



NEW HAMPSHIRE TECHNICAL REFERENCE MANUAL for Estimating Savings from Energy Efficiency Measures, 2021 Program Year

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DRAFT

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Introduction

This *New Hampshire Technical Reference Manual for Estimating Savings from Energy Efficiency Measures* (“TRM”) documents for regulatory agencies, customers, and other stakeholders how the New Hampshire Utilities consistently, reliably, and transparently calculate savings from the installation of efficient equipment, collectively called “measures.” This reference manual provides methods, formulas and default assumptions for estimating energy, peak demand and other resource impacts from efficiency measures.

Within this document, efficiency measures are organized by the sector for which the measure is eligible and by the primary energy source associated with the measure. The three sectors are Residential, Income Eligible, and Commercial & Industrial (“C&I”). The primary energy sources addressed in this technical reference document are electricity and natural gas, and savings from delivered fuels such as oil and propane are also addressed where appropriate.

Each measure is presented in its own section as a measure characterization. The measure characterizations provide mathematical equations for determining savings (algorithms), as well as default assumptions and sources, where applicable. In addition, any descriptions of calculation methods or baselines are provided as appropriate. The parameters for calculating savings are listed in the same order for each measure. The measure calculations and assumptions provided in the TRM will match those found in the Benefit Cost Models (“BC Models”) created by utilities. There are some measures in the BC models that we do not currently anticipate incentivizing, and therefore have not been reflected in the TRM. If the opportunity arises to offer them in a cost-effective way, we will update the TRM with entries for these measures at that time.

Algorithms are provided for estimating annual energy and peak demand impacts for primary and secondary energy sources if appropriate. In addition, algorithms or calculated results may be provided for other nonenergy impacts (such as water savings or operation and maintenance cost savings). Inputs and assumptions are based on New Hampshire-specific evaluations or data where available. Other factors being equal, New Hampshire jurisdiction-specific results will be favoured over results from other jurisdictions in order to account for differences in climate, hours of use, program design and delivery, market conditions, and evaluation frameworks. However, when relevant results exist both from New Hampshire and from other states, it may be necessary to balance the desirable attributes of state-specificity and data reliability. When considering whether to apply results from a study originating in another jurisdiction to New Hampshire programs, the EM&V Working Group (with support from independent evaluation firms as needed), will make the determination based on (1) the similarity of evaluated program/measures to those offered in NH; (2) the similarity of relevant markets and customers base; (3) the recency of the study relative to the recency of any applicable NH results; and (4) the quality of the study’s methodology and sample size. In addition to third-party evaluations, inputs may also be based on sources including manufacturer and industry data, data from government agencies such as the U.S. Department of Energy or Environmental Protection Agency, or credible and realistic factors developed using engineering judgment.

This document will be reviewed and updated annually to reflect changes in technology, baselines and evaluation results.

Reference Tables

PROGRAM ABBREVIATIONS

Commercial

Energy Rewards RFP Program	RFP
Large Business Energy Solutions	LBES
Municipal Energy Solutions	Muni
Small Business Energy Solutions	SBES

Residential

ENERGY STAR Homes	ES Homes
ENERGY STAR Products	ES Products
Home Energy Assistance	HEA
Home Energy Reports	HER
Home Performance with ENERGY STAR	HPwES

CATEGORIES

Appliances
Building Shell
Compressed Air
Custom
Food Service
Heating Ventilation and Air Conditioning (HVAC)
Hot Water
Lighting
Motors and Drives
Whole Home

Measure Characterization Structure

This section describes the common entries or inputs that make up each measure characterization. A formatted template follows the descriptions of each section of the measure characterization. A single device or behavior is defined as a measure within each program and fuel. The source of each assumption or default parameter value will be referenced in the endnotes section of each measure chapter.

Measure Code	A unique way to identify a measure where the first set of characters indicates the market, the second set of characters indicates the category, and the third set is an abbreviated code for the measure name.
Market	This is the sector for which the measure is applicable and can be Residential, Income Eligible or C&I.
Program Type	The type of baseline used (i.e., retrofit, lost opportunity).
Category	The category of measure type, based on list above.

Description:

This section will include a plain text description of the energy efficiency measure, including the benefit(s) of its installation.

Baseline Efficiency:

This section will include a statement of the assumed equipment/operation efficiency in the absence of program intervention. Multiple baselines will be provided as needed, e.g., for different markets. Baselines may refer to reference tables or may be presented as a table for more complex measures.

High Efficiency:

This section will describe the high efficiency case from which the energy and demand savings are determined. The high efficiency case may be based on specific details of the measure installation, minimum requirements for inclusion in the program, or an energy efficiency case based on historical participation. It may refer to tables within the measure characterization or in the appendices or efficiency standards set by organizations such as ENERGY STAR® and the Consortium for Energy Efficiency.

Algorithms for Calculating Primary Energy Impact:

This section will describe the method for calculating electric savings and electric demand savings in appropriate units.

The savings algorithm will be provided in a form similar to the following:

$$\Delta kWh = \Delta kW \times Hours$$

Similarly, the method for calculating electric demand savings will be provided in a form similar to the following:

$$\Delta kW = (Watts_{BASE} - Watts_{EE}) / 1000$$

This section also describes any non-electric (gas, propane, oil) savings in appropriate units, i.e., MMBtu associated with the energy efficiency measure, including all assumptions and the method of calculation.

This section will, as appropriate, summarize electric and non-electric savings in a table that contains the following information:

Measure Name: <Name used in utilities' Benefit-Cost models >

Program: <Defined by utilities, also referred to as Program Name>

Savings: <Measure savings in units of kWh, kW, MMBtu, or other as applicable; this information may be contained in multiple fields>

Measure Life:

This section will provide the measure life for each measure and describe the measure life basis, e.g., effective useful life (EUL) or adjusted measure life (AML). It will note any adjustments made, such as for LED market trends.

BC Measure ID	Measure Name	Program	Measure Life
[Unique ID for measures in the utilities' Benefit-Cost model]	[Measure Name]	[Program Abbreviation from list above]	XX

Other Resource Impacts:

If applicable, this section describes any water or ancillary savings associated with the energy efficiency measure, including all assumptions.

Impact Factors for Calculating Adjusted Gross Savings:

The section includes a table of impact factor values for calculating adjusted gross savings. These include in-service rates, realization rates, and coincidence factors. Further descriptions of the impact factors and the sources on which they are based are described below.

ISR	=	In-Service Rate
CF _{SP}	=	Peak Coincidence Factor (summer peak)
CF _{WP}	=	Peak Coincidence Factor (winter peak)
RR _E	=	Realization Rate, electric(kWh)
RR _{NE}	=	Realization Rate, non-electric (MMBtu)
RR _{SP}	=	Realization Rate for summer peak kW
RR _{WP}	=	Realization Rate for winter peak kW

Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
[Measure Name]	[Program abbreviation]	X.XX	X.XX	n/a	X.XX	X.XX	X.XX	X.XX

In-Service Rates:

Actual portion of efficient units that are installed. For example, efficient lamps may have an in-service rate less than 1.00 since some lamps are purchased as replacement units and are not immediately installed. The ISR is 1.00 for most measures.

Realization Rates:

Used to adjust the gross savings (as calculated by the savings algorithms) based on impact evaluation studies. The realization rate is equal to the ratio of measure savings developed from an impact evaluation to the estimated measure savings derived from the savings algorithms. The realization rate does not include the effects of any other impact factors, unless explicitly noted. Depending on the impact evaluation study, there may be separate Realization Rates for electric energy (kWh), peak demand (kW), or non-electric energy (MMBtu).

Coincidence Factors:

Adjusts the connected load kW savings derived from the savings algorithm. A coincidence factor represents the fraction of the connected load reduction expected to occur at the same time as a particular system peak period. The coincidence factor includes both coincidence and diversity factors combined into one number, thus there is no need for a separate diversity factor in this TRM.

Energy Load Shape:

The section includes a table or reference with the time-of-use pattern of a typical customer's electrical energy consumption for each segment and end use. Because the value of avoided energy varies throughout the year, load shapes are used to allocate energy savings into specific time periods in order to better reflect its time-dependent value. Load shapes are defined as follows based on ISO-NE definitions:

- Summer On-Peak: 7 am to 11 pm, weekdays, during the months of June through September, except ISO-NE holidays;
- Summer Off-Peak: All other hours during the months of June through September (includes weekends and holidays);
- Winter On-Peak: 7 am to 11 pm, weekdays, during the months of October through May, except ISO-NE holidays; and
- Winter Off-Peak: All other hours during the months of October through May (includes weekends and holidays).

Impact Factors for Calculating Net Savings:

The amount of savings attributable to a program or measure. Net savings differs from "Gross Savings" because it includes adjustments from impact factors, such as free-ridership or spillover. The ratio of net savings to gross savings is known as the Net-to-Gross ratio and is usually expressed as a percent.

This section would only apply to midstream and upstream offerings, which are known to have greater levels of free-ridership than other programs as an inherent part of their program design. For other programs, the utilities will prioritize designing programs and putting mechanisms in place to minimize free-riders, in line with precedent from the 1999 NH EE Working Group report, which stated that "program designs should attempt to minimize free-riders" but "the methodological challenges and associated costs of accurately assessing free-riders no longer justifies the effort required".

Non-Energy Impacts:

As discussed with the NH Benefit/Cost Working Group, and per Commission Order,¹ the NH Utilities are applying non-energy impacts (NEIs) in cost-effectiveness screening as follows:

The **Primary Granite State Test** reflects low-income participant NEIs, based on New Hampshire-specific primary research on the Home Energy Assistance program. Specifically, based on the HEA evaluation,² a per-project value of \$406 reflecting participant NEIs—including increased comfort, decreased noise, and health-related NEIs—will be applied annually to each weatherization project over its 15-year measure life. These NEIs are reflected in the measure chapters for insulation and air sealing.

The **Secondary Granite State Test** reflects sector-level percentage adders for participant NEIs for the residential (non-low-income) and C&I sectors, based on a review of secondary NEI research from similar jurisdictions, adjusted for New Hampshire-specific economic and other factors and matched to New Hampshire's programs and measures.³ The test also reflects environmental externality NEIs, based on non-embedded avoided cost values from the AESC. These NEI values are not reflected in the TRM measure chapters. For HEA, the same primary research NEI value is applied in the Secondary Granite State Test as in the Primary Granite State Test.

Both the **Primary and Secondary Granite State Tests** reflect other resource impacts for water and delivered fuels, as reflected in the TRM measure chapters.

¹ Docket No. DE 17-136, Order Approving Benefit Cost Working Group Recommendations, No. 26,322, December 30, 2019; Order Approving 2020 Update Plan, No. 26,323, December 31, 2019.

²Opinion Dynamics. Home Energy Assistance Program Evaluation Report 2016-2017, Final, July 29, 2020.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/20200729-NHSaves-HEA-Evaluation-Report-FINAL.pdf>

³DNV-GL. New Hampshire Non-Energy Impacts Database Methodology Memo, April 2020.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/Final-NH-NEI-Methodology-Memo-20200409.pdf>; New Hampshire Non-Energy Impacts Database, July 2020.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/20200722-NH-NEI-Draft-Database-NHML-core.xlsm>

Impact Factors for Calculating Adjusted Gross and Net Savings

The New Hampshire Utilities use the algorithms in the Measure Characterization sections to calculate the gross savings for energy efficiency measures. Impact factors are then applied to make various adjustments to the gross savings estimates to account for the performance of individual measures or energy efficiency programs as a whole in achieving energy reductions as assessed through evaluation studies. Impact factors address both the technical performance of energy efficiency measures and programs, accounting for the measured energy and demand reductions realized compared to the gross estimated reductions, as well as in certain cases the programs' effect on the market for energy efficient products and services.

This section describes the types of impact factors used to make such adjustments, and how those impacts are applied to gross savings estimates.

Types of Impact Factors

The impact factors used to adjust savings fall into one of two categories:

Impact factors used to adjust gross savings:

- In-Service Rate ("ISR")
- Realization Rate ("RR")
- Summer and Winter Peak Demand Coincidence Factors ("CF")

Impact factors used to calculate net savings:

- Free-Ridership ("FR") and Spillover ("SO") Rates
- Net-to-Gross Ratios ("NTG")

The **in-service rate** is the actual portion of efficient units that are installed. For example, efficient lamps may have an in-service rate less than 1.00 since some lamps are purchased as replacement units and are not immediately installed. The ISR is 1.00 for most measures.

The **realization rate** is used to adjust the gross savings (as calculated by the savings algorithms) based on impact evaluation studies. The realization rate is equal to the ratio of measure savings developed from an impact evaluation to the estimated measure savings derived from the savings algorithms. The realization rate does not include the effects of any other impact factors. Depending on the impact evaluation study, there may be separate Realization Rates for electric energy (kWh), peak demand (kW), or non-electric energy (MMBtu).

A **coincidence factor** adjusts the connected load kW savings derived from the savings algorithm. A coincidence factor represents the fraction of the connected load reduction expected to occur at the same time as a particular system peak period. The coincidence factor includes both coincidence and diversity factors combined into one number, thus there is no need for a separate diversity factor in this TRM. Coincidence Factors are provided for the on-peak period as defined by the ISO New England for the Forward Capacity Market ("FCM"), and are calculated consistently with the FCM methodology. Electric demand reduction during the ISO New England peak periods is defined as follows:

On-Peak Definition (applicable definition for NH):

- Summer On-Peak: average demand reduction from 1:00-5:00 PM on non-holiday weekdays in June, July, and August
- Winter On-Peak: average demand reduction from 5:00-7:00 PM on non-holiday weekdays in December and January

Seasonal Peak Definition (not applied in NH):

- Summer Seasonal Peak: demand reduction when the real-time system hourly load is equal to or greater than 90% of the most recent “50/50” system peak forecast for June-August
- Winter Seasonal Peak: demand reduction when the real-time system hourly load is equal to or greater than 90% of the most recent “50/50” system peak load forecast for December-January

The values described as Coincidence Factors in the TRM are not always consistent with the strict definition of a Coincidence Factor (CF). It would be more accurate to define the Coincidence Factor as “the value that is multiplied by the Gross kW value to calculate the average kW reduction coincident with the peak periods.” For example, a coincidence factor of 1.00 may be used because the coincidence is already included in the estimate of Gross kW; this is often the case when the “Max kW Reduction” is not calculated and instead the “Gross kW” is estimated using the annual kWh reduction estimate and a loadshape model.

The **net savings** value is the final value of savings that is attributable to a measure or program. Net savings differs from gross savings because it includes the effects of the free-ridership and/or spillover rates. Net savings currently apply to midstream and upstream offerings, which are known to have greater levels of free-ridership than other programs as an inherent part of their program design. For other programs, the utilities will prioritize designing programs and putting mechanisms in place to minimize free-riders, in line with precedent from the 1999 NH EE Working Group report, which stated that “program designs should attempt to minimize free-riders” but “the methodological challenges and associated costs of accurately assessing free-riders no longer justifies the effort required”.

A **free-rider** is a customer who participates in an energy efficiency program (and gets an incentive) but who would have installed some or all of the same measure(s) on their own, with no change in timing of the installation, if the program had not been available. The free-ridership rate is the percentage of savings attributable to participants who would have installed the measures in the absence of program intervention.

The **spillover rate** is the percentage of savings attributable to a measure or program, but additional to the gross (tracked) savings of a program. Spillover includes the effects of 1) participants in the program who install additional energy efficient measures outside of the program as a result of participating in the program, and 2) non-participants who install or influence the installation of energy efficient measures as a result of being aware of the program. These two components are the participant spillover (SOP) and nonparticipant spillover (SONP).

The **net-to-gross ratio** is the ratio of net savings to the gross savings adjusted by any impact factors (i.e., the “adjusted” gross savings). Depending on the evaluation study, the NTG ratio may be determined from the free-ridership and spillover rates, if available, or it may be a distinct value with no separate specification of FR and SO values.

1. Residential

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1.1 Active Demand Response – Residential

Measure Code	[Code]
Market	Residential
Program Type	Custom
Category	Active Demand Response

Description:

Residential Direct Load Control is focused on reducing electrical demand during summer peak load periods by controlling equipment inside a building, such as via wi-fi connected thermostats, communicating domestic hot water heaters and pool pumps, and other controlled energy-using devices.

