</b>	<b>0.1</b>	<b>-</b>	<b>389</b>	<b>24,379.4</b>	<b>367,357.2</b>
<b>Total</b>	<b>1.45</b>	<b>4,741.5</b>	<b>2,188.606</b>	<b>1,086.7</b>	<b>65.8</b>	<b>810.5</b>	<b>17.0</b>	<b>4.7</b>	<b>12,696</b>	<b>36,706.9</b>	<b>548,095.1</b>

Note: a 10% NEI adder is applied to total benefits excluding water for all programs except HEA, which receives a 20% adder.



**Present Value Benefits - 2019 PLAN**

	Total Benefits (\$000)	CAPACITY				ENERGY				Electric DRIPE	Total Electric Benefit	Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Fossil Emissions	Water Benefit	Other Non- Resource Benefit
		Summer Generation	Winter Generation	Transmission	Distribution	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak									
<b>Residential Programs</b>																		
Home Energy Assistance	\$ 388.3	\$ 1.0	\$ -	\$ 1.1	\$ 1.0	\$ 2.4	\$ 2.1	\$ 0.8	\$ 0.7	\$ 0.4	\$ 9.5	\$ 273.4	\$ 8.6	\$ 282.1	\$ -	\$ 37.0	\$ 1.3	\$ 58.3
Energy Star Homes	\$ 303.5	\$ 0.3	\$ -	\$ 0.5	\$ 0.5	\$ 0.9	\$ 0.6	\$ 0.3	\$ 0.2	\$ 0.2	\$ 3.6	\$ 234.0	\$ 6.4	\$ 240.4	\$ -	\$ 35.1	\$ -	\$ 24.4
Home Performance with Energy Star	\$ 299.7	\$ 3.2	\$ -	\$ 3.8	\$ 3.4	\$ 5.1	\$ 5.2	\$ 2.0	\$ 2.0	\$ 1.3	\$ 26.1	\$ 203.9	\$ 7.0	\$ 211.0	\$ -	\$ 25.8	\$ 13.2	\$ 23.7
Energy Star Products	\$ 642.2	\$ -	\$ -	\$ -	\$ -	\$ 10.0	\$ 9.1	\$ 0.1	\$ 0.2	\$ 0.4	\$ 19.8	\$ 492.2	\$ 18.3	\$ 510.5	\$ -	\$ 58.9	\$ -	\$ 53.0
Home Energy Reports	\$ 86.7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 68.4	\$ 5.6	\$ 74.0	\$ -	\$ 5.3	\$ -	\$ 7.4
<b>Sub-Total Residential</b>	<b>\$ 1,720.5</b>	<b>\$ 4.5</b>	<b>\$ -</b>	<b>\$ 5.5</b>	<b>\$ 4.9</b>	<b>\$ 18.3</b>	<b>\$ 17.1</b>	<b>\$ 3.3</b>	<b>\$ 3.1</b>	<b>\$ 2.3</b>	<b>\$ 59.0</b>	<b>\$ 1,272.0</b>	<b>\$ 46.0</b>	<b>\$ 1,318.0</b>	<b>\$ -</b>	<b>\$ 162.1</b>	<b>\$ 14.5</b>	<b>\$ 166.9</b>
<b>Commercial/Industrial Programs</b>																		
Large Business Energy Solutions	\$ 1,961.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,535.3	\$ 69.9	\$ 1,605.2	\$ -	\$ 195.7	\$ -	\$ 160.5
Small Business Energy Solutions	\$ 1,059.6	\$ -	\$ -	\$ -	\$ -	\$ 0.6	\$ 0.9	\$ -	\$ 0.0	\$ 0.0	\$ 1.5	\$ 811.5	\$ 33.4	\$ 844.8	\$ -	\$ 113.3	\$ 15.3	\$ 84.6
<b>Sub-Total Commercial &amp; Industrial</b>	<b>\$ 3,020.9</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 0.6</b>	<b>\$ 0.9</b>	<b>\$ -</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 1.5</b>	<b>\$ 2,346.7</b>	<b>\$ 103.3</b>	<b>\$ 2,450.0</b>	<b>\$ -</b>	<b>\$ 308.9</b>	<b>\$ 15.3</b>	<b>\$ 245.1</b>
<b>Total</b>	<b>\$ 4,741.5</b>	<b>\$ 4.5</b>	<b>\$ -</b>	<b>\$ 5.5</b>	<b>\$ 4.9</b>	<b>\$ 18.9</b>	<b>\$ 18.0</b>	<b>\$ 3.3</b>	<b>\$ 3.1</b>	<b>\$ 2.3</b>	<b>\$ 60.5</b>	<b>\$ 3,618.8</b>	<b>\$ 149.2</b>	<b>\$ 3,768.0</b>	<b>\$ -</b>	<b>\$ 471.1</b>	<b>\$ 29.9</b>	<b>\$ 412.0</b>

**Performance Incentive Calculation  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial/Industrial Incentive</b>		
1. Benefit/Cost Ratio	<b>1.72</b>	
2. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
3. Lifetime MMBtu Savings	<b>367,357</b>	
4. Threshold Lifetime MMBtu Savings (65%) <sup>2</sup>	238,782	
5. Implementation Expenses	\$1,021,951	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
<b>8. Commercial &amp; Industrial Performance Incentive</b>	<b>\$56,207</b>	
<b>9. Maximum Commercial &amp; Industrial Performance Incentive (6.875%)</b>	<b>\$70,259</b>	
<b>Residential Incentive</b>		
10. Benefit / Cost Ratio	<b>1.05</b>	
11. Threshold Benefit / Cost Ratio <sup>1</sup>	1.00	
12. Lifetime MMBtu Savings	<b>180,738</b>	
13. Threshold Lifetime MMBtu Savings (65%) <sup>2</sup>	117,480	
14. Implementation Expenses	\$1,166,655	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
<b>17. Residential Performance Incentive</b>	<b>\$64,166</b>	
<b>18. Maximum Residential Performance Incentive (6.875%)</b>	<b>\$80,208</b>	
<b>19. TOTAL PLANNED / EARNED INCENTIVE</b>	<b>\$120,373</b>	

**Notes**

1. Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.
2. Benefit Cost ratios are Nominal\$/Nominal\$

**Planned Versus Actual Benefit / Cost Ratio by Sector  
 2019**

	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
1. Benefits (Value) From Eligible Programs	\$ 3,020,924	
2. Implementation Expenses	\$ 1,021,951	
3. Customer Contribution	\$ 681,747	
4. Performance Incentive	\$ 56,207	
5. Total Costs	\$ 1,759,906	
6. Benefit/Cost Ratio - Commercial & Industrial Sector		<b>1.72</b>
<b>Residential</b>		
7. Benefits (Value) From Eligible Programs	\$ 1,720,529	
8. Implementation Expenses	\$ 1,166,655	
9. Customer Contribution	\$ 404,916	
10. Performance Incentive	\$ 64,166	
11. Total Costs	\$ 1,635,737	
12. Benefit/Cost Ratio - Residential Sector		<b>1.05</b>

**Lifetime Energy Savings by Sector and Program  
2019**

	Lifetime MMBtu Savings	
	<u>Planned</u>	<u>Actual</u>
<b>Commercial &amp; Industrial</b>		
Large Business Energy Solutions	236,973,528	
Small Business Energy Solutions	130,383,663	
<b>Total Commercial &amp; Industrial</b>	<b>367,357,190</b>	
<b>Residential</b>		
Home Energy Assistance	39,469,684	
Energy Star Homes	35,260,000	
Home Performance with Energy Star	28,946,400	
Energy Star Products	68,316,200	
Home Energy Reports	8,745,594	
<b>Total Residential</b>	<b>180,737,878</b>	

Northern Utilities Inc. Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Boiler - NG Boiler Replacement AFUE>=90%		7	1			142	20	20	87%	87%	-	-	2,468		25.4	19	100%	100%	-	3,555	388
Furnace - NG Furnace Replacement AFUE>=90%	3		3	168		168	18	18	87%	87%	7,884	-	7,884	22.0		21	100%	100%	1,188	-	1,118
Direct Install Water Measures	10	39	75	-		-	7	7	87%	87%	-	-	-	1.0	0.6	1	100%	100%	70	169	525
Heating System Tune-up		2	6			-	1	1	87%	87%	-	-	-		3.8	10	100%	98%	-	8	59
Multifamily weatherization	17		19	231		38	20	20	87%	87%	68,303	-	12,548	23.0		24	100%	98%	7,820	-	8,947
Single Family weatherization	25	31	43	367	149	58	20	20	87%	87%	159,375	80,278	43,346	28.0	27.93	28	100%	98%	14,000	17,317	23,622
Thermostat - Standard, 7-Day Programmable	6	4	16			-	15	15	87%	87%	-	-	-	6.6	2.3	7	100%	98%	594	138	1,554
LED lighting	252		195	37		50	8	5	83%	87%	61,506	-	42,364			-	100%	98%	-	-	-
DHW Pipe Wrap - Nat Gas		16					15								0.4		100%				
<b>Program Summary*</b>											<b>297,068</b>	<b>80,278</b>	<b>108,609</b>						<b>23,672</b>	<b>21,186</b>	<b>36,213</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. ENERGY STAR® Homes Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Clothes washer	5			123.9		123.9	11	11	100%	100%	6,815	-		3.3		3	100%	100%	182	-	
Water Heating Savings	42	52	43	100.0	364.8	-	20	20	100%	100%	84,000	379,392	-		1.3	3.5	100%	100%	-	1,342	3,010
ES Homes	42	52	43	850.0	578.5	-	25	25	100%	100%	892,500	752,025	-	30.0	17.5	30	100%	100%	31,500	22,800	32,250
LED lighting	252	288	317	24.6	24.6	15.0	8	5	100%	100%	49,674	56,678	23,775			0	100%	100%	-	-	-
Lighting and Appliances	42	52	43	(100.0)	37.9	16.0	15	20	100%	100%	(63,000)	29,562	13,760			0	100%	100%	-	-	-
Refrigerator		5			39.6		12		100%	100%	-	2,376	-				100%	100%	-	-	-
Cooling Savings		41			171.0		14		100%	100%	-	98,154	-				100%	100%	-	-	-
<b>Program Summary*</b>											<b>969,989</b>	<b>1,318,187</b>	<b>37,535</b>						<b>31,682</b>	<b>24,142</b>	<b>35,260</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. Home Performance with ENERGY STAR®

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Direct Install Water Measures	8	8	72		32.3	-	7	8	100%	100%	-	1,809	-	2.0		4.15	100%	100%	112	-	2,390
Single Family weatherization			37			250.0		20	100%	100%	-	-	185,000			26	100%	100%	-	-	19,240
Thermostat - Standard, 7-Day Programmable	4	2	11		-	-	15	15	100%	100%	-	-	-	3.2	1.85	3.2	100%	100%	192	56	528
Thermostat - WiFi (heating and cooling)			12		-	-		15	100%	100%	-	-	-			6.6	100%	100%	-	-	1,188
Multifamily weatherization			16		80.0			20	100%	100%	-	-	25,600			17.5	100%	100%	-	-	5,600
LED lighting	120		576	37.0		24.0	8	5	100%	100%	35,478	-	69,120			0	100%	100%	-	-	-
Air Sealing, Natural Gas	30	36		40.0			15		100%		18,000	-	-	16.0	10.57		100%		7,200	5,708	-
Insulation, Natural Gas	30	37		75.0			25		100%		56,250	-	-	24.0	15.38		100%		18,000	14,227	-
Pipe Wrap - Natural Gas		2			814.5				100%		-	-	-		0.06		100%		-	-	-
Wxn Heating Ancillary Savings	30	27		75.0	22.9		25		100%		56,250	15,458	-				100%		-	-	-
Cooling system Ancillary Savings	20	11		35.0	69.1		25		100%		17,500	19,003	-				100%		-	-	-
											-	-	-						-	-	-
<b>Program Summary*</b>											<b>183,478</b>	<b>36,269</b>	<b>279,720</b>						<b>25,504</b>	<b>19,990</b>	<b>28,946</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. ENERGY STAR® Products Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)		
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan
Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	30	25	25			-		20	100%	100%	-	-	-	8.0	8.0	8.00	100%	100%	-	-	4,000
Water Heater - Integrated w/Condensing Boiler >= 9	18		6			-		19	100%	100%	-	-	-	10.3	10.3	10.3	100%	100%	-	-	1,174
Water Heater - Integrated w/Condensing Boiler >= 9	10		20			-		19	100%	100%	-	-	-	12.8	12.8	12.8	100%	100%	-	-	4,864
Water Heater - Tankless, On-Demand >=.94	20	22	-			-		19	100%	100%	-	-	-	9.9	9.9	9.9	100%	100%	-	-	-
Boiler Reset Controls	3		5			-	15	15	100%	100%	-	-	-	4.5	4.5	4.5	100%	100%	203	-	338
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	5	16	20			-	20	18	100%	100%	-	-	-	11.4	11.4	11.4	100%	100%	1,140	3,648	4,104
Condensing Boiler >= 95% AFUE (Up to 300 MBH)	12	82	70			-	20	19	100%	100%	-	-	-	14.1	14.1	14.1	100%	100%	3,384	23,124	18,753
Furnace 95+ AFUE (<150) w/ECM Motor	12	17	25	168.0	168.0	168.0	17	17	100%	100%	34,272	48,552	71,400	8.1	8.1	8.1	100%	100%	1,652	2,341	3,443
Furnace 97+ AFUE (<150) w/ECM Motor	21	12	20	168.0	168.0	168.0	17	17	100%	100%	59,976	34,272	57,120	9.2	9.2	9.2	100%	100%	3,284	1,877	3,128
Heat Recovery Ventilator (-133 kWh penalty)		3	4	(133.0)	(133.0)	(133.0)	20	20	100%	100%	-	(7,980)	(10,640)	7.7	7.7	7.7	100%	100%	-	462	616
Thermostat - Standard, 7-Day Programmable	31	24	14			-	15	15	100%	100%	-	-	-	3.2	3.2	3.2	100%	100%	1,488	1,152	672
Thermostat - WiFi (Cooling & Heating)	125	113	150	104.0	104.0	104.0	15	15	100%	100%	195,000	176,280	234,000	6.6	6.6	6.6	100%	100%	12,375	11,187	14,850
Thermostat - WiFi (Heating Only)	90	90	125			-	15	15	100%	100%	-	-	-	6.6	6.6	6.6	100%	100%	8,910	8,910	12,375
<b>Discontinued measures</b>																					
Water Heater - Tankless, On-Demand >=.82	20						19.0		100%	100%				9.4	9.4		100%	100%			
<b>Program Summary*</b>											<b>289,248</b>	<b>251,124</b>	<b>351,880</b>						<b>32,436</b>	<b>52,701</b>	<b>68,316</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)



**Northern Utilities Inc. Home Energy Reports Program**

	Quantity	Gross Annual Savings per Unit (kWh)	Measure Life	Installation or Electric Realization Rate	Net Total Lifetime Savings (kWh)	Gross Annual Savings Per Unit (MMBTU)	Non-Electric Realization Rate	Net Total Lifetime Savings (MMBTU)
Measure	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan	2019 Plan
Behavioral Savings	11,600		3		-	0.28	100%	8,735
<b>Program Summary*</b>								<b>8,735</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. Large Business Energy Solutions Programs