Residential Storage Daily Dispatch involves customers receiving incentives to decrease demand by discharging energy from storage in response to a signal or communication from the Program Administrators. Residential Storage Daily Dispatch demand response periods may occur during peak hours in summer months.

Summer peak load control periods for both Residential Direct Load Control and Residential Storage Daily Dispatch are three-hour events that may occur between 2:00 p.m. and 7:00 p.m. on non-holiday weekdays between June 1 and September 30.

Baseline Efficiency:

The baseline case for Residential Direct Load Control is an equivalent piece of residential HVAC equipment or a residential appliance without summer peak demand response.

For thermostat controls in the Residential Direct Load Control program, vendor-supplied baselines may use one of several baseline methodologies to determine savings. The assumption in this document is that either the ISO-NE¹ or PJM² demand response customer baseline operation models are used by the vendor.

The baseline case for Residential Storage Daily Dispatch is an equivalent residential home with onsite energy storage, including any onsite solar PV production, but without peak demand response control.³

High Efficiency:

The high efficiency case is a residential building with devices that are equipped to communicate with the utility to reduce demand during curtailment periods. This could include communicating thermostats, residential storage equipment, or other types of residential demand response equipment.

Note that active demand response is not intended to reduce energy use, but rather to reduce power consumption during demand response periods. As a result, little energy savings are available for Residential Direct Load Control. A small amount of energy savings per demand response event is provided in the section below.

For Residential Storage Daily Dispatch, a negative net kWh impact should be assessed to account for round-trip efficiency losses during the charging and discharging periods.

Algorithms for Calculating Primary Energy Impact:

Thermostat control programs are the most widely implemented, and therefore have the most well-supported savings findings.

For vendors that use ISO-NE or PJM baselines to calculate demand savings for central air conditioners controlled by wi-fi connected thermostats, an adjustment to vendor-claimed demand savings based on evaluation results⁴ is applied:

$$\begin{aligned}\Delta kW_{Pre-event} &= (\Delta kW_{Pre-event,vendor}) \times (F_{pre-event}) \\ \Delta kW_{Post-event} &= (\Delta kW_{Post-event,vendor}) \times (F_{post-event}) \\ \Delta kW_{Event} &= (\Delta kW_{vendor}) \times (F_{event}) \\ F_{event} &= -3.06 + (0.05 \times Temp_{avg})\end{aligned}$$

Where,

Unit	= one dispatched thermostat
$\Delta kW_{Pre-event}$	= demand adjustment for pre-cooling before event
$\Delta kW_{post-event}$	= demand adjustment for recovery cooling after event
$\Delta kW_{pre/post/event,vendor}$	= vendor demand savings in the period of interest (i.e. pre-event, during event, or post-event), typically calculated relative to ISO-NE or PJM baseline
$F_{pre-event}$	= savings adjustment factor in the pre-event period = 0.72
$F_{post-event}$	= savings adjustment factor in the post-event period = 0.68
F_{event}	= $-3.06 + (0.05 \times Temp_{avg})$
$Temp_{avg}$	= average outdoor air temperature during the event period

For demand response events that affect central air conditioners controlled by a wi-fi connected thermostat: a deemed energy savings of 0.67 kWh⁴ per event.

For Residential Storage Daily Dispatch, energy savings are measured directly at the device, on a site-by-site basis, as reported by the vendor:

$$\Delta kW_{Event} = \Delta kW_{vendor}$$

More detailed savings algorithms for Residential Storage Daily Dispatch and other types of residential active demand response measures, with pre-, during-, and post-event savings adjustments, may be developed as additional program evaluations are conducted.

Measure Life:

As all residential active demand response measures are based on Program Administrators calling demand reduction events each year, the deemed measure life is 1 year.⁴

BC Measure ID	Measure Name	Program	Measure Life
---------------	--------------	---------	--------------

E21A5a001	Residential Direct Load Control	Residential ADR	1
E21A5a002	Residential Storage Daily Dispatch P4P (savings) Summer	Residential ADR	1
E21A5a003	Residential Storage Daily Dispatch P4P (consumption) Summer	Residential ADR	1

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A5a001	Residential Direct Load Control	Residential ADR	1.00	1.00	1.00	1.00	1.00	1.00	0.00
E21A5a002	Residential Storage Daily Dispatch P4P (savings) Summer	Residential ADR	1.00	1.00	1.00	1.00	1.00	1.00	0.00
E21A5a003	Residential Storage Daily Dispatch P4P (consumption) Summer	Residential ADR	1.00	1.00	1.00	1.00	1.00	1.00	0.00

In-Service Rates:

All installations are assumed to have 100% in-service-rates pending program evaluation. Event opt-outs and attrition during events are captured in the gross impact algorithm above.

Realization Rates:

Savings adjustment factors and deemed energy savings provided in the Algorithms section above represent an evaluation adjustment to vendor-reported reported gross savings.

Coincidence Factors:

Summer coincidence factors are assumed to be 100% reflecting the timing of demand response events. Winter coincidence factors are assumed to be 0%.

Energy Load Shape:

All savings for Active Demand Response take place in the summer on-peak period.

Endnotes:

1: ISO New England (2014). ISO New England Manual for Measurement and Verification of Demand Reduction Value from Demand Resources (Manual M-MVDR). Revision 6, June 1, 2014

https://www.iso-ne.com/static-assets/documents/2017/02/mmvdrr_measurement-and-verification-demand-reduction_rev6_20140601.pdf

2: Day-Ahead and Real-Time Market Operations (2019). PJM Manual 11: Energy & Ancillary Services Market Operations, Revision 108. Effective Date: December 3, 2019.

<https://www.pjm.com/~media/documents/manuals/m11.ashx>

3: Navigant Consulting (2020). 2019 Residential Energy Storage Demand Response Demonstration Evaluation, Summer Season. Prepared for National Grid and Unitil. MA. http://ma-eeac.org/wordpress/wp-content/uploads/MA19DR02-E-Storage_Res-Storage-Summer-Eval_wInfographic_2020-02-10-final.pdf

4: Navigant Consulting (2020). 2019 Residential Wi-Fi Thermostat Direct Load Control Offering Evaluation. Prepared for Eversource, National Grid, and Unitil. MA and CT. <http://ma-eeac.org/wordpress/wp-content/uploads/2019-Residential-Wi-Fi-Thermostat-DLC-Evaluation-Report-2020-04-01-with-Infographic.pdf>

5: The PA program evaluation plan and the measure life for behavioural measures are as published in the 2019-2021 Massachusetts Three-Year Energy Efficiency Plan. <http://ma-eeac.org/wordpress/wp-content/uploads/Exh.-1-Final-Plan-10-31-18-With-Appendices-no-bulk.pdf>

1.2 Appliances - Advanced Power Strip

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	Appliances

Description:

Advanced power strips can automatically eliminate standby power loads of electronic peripheral devices that are not needed (DVD player, computer printer, scanner, etc.) either automatically or when an electronic control device (typically a television or personal computer) is in standby or off mode.

Baseline Efficiency:

The baseline efficiency case is the customers' electronic peripheral devices as they are currently operating.

High Efficiency:

The high efficiency case is the installation of an Advanced Power Strip.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on referenced study results.¹

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21A3b001	Advanced Power Strip, Tier I	ES Products	117.00	0.011
E21A3b002	Advanced Power Strip, Tier II	ES Products	174.00	0.018

Measure Life:

The measure life is 5 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b001	Advanced Power Strip, Tier I	ES Products	0.86	0.92	n/a	0.92	0.92	0.58	0.86
E21A3b002	Advanced Power Strip, Tier II	ES Products	0.75	0.92	n/a	0.92	0.92	0.58	0.86

In-Service Rates:

In-service rates are based on consumer surveys, as found in the referenced study.¹

Realization Rates:

Realization rates account for the savings lost due to improper customer set-up/use of devices, as found in the referenced study.¹

Coincidence Factors:

Programs use a summer coincidence factor of 58% and a winter coincidence factor of 86%.²

Energy Load Shape:

See Appendix 1 – “Primary TV and Peripherals”.²

Endnotes:

1: NMR Group, Inc. (2018). Advanced Power Strip Metering Study. Prepared for Massachusetts Program Administrators and EEAC.

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.3 Appliances – Clothes Dryer

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Appliances

Description:

Clothes dryers exceeding minimum qualifying efficiency standards established as ENERGY STAR® or most efficient.

Baseline Efficiency:

For lost opportunity applications, the baseline efficiency case is a new electric resistance dryer that meets the federal standard as of January 1, 2015 which is a Combined Energy Factor (EF) of 3.73 for a vented standard dryer¹. Different testing procedures were used in setting the federal standard (DOE Test Procedure Appendix D1) and the Energy Star standard (DOE Test Procedure Appendix D2). To enable comparison a baseline CEF of 3.11 is used. This was derived from ENERGY STAR Version 1.0 Estimated Baseline which multiplies the 2015 federal standard by the average change in electric dryers' assessed CEF between Appendix D1 and Appendix D2: $3.73 - (3.73 * 0.166)$. For retrofit applications, the baseline efficiency case is the existing electric resistance dryer.

High Efficiency:

The high efficiency case is a clothes dryer that meets the ENERGY STAR standard as of May 19, 2014. For a new standard vented or ventless electric resistance dryer the minimum CEF is 3.93². For Heat Pump and Hybrid technology clothes dryers, CEFs are based on an average of Northwest Energy Efficiency Alliance qualified product testing as of October 2019. For Heat Pump technology dryers, the average CEF is 6.83. For Hybrid technology clothes dryers, the average CEF is 4.30.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on EPA ENERGY STAR list and Northwest Energy Efficiency Alliance lab testing results. Demand savings are derived from the Navigant Demand Impact Model.⁶

$$\Delta \text{kWh} = (\text{lbs}/\text{YEAR} \div \text{CEF}_{\text{Base}}) - (\text{lbs}/\text{YEAR} \div \text{CEF}_{\text{EFF}})$$

Where:

Lbs/YEAR = Typical pounds of clothing dried per year (based on 8.45 lbs/load and 283 loads/yr)

CEF_{BASE} = Baseline Combined Energy Factor (lbs/kWh)

CEF_{EFF} = Efficient Combined Energy Factor (lbs/kWh)

Unit savings^{3,4,5}

BC Measure Id	Measure Name	Program	ΔkWh	ΔkW	ΔGas MMBtu
E21B1a052	Clothes Dryer (Retrofit)	HEA	Calculated	Calculated	n/a
E21A2a055	Clothes Dryer (Retrofit)	HPwES	Calculated	Calculated	n/a
E21A1a027	Clothes Dryer (New Construction)	ES Homes	160.4	0.047	n/a
E21A3b010	Clothes Dryer (ENERGY STAR)	ES Products	160.4	0.047	n/a
E21A3b012	Clothes Dryer (ENERGY STAR + Hybrid technology)	ES Products	213.3	0.063	n/a
E21A3b011	Clothes Dryer (ENERGY STAR + Heat Pump technology)	ES Products	421.1	0.124	n/a

Measure Life:

The measure life is 12 years.⁶

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR_E	RR_{NE}	RR_{SP}	RR_{WP}	CF_{SP}	CF_{WP}
E21B1a052	Clothes Dryer (Retrofit)	HEA	1.00	0.91	n/a	0.91	0.91	0.45	0.58
E21A2a055	Clothes Dryer (Retrofit)	HPwES	0.99	1.00	n/a	1.00	1.00	0.45	0.58
E21A1a027	Clothes Dryer (New Construction)	ES Homes	1.00	1.00	n/a	1.00	1.00	0.45	0.58
E21A3b010	Clothes Dryer (ENERGY STAR + Hybrid technology)	ES Products	1.00	1.00	n/a	1.00	1.00	0.45	0.58
E21A3b012	Clothes Dryer (ENERGY STAR + Heat Pump technology)	ES Products	1.00	1.00	n/a	1.00	1.00	0.45	0.58

In-Service Rates:

Installations have 100% in service rate for ES Products unless an evaluation finds otherwise, 100% for HEA⁸, and 99% for HPwES⁷.

Realization Rates:

Realization rates are 100% for ES Products unless an evaluation finds otherwise, 91% for HEA⁸, and 100% for HPwES⁷.

Coincidence Factors:

Programs a summer coincidence factor of 45% and a winter coincidence factor of 58%.⁹

Energy Load Shape:

See Appendix 1 – “Clothes Dryer – Electric”.⁹

Endnotes:

- 1: DOE (accessed July 2020). Energy Conservation Program: Energy Conservation Standards for Residential Clothes Dryers. https://www.energy.gov/sites/prod/files/2015/03/f20/Clothes%20Dryer%20Standards_RFI.pdf
- 2: EnergyStar Energy Efficient Products (accessed July 2020): https://www.energystar.gov/products/appliances/clothes_dryers/key_product_criteria
- 3: Northwest Energy Efficiency Alliance (2019). Dryers - QPL October 2019.
- 4: Department of Energy (2015). 10 CFR Part 431 March 27, 2015. Energy Conservation Program: Energy Conservation Standards for Residential Clothes Dryers. Table II.7.
- 5: Department of Energy (2013). 10 CFR Parts 429 and 430 August 14, 2013. Energy Conservation Program: Test Procedures for Residential Clothes Dryers; Final Rule. Table 11.1.
- 6: Environmental Protection Agency (2018). Savings Calculator for ENERGY STAR Qualified Appliances. Energy_Star_2018_Consumer_Appliance_Calculator
- 7: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL, <https://www.puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/NHSaves-HPwES-Evaluation-Report-Final-20200611.pdf>
- 8: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.
- 9: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <https://ma-eeac.org/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.4 Appliances – Clothes Washer

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Appliances

Description:

Clothes washers exceeding minimum qualifying efficiency standards established as ENERGY STAR® or Most Efficient. The measure saves electric energy used by the washer itself, as well as heating energy (in the form of electricity or fossil fuel) associated with the heating of the domestic hot water (DHW) consumed during the wash cycles. DHW heating efficiency is assumed to be code-compliant.

Baseline Efficiency:

For lost opportunity baseline, the base efficiency case is a residential clothes washer that meets the federal standard for front-loading washers effective 3/7/2015 which requires an IMEF (Integrated Modified Energy Factor) no less than 1.84 and an IWF (Integrated Water Factor) no greater than 4.7, and for top-loading washers effective 1/1/18 which requires an IMEF no less than 1.57 and an IWF no greater than 6.5. For retrofit baseline, the base efficiency case is the existing residential clothes washer.

High Efficiency:

The high efficiency case is a residential clothes washer that meets the ENERGY STAR standard as of February 5, 2018. For a new front-loading clothes washer the minimum IMEF is 2.76 and the maximum IWF is 3.2. For a new top-loading clothes washer the minimum IMEF is 2.06 and the maximum IWF is 4.3.

Algorithms for Calculating Primary Energy Impact:

Unit electric savings are based on weighted averages by efficiency class presented in the 2018 Efficiency Vermont TRM¹. Demand savings are derived from the Navigant Demand Impact Model⁵. Fossil fuel DHW savings are based on NH-specific water heating fuel types.

Measure ID	Measure Name	Program	ΔkWh	ΔkW	ΔGas MMBtu	ΔOil MMBtu	ΔPropane MMBtu
E21B1a051	Clothes Washer (Retrofit)	HEA	Calculated	Calculated	Calculated	Calculated	Calculated
E21A2a054	Clothes Washer (Retrofit)	HPwES	Calculated	Calculated	Calculated	Calculated	Calculated
E21A1a026	Clothes Washer (New Construction)	ES Homes	89.9	0.279	0.020	0.000	0.050

G21A1a009	Clothes Washer (New Construction) – Gas	ES Homes	89.9	0.279	0.290	0.00	0.000
E21A3b017	Clothes Washer (ENERGY STAR)	ES Products	89.9	0.279	0.024	0.042	0.003
E21A3b018	Clothes Washer (ENERGY STAR Most Efficient)	ES Products	138.9	0.431	0.166	0.291	0.023

Measure Life:

The measure life is 11 years.^{1, 2}

Other Resource Impacts:

Annual water savings are deemed.

Measure Name	Program	Annual Water Savings (gallons)
Clothes Washer (Retrofit)	HEA/HPwES	Calculated
Clothes Washer (New Construction)	ES Homes	2,244
Clothes Washer (ENERGY STAR)	ES Products	2,244
Clothes Washer (ENERGY STAR Most Efficient)	ES Products	3,940

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a051	Clothes Washer (Retrofit)	HEA	1.00	0.91	0.91	0.91	0.91	0.49	0.52
E21A2a054	Clothes Washer (Retrofit)	HPwES	0.99	1.00	1.00	1.00	1.00	0.49	0.52
E21A1a026	Clothes Washer (New Construction)	ES Homes	1.00	1.00	1.00	1.00	1.00	0.49	0.52
G21A1a009	Clothes Washer (New Construction) – Gas	ES Homes	1.00	1.00	1.00	1.00	1.00	0.49	0.52
E21A3b017	Clothes Washer (ENERGY STAR)	ES Products	1.00	1.00	1.00	1.00	1.00	0.49	0.52
E21A3b018	Clothes Washer (ENERGY STAR Most Efficient)	ES Products	1.00	1.00	1.00	1.00	1.00	0.49	0.52

In-Service Rates:

Installations have 100% in service rate for ES Products unless an evaluation finds otherwise, 100% for HEA⁴, and 99% for HPwES³.

Realization Rates:

Realization rates are 100% for ES Products unless an evaluation finds otherwise, 91% for HEA⁴, and 100% for HPwES³.

Coincidence Factors:

All electric programs use a summer coincidence factor of 49% and a winter coincidence factor of 52%.⁵

Energy Load Shape:

See Appendix 1 – “Clothes Washer”.⁵

Endnotes:

- 1: Energy Efficiency Vermont (2018) Technical Reference User Manual. Efficient Clothes Washers.
- 2: Appliance Magazine. U.S. Appliance Industry: Market Share, Life Expectancy & Replacement Market, and Saturation Levels. Jan. 2010. p. 10
- 3: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.
- 4: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.
- 5: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.5. Appliances – Dehumidifier

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Appliances

Description:

Dehumidifiers exceeding minimum qualifying efficiency standards established as ENERGY STAR.

Baseline Efficiency:

The lost opportunity baseline efficiency case is a dehumidifier that meets the federal standard effective June 13, 2019. Specific baseline Energy Factors (EFs) by product capacity found in the Code of Federal Regulations, 10 CFR 430.32(v)(2). The retrofit baseline efficiency case is the existing dehumidifier.

High Efficiency:

The high efficiency case is a dehumidifier that meets the ENERGY STAR standard as of October 31, 2019¹. For a new dehumidifier with a capacity less than 25 pints/day the minimum EF is 1.57 liters/kWh. For a new dehumidifier with a capacity between 25.01 and 50 pints/day the minimum EF is 1.8 liters/kWh. For a new dehumidifier with a capacity greater than or equal to 50 pints/day the minimum EF is 3.3 liters/kWh.

Capacity (pints)	Energy Factor (2019 Federal Standard)	Energy Factor (ENERGY STAR)
≤ 25	1.30	1.57
25.01-50	1.60	1.80
≥ 50	2.80	3.30

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated as below. Demand savings are derived from the Navigant Demand Impact Model.¹

$$\Delta \text{kWh} = \text{Load} \times [(1 \div \text{Eff}_{\text{BASE}}) - (1 \div \text{Eff}_{\text{ES}})] \times \text{Hours}$$

Where:

Load = Typical dehumidification load, 1520 Liters/year¹

Eff_{BASE} = Average efficiency of model meeting the federal standard, in Liters/kWh

Eff_{ES} = Efficiency of ENERGY STAR® model, in Liters/kWh

Hours = Dehumidifier annual operating hours, site-specific if available, or deemed 2,851 hour/year²

Table: Measure Energy Impact³

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21B1a053	Dehumidifier (Retrofit)	HEA	407.1	0.10
E21A2a056	Dehumidifier (Retrofit)	HPwES	407.1	0.10
E21A3b019	Dehumidifier (ENERGY STAR)	Products	82.3	0.02

Measure Life:

The measure life is 17 years.³

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR_E	RR_{NE}	RR_{SP}	RR_{WP}	CF_{SP}	CF_{WP}
E21B1a053	Dehumidifier (Retrofit)	HEA	1.00	0.91	n/a	0.91	0.91	0.82	0.17
E21A2a056	Dehumidifier (Retrofit)	HPwES	0.99	1.00	n/a	1.00	1.00	0.82	0.17
E21A3b019	Dehumidifier (ENERGY STAR)	ES Products	1.00	1.00	n/a	1.00	1.00	0.82	0.17

In-Service Rates:

Installations have 100% in service rate for ES Products unless an evaluation finds otherwise, 100% for HEA⁵, and 99% for HPwES⁴.

Realization Rates:

Realization rates are 100% for ES Products unless an evaluation finds otherwise, 91% for HEA⁵, and 100% for HPwES⁴.

Coincidence Factors:

All programs use a summer coincidence factor of 82% and a winter coincidence factor of 17%.¹

Energy Load Shape:

See Appendix 1 – “Dehumidifier”.¹

Endnotes:

1: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

- 2: Environmental Protection Agency (2019). Dehumidifier Key Efficiency Criteria.
https://www.energystar.gov/products/appliances/dehumidifiers/key_efficiency_criteria
- 3: Guidehouse (2020). Comprehensive TRM Review MA19R17-B-TRM. Prepared for The Electric and Gas Program Administrators of Massachusetts.
- 4: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.
- 5: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

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1.6. Appliances – Dishwasher

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	Appliances

Description:

The installation of a high efficiency ENERGY STAR residential dishwasher.

Baseline Efficiency:

The baseline efficiency case is a dishwasher that meets the federal standard effective May 30, 2013. Standard size dishwashers shall not exceed 307 kwh/year and 5.0 gallons per cycle.

High Efficiency:

The high efficiency case is a dishwasher that meets the ENERGY STAR standard as of January 29, 2016. Standard size dishwashers shall not exceed 270 kwh/year and 3.5 gallons per cycle.

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated based on the EPA ENERGY STAR appliance calculator. Demand savings are derived from the Navigant Demand Impact Model.

$$\Delta kWh = kWh_{BASE} - kWh_{ES}$$

Where:

kWh_{BASE} = Average usage of a baseline dishwasher

kWh_{ES} = Average usage of a new dishwasher meeting ENERGY STAR® standards

Table: Measure Energy Impact¹

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21A3b020	ES Dishwasher	ES Products	37.0	0.011

Measure Life:

The measure life is 10 years.¹

Other Resource Impacts:

There are annual water savings of 161 gallons associated with this measure.¹

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b020	ES Dishwasher	ES Products	1.00	1.00	n/a	1.00	1.00	0.28	0.48

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Programs use a summer coincidence factor of 28% and a winter coincidence factor of 48%.²

Energy Load Shape:

See Appendix 1 – “Dishwasher”.²

Endnotes:

1: Environmental Protection Agency (2018). Savings Calculator for Energy Star Qualified Appliances.

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.7. Appliances – Freezer

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Appliances

Description:

Freezers exceeding minimum qualifying efficiency standards established as ENERGY STAR®.

Baseline Efficiency:

For lost-opportunity, the baseline efficiency case is a freezer that meets the Federal standard effective September 15, 2014. Specific baseline coefficients and constants by product class found in the Code of Federal Regulations, 10 CFR 430.32(a). For retrofit, the baseline efficiency case is the existing freezer.

High Efficiency:

The high efficiency case is a freezer that meets the ENERGY STAR standard as of September 15, 2014. For a new freezer the measured energy use must be 10% less than the minimum federal efficiency standards.

Algorithms for Calculating Primary Energy Impact:

Retrofit unit energy and demand savings are based on project-specific calculations. Lost-opportunity unit energy and demand savings are based on calculations from the 2018 Vermont TRM².

$$\Delta kWh = kWh_{BASE} - kWh_{ES}$$

Where:

kWh_{BASE} = Average usage of a baseline freezer

kWh_{ES} = Average usage of a new freezer meeting ENERGY STAR® standards

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21B1a050	Freezer (Retrofit)	HEA	Calculated	Calculated
E21A2a053	Freezer (Retrofit)	HPwES	Calculated	Calculated
E21A3b021	Freezer (ENERGY STAR®)	ES Products	31.2	0.004

Measure Life:

The measure life is 12 years.⁶

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a050	Freezer (Retrofit)	HEA	1.00	0.91	n/a	0.91	0.91	0.91	0.68
E21A2a053	Freezer (Retrofit)	HPwES	0.99	1.00	n/a	1.00	1.00	0.91	0.68
E21A3b021	Freezer (ENERGY STAR®)	ES Products	1.00	1.00	n/a	1.00	1.00	0.91	0.68

In-Service Rates:

Installations have 100% in service rate for ES Products unless an evaluation finds otherwise, 100% for HEA⁴, and 99% for HPwES³.

Realization Rates:

Realization rates are 100% for ES Products unless an evaluation finds otherwise, 91% for HEA⁴, and 100% for HPwES³.

Coincidence Factors:

Summer and winter coincidence factors are estimated using the demand allocation methodology described in the referenced study.⁵

Energy Load Shape:

See Appendix 1 – “Freezer”.⁵

Endnotes:

2: Vermont TRM (2018): ENERGY STAR Retail Products Platform, page 178 of 313.

3: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

4: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

5: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

6: Environmental Protection Agency (2018). Savings Calculator for Energy Star Qualified Appliances.

1.8. Appliances – Refrigerator

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Appliances

Description:

Refrigerators exceeding minimum qualifying efficiency standards established as ENERGY STAR®.

Baseline Efficiency:

The new product baseline efficiency case is a refrigerator that meets the Federal standard effective September 15, 2014. Specific baseline coefficients and constants by product class found in the Code of Federal Regulations, 10 CFR 430.32(a).

The retrofit baseline efficiency case is an existing refrigerator. It is assumed that income eligible customers would otherwise replace their refrigerators with a used inefficient unit.

High Efficiency:

The high efficiency case is a refrigerator that meets the ENERGY STAR standard as of September 15, 2014. For a new refrigerator the measured energy use must be 10% less than the minimum federal efficiency standards.

Algorithms for Calculating Primary Energy Impact:

Unit energy savings are based on consumption values from New Hampshire evaluation results.¹ Demand savings are derived from the Navigant Demand Impact Model².

$$\Delta \text{kWh} = (\text{kWh}_{\text{BASE}} - \text{kWh}_{\text{ES}}) \times \text{SLF}$$

Where:

kWh_{BASE} = Average baseline usage: a new refrigerator meeting federal standards, average energy consumption assumed to be 502 kWh for lost-opportunity, site-specific for retrofit

kWh_{ES} = Average usage of a new refrigerator meeting ENERGY STAR® standards with an average energy consumption of 452 kWh for ENERGY STAR refrigerators, or 393 kWh for Most Efficient refrigerator

SLF = Site/Lab adjustment factor (an adjustment for real-world performance (site) versus testing (lab)) = 0.881³

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21B1a049	Refrigerator (Retrofit)	HEA	Calculated	Calculated
E21A2a049	Refrigerator (Retrofit)	HPwES	Calculated	Calculated

E21A1a025	Refrigerator (New Construction)	ES Homes	44.2	0.01
E21A3b022	Refrigerator (ENERGY STAR®)	ES Products	44.2	0.01
E21A3b023	Refrigerator (Most Efficient)	ES Products	96.4	0.02

Measure Life:

The measure life is 12 years.⁴

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a049	Refrigerator (Retrofit)	HEA	1.00	0.91	n/a	.91	0.91	0.79	0.65
E21A2a049	Refrigerator (Retrofit)	HPwES	0.99	1.00	n/a	1.00	1.00	0.79	0.65
E21A1a025	Refrigerator (New Construction)	ES Homes	1.00	1.00	n/a	1.00	1.00	0.79	0.65
E21A3b022	Refrigerator (ENERGY STAR®)	ES Products	1.00	1.00	n/a	1.00	1.00	0.79	0.65
E21A3b023	Refrigerator (Most Efficient)	ES Products	1.00	1.00	n/a	1.00	1.00	0.79	0.65

In-Service Rates:

Installations have 100% in service rate for ES Products unless an evaluation finds otherwise, 100% for HEA⁵, and 99% for HPwES¹.

Realization Rates:

Realization rates are 100% for ES Products unless an evaluation finds otherwise, 91% for HEA⁵, and 100% for HPwES¹.

Coincidence Factors:

A summer coincidence factor of 79% and a winter coincidence factor of 65% are based on the Navigant Demand Impact Model.²

Energy Load Shape:

See Appendix 1 – “Primary Refrigerator”.²

Endnotes:

- 1:** Opinion Dynamics (2019). Home Performance with Energy Star Program Evaluation Report 2016-2017. Prepared for NH Utilities. ES standard energy consumption values and savings methodology extracted from supporting analysis.
- 2:** Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>.
- 3:** Connecticut Program Savings Document (PSD) (2019).
- 4:** Environmental Protection Agency (2018). Savings Calculator for Energy Star Qualified Appliances.
- 5:** Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.
- 6:** Vermont TRM (2018). Refrigerator/Freezer Early Retirement.

1.9. Appliances – Recycling

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit
Category	Appliances

Description:

The retirement of old, inefficient refrigerators, freezers and room air conditioners. In cases when these appliances are replaced by a homeowner, the existing unit is retained, sold or donated for use elsewhere, representing additional load on the grid. This measure covers recycling of the existing, functional equipment, thereby eliminating the consumption associated with that equipment. Appliance recycling programs receive energy savings credit for permanently removing inefficient, functional equipment from the electric grid.

Baseline Efficiency:

The baseline efficiency case is an old, inefficient working refrigerator, freezer or room air conditioner.

High Efficiency:

The high efficiency case assumes no replacement of the recycled unit.

Algorithms for Calculating Primary Energy Impact:

Unit energy and demand savings are deemed based on MA study results.^{1, 5}

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21A3b027 E21A3b028	Refrigerator Recycling	ES Products	1,027	0.18
E21A3b029	Freezer Recycling	ES Products	769	0.14
E21A3b030	Room Air Conditioner Recycling	ES Products	113	0.18

Measure Life:

The measure life is 5 years for refrigerators, 4 years for freezers and 3 years for room air conditioners.⁴

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings³:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b027	Refrigerator Recycling	ES Products	1.00	1.00	n/a	1.00	1.00	0.79	0.65
E21A3b028	Secondary Refrigerator Recycling	ES Products	1.00	1.00	n/a	1.00	1.00	0.86	0.52
E21A3b029	Freezer Recycling	ES Products	1.00	1.00	n/a	1.00	1.00	0.91	0.68
E21A3b030	Room Air Conditioner Recycling	ES Products	1.00	1.00	n/a	1.00	1.00	0.46	0.00

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are based on the Navigant Demand Impact Model.³

Energy Load Shape:

See Appendix 1 – “Primary Refrigerator” for primary refrigerator recycling, “Secondary Refrigerator” for secondary refrigerator recycling, “Freezer” for secondary freezer recycling, “Room or Window Air Conditioner” for room air conditioner recycling.³

Endnotes:

1: NMR Group, Inc. (2019). Appliance Recycling Report. Prepared for MA Joint Utilities.

<https://ma-eeac.org/wp-content/uploads/MA19R01-E-ApplianceRecycleReport-Final-2019.03.26.pdf>

2: Vermont TRM (2018). Refrigerator/Freezer Early Retirement.

3: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <https://ma-eeac.org/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

4: California Public Utilities Commission, 2014 Database for Energy-Efficient Resources, Feb. 4, 2014. Available at: http://www.deeresources.com/files/DEER2013codeUpdate/download/DEER2014-EUL-table-update_2014-02-05.xlsx

5: Room air conditioning recycling savings are based on the early replacement savings value found in The Cadmus Group, Inc. (2015). Massachusetts Low-Income Multifamily Initiative Impact Evaluation. <http://ma-eeac.org/wordpress/wp-content/uploads/Low-Income-Multifamily-Impact-Evaluation4.pdf>

1.10. Appliances – Room Air Purifier

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	Appliances

Description:

Room air purifiers exceeding minimum qualifying efficiency standards established as ENERGY STAR®.