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	
<b>ALL</b>																						
Custom	5	1					13.0		100%	100%	-	-	-	4,068.2	1,024.0		100%		264,433	13,312	-	
<b>Retrofit Track</b>																						
Large Business Custom		6	7		(18,183.0)	-	15.0	14.0	100%	100%	-	-	-		2,662.5	2013	100%	91%	-	-	-	
Custom Envelope		8	-				14.0	-	100%	100%	-	(1,636,470)	-		85	0	100%	100%	-	239,625	180,308	
									100%	100%	-	-	-			0	100%	100%	-	9,520	-	
									100%	100%	-	-	-			0	100%	100%	-	-	-	
<b>New Equipment &amp; Construction Track</b>																						
Upstream Water Heater - Condensing > 75 MBTUh (EF 0.90)		1	10				15	15	100%	100%	-	-	-		23.1	23.05	100%	102%	-	346	3,530	
Upstream Water Heater - Indirect .90 EF)	4						15	15	100%	100%	-	-	-	19.0	19.0	19	100%	102%	1,140	-	-	
Boiler Reset Controls		1			28,356	-	15	15	100%	100%	-	425,340	-		9.4	8.89	100%	102%	-	188	-	
Condensing Unit Heater >= 90% thermal efficiency (up to 300 MBH)	5						18	18	100%	100%	-	-	-	40.9	40.9	40.9	100%	102%	3,681	-	-	
Condensing Boiler >= 90% AFUE (Up to 300 MBH)							25	25	100%	100%	-	-	-			14.7	100%	102%	-	-	-	
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	1	4	2				25	25	100%	100%	-	-	-	197.2	197.2	94.5	100%	102%	4,930	19,720	4,824	
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)							25	25	100%	100%	-	-	-			165.3	100%	102%	-	-	12,658	
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	1	1	3				25	25	100%	100%	-	-	-	58.4	58.4	28	100%	102%	1,460	1,460	2,144	
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	1	1	2				25	25	100%	100%	-	-	-	107.3	107.3	51.4	100%	102%	2,683	2,683	2,624	
Infrared Heater, Low Intensity (all sizes)							17	17	100%	100%	-	-	-			12	100%	102%	-	-	1,041	
Steam Trap	7	12					6	6	100%	100%	-	-	-	25.7	25.7	12.2	100%	102%	1,079	-	897	
Thermostat - WiFi (Cooling & Heating)							15	15	100%	100%	-	-	-			6.6	100%	102%	-	-	-	
Thermostat - WiFi (Heating Only)	12						15	15	100%	100%	-	-	-	6.6	6.6	6.6	100%	102%	1,188	-	-	
Kitchen - Combination Oven (>= 44% efficiency)							12	12	100%	100%	-	-	-			112	100%	102%	-	-	-	
Kitchen - Convection Oven (>= 44% efficiency)			2				12	12	100%	100%	-	-	-			12.9	100%	102%	-	-	316	
Kitchen - Conveyor Oven (>= 44% efficiency)							12	12	100%	100%	-	-	-			88.4	100%	102%	-	-	-	
Kitchen - Fryer							12	12	100%	100%	-	-	-			50.8	100%	102%	-	-	-	
Kitchen - Griddle							12	12	100%	100%	-	-	-			13.1	100%	102%	-	-	-	
Kitchen - Pre Rinse Sprayers	7						8	8	100%	100%	-	-	-	11.4	11.4	11.4	100%	102%	-	-	-	
Kitchen - Rack Oven (>= 50% efficiency)							12	12	100%	100%	-	-	-			211.3	100%	102%	-	-	-	
Kitchen - Steamer (ES >= 38% efficiency)							12	12	100%	100%	-	-	-			105.4	100%	102%	-	-	-	
Upstream Volume Water Heater >75 MBTUh 92%			8				15	15	100%	100%	-	-	-			233.68	100%	102%	-	-	-	
<b>Program Summary*</b>																				<b>280,594</b>	<b>356,521</b>	<b>208,343</b>

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Planning Assumptions**

1. Annual Savings were updated based on recent trends and reflect expected project sizes.

Northern Utilities Inc. Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life		Installation or Electric Realization Rate		Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBTU)			Non-Electric Realization Rate		Net Total Lifetime Savings (MMBTU)			
	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017	2019	2017 Plan	2017 Actual	2019 Plan	2017 Plan	2017 Actual	2019 Plan	2017	2019	2017 Plan	2017 Actual	2019 Plan	
<b>ALL</b>																						
Small Business Custom	4	3	7			-	22	15.0	100%	100%	-	-	-	318.5	134.6	292.6	100%	100%	-	-	-	
<b>New Equipment and Construction</b>																						
Aerator		93	-			-	10	10	100%	100%	-	-	-		1.7	1.7	100%	100%	-	1,581	-	
Salon Sprayer			-			-	5	5	100%	100%	-	-	-			11.4	100%	100%	-	-	-	
Shower Head		24	-			-	10	10	100%	100%	-	-	-		5.2	2.7	100%	100%	-	1,248	-	
Shower Head Hand Handle			-			-	10	10	100%	100%	-	-	-			2.7	100%	100%	-	-	-	
Upstream Water Heater - Indirect			20			-	15	15	100%	100%	-	-	-			19.0	100%	100%	-	-	5,700	
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE			2			-	20	20	100%	100%	-	-	-			24.6	100%	100%	-	-	984	
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE			3			-	20	20	100%	100%	-	-	-			30.5	100%	100%	-	-	1,830	
Upstream Water Heater - Tankless, On-Demand >=.94 (< 200 MBTUh .90 EF)		2	50			-	20	20	100%	100%	-	-	-		9	8.9	100%	100%	-	360	8,890	
Boiler Reset Controls			9			-	15	15	100%	100%	-	-	-			11.4	100%	100%	-	-	1,539	
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)			2			-	18	18	100%	100%	-	-	-			40.9	100%	100%	-	-	1,472	
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	1		11			-	25	25	100%	100%	-	-	-	30.6		14.7	100%	100%	765	-	4,043	
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	5	2	2			-	25	25	100%	100%	-	-	-	197.2	197.2	94.5	100%	100%	24,650	9,860	4,725	
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)		1	2			-	25	25	100%	100%	-	-	-		345.1	165.3	100%	100%	-	8,628	8,265	
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	10	2	2			-	25	25	100%	100%	-	-	-	58.4	58.4	28.0	100%	100%	14,600	2,920	1,400	
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	5	5	13			-	25	25	100%	100%	-	-	-	107.3	107.3	51.4	100%	100%	13,413	13,413	16,705	
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	5	3	4			-	25	25	100%	100%	-	-	-	27.8	27.8	17.7	100%	100%	3,475	2,085	1,770	
Furnace 95+ AFUE (<150) w/ECM Motor		5	4			168	18	18	100%	100%	-	-	12,096		5.7	5.7	100%	100%	-	513	410	
Furnace 97+ AFUE (<150) w/ECM Motor			5			168	18	18	100%	100%	-	-	15,120		6.7	6.7	100%	100%	-	-	603	
Infrared Heater, Low Intensity (all sizes)		7	6			-	17	17	100%	100%	-	-	-		12	12.0	100%	100%	-	1,428	1,224	
Kitchen - Pre Rinse Sprayers	35	15	40			-	5	8	100%	100%	-	-	-	11.4	11.4	11.4	100%	100%	1,995	855	3,648	
Steam Trap			15			-	6	6	100%	100%	-	-	-			12.2	100%	100%	-	-	1,098	
Thermostat - WiFi (Cooling & Heating)			67			-	15	15	100%	100%	-	-	-			6.6	100%	100%	-	-	6,633	
Thermostat - WiFi (Heating Only)		2	29			-	15	15	100%	100%	-	-	-		6.6	6.6	100%	100%	-	198	2,871	
Kitchen - Combination Oven (>= 44% efficiency)	1		-			-	12	12	100%	100%	-	-	-	112.0		112.0	100%	100%	1,344	-	-	
Kitchen - Convection Oven (>= 44% efficiency)		2	2			-	12	12	100%	100%	-	-	-		12.9	12.9	100%	100%	-	310	310	
Kitchen - Conveyor Oven (>= 44% efficiency)	1		7			-	12	12	100%	100%	-	-	-	88.4		88.4	100%	100%	1,061	-	7,426	
Kitchen - Fryer	5	11	4			-	12	12	100%	100%	-	-	-	50.8	50.8	50.8	100%	100%	3,048	6,706	2,438	
Kitchen - Griddle			3			-	12	12	100%	100%	-	-	-			13.1	100%	100%	-	-	472	
Kitchen - Rack Oven (>= 50% efficiency)			4			-	12	12	100%	100%	-	-	-			211.3	100%	100%	-	-	10,142	
Kitchen - Steamer (ES >= 38% efficiency)			4			-	12	12	100%	100%	-	-	-			105.4	100%	100%	-	-	5,059	
Upstream Volume Water Heater >75 MBTUh 92%		2	-			-	15	15	100%	100%	-	-	-		326.76	233.7	100%	100%	-	9,803	-	
Thermostat - Standard, 7-Day Programmable		27				-	15		100%		-	-	-		3.3		100%		-	1,337	-	
<b>Retrofit</b>																						
Custom		2					15		100%						316.25		100%		-	9,488	-	
Water Heating - Pipe Wrap		2					15		100%						1.26		100%		-	38	-	
<b>Program Summary*</b>													27,216						89,833	79,748	130,384	

\*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

**Northern Utilities, Inc. -- New Hampshire Division**

**EEC Budget**

	<b>Residential</b>	<b>Low-Income</b>	<b>Gen Service</b>	<b>Total</b>
July-18	\$48,836	\$32,944	\$83,458	\$165,238
August-18	\$55,890	\$37,702	\$95,513	\$189,105
September-18	\$62,402	\$42,094	\$114,392	\$218,888
October-18	\$69,456	\$46,853	\$118,695	\$235,004
November-18	\$76,510	\$51,612	\$130,750	\$258,872
December-18	\$83,564	\$56,370	\$150,557	\$290,491
January-19	\$10,304	\$4,862	\$13,047	\$28,213
February-19	\$20,608	\$9,725	\$26,093	\$56,426
March-19	\$30,120	\$14,213	\$42,729	\$87,061
April-19	\$40,424	\$19,075	\$51,183	\$110,682
May-19	\$50,728	\$23,938	\$64,229	\$138,895
June-19	\$61,032	\$28,800	\$81,868	\$171,701
July-19	\$71,337	\$33,662	\$90,322	\$195,321
August-19	\$81,641	\$38,525	\$103,369	\$223,534
September-19	\$91,152	\$43,013	\$120,004	\$254,170
October-19	\$101,457	\$47,875	\$128,458	\$277,790
<b>Total</b>	<b>\$955,462</b>	<b>\$531,263</b>	<b>\$1,414,667</b>	<b>\$2,901,392</b>

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

	<b>Residential</b>	<b>Low-Income</b>	<b>Gen Service</b>	<b>Total</b>
July-18	\$53,594	0	\$111,644	\$165,238
August-18	\$61,044	0	\$128,061	\$189,105
September-18	\$68,394	0	\$150,495	\$218,888
October-18	\$76,171	0	\$158,833	\$235,004
November-18	\$88,970	0	\$169,902	\$258,872
December-18	\$99,642	0	\$190,849	\$290,491
January-19	\$11,789	0	\$16,424	\$28,213
February-19	\$23,667	0	\$32,759	\$56,426
March-19	\$34,271	0	\$52,791	\$87,061
April-19	\$45,928	0	\$64,754	\$110,682
May-19	\$56,443	0	\$82,452	\$138,895
June-19	\$67,546	0	\$104,155	\$171,701
July-19	\$76,431	0	\$118,890	\$195,321
August-19	\$86,898	0	\$136,636	\$223,534
September-19	\$97,130	0	\$157,040	\$254,170
October-19	\$108,469	0	\$169,321	\$277,790
<b>Total</b>	<b>\$1,056,387</b>	<b>\$0</b>	<b>\$1,845,005</b>	<b>\$2,901,392</b>

**EEC Charge Factor Calculation**

**EEC Charge Factors for Residential Customers**

EEC Reconciliation Adjustment	\$113,528	Schedule 16 - EEC Page 3 Nov '18 - Oct '19 Totals- November 2018 Beginning Balance before Adjustment
Funds Shift to On Bill Financing Mechanism - Residential	\$30,000	Adjustment
Revised EEC Reconciliation Adjustment	<u>\$143,528</u>	
EEC Costs	\$718,878	Schedule 16 - EEC Page 3 Nov '18 - Oct '19 Totals- Column 2
EEC Performance Incentive	\$43,623	Schedule 16 - EEC Page 3 Nov '18 - Oct '19 Totals- Column 3
EEC Low-Income Costs	\$78,306	Schedule 16 - EEC Nov '18 - Oct '19 Totals- Column 4
EEC Allocated Low-Income Performance Incentive	\$4,657	Schedule 16 - EEC Page 3 Nov '18 - Oct '19 Totals- Column 5
Total	<u>\$988,992</u>	
Forecasted Annual Throughput Volumes for Residential Customers	19,742,687	Schedule 16 - EEC - EEC Page 3 Nov '18 - Oct '19 Totals- Column 6

<b>Energy Efficiency Charge Factor for Residential Customers</b>	<b>\$0.0501</b>
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**EEC Charge Factors for Commercial and Industrial Customers (C&I)**

EEC Reconciliation Adjustment	\$43,740	Schedule 16 - EEC Page 4 Nov '18 - Oct '19 Totals- November 2018 Beginning Balance Before Adjustment
Funds Shift to On Bill Financing Mechanism - C&I	\$53,000	Adjustment
Revised EEC Reconciliation Adjustment	<u>\$96,740</u>	
EEC Costs	\$1,002,609	Schedule 16 - EEC Page 4 Nov '18 - Oct '19 Totals- Column 2
EEC Performance Incentive	\$54,741	Schedule 16 - EEC Page 4 Nov '18 - Oct '19 Totals- Column 3
EEC Low-Income Costs	\$293,364	Schedule 16 - EEC Page 4 Nov '18 - Oct '19 Totals- Column 4
EEC Allocated Low-Income Performance Incentive	\$15,598	Schedule 16 - EEC Page 4 Nov '18 - Oct '19 Totals- Column 5
Total	<u>\$1,559,792</u>	
Forecasted Annual Throughput Volumes for C&I Customers	55,326,578	Schedule 16 - EEC Page 4 Nov '18 - Oct '19 Totals- Column 6