Baseline Efficiency:

The baseline efficiency case is a room air purifier that does not meet ENERGY STAR® efficiency requirements.

High Efficiency:

The high efficiency case is a room air purifier that meets the ENERGY STAR® standard as of July 1, 2004. A new room air purifier must produce a minimum Clean Air Delivery Rate (CADR)¹ of 50, and minimum performance of 3.0 CADR per watt.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on averaged inputs from the EPA EnergyStar calculator.²

Measure Name	kWh	kW
Room Air Cleaner	391	0.04

Demand savings are calculated using the following formula:

$$\Delta kW = \frac{\Delta kWh}{Hours}$$

Where:

Hours = Assumed annual operating hours, 8,760 hours per year

Measure Life:

The measure life is 9 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b025	Room Air Purifier	ES Products	0.97	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

In-service rate is based on evaluation results.⁴

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are 100% for both summer and winter peaks, since the air purifiers are expected to operate continuously during peak hours.

Energy Load Shape:

See Appendix 1 – “24 hour operation”.⁵

Endnotes:

1: The Clean Air Delivery Rate is voluntary standard made available for comparing the performance of portable air filters in a room at steady-state conditions during a controlled laboratory test: ANSI/AHAM AC-1-2015 (AHAM 2015). It was developed by the Association of Home Appliance Manufacturers (AHAM), a private voluntary standard-setting trade association, and is recognized by the American National Standards Institute (ANSI).

2: Energy Star (2018). Savings Calculator for Energy Star Appliances. <https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee4886e6996f260b17df793/view?authToken=76a386554f80c635695670ab6c5f42d3a2689e84fed3c5c17ba875a72d1de97d358af4b53cf387bb4d6fe50367f9f9a7099bca84678c31644b474ab83eb99be06c5e49983ae488>

https://www.energystar.gov/sites/default/files/asset/document/appliance_calculator.xlsx

3: Guidehouse (2020), Comprehensive TRM Review, MA1917-B-TRM. The Electric and Gas Program Administrators of Massachusetts Part of the Residential Evaluation Program Area

4: NMR Group, Inc. (2018). Products Impact Evaluation of In-Service and Short Term Retention Rates Study.

5: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>.

1.11. Motors- ECM Circulator Pump

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	Motors and Drives

Description:

Installation of high efficiency residential boiler circulator pumps, equipped with variable speed electronically commutated motors (ECMs).

Baseline Efficiency:

The baseline efficiency case is the installation of a standard circulator pump.

High Efficiency:

The high efficiency case is the installation of an ECM circulator pump.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results¹.

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21A3b013	ECM Motor for FWH Circulating Pump	ES Products	68.0	0.024

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b013	ECM Motor for FWH Circulating Pump	ES Products	1.00	1.00	n/a	1.00	1.00	0.00	1.00

In-Service Rates:

All installations have a 100% in-service-rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Programs use a summer coincidence factor of 0% and a winter coincidence factor of 100%, because the deemed value of 0.024 kW cited above represents coincident winter peak demand reduction .¹

Energy Load Shape:

See Appendix 1 – “Boiler Distribution”.²

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):

For ECM motors delivered through midstream channels, the following factors apply.

BC Measure ID	Measure Name	Program	FR	SO _p	SO _{NP}	NTG
E21A3b013	ECM Motor for FWH Circulating Pump	ES Products	0.40	0.09	0.00	0.69

Endnotes:

1: West Hill Energy and Computing, 2018. CT HVAC and Water Heater Process and Impact Evaluation and CT Heat Pump Water Heater Impact Evaluation.

2: Assumed to be consistent with C&I Electric Motors & Drives – Energy & Resources Solutions (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities; Table 1-1.

ERS_2005_Measure_Life_Study

1.13. Motors - Pool Pump

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	Motors and Drives

Description:

The installation of a variable-speed drive pool pump. Operating a pool pump for a longer period at a lower wattage can move the same amount of water, using significantly less energy.

Baseline Efficiency:

The baseline efficiency case is a single speed 1.5 horsepower pump that pumps 97 gallons per minute (gpm) and runs 5.7 hours per day for 122 days a year. It has an Energy Factor (EF) of 2.0 . The pool size is assumed to be 22,000 gallons.¹

High Efficiency:

The high efficiency case is a variable-speed pump rated at 77 gpm at high speed and 31 gpm at low speed. It has a 2.9 EF at high speed, a 10.5 EF at low speed and runs 2 hr/day at high speed for filter and cleaning and 15.7 hr/ day for filtering alone. The pool size is assumed to be 22,000 gallons.¹

Algorithms for Calculating Primary Energy Impact¹:

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21A3b024	Pool Pump (Variable Speed)	ES Products	1,284	1.35

Measure Life:

The measure life is 10 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b024	Pool Pump (Variable Speed)	ES Products	1.00	1.00	n/a	1.00	1.00	0.55	0.00

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Programs use a summer coincidence factor of 55% and a winter coincidence factor of 0% which are estimated using demand allocation methodology described in the Demand Impact Model.³

Energy Load Shape:

See Appendix 1 – “Pool Pump”.³

Endnotes:

1. DOE, December 2016. Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment; Dedicated – Purpose Pool Pumps. <https://www.regulations.gov/document?D=EERE-2015-BT-STD-0008-0105>

2.

Davis_Energy_Group_2008_Proposal_Info_Template_for_Residential_Pool_Pump_Measure_Revisions <https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee4886d6996f219ce7df78e/view?authToken=3b71e1346320906c2aa98b46f0bc51366572ba635fb746acade94699187bcb6ff5af967900e9bb3a8ba4ef6c9998da9c7213c8b2be31b4420695f20c39232a5c3f169b40bb1c9>

3: Navigant, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.14. Building Shell – Air Sealing

Measure Code	[To Be Defined in ANB system],
Market	Residential
Program Type	Retrofit, Single Family
Category	Building Shell

Description:

The reduction of a home's conditioned air loss (leakage) resulting from the sealing of a home's cracks and air gaps. Home air leakage is measured in air loss in Cubic Feet per Minute (CFM), measured at 50 pascals.

Baseline Efficiency:

The baseline efficiency case is an existing home before it is air sealed.

High Efficiency:

The high efficiency case is an existing home after it has been air sealed.

Algorithms for Calculating Primary Energy Impact:

The programs use vendor-calculated energy savings for air sealing measures in the Residential Home Performance with ENERGY STAR and Home Energy Assistance programs. These savings values are calculated using vendor proprietary software where the user inputs a minimum set of technical data about the house and the software calculates building heating and cooling loads and other key parameters. The software's building model is based on thermal transfer, building gains, and a variable-based heating and cooling degree day (or hour) climate model. This provides an initial estimate of energy use that may be compared with actual billing data to adjust as needed for existing conditions. Then, specific recommendations for improvements are added and savings are calculated using measure-specific heat transfer algorithms.

Rather than using a fixed degree day approach, the building model estimates both heating degree days and cooling degree hours based on the actual characteristics and location of the house to determine the heating and cooling balance point temperatures. Infiltration savings use site-specific seasonal N-factors to convert measured leakage to seasonal energy impacts. HVAC savings are estimated based on changes in system and/or distribution efficiency improvements, using ASHRAE 152 as their basis. Interactivity between architectural and mechanical measures is always included, to avoid overestimating savings due to incorrectly "adding" individual measure results.

Should the vendor software be unavailable or unable to estimate a home's energy savings from air sealing, the following savings algorithm should be used.

$$\Delta \text{MMBtu} = \Delta \text{CFM} * (\text{MMBtu}/\text{CFM}_{\text{heating}} + \text{CFM}_{\text{cooling}})$$

Where:

ΔCFM = Reduced air loss, in Cubic Feet per Minute (CFM) in a treated home.

MMBtu/CFM = Deemed savings per reduced CFM of 0.012934 MMBtu per CFM. This represents a blended savings value, applicable for all heating fuel types and cooling equipment scenarios in HPwES, based on evaluation results.¹

In addition to heating fuel savings, the following deemed values are applied to reflect ancillary electric savings for heating load reductions, depending on the home heating equipment. The values are based on evaluation results for weatherized homes, and are applied once per home for homes receiving air sealing and/or insulation (rather than separately applying for air sealing and insulation):⁵

Equipment	kWh Savings	Description of Impact
Furnace fan	86.0	Per home value reflecting reduced fan operation based on heating load reduction from weatherization measures
HW boiler circulation pump(s)	9.0	Per circulator pump value reflecting reduced pump operation based on heating load reduction from weatherization measures

Measure Life:

The effective useful life (EUL) for air sealing, which assumes retrofit installation, is 15 years.² Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:^{1 3}

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a001	Air Sealing	Cord Wood	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a001	Air Sealing	Cord Wood	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a002	Air Sealing	Electric	HEA	1.00	0.91	n/a	0.91	0.91	0.00	0.43
E21A2a002	Air Sealing	Electric	HPwES	0.99	1.00	n/a	1.00	1.00	0.00	0.43
E21B1a003 G21B1a001	Air Sealing	Gas	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a003 G21A2a001	Air Sealing	Gas	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a004	Air Sealing	Kerosene	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a004	Air Sealing	Kerosene	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a005	Air Sealing	Oil	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a005	Air Sealing	Oil	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a006	Air Sealing	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a006	Air Sealing	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a007	Air Sealing	Wood Pellets	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a007	Air Sealing	Wood Pellets	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

In-service rates for HPwES programs are 99% and are 100% HEA programs based on evaluation results^{1,3}.

Realization Rates:

Realization rate for HPwES programs are 100% and are 91% for HEA programs based on evaluation results.^{1,3}

Coincidence Factors:

A winter coincidence factor of 43% is utilized for primary and ancillary electric heating savings.⁴

Energy Load Shape:

See Appendix 1.

Non-Energy Impacts:

For HEA programs, a per-project value of \$406 reflecting participant NEIs—including increased comfort, decreased noise, and health-related NEIs—will be applied annually to each weatherization project over its 15-year measure life³.

Endnotes:

1: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

2: Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007.

https://library.cee1.org/system/files/library/8842/CEE_Eval_MeasureLifeStudyLights%2526HVACGDS_1Jun2007.pdf

3: Opinion Dynamics. Home Energy Assistance Program Evaluation Report 2016-2017, Final, July 29, 2020. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/20200729-NHSaves-HEA-Evaluation-Report-FINAL.pdf>

4: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

5: Cadmus, April 5, 2013, New Hampshire HVAC Load and Savings Research, Final Report, table 19.

1.15. Building Shell – Insulation

Measure Code	[To Be Defined in ANB system],
Market	Residential
Program Type	Retrofit
Category	Building Shell

Description:

The installation of high efficiency insulation in an existing home.

Baseline Efficiency:

The baseline efficiency case is the pre-installation average R-value for an insulation type in an existing home before installation of new insulation.

High Efficiency:

The high efficiency case is the post-installation average R-value for an insulation type in an existing home.

Algorithms for Calculating Primary Energy Impact:

The programs currently use vendor calculated energy savings for these measures in the Residential Home Performance with ENERGY STAR and Home Energy Assistance programs. These savings values are calculated using vendor proprietary software where the user inputs a minimum set of technical data about the house and the software calculates building heating and cooling loads and other key parameters. The proprietary building model is based on thermal transfer, building gains, and a variable-based heating/cooling degree day/hour climate model. This provides an initial estimate of energy use that may be compared with actual billing data to adjust as needed for existing conditions. Then, specific recommendations for improvements are added and savings are calculated using measure-specific heat transfer algorithms.

Rather than using a fixed degree day approach, the building model estimates both heating degree days and cooling degree hours based on the actual characteristics and location of the house to determine the heating and cooling balance point temperatures. Savings from shell measures use standard U-value, area, and degree day algorithms. HVAC savings are estimated based on changes in system and/or distribution efficiency improvements, using ASHRAE 152 as their basis. Interactivity between architectural and mechanical measures is always included, to avoid overestimating savings due to incorrectly “adding” individual measure results. Should the vendor software be unavailable or unable to estimate a home’s energy savings from insulation, the following savings algorithm should be used.¹

$$\Delta \text{MMBtu} = \text{HSqFt} * (\text{MMBtu}_{\text{heating}} + \text{MMBtu}_{\text{cooling}})$$

Where:

HSqFt = Hundred square feet of installed insulation in a treated home (represented by installed sq ft / 100 sq ft).

MMBtu_{heating} = Deemed savings per square foot of installed insulation, using appropriate value for basements, walls, or attics in the tables developed by Opinion Dynamics and program implementers.¹
 MMBtu_{cooling} = If cooling is present in treated home, use appropriate value for basements, walls, or attics the table developed by Opinion Dynamics and program implementers. Otherwise set to 0.¹

In addition to heating fuel savings, the following deemed values are applied to reflect ancillary electric savings for heating load reductions, depending on the home heating equipment. The values are based on evaluation results for weatherized homes, and are applied once per home for homes receiving air sealing and/or insulation (rather than separately applying for air sealing and insulation):¹

Equipment	kWh Savings	Description of Impact
Furnace fan	86.0	Per home value reflecting reduced fan operation based on heating load reduction from weatherization measures
HW boiler circulation pump(s)	9.0	Per circulator pump value reflecting reduced pump operation based on heating load reduction from weatherization measures

Measure Life:

The effective useful life (EUL) for insulation, which assumes retrofit installation, is 25 years.² Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:^{1,3}

BC Measure ID	Measure Name	Fuel	ISR	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a022	Insulation	Cord Wood	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a022	Insulation	Cord Wood	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a023	Insulation	Electric	HEA	1.00	0.91	n/a	0.91	0.91	0.00	0.43
E21A2a023	Insulation	Electric	HPwES	0.99	1.00	n/a	1.00	1.00	0.00	0.43
E21B1a024 G21B1a004	Insulation	Gas	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a024 G21A2a004	Insulation	Gas	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a025	Insulation	Kerosene	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a025	Insulation	Kerosene	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a026	Insulation	Oil	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a026	Insulation	Oil	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a027	Insulation	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a027	Insulation	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a028	Insulation	Wood Pellets	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a028	Insulation	Wood Pellets	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

In-service rates are 99% for HPwES programs and are 100% HEA programs based on evaluation results.^{1,3}

Realization Rates:

Realization rate for HPwES programs are 100% and are 91% for HEA programs based on evaluation results.^{1,3}

Coincidence Factors:

A winter coincidence factor of 43% is utilized for primary and ancillary electric heating savings.⁴

Energy Load Shape:

See Appendix 1.

Non-Energy Impact:

For HEA programs, a per-project value of \$406 reflecting participant NEIs—including increased comfort, decreased noise, and health-related NEIs—will be applied annually to each weatherization project over its 15-year measure life.

Endnotes:

1: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL. Excel file associated with report with calculations, “2019 NHSaves HPwES Deemed Savings_2020-02-25_FM adjustments”.

2: Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007.

https://library.cee1.org/system/files/library/8842/CEE_Eval_MeasureLifeStudyLights%2526HVACGDS_1Jun2007.pdf

3: Opinion Dynamics. Home Energy Assistance Program Evaluation Report 2016-2017, Final, July 29, 2020. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/20200729-NHSaves-HEA-Evaluation-Report-FINAL.pdf>

4: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.16. Hot Water – Faucet Aerator

Measure Code	
Market	Residential
Program Type	Retrofit
Category	Hot Water

Description:

Installation of aerators meeting the EPA WaterSense specification to replace Federal Standard or higher flow faucet aerators.

Baseline Efficiency:

The baseline efficiency case is the existing faucet aerators with Federal Standard¹ flow rate of 2.2 gallons per minute (GPM) or higher.

High Efficiency:

The high efficiency case is a low flow faucet aerator with EPA WaterSense² specified maximum flow rate of 1.5 GPM.