<b>Energy Efficiency Charge Factor for C&amp;I Customers</b>	<b>\$0.0264</b>
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<p style="text-align: center;"><b>Northern Utilities, Inc.</b>  <b>New Hampshire Division</b>  <b>Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge</b>  <b>To Be Effective November 1, 2018 through October 31, 2019</b>  <b>Residential Customers</b></p>															
		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income EEC Costs	Allocated Low Income DSM PI	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-17	Actual	(\$1,056)	\$0.0331	\$11,629	\$28,218	\$2,326	\$920	\$80	\$18,858	\$8,901	4.00%	\$30	\$18,888	351,435	31
September-17	Actual	\$18,888	\$0.0331	\$12,576	\$80,046	\$2,326	\$5,783	\$503	\$94,970	\$56,929	4.00%	\$187	\$95,157	380,460	30
October-17	Actual	\$95,157	\$0.0331	\$14,773	\$49,801	\$2,326	\$7,887	\$686	\$141,084	\$118,121	4.25%	\$426	\$141,510	446,553	31
November-17	Actual	\$141,510	\$0.0433	\$36,818	\$58,033	\$2,326	\$4,650	\$404	\$170,105	\$155,808	4.25%	\$544	\$170,649	972,322	30
December-17	Actual	\$170,649	\$0.0433	\$114,292	\$7,578	\$14,857	(\$1,742)	(\$151)	\$76,900	\$123,775	4.25%	\$904	\$77,804	2,639,565	31
January-18	Actual	\$77,804	\$0.0433	\$178,562	\$20,657	\$3,647	\$10,082	\$587	(\$65,785)	\$6,009	4.25%	\$22	(\$65,763)	4,123,832	31
February-18	Actual	(\$65,763)	\$0.0433	\$135,594	\$42,714	\$3,647	\$1,848	\$108	(\$153,040)	(\$109,402)	4.25%	(\$357)	(\$153,397)	3,131,798	28
March-18	Actual	(\$153,397)	\$0.0433	\$110,848	\$24,224	\$3,647	\$2,241	\$130	(\$234,002)	(\$193,700)	4.25%	(\$699)	(\$234,701)	2,560,049	31
April-18	Actual	(\$234,701)	\$0.0433	\$98,906	\$99,903	(\$13,276)	\$6,723	\$391	(\$239,867)	(\$237,284)	4.50%	(\$1,814)	(\$241,681)	2,284,269	30
May-18	Actual	(\$241,681)	\$0.0433	\$47,801	\$54,894	\$3,647	\$1,480	\$86	(\$229,375)	(\$235,528)	4.50%	(\$922)	(\$230,297)	1,103,933	31
June-18	Actual	(\$230,297)	\$0.0433	\$23,655	\$156,648	\$3,647	\$3,085	\$180	(\$90,392)	(\$160,345)	4.50%	(\$593)	(\$90,985)	688,778	30
July-18	Forecast	(\$90,985)	\$0.0433	\$16,689	\$48,836	\$3,647	\$4,758	\$225	(\$50,209)	(\$70,597)	4.75%	(\$285)	(\$50,493)	385,426	31
August-18	Forecast	(\$50,493)	\$0.0433	\$16,261	\$55,890	\$3,647	\$5,154	\$213	(\$1,850)	(\$26,172)	4.75%	(\$106)	(\$1,956)	375,540	31
September-18	Forecast	(\$1,956)	\$0.0433	\$16,600	\$62,402	\$3,647	\$5,992	\$222	\$53,706	\$25,875	4.75%	\$101	\$53,807	383,364	30
October-18	Forecast	\$53,807	\$0.0433	\$20,675	\$69,456	\$3,647	\$6,715	\$223	\$113,174	\$83,491	5.00%	\$355	\$113,528	477,483	31
November-18	Forecast	<b>\$143,528</b>	\$0.0501	\$75,625	\$76,510	\$3,647	\$12,460	\$376	\$160,896	\$152,212	5.00%	\$626	\$161,522	1,509,473	30
December-18	Forecast	\$161,522	\$0.0501	\$118,946	\$83,564	\$3,647	\$16,078	\$444	\$146,309	\$153,915	5.00%	\$654	\$146,962	2,374,168	31
January-19	Forecast	\$146,962	\$0.0501	\$182,347	\$10,304	\$3,633	\$1,485	\$523	(\$19,439)	\$63,761	5.00%	\$271	(\$19,169)	3,639,654	31
February-19	Forecast	(\$19,169)	\$0.0501	\$185,426	\$20,608	\$3,633	\$3,059	\$539	(\$176,756)	(\$97,962)	5.00%	(\$376)	(\$177,132)	3,701,124	28
March-19	Forecast	(\$177,132)	\$0.0501	\$136,961	\$30,120	\$3,633	\$4,151	\$501	(\$275,688)	(\$226,410)	5.00%	(\$961)	(\$276,649)	2,733,747	31
April-19	Forecast	(\$276,649)	\$0.0501	\$111,879	\$40,424	\$3,633	\$5,504	\$495	(\$338,473)	(\$307,561)	5.00%	(\$1,264)	(\$339,737)	2,233,117	30
May-19	Forecast	(\$339,737)	\$0.0501	\$58,944	\$50,728	\$3,633	\$5,715	\$409	(\$338,196)	(\$338,966)	5.00%	(\$1,439)	(\$339,635)	1,176,527	31
June-19	Forecast	(\$339,635)	\$0.0501	\$34,767	\$61,032	\$3,633	\$6,514	\$388	(\$302,835)	(\$321,235)	5.00%	(\$1,320)	(\$304,155)	693,947	30
July-19	Forecast	(\$304,155)	\$0.0501	\$21,340	\$71,337	\$3,633	\$5,095	\$259	(\$245,172)	(\$274,664)	5.00%	(\$1,166)	(\$246,338)	425,956	31
August-19	Forecast	(\$246,338)	\$0.0501	\$18,972	\$81,641	\$3,633	\$5,257	\$234	(\$174,546)	(\$210,442)	5.00%	(\$894)	(\$175,439)	378,689	31
September-19	Forecast	(\$175,439)	\$0.0501	\$18,574	\$91,152	\$3,633	\$5,978	\$238	(\$93,012)	(\$134,226)	5.00%	(\$552)	(\$93,564)	370,740	30
October-19	Forecast	(\$93,564)	\$0.0501	\$25,328	\$101,457	\$3,633	\$7,012	\$251	(\$6,539)	(\$50,052)	5.00%	(\$213)	(\$6,752)	505,546	31

Nov 18 thru Oct 19 Totals	\$989,109	\$718,878	\$43,623	\$78,306	\$4,657								19,742,687		
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Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 2 of 3, filed on September 17, 2018 in this Cost of Gas Docket.

Actual Performance Incentives (PI) includes reconciliations from prior year(s).

(1) Includes \$30,000 adjustment for Funds Shift for On Bill Financing Mechanism

**Northern Utilities, Inc.**  
**New Hampshire Division**  
**Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge**  
**To Be Effective November 1, 2018 through October 31, 2019**  
**General Service Customers**

		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income EEC Costs	Allocated Low Income DSM PI	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-17	Actual	(\$257,774)	\$0.0142	\$31,855	\$29,344	\$3,069	\$5,965	\$519	(\$250,733)	(\$254,254)	4.00%	(\$864)	(\$251,596)	2,279,220	31
September-17	Actual	(\$251,596)	\$0.0142	\$31,802	\$26,598	\$3,069	\$34,044	\$2,960	(\$216,728)	(\$234,162)	4.00%	(\$770)	(\$217,497)	2,239,720	30
October-17	Actual	(\$217,497)	\$0.0142	\$38,153	\$90,926	\$3,069	\$47,456	\$4,127	(\$110,073)	(\$163,785)	4.25%	(\$591)	(\$110,664)	2,686,992	31
November-17	Actual	(\$110,664)	\$0.0184	\$68,258	\$81,783	\$3,069	\$18,764	\$1,632	(\$73,673)	(\$92,169)	4.25%	(\$322)	(\$73,995)	3,923,395	30
December-17	Actual	(\$73,995)	\$0.0184	\$117,670	\$222,221	\$803	(\$8,192)	(\$712)	\$22,424	(\$25,786)	4.25%	(\$948)	\$21,476	6,397,669	31
January-18	Actual	\$21,476	\$0.0184	\$163,821	\$13,805	\$3,951	\$21,767	\$1,267	(\$101,555)	(\$40,039)	4.25%	(\$145)	(\$101,700)	8,903,348	31
February-18	Actual	(\$101,700)	\$0.0184	\$129,978	\$34,638	\$3,951	\$4,171	\$243	(\$188,675)	(\$145,188)	4.25%	(\$473)	(\$189,149)	7,066,647	28
March-18	Actual	(\$189,149)	\$0.0184	\$116,588	\$45,632	\$3,951	\$5,547	\$323	(\$250,284)	(\$219,717)	4.25%	(\$793)	(\$251,077)	6,337,701	31
April-18	Actual	(\$251,077)	\$0.0184	\$101,796	\$17,914	\$3,951	\$20,440	\$1,190	(\$309,379)	(\$280,228)	4.50%	(\$100)	(\$309,479)	5,547,153	30
May-18	Actual	(\$309,479)	\$0.0184	\$65,696	\$16,294	\$3,951	\$4,766	\$277	(\$349,887)	(\$329,683)	4.50%	(\$1,260)	(\$351,147)	3,555,624	31
June-18	Actual	(\$351,147)	\$0.0184	\$46,264	\$40,361	\$3,951	\$10,664	\$621	(\$341,815)	(\$346,481)	4.50%	(\$1,282)	(\$343,097)	2,380,668	30
July-18	Forecast	(\$343,097)	\$0.0184	\$42,013	\$83,458	\$3,951	\$28,186	\$1,331	(\$268,184)	(\$305,640)	4.75%	(\$1,233)	(\$269,417)	2,283,323	31
August-18	Forecast	(\$269,417)	\$0.0184	\$43,639	\$95,513	\$3,951	\$32,548	\$1,343	(\$179,700)	(\$224,559)	4.75%	(\$906)	(\$180,606)	2,371,702	31
September-18	Forecast	(\$180,606)	\$0.0184	\$42,504	\$114,392	\$3,951	\$36,103	\$1,335	(\$67,330)	(\$123,968)	4.75%	(\$484)	(\$67,814)	2,309,983	30
October-18	Forecast	(\$67,814)	\$0.0184	\$52,512	\$118,695	\$3,951	\$40,138	\$1,333	\$43,791	(\$12,012)	5.00%	(\$51)	\$43,740	2,853,901	31
November-18	Forecast	<b>\$96,740</b>	\$0.0264	\$125,224	\$130,750	\$3,951	\$39,152	\$1,181	\$146,550	\$121,645	5.00%	\$500	\$147,050	4,743,334	30
December-18	Forecast	\$147,050	\$0.0264	\$157,072	\$150,557	\$3,951	\$40,292	\$1,112	\$185,890	\$166,470	5.00%	\$707	\$186,597	5,949,685	31
January-19	Forecast	\$186,597	\$0.0264	\$218,634	\$13,047	\$4,684	\$3,378	\$1,191	(\$9,738)	\$88,429	5.00%	\$376	(\$9,362)	8,281,593	31
February-19	Forecast	(\$9,362)	\$0.0264	\$212,940	\$26,093	\$4,684	\$6,666	\$1,175	(\$183,684)	(\$96,523)	5.00%	(\$370)	(\$184,054)	8,065,912	28
March-19	Forecast	(\$184,054)	\$0.0264	\$174,939	\$42,729	\$4,684	\$10,062	\$1,214	(\$300,305)	(\$242,179)	5.00%	(\$1,028)	(\$301,333)	6,626,460	31
April-19	Forecast	(\$301,333)	\$0.0264	\$145,362	\$51,183	\$4,684	\$13,571	\$1,220	(\$376,037)	(\$338,685)	5.00%	(\$1,392)	(\$377,429)	5,506,128	30
May-19	Forecast	(\$377,429)	\$0.0264	\$99,046	\$64,229	\$4,684	\$18,223	\$1,305	(\$388,034)	(\$382,732)	5.00%	(\$1,625)	(\$389,659)	3,751,759	31
June-19	Forecast	(\$389,659)	\$0.0264	\$62,681	\$81,868	\$4,684	\$22,286	\$1,327	(\$342,175)	(\$365,917)	5.00%	(\$1,504)	(\$343,679)	2,374,269	30
July-19	Forecast	(\$343,679)	\$0.0264	\$63,053	\$90,322	\$4,684	\$28,568	\$1,455	(\$281,703)	(\$312,691)	5.00%	(\$1,328)	(\$283,031)	2,388,382	31
August-19	Forecast	(\$283,031)	\$0.0264	\$63,258	\$103,369	\$4,684	\$33,267	\$1,480	(\$203,489)	(\$243,260)	5.00%	(\$1,033)	(\$204,522)	2,396,136	31
September-19	Forecast	(\$204,522)	\$0.0264	\$60,640	\$120,004	\$4,684	\$37,035	\$1,476	(\$101,962)	(\$153,242)	5.00%	(\$630)	(\$102,592)	2,296,955	30
October-19	Forecast	(\$102,592)	\$0.0264	\$77,774	\$128,458	\$4,684	\$40,863	\$1,463	(\$4,898)	(\$53,745)	5.00%	(\$228)	(\$5,126)	2,945,966	31

Nov 18 thru Oct 19 Totals

\$1,460,623    \$1,002,609    \$54,741    \$293,364    \$15,598

55,326,577

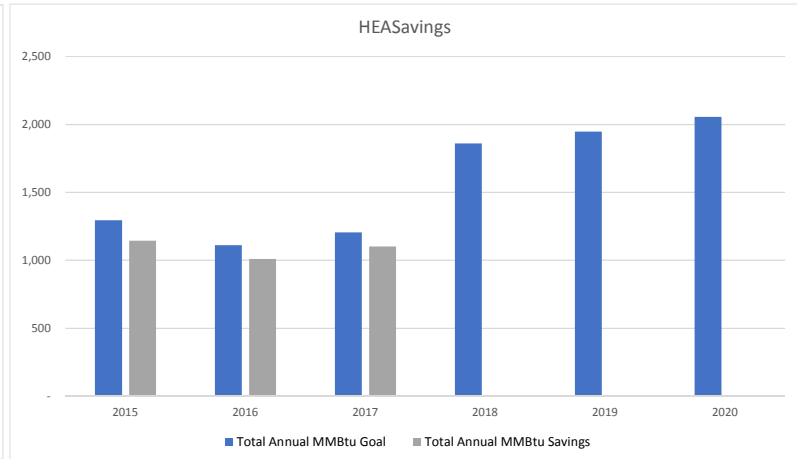
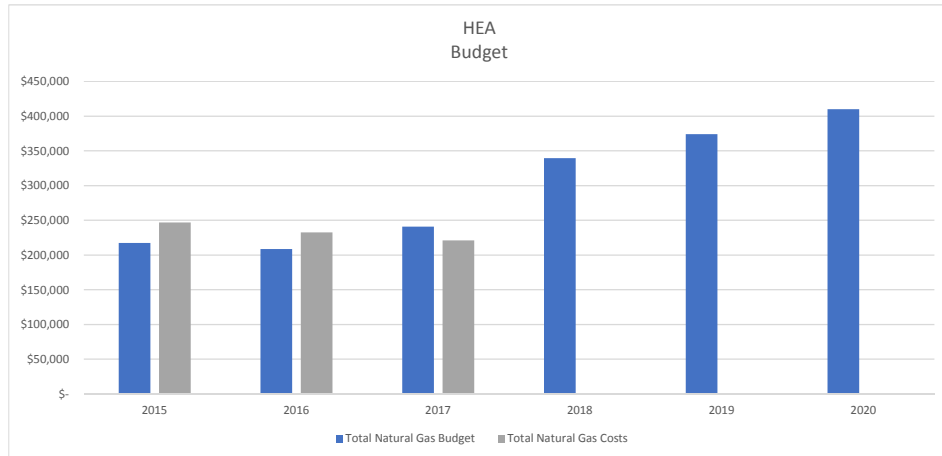
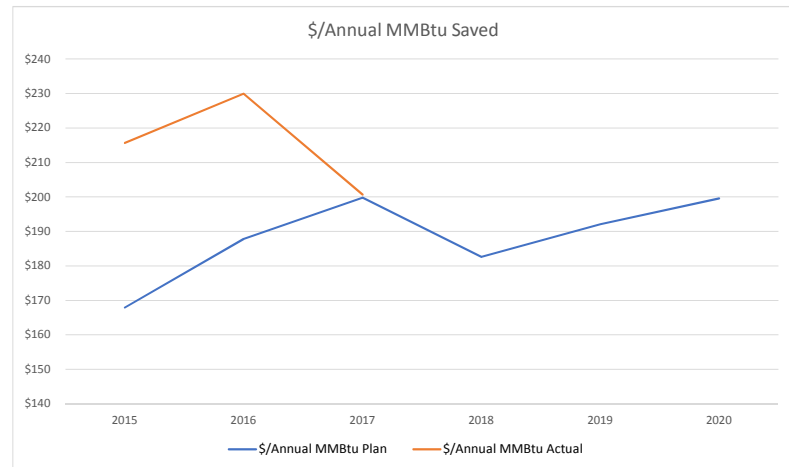
Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 2 of 3, filed on September 17, 2018 in this Cost of Gas Docket. Does not include Special Contracts.

Actual Performance Incentives (PI) includes reconciliations from prior year(s).

(1) Includes \$53,000 adjustment for Funds Shift for On Bill Financing Mechanism

Home Energy Assistance

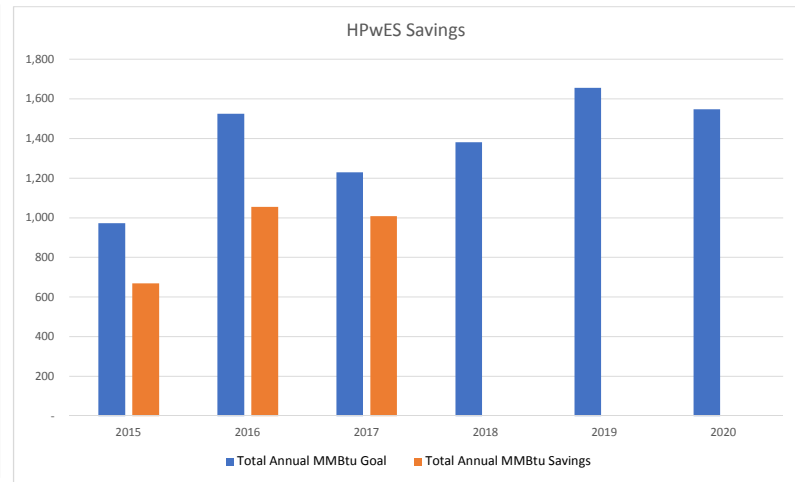
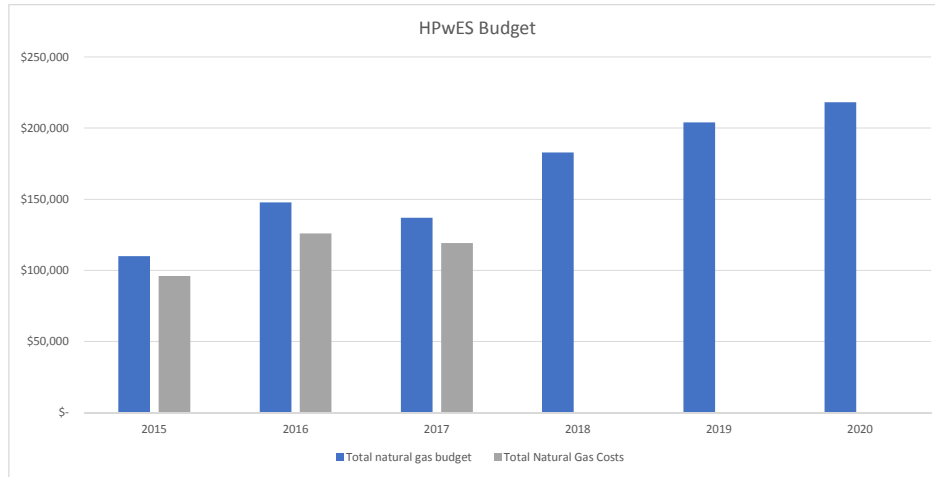
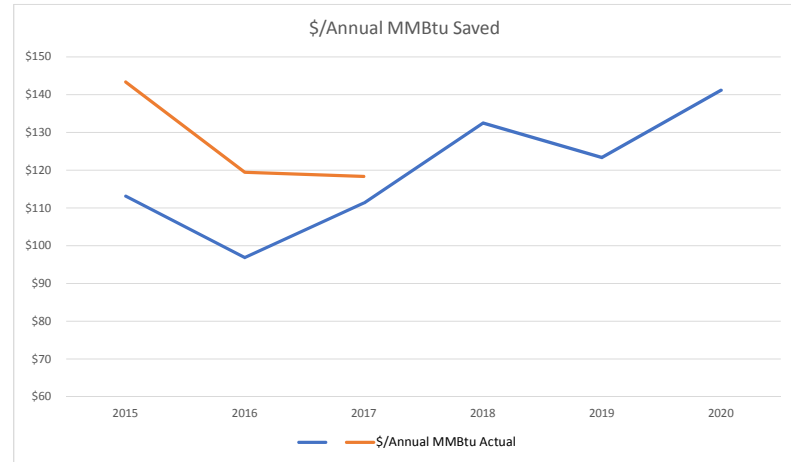
Home Energy Assistance							
<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Total Natural Gas Budget	\$	217,299	\$ 208,884	\$ 241,100	\$ 339,500	\$ 374,026	\$ 410,200
Total Annual MMBtu Goal		1294	1112	1207	1859	1947	2055
\$/Annual MMBtu Plan	\$	168	\$ 188	\$ 200	\$ 183	\$ 192	\$ 200
<b>Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>			
Total Natural Gas Costs	\$	246,875	\$ 232,459	\$ 221,118			
Total Annual MMBtu Savings		1145	1011	1102			
\$/Annual MMBtu Actual	\$	216	\$ 230	\$ 201			





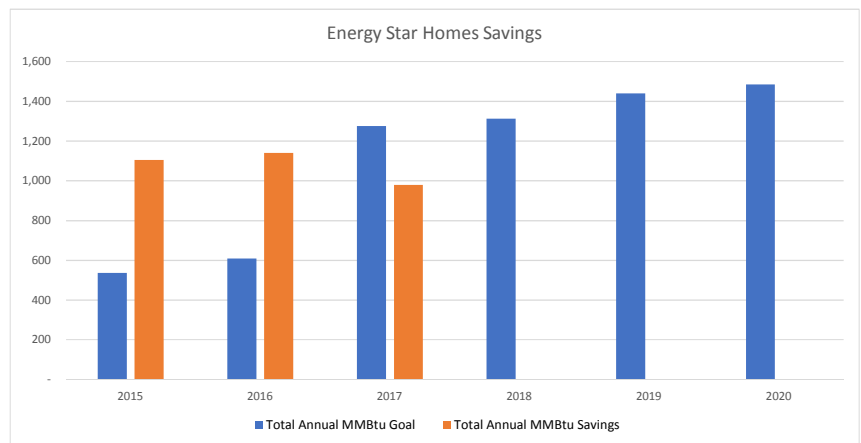
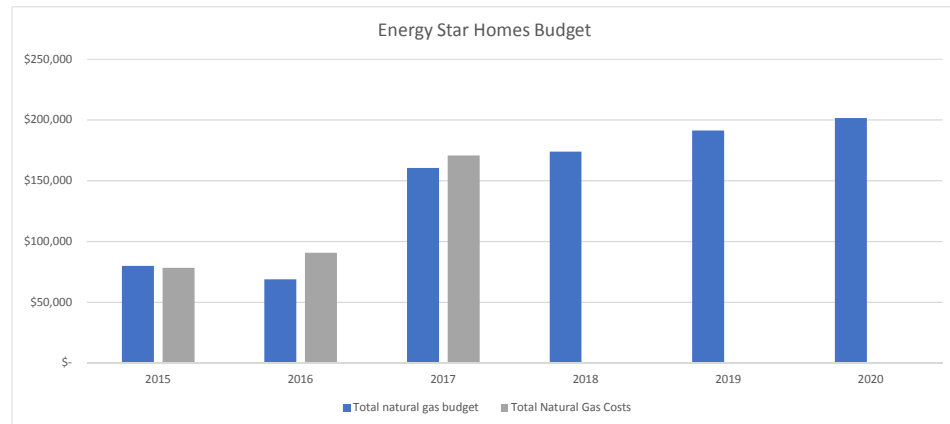
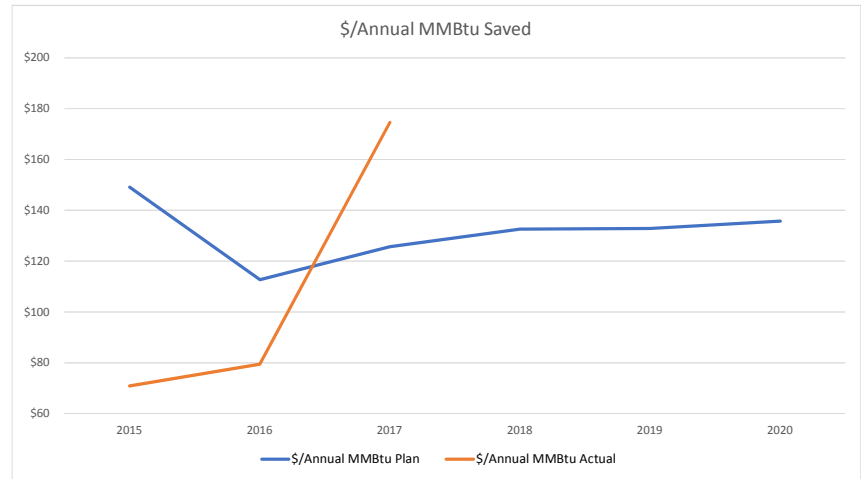
Home Performance with Energy Star

Home Performance w/Energy Star							
<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Total natural gas budget	\$	110,000	\$ 147,740	\$ 136,800	\$ 183,000	\$ 204,237	\$ 218,400
Total Annual MMBtu Goal		973	1525	1229	1381	1655	1547
\$/Annual MMBtu Plan	\$	113	\$ 97	\$ 111	\$ 132	\$ 123	\$ 141
<b>Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>			
Total Natural Gas Costs	\$	95,887	\$ 125,903	\$ 119,165			
Total Annual MMBtu Savings		669	1054	1007			
\$/Annual MMBtu Actual	\$	143	\$ 119	\$ 118			



Energy Star Homes

Energy Star Homes							
Planned	2015	2016	2017	2018	2019	2020	
Total natural gas budget	\$ 80,000	\$ 68,750	\$ 160,500	\$ 174,000	\$ 191,400	\$ 201,700	
Total Annual MMBtu Goal	536	610	1277	1313	1441	1486	
\$/Annual MMBtu Plan	\$ 149	\$ 113	\$ 126	\$ 133	\$ 133	\$ 136	
<b>Actuals</b>							
Total Natural Gas Costs	\$ 78,324	\$ 90,656	\$ 170,911				
Total Annual MMBtu Savings	1,105	1,141	979				
\$/Annual MMBtu Actual	71	79	175				

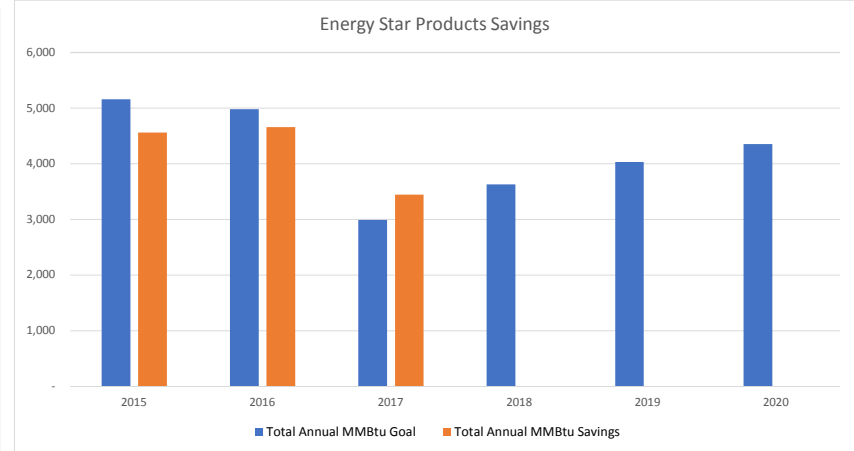
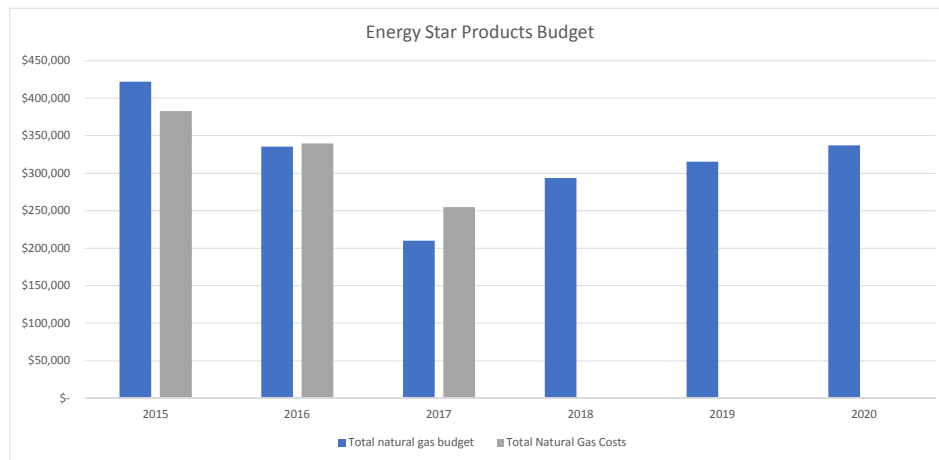
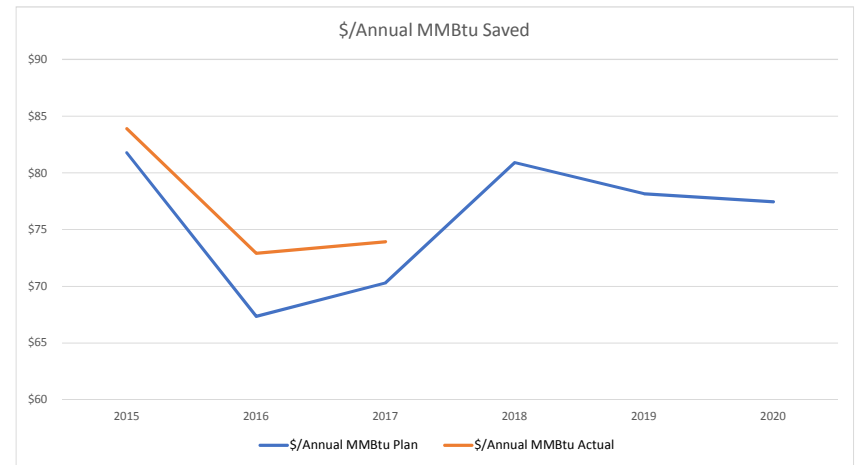


Energy Star Products

Energy Star Products						
Planned	2015	2016	2017	2018	2019	2020
Total natural gas budget	\$ 421,695	\$ 335,243	\$ 210,000	\$ 293,600	\$ 315,236	\$ 337,000
Total Annual MMBtu Goal	5158	4977	2988	3629	4032	4351
\$/Annual MMBtu Plan	\$ 82	\$ 67	\$ 70	\$ 81	\$ 78	\$ 77