Algorithms for Calculating Primary Energy Impact:

The programs use vendor calculated energy savings for measures in the Residential Home Performance with ENERGY STAR and Home Energy Assistance programs. These savings values are calculated using vendor proprietary software where the user inputs a minimum set of technical data about the house and the software calculates domestic hot water loads and other key parameters. Should the vendor software be unavailable or unable to estimate a home's energy savings from faucet aerators, the following deemed savings should be used, based on evaluation results.^{3, 4}

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW ⁴	ΔMMBtu
E21B1a009	Faucet Aerator	Electric	HEA	46.863	0.011	
E21B1a010 G21B1a002	Faucet Aerator	Gas	HEA			0.156
E21B1a011	Faucet Aerator	Kerosene	HEA			0.156
E21B1a012	Faucet Aerator	Oil	HEA			0.156
E21B1a013	Faucet Aerator	Propane	HEA			0.156
E21A2a009	Faucet Aerator	Electric	HPwES	46.863	0.011	
E21A2a010	Faucet Aerator	Gas	HPwES			0.156

G21A2a002						
E21A2a011	Faucet Aerator	Kerosene	HPwES			0.156
E21A2a012	Faucet Aerator	Oil	HPwES			0.156
E21A2a013	Faucet Aerator	Propane	HPwES			0.156

Measure Life:

The measure life is 7 years.⁵

Other Resource Impacts:

Residential annual water savings for faucet aerators is 586 gallons per unit.³

Impact Factors for Calculating Adjusted Gross Savings:^{3 6}

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a009	Faucet Aerator	Electric	HEA	1.00	0.91	n/a	0.91	0.91	0.31	0.81
E21B1a010 G21B1a002	Faucet Aerator	Gas	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1a011	Faucet Aerator	Kerosene	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1a012	Faucet Aerator	Oil	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1a013	Faucet Aerator	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a009	Faucet Aerator	Electric	HPwES	0.99	1.00	n/a	1.00	1.00	0.31	0.81
E21A2a010 G21A2a002	Faucet Aerator	Gas	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2a011	Faucet Aerator	Kerosene	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2a012	Faucet Aerator	Oil	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2a013	Faucet Aerator	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

In-service rates are 99% for HPwES programs and are 100% HEA programs based on evaluation

results.^{3,6}Realization Rates:

All PAs use a realization rate of 100% for HPwES program and a realization rate of 91% for HEA program.^{3,6}

Coincidence Factors:

A summer coincidence factor of 31% and a winter coincidence factor of 81% are utilized for faucet aerators with electric fuel type.⁴

Energy Load Shape:

See Appendix 1 “Water Heater – Electric”.⁴

Endnotes:

- 1:** In 1998, the Department of Energy adopted a maximum flow rate standard of 2.2 gpm at 60 psi for all faucets: 63 Federal Register 13307; March 18, 1998. <https://www.epa.gov/sites/production/files/2017-02/documents/ws-specification-home-final-suppstatement-v1.0.pdf>
- 2:** WaterSense: Bathroom Faucets. <https://www.epa.gov/watersense/bathroom-faucets>
- 3:** Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.
- 4:** Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>
- 5:** Faucet aerator is an add on measure. Measure life assumes 1/3 the life of the host equipment (faucet).
- 6:** Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

1.17. Hot Water – Heat Pump Water Heater

Measure Code	
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Hot Water

Description:

Installation of an Energy Star ® certified heat pump storage water heater, either through direct installation programs to replace an electric resistance storage water heater, or as a lost opportunity retail offering.

Baseline Efficiency:

The direct install baseline efficiency case is a standard efficiency electric resistance storage hot water heater. The lost opportunity baseline is a blended mix of electric and fossil fuel water heating based on study results, used for retail offerings where customer-specific baselines are unknown.¹

High Efficiency:

The high efficiency case is a high efficiency Energy Star ® certified heat pump storage water heater.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.¹

BC Measure ID	Measure Name	Program	ΔkWh	Summer kW	Winter kW	ΔMMBtu
E21B1a043	Heat Pump Water Heater	HEA	1,818	0.296	0.234	
E21A2a043	Heat Pump Water Heater	HPwES	1,818	0.296	0.234	
E21A3b007	Heat Pump Water Heater, 50-gallon, Energy Star, EF	ES Products	1,818 kWh for retrofit 961 kWh for lost opportunity	0.296 for retrofit 0.175 for lost opportunity	0.234 for retrofit 0.134 for lost opportunity	2.149 for lost opportunity
E21A3b008	Heat Pump Water Heater, 80-gallon, Energy Star, EF	ES Products	1,258 kWh for retrofit 565 kWh for lost opportunity	0.113 for retrofit 0.040 for lost opportunity	0.101 for retrofit 0.035 for lost opportunity	2.149 for lost opportunity

Measure Life:

The measure life is 13 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:^{3 4 5}

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a043	Heat Pump Water Heater (Retrofit)	HEA	1.00	0.91	n/a	0.91	0.91	1.00	1.00
E21A2a043	Heat Pump Water Heater (Retrofit)	HPwES	0.99	1.00	n/a	1.00	1.00	1.00	1.00
E21A3b007	Heat Pump Water Heater, 50-gallon, Energy Star, EF	ES Products	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21A3b008	Heat Pump Water Heater, 80-gallon, Energy Star, EF	ES Products	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

Installations have 100% in service rate for ES Products unless an evaluation finds otherwise, 100% for HEA, and 99% for HPwES^{3, 4}.

Realization Rates:

All PAs use a realization rate of 100% for HPwES program and a realization rate of 91% for HEA program.^{3 4} The ES Homes and ES Products programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Programs use coincidence factors of 100% because the deemed summer and winter kW values represent coincident peak demand reductions.¹

Energy Load Shape:

See Appendix 1 – “Water Heater – Heat Pump”.⁵

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):⁶

For HPWH delivered through midstream channels, the following factors apply.

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21A3b007	Heat Pump Water Heater, 50-gallon, Energy Star, EF	ES Products	0.23	0.00	0.00	0.77
E21A3b008	Heat Pump Water Heater, 80-gallon, Energy Star, EF	ES Products	0.23	0.00	0.00	0.77

Endnotes:

- 1: R1614/R1613 CT HVAC and Water Heater Process and Impact Evaluation, West Hill Energy and Computing, EMI Consulting & Lexicon Energy Consulting, Jul. 19, 2018. pp. 8.6-8.8. <https://www.energizect.com/connecticut-energy-efficiency-board/evaluation-reports>; also see 2020 CT Program Savings Document, chapter 4.5.4 for savings for 80-gallon water heaters.
- 2: Navigant Consulting (2018). Water Heating, Boiler, and Furnace Cost Study (RES 19) Add-On Task 7: Residential Water Heater Analysis Memo. http://ma-eeac.org/wordpress/wp-content/uploads/RES19_Assembled_Report_2018-09-27.pdf
- 3: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.
- 4: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.
- 5: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>
- 6: Michael's Energy, June 26, 2020. Efficiency Maine HPWH Free-ridership and Baseline Assessment Results Memo. <https://www.efficiencymaine.com/docs/Heat-Pump-Water-Heater-Free-ridership-and-Baseline-Assessment.pdf>

1.18. Hot Water – Pipe Insulation

Measure Code	
Market	Residential
Program Type	Retrofit
Category	Hot Water

Description:

Installation of insulation on domestic hot water pipes.

Baseline Efficiency:

The baseline efficiency case is the existing uninsulated domestic hot water piping system located in non-conditioned spaces.

High Efficiency:

The high efficiency case is the domestic hot water piping system in unconditioned spaces with insulation installed.

Algorithms for Calculating Primary Energy Impact:

The programs use vendor calculated energy savings for these measures in the Residential Home Performance with ENERGY STAR and Home Energy Assistance programs. These savings values are calculated using vendor proprietary software where the user inputs a minimum set of technical data about the house and the software calculates domestic hot water loads and other key parameters. Should the vendor software be unavailable or unable to estimate a home's energy savings from pipe insulation, the following savings algorithm should be used. Unit savings are deemed based on study results.^{1 2}

$$\Delta kW_{total} = \text{Linear feet} \times \Delta kW$$

$$\Delta kWh_{total} = \text{Linear feet} \times \Delta kWh$$

$$\Delta MMBtu_{total} = \text{Linear feet} \times \Delta MMBtu$$

Where:

Linear feet = Total length of pipe insulation (in feet)

ΔkWh , ΔkW , and $\Delta MMBtu$ per linear foot are as follows:

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW	$\Delta MMBtu$
E21B1a037 E21A2a037	Pipe Insulation <3/4" Pipe Pipe Insulation >3/4" Pipe	Electric	HEA/HPwES	14.100 20.500	0.010	
E21B1a038	Pipe Insulation <3/4" Pipe Pipe Insulation >3/4" Pipe	Gas	HEA/HPwES			0.078 0.114

G21B1a011 E21A2a038 G21A2a011						
E21B1a039 E21A2a039	Pipe Insulation <3/4" Pipe Pipe Insulation >3/4" Pipe	Kerosene	HEA/HPwES			0.075 0.110
E21B1a040 E21A2a040	Pipe Insulation <3/4" Pipe Pipe Insulation >3/4" Pipe	Oil	HEA/HPwES			0.087 0.126
E21B1a041 E21A2a041	Pipe Insulation <3/4" Pipe Pipe Insulation >3/4" Pipe	Propane	HEA/HPwES			0.075 0.110

Measure Life:

The measure life is 15 years.³

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:^{1 4}

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a037	Pipe Insulation	Electric	HEA	1.00	0.91	n/a	0.91	0.91	0.31	0.81
E21B1a038 G21B1a011	Pipe Insulation	Gas	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1a039	Pipe Insulation	Kerosene	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1a040	Pipe Insulation	Oil	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1a041	Pipe Insulation	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a037	Pipe Insulation	Electric	HPwES	0.99	1.00	n/a	1.00	1.00	0.31	0.81
E21A2a038 G21A2a011	Pipe Insulation	Gas	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2a039	Pipe Insulation	Kerosene	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2a040	Pipe Insulation	Oil	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2a041	Pipe Insulation	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

In-service rates are 99% for HPwES programs and are 100% for HEA programs based on evaluation results.^{1, 4}

Realization Rates:

All PAs use a realization rate of 100% for HPwES program and a realization rate of 91% for HEA program.^{1, 4}

Coincidence Factors:

A summer coincidence factor of 31% and a winter coincidence factor of 81% are utilized for pipe insulation with electric fuel type.²

Energy Load Shape:

See Appendix 1 – “Water Heater - Electric”

Endnotes:

- 1: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL
- 2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>
- 3: Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007.
https://library.cee1.org/system/files/library/8842/CEE_Eval_MeasureLifeStudyLights%2526HVACGDS_1Jun2007.pdf
<https://energy.mo.gov/sites/energy/files/measure-life-report-2007.pdf>
- 4: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

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1.19. Hot Water – Setback

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit
Category	Hot Water

Description:

Manual setback of the thermostat on a water heating device to reduce energy consumption.

Baseline Efficiency:

The baseline efficiency case is a water heater with a standard water temperature of 140°F.

High Efficiency:

The high efficiency case is a water heater with an adjusted water temperature of 125°F.

Algorithms for Calculating Primary Energy Impact:

The programs use vendor calculated energy savings for measures in the Residential Home Performance with ENERGY STAR and Home Energy Assistance programs. These savings values are calculated using vendor proprietary software where the user inputs a minimum set of technical data about the house and the software calculates domestic hot water loads and other key parameters. Should the vendor software be unavailable or unable to estimate a home's energy savings from hot water setback, the following deemed savings should be used, based on evaluation results.¹ Note: Savings are due to reduced standby losses, which are assumed to be constant over the year, so $\Delta kW = \Delta kWh / 8760$ hours.

Measure Name	Program	Fuel Type	$\Delta kWh/unit$	ΔkW	$\Delta MMBtu/unit$
Hot Water Setback (both dishwasher and clothes washer configuration)	HPwES HEA	Electricity	51.0	0.006	n/a
Hot Water Setback (clothes washer only)	HPwES HEA	Electricity	78.6	0.009	n/a
Hot Water Setback (clothes washer only)	HPwES HEA	Propane	n/a	n/a	0.411
Hot Water Setback (clothes washer only)	HPwES HEA	Gas	n/a	n/a	0.411
Hot Water Setback (clothes washer only)	HPwES HEA	Oil	n/a	n/a	0.411

Measure Life:

The table below includes the measure life for existing units and new equipment.²

BC Measure ID	Measure Name	Fuel Type	Program	Measure Life
	Hot Water Setback	All	HPwES HEA	2

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:¹

BC Measure ID	Measure Name	Program	Fuel	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
	Hot Water Setback	HPwES HEA	Electricity	0.99	1.00 .91	n/a	1.00 .91	1.00 .91	1.00	1.00
	Hot Water Setback	HPwES HEA	Propane	0.99	n/a	1.00 .91	n/a	n/a	n/a	n/a
	Hot Water Setback	HPwES HEA	Oil	0.99	n/a	1.00 .91	n/a	n/a	n/a	n/a
	Hot Water Setback	HPwES HEA	Gas	0.99	n/a	1.00 .91	n/a	n/a	n/a	n/a

In-Service Rates:

In-service rates are 99% for HPwES programs and are 100% for HEA programs based on evaluation results.^{1, 4}

Realization Rates:

All PAs use a realization rate of 100% for the HPwES program and a realization rate of 91% for the HEA program.^{1, 4}

Coincidence Factors:

Coincidence factors for electric hot water are assumed to be 100% because savings are from reduced standby losses, which are assumed to be constant over the year.

Energy Load Shape:

See Appendix 1 – “24 Hour Operation”³

Endnotes:

1: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

2: Illinois TRM Version 9.0, measure 5.4.6 water heater temperature setback.

<https://www.ilsag.info/technical-reference-manual/il-trm-version-9/>

3: Savings are from reduced standby losses, which are assumed to be constant over the year.

4: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program
Evaluation Report, 2016-2017 – FINAL.

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1.20. Hot Water – Showerhead

Measure Code	
Market	Residential
Program Type	Retrofit
Category	Hot Water

Description:

An existing shower head with high flow rate is replaced with a new low flow shower head.

Baseline Efficiency:

The baseline efficiency case is the existing showerhead with a baseline flow rate of 2.5 gallons per minute (GPM).

High Efficiency:

The high efficiency case is a low flow shower head having a maximum flow rate of 2.0 GPM or less.

Algorithms for Calculating Primary Energy Impact:

The programs use vendor calculated energy savings for measures in the Residential Home Performance with ENERGY STAR and Home Energy Assistance programs. These savings values are calculated using vendor proprietary software where the user inputs a minimum set of technical data about the house and the software calculates domestic hot water loads and other key parameters. Should the vendor software be unavailable or unable to estimate a home's energy savings from low flow showerheads, the following deemed savings should be used, based on evaluation results.¹ kW savings are calculated using the demand impact model.²

BC Measure ID	Measure Name	Hot Water Fuel Type	Program	Δ kWh	Δ kW	Δ MMBtu
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E21B1a016	Handheld Showerhead	Electric	HEA	145.226	0.050	
E21B1a017 G21B1a003	Handheld Showerhead	Gas	HEA			0.633
E21B1a018	Handheld Showerhead	Kerosene	HEA			0.633
E21B1a019	Handheld Showerhead	Oil	HEA			
E21B1a020	Handheld Showerhead	Propane	HEA			0.633
E21A2a016	Handheld Showerhead	Electric	HPwES	145.226	0.050	
E21A2a017 G21A2a003	Handheld Showerhead	Gas	HPwES			0.633
E21A2a018	Handheld Showerhead	Kerosene	HPwES			0.633
E21A2a019	Handheld Showerhead	Oil	HPwES			
E21A2a020	Handheld Showerhead	Propane	HPwES			0.633
E21B1a030	Low flow Showerhead	Electric	HEA	145.226	0.050	
E21B1a031 G21B1a010	Low flow Showerhead	Gas	HEA			0.633
E21B1a032	Low flow Showerhead	Kerosene	HEA			0.633
E21B1a033	Low flow Showerhead	Oil	HEA			
E21B1a034	Low flow Showerhead	Propane	HEA			0.633
E21A2a030	Low flow Showerhead	Electric	HPwES	145.226	0.050	
E21A2a031 G21A2a010	Low flow Showerhead	Gas	HPwES			0.633
E21A2a032	Low flow Showerhead	Kerosene	HPwES			0.633
E21A2a033	Low flow Showerhead	Oil	HPwES			
E21A2a034	Low flow Showerhead	Propane	HPwES			0.633

Measure Life:

The measure life is 15 years.³

Other Resource Impacts:

Annual water savings are 1,246 gallons per unit.¹

Impact Factors for Calculating Adjusted Gross Savings:^{1 4}

BC Measure ID	Measure Name	Hot Water Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1a016	Handheld showerhead	Electric	HEA	1.00	0.91	n/a	0.91	0.91	0.31	0.81
E21B1a017 G21B1a003 E21B1a018 E21B1a019 E21B1a020	Handheld showerhead	Gas Kerosene Oil Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a016	Handheld showerhead	Electric	HPwES	0.99	1.00	n/a	1.00	1.00	0.31	0.81
E21A2a017 G21A2a003 E21A2a018 E21A2a019 E21A2a020	Handheld showerhead	Gas Kerosene Oil Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1a030	Low flow Showerhead	Electric	HEA	1.00	0.91	n/a	0.91	0.91	0.31	0.81
E21B1a031 G21B1a010 E21B1a032 E21B1a033 E21B1a034	Low flow Showerhead	Gas Kerosene Oil Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2a030	Low flow Showerhead	Electric	HPwES	0.99	1.00	n/a	1.00	1.00	0.31	0.81
E21A2a031 G21A2a010 E21A2a032 E21A2a033 E21A2a034	Low flow Showerhead	Gas Kerosene Oil Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

In-service rates are 99% for HPwES and are 100% for HEA based on evaluation results.^{1, 4}

Realization Rates:

All PAs use a realization rate of 100% for HPwES and a realization rate of 91% for HEA.^{1 4}

Coincidence Factors:

A summer coincidence factor of 31% and a winter coincidence factor of 81% are utilized.²

Energy Load Shape:

See Appendix 1 “Water Heater – Electric”.