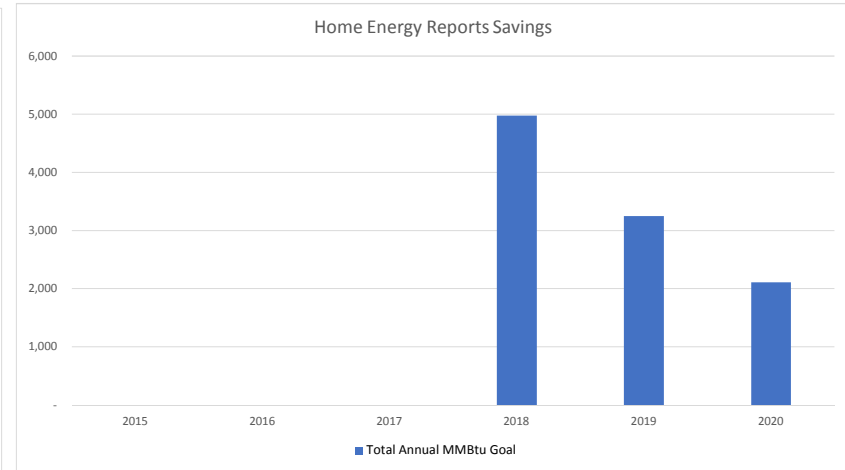
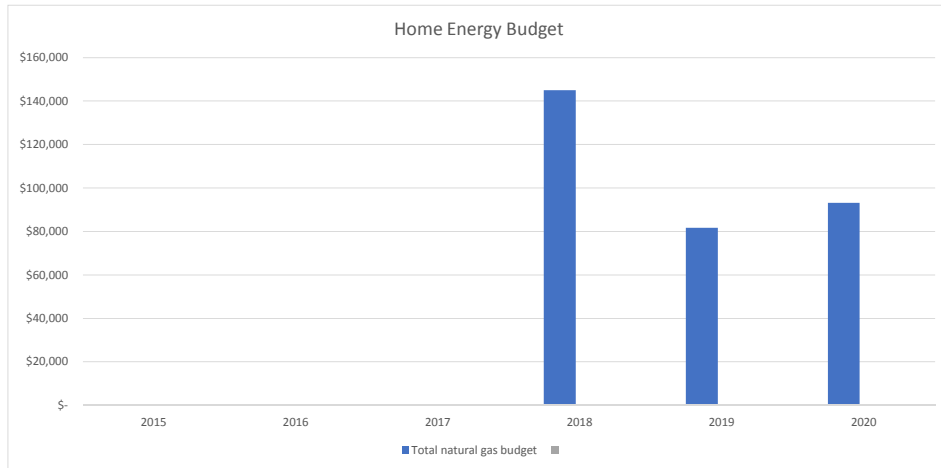
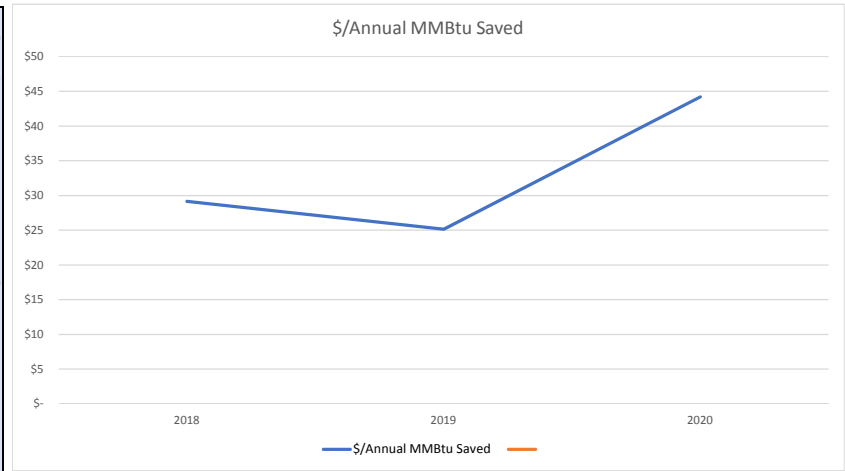
  

Actuals	2015	2016	2017
Total Natural Gas Costs	\$ 382,505	\$ 339,473	\$ 254,639
Total Annual MMBtu Savings	4560	4656	3444
\$/Annual MMBtu Actual	\$ 84	\$ 73	\$ 74



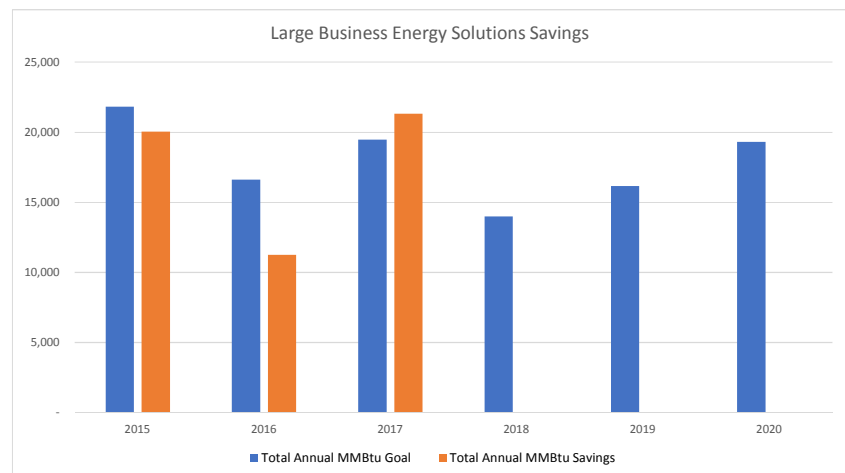
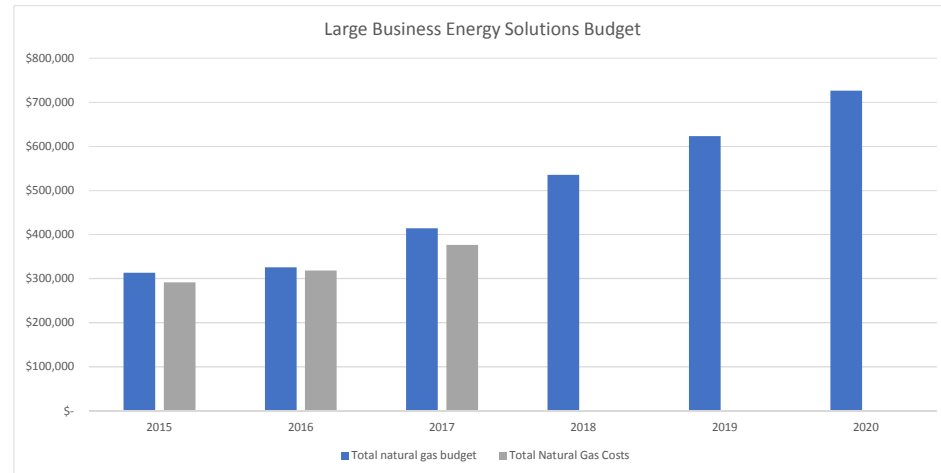
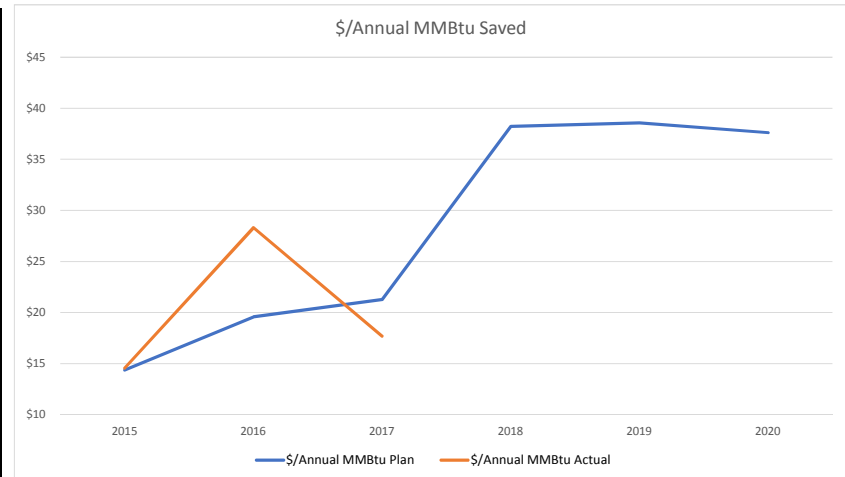
Home Energy Reports

Home Energy Reports							
Planned	2015	2016	2017	2018	2019	2020	
Total natural gas budget	\$ -	\$ -	\$ -	\$ 145,100	\$ 81,756	\$ 93,300	
Total Annual MMBtu Goal	0	0	0	4980	3252	2110	
\$/Annual MMBtu Saved				\$ 29	\$ 25	\$ 44	
<b>Actuals</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	



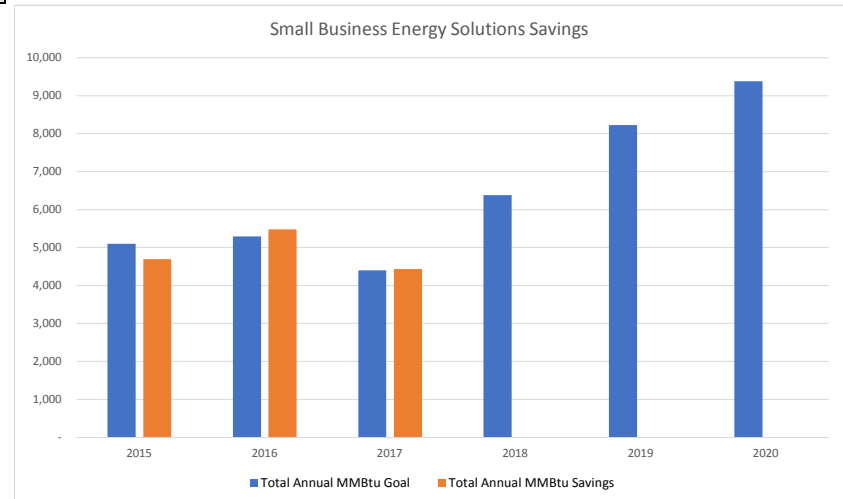
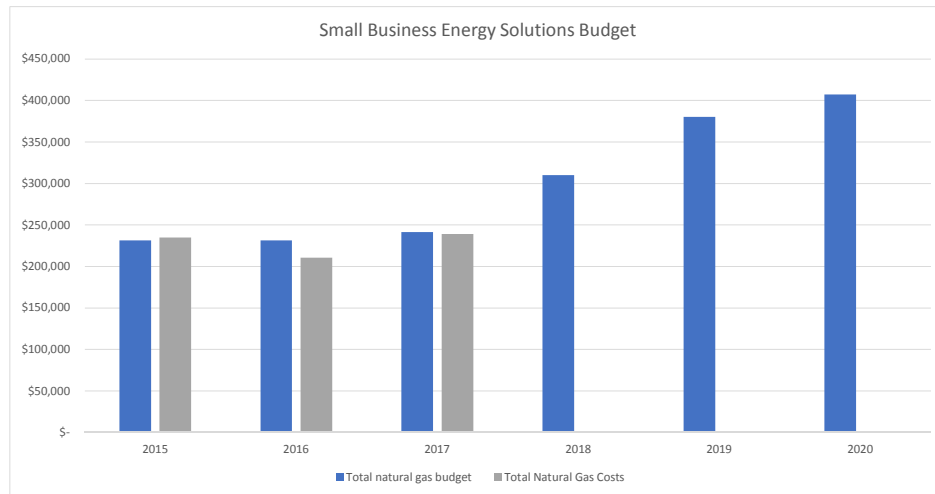
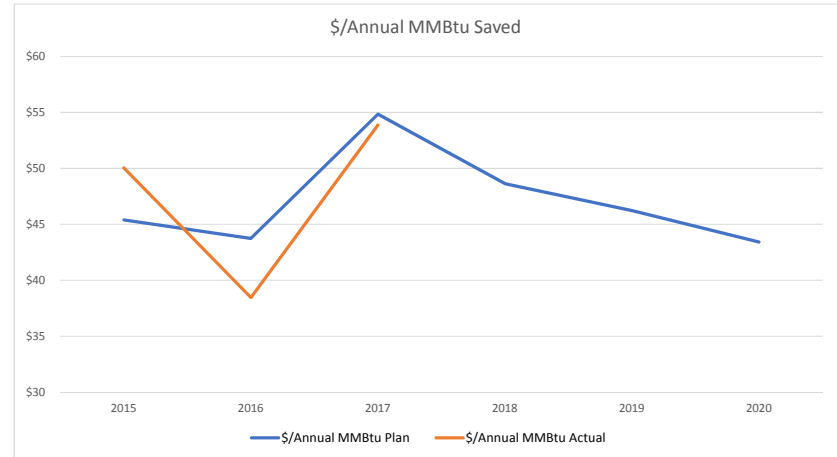
Large Business Energy Solutions

Large Business Energy Solutions						
Planned	2015	2016	2017	2018	2019	2020
Total natural gas budget	\$ 313,214	\$ 325,308	\$ 413,800	\$ 535,000	\$ 623,035	\$ 726,100
Total Annual MMBtu Goal	21,825	16,626	19,472	14,000	16,150	19,311
\$/Annual MMBtu Plan	\$ 14	\$ 20	\$ 21	\$ 38	\$ 39	\$ 38
<b>Actuals</b>						
Total Natural Gas Costs	\$ 291,699	\$ 318,458	\$ 376,625			
Total Annual MMBtu Savings	20,038	11,252	21,305			
\$/Annual MMBtu Actual	\$ 15	\$ 28	\$ 18			



Small Business Energy Solutions

Small Business Energy Solutions							
<b>Planned</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Total natural gas budget	\$	231,722	\$ 231,722	\$ 241,500	\$ 310,300	\$ 380,546	\$ 407,500
Total Annual MMBtu Goal		5,103	5,297	4,404	6,381	8,229	9,383
\$/Annual MMBtu Plan	\$	45	\$ 44	\$ 55	\$ 49	\$ 46	\$ 43
<b>Actuals</b>		<b>2015</b>	<b>2016</b>	<b>2017</b>			
Total Natural Gas Costs	\$	234,949	\$ 210,949	\$ 239,188			
Total Annual MMBtu Savings		4,695	5,483	4,440			
\$/Annual MMBtu Actual	\$	50	\$ 38	\$ 54			



**Northern Utilities, Inc.**  
**Calculation of Lost Revenue Rate (LRR)**  
**Effective November 1, 2018**

Line	Sector		Reference
<b>Residential Classes- R5, R6, R10, R11</b>			
1	Sector Ending Balance-October 31, 2018	\$ 6,231	Page 2, Ln 2, Nov-2018
2	Lost Distribution Revenue-November 2018 through October 2019	\$ 136,054	Page 2, Ln 12, Total
3	Interest- November 2018 through October 2019	<u>\$ (992)</u>	Page 2, Ln 25, Total
4	<b>Total to be recovered</b>	<b>\$ 141,293</b>	Line 1+ Line 2+Line 3
5	Sector Sales - Therms- November 2018 through October 2019	<u>19,742,687</u>	Page 2, Line 15
6	<b>Lost Revenue Rate (\$ per therm)</b>	<b>\$0.0072</b>	Line 4 / Line 5
<hr/>			
<b>Commercial &amp; Industrial Classes-G40, G50, G41, G51, G42, G-52</b>			
7	Sector Ending Balance-October 31, 2018	(5,050)	Page 2, Ln 29, Nov-2018
8	Lost Distribution Revenue-November 2018 through October 2019	\$ 85,811	Page 2, Ln 40, Total
9	Interest- November 2018 through October 2019	<u>\$ (714)</u>	Page 2, Ln 53, Total
10	<b>Total to be recovered</b>	<b>\$ 80,046</b>	Line 7+Line 8+Line 9
11	Sector Sales - Therms- November 2018 through October 2019	<u>55,326,580</u>	Page 2, Line 43
12	<b>Lost Revenue Rate (\$ per therm)</b>	<b>\$0.0014</b>	Line 10 / Line 11

**Northern Utilities, Inc.**  
**Lost Revenue Reconciliation**  
**2019**

Line	Sector / Description	Unit	Estimate Nov-18	Estimate Dec-18	Estimate Jan-19	Estimate Feb-19	Estimate Mar-19	Estimate Apr-19	Estimate May-19	Estimate Jun-19	Estimate Jul-19	Estimate Aug-19	Estimate Sep-19	Estimate Oct-19	Total
1	<b>RESIDENTIAL</b>														
2	Beginning Balance - (Over)/Under	\$'s	\$ 6,231	\$ 5,186	\$ (1,369)	\$ (16,953)	\$ (32,855)	\$ (41,583)	\$ (46,371)	\$ (44,502)	\$ (38,663)	\$ (30,321)	\$ (20,978)	\$ (10,837)	
3	<b>COSTS</b>														
4	Incremental Annualized Savings	Therms	16,984	18,550	1,603	3,205	4,684	6,287	7,890	9,492	11,095	12,697	14,177	15,779	122,443
5	Incremental Monthly Savings	Therms	1,415	1,546	134	267	390	524	657	791	925	1,058	1,181	1,315	10,204
6															-
7	Cumulative Savings - Current	Therms	1,415	2,961	3,095	3,362	3,752	4,276	4,934	5,725	6,649	7,707	8,889	10,204	62,968
8	Cumulative Savings - Prior	Therms	12,973	12,973	12,973	12,973	12,973	12,973	12,973	12,973	12,973	12,973	12,973	12,973	129,727
9	Cumulative LBR Savings	Therms	14,388	15,934	16,067	16,334	16,725	17,249	17,906	18,697	19,622	20,680	21,861	23,176	218,640
10															
11	Average Distribution Rate	\$/Therm	\$ 0.6655	\$ 0.6655	\$ 0.6655	\$ 0.6655	\$ 0.6655	\$ 0.6655	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.5880	
12	Lost Distribution Revenue	\$'s	\$ 9,576	\$ 10,605	\$ 10,693	\$ 10,871	\$ 11,131	\$ 11,480	\$ 10,528	\$ 10,993	\$ 11,537	\$ 12,159	\$ 12,854	\$ 13,627	\$ 136,054
13															
14	<b>REVENUE</b>														
15	Sector Sales	Therms	1,509,473	2,374,168	3,639,654	3,701,124	2,733,747	2,233,117	1,176,527	693,947	425,956	378,689	370,740	505,546	19,742,687
16	Lost Revenue Rate	\$/Therm	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	\$0.0072	
17	Revenue	\$'s	\$ 10,868	\$ 17,094	\$ 26,206	\$ 26,648	\$ 19,683	\$ 16,078	\$ 8,471	\$ 4,996	\$ 3,067	\$ 2,727	\$ 2,669	\$ 3,640	\$ 142,147
18															
19	(Over)/Under-Recovery (Exc interest)	\$	\$ 4,939	\$ (1,304)	\$ (16,881)	\$ (32,729)	\$ (41,407)	\$ (46,182)	\$ (44,314)	\$ (38,505)	\$ (30,193)	\$ (20,889)	\$ (10,793)	\$ (850)	
20															
21	<b>INTEREST</b>														
22	Average Monthly Balance		\$ 5,585	\$ 1,941	\$ (9,125)	\$ (24,841)	\$ (37,131)	\$ (43,882)	\$ (45,343)	\$ (41,504)	\$ (34,428)	\$ (25,605)	\$ (15,885)	\$ (5,844)	
23	Interest Rate-WSJ Prime Rate	Annual %	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	Total
24	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
25	Computed Interest	\$'s	\$ 247	\$ (65)	\$ (72)	\$ (126)	\$ (176)	\$ (190)	\$ (188)	\$ (158)	\$ (128)	\$ (89)	\$ (44)	\$ (4)	\$ (992)
26															
27	Ending Balance	\$'s	\$ 5,186	\$ (1,369)	\$ (16,953)	\$ (32,855)	\$ (41,583)	\$ (46,371)	\$ (44,502)	\$ (38,663)	\$ (30,321)	\$ (20,978)	\$ (10,837)	\$ (854)	
28	<b>COMMERCIAL &amp; INDUSTRIAL</b>														
29	Beginning Balance - (Over)/Under	\$'s	\$ (5,050)	\$ (4,337)	\$ (4,725)	\$ (8,137)	\$ (11,154)	\$ (12,017)	\$ (11,107)	\$ (10,901)	\$ (8,570)	\$ (6,033)	\$ (3,248)	\$ (34)	
30															
31	<b>COSTS</b>														
32	Incremental Annualized Savings	Therms	34,773	37,979	3,169	6,339	9,264	12,434	15,603	18,772	21,941	25,111	28,036	31,206	244,627
33	Incremental Monthly Savings	Therms	2,898	3,165	264	528	772	1,036	1,300	1,564	1,828	2,093	2,336	2,600	20,386
34															-
35	Cumulative Savings - Current	Therms	2,898	6,063	6,327	6,855	7,627	8,663	9,963	11,528	13,356	15,449	17,785	20,386	126,899
36	Cumulative Savings - Prior	Therms	36,620	36,620	36,620	36,620	36,620	36,620	36,620	36,620	36,620	36,620	36,620	36,620	366,199
37	Cumulative LBR Savings	Therms	39,518	42,683	42,947	43,475	44,247	45,283	46,583	48,148	49,976	52,069	54,405	57,005	566,338
38															
39	Average Distribution Rate	\$/Therm	\$ 0.1913	\$ 0.1913	\$ 0.1913	\$ 0.1913	\$ 0.1913	\$ 0.1913	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1182	
40	Lost Distribution Revenue	\$'s	\$ 7,561	\$ 8,166	\$ 8,217	\$ 8,318	\$ 8,465	\$ 8,664	\$ 5,505	\$ 5,690	\$ 5,906	\$ 6,153	\$ 6,429	\$ 6,737	\$ 85,811
41															
42	<b>REVENUE</b>														
43	Sector Sales	Therms	4,743,334	5,949,685	8,281,593	8,065,912	6,626,460	5,506,128	3,751,759	2,374,269	2,388,382	2,396,136	2,296,955	2,945,966	55,326,577
44	Lost Revenue Rate	\$/Therm	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	\$0.0014	
45	Revenue	\$'s	\$ 6,641	\$ 8,330	\$ 11,594	\$ 11,292	\$ 9,277	\$ 7,709	\$ 5,252	\$ 3,324	\$ 3,344	\$ 3,355	\$ 3,216	\$ 4,124	\$ 77,457
46															
47	(Over)/Under-Recovery (Exc interest)	\$'s	\$ (4,130)	\$ (4,500)	\$ (8,103)	\$ (11,112)	\$ (11,966)	\$ (11,062)	\$ (10,854)	\$ (8,535)	\$ (6,007)	\$ (3,234)	\$ (34)	\$ 2,578	
48															
49	<b>INTEREST</b>														
50	Average Monthly Balance		\$ (4,590)	\$ (4,418)	\$ (6,414)	\$ (9,624)	\$ (11,560)	\$ (11,539)	\$ (10,981)	\$ (9,718)	\$ (7,289)	\$ (4,634)	\$ (1,641)	\$ 1,272	
51	Interest Rate-WSJ Prime Rate	Annual %	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	Total
52	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
53	Computed Interest	\$'s	\$ (207)	\$ (225)	\$ (34)	\$ (43)	\$ (51)	\$ (45)	\$ (46)	\$ (35)	\$ (26)	\$ (14)	\$ (0)	\$ 11	\$ (714)
54															
55	Ending Balance	\$'s	\$ (4,337)	\$ (4,725)	\$ (8,137)	\$ (11,154)	\$ (12,017)	\$ (11,107)	\$ (10,901)	\$ (8,570)	\$ (6,033)	\$ (3,248)	\$ (34)	\$ 2,589	

**NOTES:**

Line 11 and Line 39, see page 3.

Line 4 and Line 32, see Page 4.



Northern Utilities, Inc.

Summary of Average Distribution Rate for Lost Revenue

Calculation of Average Distribution Rate for Lost Revenue (Detail)														
	(1) Number of Customers	(2) Customer Charge	(3)=(1)X(2) Calculated Customer Charge Revenue	(4) Billing Determinants - Winter		(5) Winter Distribution Rates		(6) = (4) X (5) Winter Distribution Revenue	(7) Billing Determinants - Summer		(8) Summer Distribution Rates		(9) = (7) X (8) Summer Distribution Revenue	
				First	Excess	First	Excess		First	Excess	First	Excess		
				Therms	Therms	Therms \$/thm	Therms \$/thm		Therms	Therms	Therms \$/thm	Therms \$/thm		
R-5 Residential, Heating	276,624	\$21.36	\$5,908,689	6,004,830	7,696,559	\$ 0.6660	\$ 0.6660	\$9,125,125	2,787,733	404,009	\$ 0.5870	\$ 0.5870	\$1,873,553	
R-10 Residential Heating, Low Income	9,283	\$8.54	\$79,277	218,844	207,950	\$ 0.6660	\$ 0.6660	\$284,245	83,384	11,668	\$ 0.5870	\$ 0.5870	\$55,796	
R-6 Residential, Non-Heating	16,385	\$21.36	\$349,984	54,507	97,776	\$ 0.6227	\$ 0.6227	\$94,827	55,088	36,667	\$ 0.6227	\$ 0.6227	\$57,136	
Total Residential Service	302,292		\$6,337,949	6,278,181	8,002,285			\$9,504,197	2,895,717	452,344			\$1,986,484	
G-40 Low Annual, High Winter Use	60,096	\$72.26	\$4,342,537	1,911,562	6,729,793	\$ 0.1795	\$ 0.1795	\$1,551,123	740,593	701,803	\$ 0.1795	\$ 0.1795	\$258,910	
G-50 Low Annual, Low Winter Use	9,672	\$72.26	\$698,899	223,046	707,885	\$ 0.1795	\$ 0.1795	\$167,102	220,235	600,792	\$ 0.1795	\$ 0.1795	\$147,374	
G-41 Medium Annual, High Winter Use	7,657	\$214.26	\$1,640,589	10,225,592		\$ 0.2334		\$2,386,653	2,464,309		\$ 0.1824		\$449,490	
G-51 Medium Annual, Low Winter Use	3,118	\$214.26	\$668,063	1,632,744	973,871	\$ 0.1648	\$ 0.1346	\$400,159	1,266,445	679,409	\$ 0.1287	\$ 0.1046	\$234,058	
G-42 High Annual, High Winter Use	394	\$1,285.55	\$506,507	4,787,340		\$ 0.1909		\$913,903	1,601,048		\$ 0.1161		\$185,882	
G-52 High Annual, Low Winter Use	397	\$1,285.55	\$510,363	8,385,776		\$ 0.1655		\$1,387,846	7,095,551		\$ 0.0762		\$540,681	
Total General Service	81,334		\$8,366,957	27,166,060	8,411,549			\$6,806,787	13,388,181	1,982,004			\$1,816,395	
<b>Total Company</b>	<b>383,626</b>		<b>\$14,704,906</b>	<b>33,444,241</b>	<b>16,413,834</b>			<b>\$16,310,983</b>	<b>16,283,898</b>	<b>2,434,348</b>			<b>\$3,802,879</b>	

Notes:

Column (1), Column (4) and Column (7): 2017 actual billing determinants.

Column (2), Column (5) and Column (8): Winter and Summer distribution rates effective May 1, 2018.

R-11 Rate Class is closed May 1, 2017. R-11 Rate Class Customers migrated to R-6 Rate Class.

Calculation of Average Distribution Rate for Lost Revenue Winter and Summer (Summary)

	(10)=(3)	(11) = (6) + (9)	(12)=(10)+(11)	(13)=(4)+(7)
	Total Calculated Customer	Total Volumetric Revenue	Total Distribution Revenue	Total Annual Therms
R-5	\$5,908,689	\$10,998,678	\$16,907,366	16,893,131
R-10	\$79,277	\$340,040	\$419,317	521,846
R-6	\$349,984	\$151,962	\$501,946	244,038
Total Residential Service	\$6,337,949	\$11,490,680	\$17,828,629	17,659,015
G-40	\$4,342,537	\$1,810,033	\$6,152,570	10,083,751
G-50	\$698,899	\$314,476	\$1,013,375	1,751,958
G-41	\$1,640,589	\$2,836,143	\$4,476,732	12,689,901
G-51	\$668,063	\$634,217	\$1,302,280	4,552,469
G-42	\$506,507	\$1,099,785	\$1,606,292	6,388,388
G-52	\$510,363	\$1,928,527	\$2,438,890	15,481,327
Total General Service	\$8,366,957	\$8,623,182	\$16,990,139	50,947,794
<b>Total Company</b>	<b>\$14,704,906</b>	<b>\$20,113,862</b>	<b>\$34,818,768</b>	<b>68,606,809</b>

Based on Actual Billing Determinants for 2017 at Current Distribution Rates- Winter

	(1) Total Volumetric Revenue	(2) Total Winter therms	(3)=(1)/(2) Average Distribution Rate \$/therm
R-5	\$9,125,125	13,701,389	\$0.6660
R-10	\$284,245	426,794	\$0.6660
R-6	\$94,827	152,283	\$0.6227
Total Residential Service	\$9,504,197	14,280,466	<b>\$0.6655</b>
G-40	\$1,551,123	8,641,355	\$0.1795
G-50	\$167,102	930,931	\$0.1795
G-41	\$2,386,653	10,225,592	\$0.2334
G-51	\$400,159	2,606,615	\$0.1535
G-42	\$913,903	4,787,340	\$0.1909
G-52	\$1,387,846	8,385,776	\$0.1655
Total General Service	\$6,806,787	35,577,609	<b>\$0.1913</b>

Based on Actual Billing Determinants for 2017 at Current Distribution Rates- Summer

	(1) Total Volumetric Revenue	(2) Total Summer therms	(3)=(1)/(2) Average Distribution Rate \$/therm
R-5	\$1,873,553	3,191,742	\$0.5870
R-10	\$55,796	95,052	\$0.5870
R-6	\$57,136	91,755	\$0.6227
Total Residential Service	\$1,986,484	3,378,549	<b>\$0.5880</b>
G-40	\$258,910	1,442,396	\$0.1795
G-50	\$147,374	821,027	\$0.1795
G-41	\$449,490	2,464,309	\$0.1824
G-51	\$234,058	1,945,854	\$0.1203
G-42	\$185,882	1,601,048	\$0.1161
G-52	\$540,681	7,095,551	\$0.0762
Total General Service	\$1,816,395	15,370,185	<b>\$0.1182</b>
<b>Total</b>	<b>\$ 20,113,862</b>	<b>68,606,809</b>	

**Northern Utilities, Inc.  
Gas Savings for LRR Calculation**

Planned Gas Savings - 2019		REVISD (1)
		Annual
1. Residential Programs		Therms
2. Home Energy Assistance		19,474
3. EnergyStar® Homes		14,405
4. Home Perf w/ EnergyStar®		16,552
5. EnergyStar® Appliances		40,324
6. Home Energy Reports		32,520
7. Residential		123,275
8.		
9. Commercial & Industrial Programs		
10. Large Business Energy Solutions		161,503
11. Small Business Energy Solutions		82,291
12. Education (Gas)		-
13. Commercial & Industrial		243,794

LBR Savings Allocation		Unit	Estimate Nov-18	Estimate Dec-18	Estimate Jan-19	Estimate Feb-19	Estimate Mar-19	Estimate Apr-19	Estimate May-19	Estimate Jun-19	Estimate Jul-19	Estimate Aug-19	Estimate Sep-19	Estimate Oct-19	Estimate Nov-19	Estimate Dec-19	Nov-18 to Oct-19 Total	Jan 19 to Dec-19 Total
14. Residential Programs			14.1%	15.4%	1.3%	2.6%	3.8%	5.1%	6.4%	7.7%	9.0%	10.3%	11.5%	12.8%	14.1%	15.4%	100.0%	100.0%
15. Annualized Therms (2)	Therms	16,984	18,550	1,603	3,205	4,684	6,287	7,890	9,492	11,095	12,697	14,177	15,779	17,382	18,984		122,443	123,275
16.																		
17. Monthly Incremental	Therms	1,415	1,546	134	267	390	524	657	791	925	1,058	1,181	1,315	1,448	1,582			
18. Monthly Cumulative	Therms	14,388	15,934	16,068	16,335	16,725	17,249	17,906	18,697	19,622	20,680	21,862	23,176	24,625	26,207		218,642	239,152
19.																		
20. Commercial & Industrial Programs			12%	25%	1.3%	2.6%	3.8%	5.1%	6.4%	7.7%	9.0%	10.3%	11.5%	12.8%	14.1%	15.4%		
21. Annualized Therms (3)	Therms	34,773	37,979	3,169	6,339	9,264	12,434	15,603	18,772	21,941	25,111	28,036	31,206	34,375	37,544		244,627	243,794
22.																		
23. Monthly Incremental	Therms	2,898	3,165	264	528	772	1,036	1,300	1,564	1,828	2,093	2,336	2,600	2,865	3,129			
24. Monthly Cumulative	Therms	39,518	42,683	42,947	43,475	44,247	45,283	46,583	48,148	49,976	52,069	54,405	57,006	59,870	62,999		566,339	607,007

**Notes:**

- 1) The Planned Savings - Therms were presented as MMBtu in the joint utilities' initial September 14, 2018 Core Energy Efficiency Filing.
- 2) The Residential Annualized Therm Savings were presented as MMBtu in the joint utilities' initial September 14, 2018 Core Energy Efficiency Filing. The resulting LBR was under-estimated by a magnitude of 10.
- 3) The Commercial & Industrial Annualized Therm Savings were incorrect in the joint utilities' initial September 14, 2018 Core Energy Efficiency Filing. The impact to savings was approximately 2,000 therms annually.