Endnotes:

- 1: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL. kWh were estimated using the input values and methodology described in ‘Table C-7. Algorithms and Inputs for Efficient Showerheads’.
- 2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>
- 3: Guidehouse, inc (2020). Massachusetts Comprehensive TRM Review - MA19R17-B-TRM. Prepared for the electric and gas program administrators of Massachusetts part of the residential evaluation program area.
- 4: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

1.21 Hot Water – Water Heater

Measure Code	[Code]
Market	Residential
Program Type	Retrofit/ Lost Opportunity
Category	Hot Water

Description:

Installation of a new high-efficiency natural gas tankless and storage water heaters.

Baseline Efficiency:

For indirect water heaters, the baseline efficiency case is the existing indirect water heater with EF of 0.6.¹

For water heaters integrated with condensing boiler, the baseline efficiency case is an 82% AFUE rated boiler (79.3% AFUE actual) with a 0.6 EF water heater.¹ The ER baseline is an 80% AFUE rated boiler (77.4% AFUE actual) with either an indirect water heater or with a 0.55 EF water heater.

For tankless water heaters, the baseline efficiency case is a stand-alone tank water heater with a UEF of 0.63. For the early retirement portion, the baseline efficiency is an existing 0.58 UEF standalone water heater.

For standalone storage tank water heater, the baseline efficiency case is a stand-alone tank water heater with a UEF of 0.63. For the early retirement portion, the baseline efficiency is an existing 0.58 UEF standalone water heater.

High Efficiency:

The high efficiency case for indirect water heaters is an indirect water heater attached to an ENERGY STAR® rated forced hot water boiler.

For water heaters integrated with condensing boilers, the high efficiency case is an integrated water heater/boiler unit with a 90% AFUE condensing boiler and a 0.9 EF water heater or a 95% AFUE condensing boiler and a 0.95 EF water heater.

For tankless water heaters, the high efficiency case is a tankless water heater with UEF of 0.94.

For standalone storage tank water heater, the baseline efficiency case is a stand-alone water heater with EF \geq 0.66.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.^{2,3} Savings have been adjusted to reflect the mix of replace and failure and early retirement based on study results. There is an electric penalty associated with the gas

on-demand tankless water heater to account for additional electrical consumption for power venting and electronic pilot ignition.

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW	ΔMMBtu
G21A3b012	Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82)	Gas	ES Products			4.0
G21A3b013	Water Heater - Integrated with Condensing Boiler >= 90% AFUE	Gas	ES Products			8.4
G21A3b014	Water Heater - Integrated with Condensing Boiler >= 95% AFUE	Gas	ES Products			12.8
G21A3b015	Condensing Water Heater (EF 0.95)	Gas	ES Products	-43.0	-0.010	7.0
G21A3b016	Stand Alone Storage Tank Water Heater (EF 0.67)	Gas	ES Products	-43.0	-0.010	3.0
G21A3b018	Water Heater - Tankless, On-Demand UEF >= .87	Gas	ES Products	-43.0	-0.010	7.3

Measure Life:

The table shows the measure life for each measure.^{4 5 6 7}

BC Measure ID	Measure Name	Program	Measure Life
G21A3b012	Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82) (Retrofit)	ES Products	20
G21A3b013	Water Heater - Integrated with Condensing Boiler >= 90% AFUE (Retrofit)	ES Products	19

G21A3b014	Water Heater - Integrated with Condensing Boiler \geq 95% AFUE (Retrofit)	ES Products	19
G21A3b015	Condensing Water Heater (EF 0.95)	ES Products	15
G21A3b016	Stand Alone Storage Tank Water Heater (EF 0.67)	ES Products	10
G21A3b018	Water Heater - Tankless, On-Demand \geq .87	ES Products	19

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21A3b012	Water Heater - Indirect (attached to ES FHW Boiler; Combined eff rating >=85% (EF=.82) (Retrofit)	ES Products	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21A3b013	Water Heater - Integrated with Condensing Boiler >= 90% AFUE (Retrofit)	ES Products	1.00	n/a	n/a	n/a	n/a	n/a	n/a
G21A3b014	Water Heater - Integrated with Condensing Boiler >= 95% AFUE (Retrofit)	ES Products	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21A3b015	Condensing Water Heater (EF 0.95)	ES Products	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21A3b016	Stand Alone Storage Tank Water Heater (EF 0.67)	ES Products	1.00	1.00	1.00	n/a	n/a	0.21	0.40
G21A3b018	Water Heater - Tankless, On-Demand >=.94 (New Construction)	ES Products	1.00	1.00	1.00	n/a	n/a	0.21	0.40

In-Service Rates:

All installations have a 100% in-service-rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 21% and a winter coincidence factor of 40% are claimed for tankless and stand-alone storage water heaters.⁸

Energy Load Shape:

See Appendix 1 – “Water Heater - Natural Gas/Fuel Oil”.

Endnotes:

- 1: The Baseline Energy Factor is based on the Federal Minimum Standard for (50-gallon) water heaters sold on or after April 16, 2015. This ruling can be found here:
<https://www.govinfo.gov/content/pkg/CFR-2012-title10-vol3/pdf/CFR-2012-title10-vol3-sec430-32.pdf>
- 2: Massachusetts Program Administrators (2018). 2019-2021 Gas HVAC and Water Heating Calculations Workbook. Workbook can be downloaded here:
<https://etrm.anbetrack.com/#/workarea/trm/MADPU/RES-WH-ODTWH/2020%20Report%20DRAFT%20WORKING%20TRM/version/4?measureName=Hot%20Water%20-%20On%20Demand%2FTankless%20Water%20Heater>
- 3: Navigant (2018). Home Energy Service Impact Evaluation. Prepared for program administrators in Massachusetts.
http://ma-eeac.org/wordpress/wp-content/uploads/RES34_HES-Impact-Evaluation-Report-with-ES_FINAL_29AUG2018.pdf
- 4: GDS Associates, Inc. (2009). Natural Gas Energy Efficiency Potential in Massachusetts.
http://ma-eeac.org/wordpress/wp-content/uploads/5_Natural-Gas-EE-Potential-in-MA.pdf
- 5: Environmental Protection Agency (2009). Life Cycle Cost Estimate for ENERGY STAR Qualified Boiler.
https://www.energystar.gov/sites/default/files/asset/document/Savings_and_Cost_Estimate_Summary.pdf
- 6: DOE (2008). Energy Star Residential Water Heaters: [Final Criteria Analysis](#) and The Cadmus Group (2013). 2012 Residential Heating, Water Heating, and Cooling Equipment Evaluation: [Net-to-Gross, Market Effects, and Equipment Replacement Timing](#).
- 7: Guidehouse, inc (2020). Massachusetts Comprehensive TRM Review - MA19R17-B-TRM. Prepared for the electric and gas program administrators of Massachusetts part of the residential evaluation program area.
- 8: Navigant Consulting (2018). Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.22 HVAC – Boiler

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	HVAC

Description:

Installation of a new high efficiency forced hot water boiler for space heating.

Baseline Efficiency:

For Home Energy Assistance (HEA), the baseline efficiency is the existing system, consistent with the TREAT model used by the state Weatherization Assistance Program. For Home Performance with Energy STAR (HPwES) and Energy Star Products, the baseline reflects a blended value based on past baseline research. The blended value uses an 80% AFUE rated boiler (77.4% AFUE actual) for early replacement and an 82% AFUE boiler (79.3% AFUE actual) for lost opportunity.¹

High Efficiency:

The high efficiency case is a boiler with an AFUE rating of 90% or greater. Based on evaluation results the actual AFUE is 87.2% for a 90% AFUE rated boiler and 89.4% for a 95% AFUE rated boiler.

Algorithms for Calculating Primary Energy Impact:

Currently, HPwES uses deemed savings, while HEA uses modeled savings based on the TREAT model. Starting in mid-2021, HPwES will begin using modeled savings as well, based on a modified version of the TREAT model.

For Energy Star Products, unit savings are calculated based on deemed inputs and have been adjusted to reflect the mix of replace on failure and early replacement.¹

BC Measure ID	Measure Name	Fuel Type	Program	ΔMMBtu/unit
E21B1b001 G21B1b001	Boiler Replacement, Forced Hot Water	Gas	HEA	Calculated
E21A2b001 G21A2b001	Boiler Replacement, Forced Hot Water	Gas	HPwES	12.1
E21B1b003	Boiler Replacement, Forced Hot Water	Oil	HEA	Calculated
E21A2b003	Boiler Replacement, Forced Hot Water	Oil	HPwES	2.7 currently, to be calculated once new model in place
E21B1b004 E21B1b002	Boiler Replacement, Forced Hot Water	Propane	HEA	Calculated

E21A2b004 E21A2b002	Boiler Replacement, Forced Hot Water	Propane	HPwES	16.7 currently, to be calculated once new model in place
G21A3b006	Condensing Boiler >=90% AFUE (Up to 300 MBh)	Gas	ES Products	12.1
G21A3b007	Condensing Boiler >=95% AFUE (Up to 300 MBh)	Gas	ES Products	14.8

Measure Life:

The measure life for all boilers is 19 years.¹

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1b001 G21B1b001	Boiler Replacement, Forced Hot Water	Gas	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b001 G21A2b001	Boiler Replacement, Forced Hot Water	Gas	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1b003	Boiler Replacement, Forced Hot Water	Oil	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b003	Boiler Replacement, Forced Hot Water	Oil	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1b004 E21B1b002	Boiler Replacement, Forced Hot Water	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b004 E21A2b002	Boiler Replacement, Forced Hot Water	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

ES Products uses a 100% in-service rate unless an evaluation finds otherwise. In-service rates are 99% for HPwES and are 100% for HEA based on evaluation results.^{2,3}

Realization Rates:

ES Products uses a 100% realization rate unless an evaluation finds otherwise. All PAs use a realization rate of 100% for HPwES and a realization rate of 91% for HEA.^{2,3}

Coincidence Factors:

No electric impacts are claimed.

Energy Load Shape:

No electric impacts are claimed.

Endnotes:

1:Massachusetts Technical Reference Manual, 2019 – 2021, based on MA PAs (2018). 2019-2021 Gas HVAC and Water Heating Calculations Workbook.

2: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

3: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

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1.23. HVAC – Boiler Reset Control

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit
Category	HVAC

Description:

Installation of reset controls to automatically control boiler water temperature based on outdoor temperature or return water temperature in case of condensing boilers.

Baseline Efficiency:

The baseline efficiency case is a boiler without reset controls.

High Efficiency:

The high efficiency case is a boiler with reset controls.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.¹

BC Measure ID	Measure Name	Fuel Type	Program	ΔMMBtu/unit
G21A3b005	Boiler Reset Control	Gas	ES Products	5.1

Measure Life:

The measure life of reset controls installed on a new boiler is 15 years.²

BC Measure ID	Measure Name	Fuel	Program	EUL
	Boiler Reset Control	All	All	15

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
	Boiler Reset Control	Gas	ES Products	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100% in-service-rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

See Appendix 1 “Non-Electric Measures”.

Endnotes:

- 1: Navigant Consulting, August 2018. Home Energy Services (HES) Impact Evaluation for Massachusetts. http://ma-eeac.org/wordpress/wp-content/uploads/RES34_HES-Impact-Evaluation-Report-with-ES_FINAL_29AUG2018.pdf
- 2: ACEEE, 2006. Emerging Technologies Report: Advanced Boiler Controls. Prepared for ACEEE.

1.25. HVAC – ENERGY STAR Central Air Conditioning

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	HVAC

Description:

The installation of a high efficiency ENERGY STAR central air conditioning (AC) system.

Baseline Efficiency:

For lost opportunity and replace on failure retrofit, the baseline efficiency case is a Seasonal Energy Efficiency Ratio (SEER) 12.4 central air-conditioning unit.¹ For early retirement, if values are known, then baseline is the existing air-conditioning unit SEER over its remaining life, and a SEER 12.4 central air-conditioning unit for the remaining life of the new unit. If baseline values are unknown, the baseline case over its remaining life should be the average efficiency levels of units replaced in the previous calendar year.

High Efficiency:

The high efficiency case is a program qualified ENERGY STAR central air-conditioning unit. The minimum ENERGY STAR Seasonal Energy Efficiency Ratio (SEER) requirement for the program is 15.

Algorithms for Calculating Primary Energy Impact:

$$\Delta \text{kWh} = \text{Tons} \times 12 \text{ kBtu/hr} / \text{Ton} \times (1/\text{SEER}_{\text{BASE}} - 1/\text{SEER}_{\text{EE}}) \times \text{Hours}$$

$$\Delta \text{kW} = \Delta \text{kWh} \times \text{Annual Maximum Demand Factor}$$

Where:

Tons = Cooling capacity of the central AC equipment in tons. Use actual rebated tons or if unknown assume previous year average program rebated tonnage (for 2019, was 2.85 tons).²

SEER_{BASE} = Seasonal Energy Efficiency Ratio (SEER).

- For lost opportunity and replace on failure retrofit installation, baseline AC equipment should be SEER 12.4 equipment.
- For early replacement retrofit, baseline AC equipment is divided into two components:
 - o For the remaining useful life of the replaced AC equipment:
 - if known, use the replaced (old) AC SEER value.
 - if unknown, assume previous calendar year average of the replaced (old) AC SEER value (for 2019 was SEER 10).
 - o For the remaining useful life of the new AC equipment: baseline AC equipment should be 12.4 SEER

SEER_{EE} = Seasonal Energy Efficiency Ratio (SEER) of new efficient AC equipment. Use actual rebated SEER, or if unknown, assume previous calendar year average (for 2019 was 17.1 SEER).³

Hours = Equivalent Full Load Hours (EFLH). Assume 385 for New Hampshire based on the ENERGY STAR calculator.⁴

Savings Assumptions for Calculating Residential Central Air Conditioners:

BC Measure ID	Measure Name	Program	Tons	SEER _{BASE}	SEER _{EE}	Hours	Annual Max Demand Factor ⁹
E21A3b015	ENERGY STAR Central AC	ENERGY STAR Products	Use actual, if unknown use 2.85	12.4	Use actual, if unknown use 17.1	385	0.001594
	ENERGY STAR Central AC, Early Retirement	HPwES/HEA	Use actual, if unknown use 2.85	Use actual, if unknown use 10 for remaining useful life of replaced AC, 12.4 for remaining useful life of new AC	Use actual, if unknown use 17.1	385	0.001594

Measure Life:

The table below includes the effective useful life (EUL) for central air-conditioning units which assumes a lost opportunity installation. Retrofit installations that meet early retirement criteria should receive a remaining useful life of 6 years for a total of 18-year life^{5,6}. To calculate lifetime savings for lost opportunity and replace on failure retrofit installations, use the full EUL of 18 years with the first row of savings assumptions (ENERGY STAR Central AC) above. For retrofit installations that meet early retirement criteria, lifetime savings are based on the sum of two components: 6 years with savings from the second row of savings assumptions above (ENERGY STAR Central AC, Early Retirement) and the remaining 12 years using the lost opportunity savings assumptions (ENERGY STAR Central AC).