Northern Utilities, Inc.  
Lost Revenue Reconciliation  
2018

Line	Sector / Description	Unit	Recast Jan-18	Recast Feb-18	Recast Mar-18	Recast Apr-18	Recast May-18	Recast Jun-18	Estimate Jul-18	Estimate Aug-18	Estimate Sep-18	Estimate Oct-18	NHPUC Total
1	<b>RESIDENTIAL</b>												
2	Beginning Balance - (Over)/Under	\$'s	\$ (1,945)	\$ (9,971)	\$ (15,078)	\$ (18,309)	\$ (20,467)	\$ (18,979)	\$ (15,464)	\$ (11,002)	\$ (5,884)	\$ (86)	
3	<b>COSTS</b>												
4	Incremental Annualized Savings	Therms	1,566	3,132	4,577	6,143	7,709	9,275	10,841	12,407	13,852	15,418	84,920
5	Incremental Monthly Savings	Therms	131	261	381	512	642	773	903	1,034	1,154	1,285	7,077
6													
7	Cumulative Savings - Current	Therms	131	392	773	1,285	1,927	2,700	3,604	4,638	5,792	7,077	28,317
8	Cumulative Savings - Prior	Therms	5,896	5,896	5,896	5,896	5,896	5,896	5,896	5,896	5,896	5,896	58,960
9	Cumulative LBR Savings	Therms	6,027	6,288	6,669	7,181	7,823	8,596	9,500	10,534	11,688	12,973	87,277
10													
11	Average Distribution Rate	\$/Therm	\$ 0.59030	\$ 0.59030	\$ 0.59030	\$ 0.59030	\$ 0.58797	\$ 0.58797	\$ 0.58797	\$ 0.58797	\$ 0.58797	\$ 0.58797	
12	Lost Distribution Revenue (Actual thru June)	\$'s	\$ 3,557	\$ 3,712	\$ 3,937	\$ 4,239	\$ 4,600	\$ 5,054	\$ 5,585	\$ 6,193	\$ 6,872	\$ 7,628	\$ 51,377
13													
14	<b>REVENUE</b>												
15	Sector Sales	Therms	4,123,832	3,131,798	2,560,049	2,284,269	1,103,933	546,360	385,426	375,540	383,364	477,483	15,372,054
16	Lost Revenue Rate	\$/Therm	\$0.0028	\$0.0028	\$0.0028	\$0.0028	\$0.0028	\$0.0028	\$0.0028	\$0.0028	\$0.0028	\$0.0028	
17	Revenue	\$'s	\$ 11,548	\$ 8,769	\$ 7,167	\$ 6,395	\$ 3,090	\$ 1,525	\$ 1,079	\$ 1,052	\$ 1,073	\$ 1,337	\$ 43,035
18													
19	(Over)/Under-Recovery (Exc interest)	\$	\$ (9,936)	\$ (15,029)	\$ (18,308)	\$ (20,465)	\$ (18,958)	\$ (15,449)	\$ (10,958)	\$ (5,860)	\$ (85)	\$ 6,205	
20													
21	<b>INTEREST</b>												
22	Average Monthly Balance	\$	\$ (5,940)	\$ (12,500)	\$ (16,693)	\$ (19,387)	\$ (19,712)	\$ (17,214)	\$ (13,211)	\$ (8,431)	\$ (2,985)	\$ 3,060	
23	Interest Rate-WSJ Prime Rate	Annual %	4.25%	4.25%	4.25%	4.50%	4.50%	4.50%	4.75%	4.75%	4.75%	5.00%	Total
24	Days per Month		31	28	31	30	31	30	31	31	30	31	365
25	Computed Interest	\$'s	\$ (36)	\$ (49)	\$ (1)	\$ (2)	\$ (21)	\$ (15)	\$ (44)	\$ (24)	\$ (0)	\$ 26	\$ (166)
26													
27	Ending Balance	\$'s	\$ (9,971)	\$ (15,078)	\$ (18,309)	\$ (20,467)	\$ (18,979)	\$ (15,464)	\$ (11,002)	\$ (5,884)	\$ (86)	\$ 6,231	
28	<b>COMMERCIAL &amp; INDUSTRIAL</b>												
29	Beginning Balance - (Over)/Under	\$'s	\$ (1,656)	\$ (6,208)	\$ (8,815)	\$ (10,554)	\$ (11,255)	\$ (11,825)	\$ (11,111)	\$ (9,517)	\$ (8,184)	\$ (6,502)	
30													
31	<b>COSTS</b>												
32	Incremental Annualized Savings	Therms	3,206	6,412	9,371	12,578	15,784	18,990	22,196	25,402	28,361	31,567	173,867
33	Incremental Monthly Savings	Therms	267	534	781	1,048	1,315	1,583	1,850	2,117	2,363	2,631	14,489
34													
35	Cumulative Savings - Current	Therms	267	802	1,582	2,631	3,946	5,528	7,378	9,495	11,858	14,489	57,976
36	Cumulative Savings - Prior	Therms	22,131	22,131	22,131	22,131	22,131	22,131	22,131	22,131	22,131	22,131	221,310
37	Cumulative LBR Savings	Therms	22,398	22,933	23,713	24,762	26,077	27,659	29,509	31,626	33,989	36,620	279,286
38													
39	Average Distribution Rate	\$/Therm	\$ 0.19530	\$ 0.19530	\$ 0.19530	\$ 0.19530	\$ 0.11818	\$ 0.11818	\$ 0.11818	\$ 0.11818	\$ 0.11818	\$ 0.11818	
40	Lost Distribution Revenue	\$'s	\$ 4,374	\$ 4,479	\$ 4,631	\$ 4,836	\$ 3,082	\$ 3,269	\$ 3,487	\$ 3,737	\$ 4,017	\$ 4,328	\$ 40,240
41													
42	<b>REVENUE</b>												
43	Sector Sales	Therms	8,903,349	7,066,648	6,337,701	5,547,153	4,641,583	2,514,296	1,855,055	2,371,702	2,309,983	2,853,901	44,401,371
44	Lost Revenue Rate	\$/Therm	\$0.0010	\$0.0010	\$0.0010	\$0.0010	\$0.0010	\$0.0010	\$0.0010	\$0.0010	\$0.0010	\$0.0010	
45	Lost Distribution Revenue (Actual thru June)	\$'s	\$ 8,904	\$ 7,057	\$ 6,332	\$ 5,496	\$ 3,606	\$ 2,514	\$ 1,855	\$ 2,372	\$ 2,310	\$ 2,854	\$ 43,300
46													
47	(Over)/Under-Recovery (Exc interest)	\$'s	\$ (6,186)	\$ (8,786)	\$ (10,516)	\$ (11,214)	\$ (11,779)	\$ (11,070)	\$ (9,479)	\$ (8,151)	\$ (6,477)	\$ (5,029)	
48													
49	<b>INTEREST</b>												
50	Average Monthly Balance	\$	\$ (3,921)	\$ (7,497)	\$ (9,665)	\$ (10,884)	\$ (11,517)	\$ (11,447)	\$ (10,295)	\$ (8,834)	\$ (7,331)	\$ (5,766)	
51	Interest Rate-WSJ Prime Rate	Annual %	4.25%	4.25%	4.25%	4.50%	4.50%	4.50%	4.75%	4.75%	4.75%	5.00%	Total
52	Days per Month		31	28	31	30	31	30	31	31	30	31	365
53	Computed Interest	\$'s	\$ (22)	\$ (29)	\$ (38)	\$ (41)	\$ (45)	\$ (41)	\$ (38)	\$ (33)	\$ (25)	\$ (21)	\$ (334)
54													
55	Ending Balance	\$'s	\$ (6,208)	\$ (8,815)	\$ (10,554)	\$ (11,255)	\$ (11,825)	\$ (11,111)	\$ (9,517)	\$ (8,184)	\$ (6,502)	\$ (5,050)	

Note: Recast denotes change from accounting records. Savings recast to match original budget. Lost revenue is calculated based on original estimated savings. The final reconciliation using actual savings will be provided in the June 2019 filing. The Average Distribution rate for Residential and C&I Classes for the months of January through April 2018 are from the 2017 Annual Report (LRR Page 4 of 22) in Docket No. DE 14-216 on June 1, 2018.

**Year 2019**  
Savings and lost revenues are estimated on a calendar year basis. Does not include prior cumulative savings.

	REVISED (1) Annualized Therm Savings	"Installed" Savings												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>Residential</b>														
Jan	1,603	134	134	134	134	134	134	134	134	134	134	134	134	1,603
Feb	3,205		267	267	267	267	267	267	267	267	267	267	267	2,938
Mar	4,684			390	390	390	390	390	390	390	390	390	390	3,904
Apr	6,287				524	524	524	524	524	524	524	524	524	4,715
May	7,890					657	657	657	657	657	657	657	657	5,260
Jun	9,492						791	791	791	791	791	791	791	5,537
Jul	11,095							925	925	925	925	925	925	5,547
Aug	12,697								1,058	1,058	1,058	1,058	1,058	5,291
Sep	14,177									1,181	1,181	1,181	1,181	4,726
Oct	15,779										1,315	1,315	1,315	3,945
Nov	17,382											1,448	1,448	2,897
Dec	18,984												1,582	1,582
Total	123,275	134	401	791	1,315	1,972	2,763	3,688	4,746	5,927	7,242	8,691	10,273	47,944
		134	534	1,325	2,640	4,613	7,376	11,064	15,810	21,738	28,980	37,671	47,944	
<b>Proposed Distribution Rate</b>		\$ 0.6655	\$ 0.6655	\$ 0.6655	\$ 0.6655	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.5880	\$ 0.6655	\$ 0.6655	
<b>Lost Revenue</b>		\$ 89	\$ 356	\$ 882	\$ 1,757	\$ 2,712	\$ 4,337	\$ 6,505	\$ 9,296	\$ 12,781	\$ 17,039	\$ 25,071	\$ 31,908	<b>\$ 112,734</b>
<b>C&amp;I</b>														
Jan	3,169	264	264	264	264	264	264	264	264	264	264	264	264	3,169
Feb	6,339		528	528	528	528	528	528	528	528	528	528	528	5,810
Mar	9,264			772	772	772	772	772	772	772	772	772	772	7,720
Apr	12,434				1,036	1,036	1,036	1,036	1,036	1,036	1,036	1,036	1,036	9,325
May	15,603					1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	10,402
Jun	18,772						1,564	1,564	1,564	1,564	1,564	1,564	1,564	10,950
Jul	21,941							1,828	1,828	1,828	1,828	1,828	1,828	10,971
Aug	25,111								2,093	2,093	2,093	2,093	2,093	10,463
Sep	28,036									2,336	2,336	2,336	2,336	9,345
Oct	31,206										2,600	2,600	2,600	7,801
Nov	34,375											2,865	2,865	5,729
Dec	37,544												3,129	3,129
Total	243,794	264	792	1,564	2,600	3,901	5,465	7,294	9,386	11,722	14,323	17,187	20,316	94,816
		264	1,056	2,621	5,221	9,122	14,587	21,881	31,267	42,989	57,312	74,499	94,816	
<b>Proposed Distribution Rate</b>		\$ 0.1913	\$ 0.1913	\$ 0.1913	\$ 0.1913	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1182	\$ 0.1913	\$ 0.1913	
<b>Lost Revenue</b>		\$ 51	\$ 202	\$ 501	\$ 999	\$ 1,078	\$ 1,724	\$ 2,586	\$ 3,695	\$ 5,080	\$ 6,773	\$ 14,253	\$ 18,140	<b>\$ 55,083</b>
<b>Total Lost Revenue</b>														<b>\$ 167,816</b>

**Notes:**

1) The Annualized Therm Savings were presented as MMBtu in the joint utilities' initial September 14, 2018 Core Energy Efficiency Filing.