BC Measure ID	Measure Name	Program	Measure Life (EUL)	Measure Life (RUL)
E21A3b015	ENERGY STAR Central AC	ES Products	18	n/a
	ENERGY STAR Central AC, Early Retirement	HPwES/HEA	18	6

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b015	ENERGY STAR Central AC	ES Products	1.00	1.00	n/a	1.00	1.00	0.35	0.00
	ENERGY STAR Central AC, Early Retirement	HEA	1.00	0.91	n/a	0.91	0.91	0.35	0.00
	ENERGY STAR Central AC, Early Retirement	HPwES	0.99	1.00	n/a	1.00	1.00	0.35	0.00

In-Service Rates:

In-service rates are 100% for ES Products unless an evaluation finds otherwise, 100% for HEA⁸, and 99% for HPwES⁷.

Realization Rates:

Realization rates are 100% for ES Products, 91% for HEA⁸, and 100% for HPwES⁷.

Coincidence Factors:

Summer coincidence factors are estimated using the RES1 Demand Impact Model Update.⁹ The winter coincidence factor is assumed to be zero.

Energy Load Shape:

See Appendix 1 – “Central Air Conditioner/Heat Pump (Cooling)”.

Endnotes:

1: Itron 2020. New Hampshire Residential Baseline Study. Prepared for New Hampshire Evaluation, Measurement and Verification Working Group.

2: Average tonnage for Eversource 2019 rebated ENERGY STAR central AC according to tracking database summary report. Pulled February 10, 2020.

3: Average SEER for Eversource 2019 rebated ENERGY STAR central AC according to tracking database summary report. Pulled February 10, 2020.

4: ENERGY STAR Central AC calculator. Assumptions worksheet. Usage: Full Load Cooling Hours. Concord NH location. Based on 2002 EPA study.

https://www.energystar.gov/sites/default/uploads/buildings/old/files/CentralAC_Calculator.xls
 EFLH Calculator tab in the EVT_CCHP MOP and Retrofit_2018_.xlsx.). Previous VT TRM was 375. Cadmus study showed much lower for heat pumps:

<https://publicservice.vermont.gov/sites/dps/files/documents/2017%20Evaluation%20of%20Cold%20Climate%20Heat%20Pumps%20in%20Vermont.pdf>

5: Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007.

https://library.cee1.org/system/files/library/8842/CEE_Eval_MeasureLifeStudyLights%2526HVACGDS_1Jun2007.pdf

6: RUL is based on the 2019 MA TRM, Illinois TRM version 9.0, and NEEP TRM version 9.0, which all assume an RUL of one-third the EUL, or six years.

7: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

8: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

9: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <https://ma-eeac.org/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

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1.26. HVAC – ENERGY STAR Room Air Conditioning

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity/Retrofit
Category	HVAC

Description:

The installation of a high efficiency room air conditioning (AC) unit.

Baseline Efficiency:

The lost opportunity baseline efficiency case is a room AC unit meeting current federal standard, and the early replacement baseline is the existing inefficient unit.

High Efficiency:

The high efficiency case is a program-qualified ENERGY STAR room AC unit.

Algorithms for Calculating Primary Energy Impact:

Electric energy savings for a program-qualified ENERGY STAR room air-conditioning unit are deemed at 33 kWh per unit for lost opportunity. Unit savings are based on the Massachusetts eTRM value (36 kWh) adjusted to account for the cooling load differential between Massachusetts and New Hampshire.¹ Early replacement savings for HEA and HPwES are vendor calculated using proprietary software where the user inputs a minimum set of home-specific technical data. As an alternative, the deemed savings below should be used, based on evaluation results.²

Savings Assumptions for Calculating Residential ENERGY STAR Room Air Conditioners:

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW^3
E21A3b016	ENERGY STAR Room AC	ES Products	33	0.06
E21B1a054	ENERGY STAR Room AC	HEA	113	0.18
E21A2a057	ENERGY STAR Room AC	HPwES	113	0.18

Measure Life:

The table below includes the effective useful life (EUL) for room air-conditioning units which assumes lost opportunity installation. The 3 year remaining useful life (RUL) for early replacement units is multiplied by the early replacement annual savings value above, and the remaining 6 years of the EUL for those units is multiplied by the lost opportunity savings value above.

BC Measure ID	Measure Name	Program	Measure Life (EUL) ⁷	Measure Life (RUL) ⁴
E21A3b016	ENERGY STAR Room AC	ES Products	9	n/a
E21B1a054	ENERGY STAR Room AC	HEA	9	3
E21A2a057	ENERGY STAR Room AC	HPwES	9	3

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b016	ENERGY STAR Room AC	ES Products	1.00	1.00	n/a	1.00	1.00	0.33	0.00
E21B1a054	ENERGY STAR Room AC	HEA	1.00	0.91	n/a	0.91	0.91	0.33	0.00
E21A2a057	ENERGY STAR Room AC	HPwES	0.99	1.00	n/a	1.00	1.00	0.33	0.00

In-Service Rates:

In-service rates are 100% for ES Products unless an evaluation finds otherwise, 100% for HEA⁶, and 99% for HPwES⁵

Realization Rates:

Realization rates are 100% for ES Product program until the measure is evaluated. Realization rates for all HEA programs are 91%⁶ and for all HPwES programs are 100%⁵ per evaluation results.

Coincidence Factors:

Summer coincidence factors is estimated using the RES1 Demand Impact Model Update.³ The winter coincidence factor is assumed to be zero.

Energy Load Shape:

See Appendix 1 – “Room or Window Air Conditioner”.

Endnotes:

1: Connecticut’s 2019 Program Savings Document, March 1, 2019.

<https://www.energizect.com/sites/default/files/2019%20PSD%20283-1-19%29.pdf>

Common cooling savings algorithms used in the Connecticut PSD show a directly proportional relationship between savings and cooling operational hours. We assume a similar directly proportional relationship between cooling operational hours (EFLH), cooling savings, and cooling degree days. The

New Hampshire CDD of 518 is based on the HPwES evaluation and the MA CDD is assumed to be the average of New Hampshire and Connecticut (603).

2: The Cadmus Group, Inc. (2015). Massachusetts Low-Income Multifamily Initiative Impact Evaluation. <http://ma-eeac.org/wordpress/wp-content/uploads/Low-Income-Multifamily-Impact-Evaluation4.pdf>

3: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <https://ma-eeac.org/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>.

4: California Public Utilities Commission, 2014 Database for Energy-Efficient Resources, Feb. 4, 2014. Available at: http://www.deeresources.com/files/DEER2013codeUpdate/download/DEER2014-EUL-table-update_2014-02-05.xlsx last accessed Sep 3, 2020.

5: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

6: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

7: Environmental Protection Agency (2009). Life Cycle Cost Estimate for ENERGY STAR Room Air Conditioner. EPA_2009_Lifecycle_Cost_Estimate_for_ENERGY_STAR_Room_Air_Conditione

1.27. HVAC – Furnace

Measure Code	
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	HVAC

Description:

Installation of a new high efficiency space heating furnace with an electronically commutated motor (ECM) for the fan.

Baseline Efficiency:

For Home Energy Assistance (HEA), the baseline efficiency is the existing system, consistent with the TREAT model used by the state Weatherization Assistance Program. For Home Performance with Energy STAR (HPwES) and Energy Star Products, the baseline reflects a blended value based on past baseline research, specifically a 83.2% AFUE furnace.¹

High Efficiency:

The high efficiency case is a new furnace with AFUE $\geq 95\%$.

Algorithms for Calculating Primary Energy Impact:

Currently, HPwES uses deemed savings, while HEA uses modeled savings based on the TREAT model. Starting in mid-2021, HPwES will begin using modeled savings as well, based on a modified version of the TREAT model.

For Energy Star Products, unit savings are calculated based on deemed inputs based on a blended Early Retirement/Replace on Failure baseline that reflects the historical project mix.

Unit savings for Furnace ancillary savings measure are based on the 2020 HPwES study results.³ Ancillary electric savings for furnace replacement measure are based on the 2018 ES Products evaluation study.⁴

BC Measure ID	Measure Name	Fuel	Program	ΔkWh	ΔkW	$\Delta MMBtu$
E21B1b005 G21B1b002 E21A2b005 G21A2b002	Furnace Replacement	Gas	HEA HPwES	130.6 168	0.064	Calculated
E21B1b006 E21A2b006	Furnace Replacement	Kerosene	HEA HPwES	87.6 168	0.064	Calculated

E21B1b008 E21A2b008	Furnace Replacement	Propane	HEA HPwES	130.6 168	0.064	Calculated for HEA 6.3 for HPwES for now, will be calculated later
E21B1b007 E21A2b007	Furnace Replacement	Oil	HEA HPwES	6.700 168	0.064	Calculated for HEA 4.6 for HPwES for now, will be calculated later
G21A3b008	Furnace 95+ AFUE (<150) w/ECM Motor	Gas	ES Products	104.2	0.07	9.8
G21A3b009	Furnace 97+ AFUE (<150) w/ECM Motor	Gas	ES Products	104.2	0.07	10.3

Measure Life:

Measure life is 17 years based on MA study results.⁵

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:^{3 6}

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1b005 G21B1b002	Furnace Replacement	Gas	HEA	1.00	n/a	0.91	0.91	0.91	0.00	0.45
E21A2b005 G21A2b002	Furnace Replacement	Gas	HPwES	0.99	n/a	1.00	1.00	1.00	0.00	0.45
E21B1b006	Furnace Replacement	Kerosene	HEA	1.00	n/a	0.91	0.91	0.91	0.00	0.45
E21A2b006	Furnace Replacement	Kerosene	HPwES	0.99	n/a	1.00	1.00	1.00	0.00	0.45
E21B1b008	Furnace Replacement	Propane	HEA	1.00	n/a	0.91	0.91	0.91	0.00	0.45
E21A2b008	Furnace Replacement	Propane	HPwES	0.99	n/a	1.00	1.00	1.00	0.00	0.45
E21B1b007	Furnace Replacement	Oil	HEA	1.00	n/a	0.91	0.91	0.91	0.00	0.45

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A2b007	Furnace Replacement	Oil	HPwES	0.99	n/a	1.00	1.00	1.00	0.00	0.45

In-Service Rates:

ES Products installations have a 100% in-service-rate unless an evaluation finds otherwise. In-service rates are 99% for HPwES and are 100% for HEA based on evaluation results

Realization Rates:

All PAs use a realization rate of 100% for HPwES program and a realization rate of 91% for HEA program.^{3 6} ES Products installations have a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

The summer coincidence factor for ancillary electric savings is 0.00 and winter coincidence factor is 0.45.⁷

Energy Load Shape:

See Appendix 1 “Furnace Fan”.

Endnotes:

- 1: Itron 2020. New Hampshire Residential Baseline Study. Prepared for New Hampshire Evaluation, Measurement and Verification Working Group.
- 2: CT HVAC and Water Heating Process and impact Evaluation Report, West Hill Energy and Computing, R161/ R 1613 Jul. 19, 2018.
- 3: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.
- 4: New Hampshire ENERGY STAR® Products Program 2016 Evaluation Report (2018).
- 5: Guidehouse, Inc (2020). Massachusetts Comprehensive TRM Review - MA19R17-B-TRM. Prepared for the electric and gas program administrators of Massachusetts part of the residential evaluation program area.
- 6: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.
- 7: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

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1.28 HVAC – Central Air-source Heat Pump

Measure Code	[Code]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	HVAC

Description:

This measure includes the installation of a high-efficiency, central air-source heat pump unit (ASHP) to serve the heating and cooling loads of a residential unit. The electric savings for this measure are realized through the increased nameplate efficiency between the baseline and installed equipment. If a fossil-fuel based heating system is being partially or completely displaced by the new heat pump unit, fossil fuel savings and increased electric consumption will be realized.

Baseline Efficiency:

The baseline efficiency varies as a function of replacement scenario.

For lost opportunity or replace on failure, the baseline is a code-compliant 2.8-ton, SEER 14, HSPF 8.2 heat pump unit.³

For retrofit installations in homes with electric resistance heating, the baseline is an electric heating system with COP = 1, which converts to an HSPF value of 3.412 Btu/w-h.⁴ The cooling baseline is project-specific based on the existing equipment.

For retrofit installations in oil or propane-heated homes, the utilities are proposing a limited pilot offering starting in 2021. The heating and cooling baselines are project-specific. Estimated savings have been developed based on secondary research,¹¹ and will be updated with primary research on pilot participants, pending pilot approval.

High Efficiency:

The high efficiency (or energy efficient) case is the site-specific air-source heat pump unit. For full displacement, the heat pump must meet cold-climate heat pump standards, such as those on the NHSaves qualified product list.

Algorithms for Calculating Primary Energy Impact:

The savings for this measure are attributable to the increase in nameplate efficiency between the baseline and installed units. The savings are based on the energy efficient heat pump serving both the cooling and heating loads of the house.

The algorithm for calculating electric demand savings is:

$$\Delta kW = \max (\Delta kW_{cool} \text{ or } \Delta kW_{heat})$$

$$\Delta kW_{cool} = Cap_{cool} \times \left(\frac{1}{EER_{BASE}} - \frac{1}{EER_{EE}} \right)$$

For retrofit applications where cooling is absent in the preexisting case, the term $(1/EER_{BASE}) = 0$

$$\Delta kW_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right)$$

$$Cap_{heat} = Cap_{cool} \times 1.0 \text{ if unit is a cold climate air-source heat pump}$$

$$Cap_{heat} = Cap_{cool} \times 0.9 \text{ for all other air-source heat pump}$$

Where:

ΔkW_{cool} = Gross annual cooling demand savings for air-source heat pump unit

ΔkW_{heat} = Gross annual heating demand savings for air-source heat pump unit

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient air-source heat pump unit, from equipment specifications

Cap_{heat} = Heating capacity (in kBtu/h) of the energy efficient air-source pump unit, from equipment specifications. Use equation to convert from cooling capacity value if standard equipment literature does not provide this value.

EER_{BASE} = Energy Efficiency Ratio of the baseline cooling equipment

EER_{EE} = Energy Efficiency Ratio of the energy efficient air-source heat pump unit, from equipment specifications

$HSPF_{BASE}$ = Heating Seasonal Performance Factor of baseline heat pump equipment

$HSPF_{EE}$ = Heating Seasonal Performance Factor of energy efficient air-source heat pump unit, from equipment specifications

The algorithm for calculating annual electric energy savings is:

$$\Delta kWh_{cool} = Cap_{cool} \times \left(\frac{1}{SEER_{BASE}} - \frac{1}{SEER_{EE}} \right) \times EFLH_{cool}$$

For retrofit applications where cooling is absent in the preexisting case, the term $(1/SEER_{BASE}) = 0$

$$\Delta kWh_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right) \times EFLH_{heat}$$

If fossil fuel heating baseline, the term $(1/HSPF_{BASE}) = 0$ and the fossil fuel savings are:

$$\Delta MMBtu_{heat} = \frac{Cap_{heat}}{AFUE} \times EFLH_{heat} \times 10^{-3}$$

$$Cap_{heat} = Cap_{cool} \times 1.0 \text{ if unit is a cold climate air-source heat pump}$$

$$Cap_{heat} = Cap_{cool} \times 0.9 \text{ for all other air-source heat pump}$$

Where:

ΔkWh_{cool} = Gross annual cooling savings for air-source heat pump unit

ΔkWh_{heat} = Gross annual heating savings for air-source heat pump unit

$\Delta MMBtu_{heat}$ = Gross annual heating savings resulting from the decrease in fuel consumption due to the partial or complete displacement of the heating load by the energy efficient air-source heat pump unit.