Ref.	Eversource	Liberty	Unitil	Total
1. Proposal, Bates 82, 116, 170	\$ 336,296	\$ 9,846	\$ 28,042	\$ 374,184
	<i>Bates 82</i>	<i>Bates 116</i>	<i>Bates 170</i>	
2. 10-17-2018 Upd Proposal	\$ 331,022	\$ 2,116	\$ 22,104	\$ 355,242
	<i>DR 2-28, p. 5 of 12</i>	<i>DR 2-29, p. 5 of 11</i>	<i>DR 2-30, p. 5 of 11</i>	

3. Summary of Utility Spreadsheets from Discovery Incorporating all Known Corrections for Settlement Purposes:

Line No.	Description	Eversource	Liberty	Unitil	Total
1	Gross Annualized kWh Savings	67,756,141	4,722,565	6,966,014	79,444,720
2	Maximum Demand Factor (MDF)	Varies based on measure mix	Varies based on measure mix	Varies based on measure mix	
3	Extended Max. Load Reduction kW	14,066	924.5	1,156	16,146
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix	Varies based on measure mix	Varies based on measure mix	
5	Sub-Total Customer Peak kW Reduction	8,782.8	736.2	756.1	10,275
6	% Net to Gross	100.00%	100.00%	100.00%	
7	Sub-Total Customer Peak kW Reduction	8,782.8	736.2	756.1	10,275
8	% In-Service Rate	100.00%	100.00%	100.00%	
9	Sub-Total Customer Peak kW Reduction	8,782.8	736.2	756.1	10,275
10	% kW Realization Rate	Varies based on measure mix	Varies based on measure mix	Varies based on measure mix	
11	Sub-Total Customer Peak kW Reduction	8,702.9	736.5	756.1	10,195
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%	100.00%	100.00%	
13	Sub-Total Customer Peak kW Reduction	8,702.9	736.5	756.1	10,195
14	% Retirement Adjustment	100.00%	100.00%	100.00%	
15	Total Customer Peak kW Reduction, Full Year	8,702.9	736.5	756.1	10,195
16	% Annual Savings Achieved in First Year	50.00%	50.00%	50.00%	
17	Total Customer Peak Red. in First Year	4,351.4	368.3	378.0	5,098
18	Annualized (x12)	52,217.2	4,419.2	4,536.5	61,173
19	Average Distribution Rate (ADR)	\$ 6.42	\$ 7.77	\$ 9.11	
20	Total C&I kW LBR	\$ 335,098	\$ 34,337	\$ 41,327	\$ 410,763

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)  
 Line 17 for Liberty only includes kW savings associated with its G-1 customer class

- |    |                                                                                             |              |
|----|---------------------------------------------------------------------------------------------|--------------|
| 1. | Proposal, Bates 82                                                                          | \$ 4,741,259 |
| 2. | 10-17-2017 Upd Proposal, DR 2-28, p. 5 of 12                                                | \$ 4,735,977 |
| 3. | Summary of Utility Spreadsheets Incorporating all Known Corrections for Settlement Purposes | see below    |

Description	Residential kWh	Commercial kWh	C&I kW	Total	Ref.
<b>Legacy (Measures Installed in 2017 and 2018): (1)</b>					
1 Program Year 2017 Actual LBR Savings (2)	13,603,582	41,328,682	-	54,932,264	DE 14-216, June 7, 2018 filing P.11 of 16
2 2019 Average Distribution Rate (ADR)	\$ 0.04025	\$ 0.02767	\$ -		Proposal, Bates 82
3 Sub-Total LBR	\$ 547,501	\$ 1,143,452	\$ -	\$ 1,690,953	Line 1 * Line 2
4 Program Year 2018 Estimated LBR Savings	12,582,812	53,642,424	-	66,225,236	DE 17-136, September 1, 2017 Plan filing Bates 245
5 2019 Average Distribution Rate (ADR)	\$ 0.04025	\$ 0.02767	\$ -		Proposal, Bates 82
6 Sub-Total LBR	\$ 506,418	\$ 1,484,140	\$ -	\$ 1,990,558	Line 4 * Line 5
7 Sub-Total Legacy (Measures Installed in 2017 and 2018)	26,186,394	94,971,106	-	121,157,500	Line 1 + Line 4
8 Sub-Total Legacy LBR	\$ 1,053,919	\$ 2,627,592	\$ -	\$ 3,681,511	Line 3 + Line 6
<b>New Methodology (Measures Installed in 2019 and forward): (3)</b>					
9 Program Year 2019 Estimated LBR Savings to be achieved (annualized)	16,534,174	68,612,477	104,434	85,251,085	Revised Plan Filing Attachment E3 P.5
10 Program Year 2019 Estimated LBR Savings to be achieved in 2019	8,267,087	34,306,239	52,217	42,625,543	Line 10 * 50%
11 2019 Average Distribution Rate (ADR)	\$ 0.04025	\$ 0.01177	\$ 6.42		Proposal, Bates 82
12 Sub-Total LBR	\$ 332,724	\$ 403,873	\$ 335,098	\$ 1,071,696	Line 10 * Line 11
13 <b>Total Forecasted LBR - Year 2019 For Settlement Purposes</b>	\$ 1,386,643	\$ 3,031,466	\$ 335,098	\$ 4,753,207	Line 9 + Line 12

\*Numbers may not add due to rounding.

Comments

- 1 Legacy portion utilizes old methodology for calculating LBR - i.e. it utilizes a combined ADR for measures installed in 2017 and 2018.
- 2 Actual LBR Savings differ from program savings as the 110% LBR cap was reached
- 3 New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-136 (Order No. 26,095).

1.	Proposal, Bates 116	\$	99,073
2.	10-17-2017 Upd Proposal, DR 2-28, p. 5 of 12	\$	91,703
3.	Summary of Utility Spreadsheets Incorporating all Known Corrections for Settlement Purposes		see below

Description	Residential kWh	Commercial kWh	C&I kW	Total	Ref.
<b>Legacy (Measures Installed in 2017 and 2018): (1)</b>					
1 Program Year 2017 Actual LBR Savings (2)	N/A	N/A	-	N/A	
2 2019 Average Distribution Rate (ADR)	N/A	N/A	\$ -		
3 Sub-Total LBR	N/A	N/A	\$ -	N/A	
4 Program Year 2018 Estimated LBR Savings	N/A	N/A	-	N/A	
5 2019 Average Distribution Rate (ADR)	N/A	N/A	\$ -		
6 Sub-Total LBR	N/A	N/A	\$ -	N/A	
7 Sub-Total Legacy (Measures Installed in 2017 and 2018)	N/A	N/A	-	N/A	
8 Sub-Total Legacy LBR	N/A	N/A	\$ -	N/A	
<b>New Methodology (Measures Installed in 2019 and forward): (3)</b>					
9 Program Year 2019 Estimated LBR Savings to be achieved (annualized)	2,246,440	6,977,921	8,838	9,233,199	Updated per Settlement Agreement
10 Program Year 2019 Estimated LBR Savings to be achieved in 2019	1,123,220	3,488,961	4,419	4,616,600	Line 10 * 50%
11 2019 Average Distribution Rate (ADR)	\$ 0.04349	\$ 0.00872	\$ 7.77		Proposal, Bates 118
12 Sub-Total LBR	\$ 48,849	\$ 30,424	\$ 34,336	\$ 113,608	Line 10 * Line 11
13 <b>Total Forecasted LBR - Year 2019 For Settlement Purposes</b>	\$ 48,849	\$ 30,424	\$ 34,336	\$ 113,608	Line 9 + Line 12

\*Numbers may not add due to rounding.

Comments

- 1 Legacy portion for Granite State Electric is zero due to the fact that 2018 is a test year and savings and sales are set back to zero.
- 2 N/A
- 3 New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-136 (Order No. 26,095). Liberty is only including savings associated with its G-1 customers based on the fact that the G-2 customer class ratchets were not analyzed during the working group process and Liberty agreed to remove LBR for rate G-2 from the LBR calculation.

<b>1. Initial Proposal, Bates 170</b>	\$	612,601
<b>2. Request No. Staff 2-030, Attachment 2-54b-2</b>	\$	606,664
<b>3. Exhibit 19, UES Attachment H3</b>	\$	607,056
<b>4. Summary of Utility Spreadsheets Incorporating all Known Corrections for Settlement Purposes (3)</b>		<b>see below</b>

Description	kWh Savings		kW Savings		Total	Ref.
	Residential kWh	C&I kWh	C&I			
<b><u>Legacy (Measures Installed in 2017 and 2018): (1)</u></b>						
1 Program Year 2017 Actual LBR Savings	1,344,216	6,004,880			7,349,096	Compliance Filing, UES Attachment H3, page 5 of 11
2 2019 Average Distribution Rates (ADR)	\$ 0.03537	\$ 0.03212				Compliance Filing, UES Attachment H3, page 5 of 11
3 Sub-Total LBR	\$ 47,545	\$ 192,877			\$ 240,422	Line 1 * Line 2
4 Program Year 2018 Estimated Savings	3,090,828	5,614,948			8,705,776	Compliance Filing, UES Attachment H3, Page 5 of 11
5 2019 Average Distribution Rates (ADR)	\$ 0.03537	\$ 0.03212				Compliance Filing, UES Attachment H3, Page 8 of 11
6 Sub-Total LBR	\$ 109,323	\$ 180,352			\$ 289,675	Line 4 * Line 5
7 Sub-Total Legacy (Measures Installed in 2017 and 2018)	4,435,044	11,619,828	-		16,054,872	Line 1 + Line 4
8 Sub-Total Legacy LBR	\$ 156,868	\$ 373,229	\$ -		\$ 530,096	Line 3 + Line 6
<b><u>New Methodology (Measures Installed in 2019 and forward): (2)</u></b>						
9 Program Year 2019 Estimated LBR Savings to be achieved in 2019	1,518,553	3,594,351	4,537		5,112,903	Compliance Filing, UES Attachment H3, Page 5 of 11
10 Average Distribution Rates (ADR)	\$ 0.03537	\$ 0.00024	\$ 9.11			Compliance Filing, UES Attachment H3, Page 8 of 11
11 Sub-Total LBR	\$ 53,711	\$ 863	\$ 41,328		\$ 95,901	Line 9 * Line 10
<b>12 Total Forecasted LBR - Year 2019 for Settlement Purposes</b>	<b>\$ 210,579</b>	<b>\$ 374,092</b>	<b>\$ 41,328</b>		<b>\$ 625,998</b>	Line 8 + Line 11

**Comments:**

- (1) Legacy portion utilizes old methodology for calculating LBR - i.e., it utilizes a combined ADR for measures installed in 2017 and 2018.
- (2) New Methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-136 (Order No. 26,095).
- (3) The total C&I kW LBR amounts in line 11 differ from Exhibit 19 due to a correction made in the annualization of kW savings. This difference of \$18,942 changes the 2019 ending balance from (\$3,262) to \$15,987 (or a rate impact of \$0.00001/kWh). Given the relatively small magnitude of this difference, and since differences from the plan will be reconciled at the time of the annual report, the Company does not plan to request a change to the LBR rate that was approved effective January 1, 2019.



Per Order No. 26,122 dated April 27, 2018, EnergyNorth Natural Gas received approval of its decoupling mechanism. Page 45 of the Order states, "The Commission's order in the EERS docket set the stage for utilities to propose decoupling mechanisms to replace the LRAM. The LRAM was intended to be a temporary measure to remove the disincentive for utilities to undertake energy efficiency programs. We applaud Liberty for proposing decoupling mechanism to replace the LRAM." The following calculation does not apply to EnergyNorth Natural Gas as of November 1, 2018, the date by which the decoupling mechanism takes effect.

1. Proposal	\$	-
2. 10-17-2018 Update	\$	-
3. Summary of Utility Spreadsheets from Discovery Incorporating all Known Corrections for Settlement Purposes:	\$	-

Description	Ref.	Residential Therms	C&I Therms	Total
Program Year 2017 Therm Savings Actually Achieved in 2017	N/A	N/A	N/A	N/A
Plus: Program Year 2017 Therm Savings Est. to be Achieved in 2018	N/A	N/A	N/A	N/A
Plus: Program Year 2018 Therm Savings Est. to be Achieved in 2018	N/A	N/A	N/A	N/A
Plus: Program Year 2018 Therm Savings Est. to be Achieved in 2019	N/A	N/A	N/A	N/A
Plus: Program Year 2019 kWh/kW Savings Est. to be Achieved in 2019	N/A	N/A	N/A	N/A
<b>Staff Calculation Total Therm Savings for Year 2019 (2017-2019)</b>	N/A	N/A	N/A	N/A
Averate Distribution Rate	N/A	N/A	N/A	N/A
Total LBR Year 2019 for Settlement Purposes		N/A	N/A	N/A

**Comments:**

Above format mirrors the format used by the Electric Utilities.

- 1. Initial Proposal (Attachment J5 2019 Update - Bates Page 253) \$ 206,428
- 2. 10-17-2018 Update (DE 17-136 Staff 2-36 Attachment 1, Page 1 of 6 and as filed in LDAC) \$ 221,865
- 3. Summary of Utility Spreadsheets from Discovery Incorporating all Known Corrections for Settlement Purposes: see below

Description	kWh Savings		Total	Ref.
	Residential kWh	C&I kWh		
<b><u>Measures Installed in 2017:</u></b>				
1 Program Year 2017 Actual Therm Savings (Nov thru April)	35,376	132,786	168,162	Compliance Filing, Attachment J5 (Page 5, Line 8 and 36) (Oct. 2018 X 6)
2 2019 Average Distribution Rates (ADR) (Nov thru April)	\$ 0.6655	\$ 0.1913		Compliance Filing, Attachment J5 (Page 2, Line 11 and 39)
3 Sub-Total LBR	\$ 23,544	\$ 25,405	\$ 48,949	Line 1 * Line 2
4 Program Year 2017 Actual Therm Savings (May thru Oct)	35,376	132,786	168,162	Compliance Filing, Attachment J5 (Page 5, Line 8 and 36) (Oct. 2018 X 6)
5 2019 Average Distribution Rates (ADR) (Nov thru April)	\$ 0.5880	\$ 0.1182		Compliance Filing, Attachment J5 (Page 2, Line 11 and 39)
6 Sub-Total LBR	\$ 20,800	\$ 15,692	\$ 36,492	Line 4 * Line 5
7 Total LBR (Measures Installed in 2017)	\$ 44,344	\$ 41,097	\$ 85,441	Line 3 + Line 6
<b><u>Measures Installed in 2018:</u></b>				
8 Program Year 2018 Estimated Therm Savings (Nov thru April)	42,460	86,934	129,394	Compliance Filing, Attachment J5 (Page 5, Line 7 and 35) (Oct. 2018 X 6)
9 2019 Average Distribution Rates (ADR) (Nov thru April)	\$ 0.6655	\$ 0.1913		Compliance Filing, Attachment J5 (Page 2, Line 11 and 39)
10 Sub-Total LBR	\$ 28,259	\$ 16,632	\$ 44,891	Line 8 * Line 8
11 Program Year 2018 Estimated Therm Savings (May thru Oct)	42,460	86,934	129,394	Compliance Filing, Attachment J5 (Page 5, Line 7 and 35) (Oct. 2018 X 6)
12 2019 Average Distribution Rates (ADR) (Nov thru April)	\$ 0.5880	\$ 0.1182		Compliance Filing, Attachment J5 (Page 2, Line 11 and 39)
13 Sub-Total LBR	\$ 24,965	\$ 10,273	\$ 35,239	Line 11 * Line 12
14 Total LBR (Measures Installed in 2018)	\$ 53,224	\$ 26,906	\$ 80,130	Line 10 + Line 13
<b><u>Measures Installed in 2019</u></b>				
15 Program Year 2019 Estimated Therm Savings (Nov thru April)	18,861	38,432	57,294	Compliance Filing, Attachment J5 (Page 2, Line 7 and 35) (Nov18-April19)
16 2019 Average Distribution Rates (ADR) (Nov thru April)	\$ 0.6655	\$ 0.1913		Compliance Filing, Attachment J5 (Page 2, Line 11 and 39)
17 Sub-Total LBR	\$ 12,553	\$ 7,353	\$ 19,906	Line 15 * Line 16
18 Program Year 2018 Estimated Therm Savings (May thru Oct)	44,107	88,467	132,574	Compliance Filing, Attachment J5 (Page 2, Line 7 and 35) (May19-Oct19)
19 2019 Average Distribution Rates (ADR) (Nov thru April)	\$ 0.5880	\$ 0.1182		Compliance Filing, Attachment J5 (Page 2, Line 11 and 39)
20 Sub-Total LBR	\$ 25,933	\$ 10,455	\$ 36,388	Line 18 * Line 19
21 Total LBR (Measures Installed in 2019)	\$ 38,486	\$ 17,808	\$ 56,294	Line 17 + Line 20
22 Total Forecasted LBR - Year 2019 for Settlement Purposes	\$ 136,054	\$ 85,811	\$ 221,865	Line 7 + Line 14 + Line 21

\*November 2018 through October 2019