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient air-source heat pump unit, from equipment specifications

Cap_{heat} = Heating capacity (in kBtu/h) of the energy efficient air-source pump unit, from equipment specifications. Use equation to convert from cooling capacity value if standard equipment literature does not provide this value.

$SEER_{BASE}$ = Seasonal Energy Efficiency Ratio of baseline cooling equipment

$SEER_{EE}$ = Seasonal Energy Efficiency Ratio of energy efficient air-source heat pump unit, from equipment specifications

$HSPF_{BASE}$ = Heating Seasonal Performance Factor of baseline heat pump equipment

$HSPF_{EE}$ = Heating Seasonal Performance Factor of energy efficient air-source heat pump unit, from equipment specifications

$EFLH_{cool}$ = Equivalent Full Load Hours for cooling

$EFLH_{heat}$ = Equivalent Full Load Hours for heating

$AFUE$ = Annual fuel utilization efficiency of replaced fossil fuel heating system

0.9 = Conversion factor¹ to convert cooling capacity to heating capacity for non-cold climate, air-source heat pump units not meeting standards similar to NEEP's cold climate air source heat pump (ccASHP) product list. The conversion factor for ccASHP meeting standards similar to NEEP's is 1.0.

10^{-3} = Conversion factor from kBtu to MMBtu

Heat Pump Type	Cooling Capacity Range	Parameter	Value			Units
			1. Lost Opportunity	2. Retrofit - Resistance	3. Retrofit – Fossil Fuel	
Air-source Heat Pump	All sizes	EER_{BASE}	12.72 ²	-	-	Btu/W-h
		$SEER_{BASE}$	14.00 ³	-	-	Btu/W-h
		$HSPF_{BASE}$	8.20 ³	3.412 ⁴	-	Btu/W-h
		AFUE	N/A	N/A	75% ⁶	
		$EFLH_{cool}$	280 ⁷			Hours
		$EFLH_{heat}$	1020 ⁸			Hours

Measure Life:

The measure life of a new heat pump unit is 18 years.⁹

BC Measure ID	Measure Name	Program	Measure Life
E21A3b003	Air-source Heat Pump – Lost Opportunity (Cooling)	ES Products	18

E21A3b004	Air-source Heat Pump – Lost Opportunity (Heating)	ES Products	18
E21A3b034	Air-source Heat Pump – Retrofit Resistance	ES Products	18

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b003	Air-source Heat Pump – Lost Opportunity (Cooling)	ES Products	1.00	1.00	1.00	1.00	1.00	0.346	0.00
E21A3b004	Air-source Heat Pump –Lost Opportunity (Heating)	ES Products	1.00	1.00	1.00	1.00	1.00	0.00	0.620
E21A3b034	Air-source Heat Pump – Retrofit Resistance	ES Products	1.00	1.00	1.00	1.00	1.00	0.346	0.620

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A coincidence factor of 34.60% during cooling season and a coincidence factor of 62.0% for the heating season should be applied.¹⁰

Energy Load Shape:

See Appendix 1 – “Central Heat Pump”

Endnotes:

- 1: Conversion factor is based on internal ERS analysis of Mass Save and NEEP ccASHP product data.
- 2: Since IECC does not provide EER requirements for air-cooled heat pumps < 65 kBtu/h, assume the following conversion from SEER to EER: $EER \approx SEER/1.1$.
- 3: International Energy Conservation Code 2015, table C403.2.3(2) Minimum Efficiency Requirements: Electrically Operated Unitary and Applied Heat Pumps
- 4: Electric heating system has COP = 1, which converts to an HSPF value of 3.412 Btu/w-h
- 5: ASHRAE 90.1 2004 table 6.8.1B Electrically Operated Unitary and Applied Heat Pumps - Minimum Efficiency Requirements.

6: MA TRM DMSHP measure. This value in the MA TRM has been agreed upon by EEAC consultants and represents actual fossil fuel heating equipment efficiencies which include efficiency degradation over the age of the equipment. [MA TRM DMSHP](#).

7: Cooling hours from NY TRM v7 Appendix G for Single family homes. The average of cooling hour values for the cities of Albany and Massena are assumed to be representative of NH, because they lie roughly along the same latitudes as endpoints of NH.

8: Heating hours from NY TRM v7 Appendix G for Single family homes. The average of heating hour values for the cities of Albany and Massena are assumed to be representative of NH, because they lie roughly along the same latitudes as the endpoints of NH.

9: [GDS Associates, Inc. \(2007\)](#). Measure Life Report: Residential and Commercial/Industrial Lighting and HVAC Measures. Prepared for The New England State Program Working Group; Page 1-3, Table 1.

10: Coincidence Factors obtained from Navigant Consulting (2018), Demand Impact Model Update (for Central Air Conditioner/Heat Pump (Cooling) and Ductless Mini Split Heat Pumps (Heating)). The calculation of Coincidence Factors can be found in MA PAs' 2019-2021 Plan Electric Heating and Cooling Savings Workbook (2018)

11: Navigant, Energy Optimization. Sep. 12, 2019. See [https://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOSTARIFFS/17-136_2019-10-](https://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOSTARIFFS/17-136_2019-10-31_STAFF_NH_ENERGY_OPTIMIZATION_STUDY.PDF)

31_STAFF_NH_ENERGY_OPTIMIZATION_STUDY.PDF and

<https://puc.nh.gov/Electric/Reports/20190805-PUCElectric-NH-Energy-Optimization-Model.xlsx>.

1.29 HVAC – Ductless Mini-Split Heat Pump

Measure Code	[Code]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	HVAC

Description:

This measure includes the installation of a high-efficiency, ductless, mini-split heat pump unit (DMSHP) to serve the heating and cooling loads of a residential unit. The savings for this measure are realized through the increased nameplate efficiency between the baseline and installed equipment. If a fossil-fuel based heating system is being partially or completely displaced by the new heat pump unit, fossil fuel savings and electric consumption increases will be realized.

Baseline Efficiency:

The baseline efficiency varies as a function of replacement scenario.

For lost opportunity or replace on failure, the baseline is a code-compliant 2.2-ton, SEER 14, HSPF 8.2 heat pump unit.³

For retrofit installations in homes with electric resistance heating, the baseline is an electric heating system with COP = 1, which converts to an HSPF value of 3.412 Btu/w-h.⁴ The cooling baseline is project-specific based on the existing equipment.

For retrofit installations in oil or propane-heated homes, the utilities are proposing a limited pilot offering starting in 2021. The heating and cooling baselines are project-specific. Estimated savings have been developed based on secondary research,¹¹ and will be updated with primary research on pilot participants, pending pilot approval.

High Efficiency:

The high efficiency (or energy efficient) case is the site-specific ductless, mini-split heat pump unit. For full displacement, the heat pump must meet cold-climate heat pump standards, such as those on the NHSaves qualified product list.

Algorithms for Calculating Primary Energy Impact:

The savings for this measure are attributable to the increase in nameplate efficiency between the baseline and installed units. The savings are based on the energy efficient heat pump serving both the cooling and heating loads of the house.

The algorithm for calculating electric demand savings is:

$$\Delta kW = \max (\Delta kW_{cool} \text{ or } \Delta kW_{heat})$$

$$\Delta kW_{cool} = Cap_{cool} \times \left(\frac{1}{EER_{BASE}} - \frac{1}{EER_{EE}} \right)$$

For retrofit applications where cooling is absent in the preexisting case, the term $(1/EER_{BASE}) = 0$

$$\Delta kW_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right)$$

$$Cap_{heat} = Cap_{cool} \times 1.0 \text{ if unit is a cold climate ductless mini split heat pump}$$

$$Cap_{heat} = Cap_{cool} \times 0.9 \text{ for all other ductless mini split heat pump}$$

Where:

ΔkW_{cool} = Gross annual cooling demand savings for ductless, mini-split heat pump unit

ΔkW_{heat} = Gross annual heating demand savings for ductless, mini-split heat pump unit

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient ductless, mini-split heat pump unit, from equipment specifications

Cap_{heat} = Heating capacity (in kBtu/h) of the energy efficient ductless, mini-split pump unit, from equipment specifications. Use equation to convert from cooling capacity value if standard equipment literature does not provide this value.

EER_{BASE} = Energy Efficiency Ratio of the baseline cooling equipment

EER_{EE} = Energy Efficiency Ratio of the energy efficient ductless, mini-split heat pump unit, from equipment specifications

$HSPF_{BASE}$ = Heating Seasonal Performance Factor of baseline heat pump equipment

$HSPF_{EE}$ = Heating Seasonal Performance Factor of energy efficient ductless, mini-split heat pump unit, from equipment specifications

The algorithms for calculating annual cooling and heating electric energy savings are as follows:

$$\Delta kWh_{cool} = Cap_{cool} \times \left(\frac{1}{SEER_{BASE}} - \frac{1}{SEER_{EE}} \right) \times EFLH_{cool}$$

For retrofit applications where cooling is absent in the preexisting case, the term $(1/SEER_{BASE}) = 0$

$$\Delta kWh_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right) \times EFLH_{heat}$$

If fossil fuel heating baseline, the factor $(1/HSPF_{BASE}) = 0$ and the fossil fuel savings are:

$$\Delta MMBtu_{heat} = \frac{Cap_{heat}}{AFUE} \times EFLH_{heat} \times 10^{-3}$$

$$Cap_{heat} = Cap_{cool} \times 1.0 \text{ if unit is a cold climate ductless mini split heat pump}$$

$$Cap_{heat} = Cap_{cool} \times 0.9 \text{ for all other ductless mini split heat pump}$$

Where:

ΔkWh_{cool} = Gross annual cooling savings for ductless, mini-split heat pump unit

ΔkWh_{heat} = Gross annual heating savings for ductless, mini-split heat pump unit

$\Delta MMBtu_{heat}$ = Gross annual heating savings resulting from the decrease in fuel consumption due to the partial or complete displacement of the heating load by the energy efficient ductless, mini-split heat pump unit.

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient ductless, mini-split heat pump unit, from equipment specifications

Cap_{heat} = Heating capacity (in kBtu/h) of the energy efficient ductless, mini-split pump unit, from equipment specifications. Use equation to convert from cooling capacity value if standard equipment literature does not provide this value.

$SEER_{BASE}$ = Seasonal Energy Efficiency Ratio of baseline cooling equipment

$SEER_{EE}$ = Seasonal Energy Efficiency Ratio of energy efficient ductless, mini-split heat pump unit, from equipment specifications

$HSPF_{BASE}$ = Heating Seasonal Performance Factor of baseline heat pump equipment

$HSPF_{EE}$ = Heating Seasonal Performance Factor of energy efficient ductless, mini-split heat pump unit, from equipment specifications

$EFLH_{cool}$ = Equivalent Full Load Hours for cooling

$EFLH_{heat}$ = Equivalent Full Load Hours for heating (Note: The algorithm assumes higher heating hours for full displacement scenarios, where heat pump meets over 90 percent of annual space heating needs and meets cold climate heat pump standards).

$AFUE$ = Annual fuel utilization efficiency of replaced fossil fuel heating system

0.9 = Conversion factor¹ to convert cooling capacity to heating capacity for non-cold climate, ductless heat pump units not meeting standards similar to NEEP's cold climate air source heat pump (ccASHP) product list. The conversion factor for ccASHP meeting standards similar to NEEP's is 1.0.

10^{-3} = Conversion factor from kBtu to MMBtu

Heat Pump Type	Cooling Capacity Range	Parameter	Value			Units
			1. Lost Opportunity	2. Retrofit - Resistance	3. Retrofit – Fossil Fuel	Units
Ductless Mini Split	All sizes	EER _{BASE}	12.72 ²	-	-	Btu/W-h
		SEER _{BASE}	14.00 ³	-	-	Btu/W-h
		HSPF _{BASE}	8.20 ³	3.412 ⁴	-	Btu/W-h
		AFUE	N/A	N/A	75% ⁶	
		EFLH _{cool}	218 ⁷			Hours
		EFLH _{heat, partial}	535 ⁸			Hours
		EFLH _{heat, full}	1,117 ⁸			Hours

Measure Life⁹:

The table below lists the measure life of the ductless mini-split heat pump equipment.

BC Measure ID	Measure Name	Program	Measure Life
E21A3b005	Ductless Mini-split Heat Pump (cooling) - Lost Opportunity	ES Products	18
E21A3b006	Ductless Mini-split Heat Pump (heating) - Lost Opportunity	ES Products	18
E21A3b031	Ductless Mini-split Heat Pump - Retrofit Resistance	ES Products	18

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b005	Ductless Mini-split Heat Pump (cooling) - Lost Opportunity	ES Products	1.00	1.00	1.00	1.00	1.00	0.29	0.00
E21A3b006	Ductless Mini-split Heat Pump (heating) - Lost Opportunity	ES Products	1.00	1.00	1.00	1.00	1.00	0.00	0.62
E21A3b031	Ductless Mini-split Heat Pump - Retrofit Resistance	ES Products	1.00	1.00	1.00	1.00	1.00	0.29	0.62

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors¹⁰:

Coincidence factor of 29% during cooling season and a coincidence factor of 62% for the heating season should be applied.

Energy Load Shape:

For cooling, see Appendix 1 – Mini-Split Air Conditioner/Heat Pump (Cooling)
 For heating, see Appendix 1 – Mini-Split Heat Pump (Heating)

Endnotes:

- 1: Conversion factor is based on internal ERS analysis of Mass Save and NEEP ccASHP product data.
- 2: Since IECC does not provide EER requirements for air-cooled heat pumps < 65 kBtu/h, assume the following conversion from SEER to EER: $EER \approx SEER/1.1$.
- 3: International Energy Conservation Code 2015, table C403.2.3(2) Minimum Efficiency Requirements: Electrically Operated Unitary and Applied Heat Pumps
- 4: Electric heating system has COP = 1, which converts to an HSPF value of 3.412 Btu/w-h
- 5: ASHRAE 90.1 2004 table 6.8.1B Electrically Operated Unitary and Applied Heat Pumps - Minimum Efficiency Requirements.
- 6: MA TRM DMSHP measure. This value in the MA TRM has been agreed upon by EEAC consultants and represents actual fossil fuel heating equipment efficiencies which include efficiency degradation over the age of the equipment. [MA TRM DMSHP](#).
- 7: Cooling hours from Cadmus Group (2016), Ductless Mini-Split Heat Pump Impact Evaluation, December 30, 2016. [Cadmus 2016 DMSHP Impact Evaluation](#)
- 8: Heating hours from Navigant Consulting (2018), Quick Hit Study: Ductless Mini-Split Heat Pump Survey (RES 29), March 30, 2018. Assumes higher heating hours for displacement of electric heat based on top 25% EFLH (heating) reported in Cadmus Group (2016), Ductless Mini-Split Heat Pump Impact Evaluation, December 30, 2016. [Navigant 2018 DMSHP Survey](#).
- 9: [GDS Associates, Inc. \(2007\)](#). Measure Life Report: Residential and Commercial/Industrial Lighting and HVAC Measures. Prepared for The New England State Program Working Group; Page 1-3, Table 1.
- 10: Coincidence factors come from the Navigant Demand Impact model analysis spreadsheet – MA, Aug 2018.
- 11: Navigant, Energy Optimization. Sep. 12, 2019. See https://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOSTARIFFS/17-136_2019-10-31_STAFF_NH_ENERGY_OPTIMIZATION_STUDY.PDF and <https://puc.nh.gov/Electric/Reports/20190805-PUElectric-NH-Energy-Optimization-Model.xlsx>.

1.30. HVAC – Heat Recovery Ventilator

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	HVAC

Description:

Heat recovery ventilators (HRVs) and energy recovery ventilators (ERVs) can help make mechanical ventilation more cost effective by reclaiming energy from exhaust airflows.

Baseline Efficiency:

The baseline efficiency case is an ASHRAE 62.2-compliant exhaust fan system with no heat recovery.

High Efficiency:

The high efficiency case is an exhaust fan system with heat recovery.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.¹

BC Measure ID	Measure Name	Program	Δmmbtu
G21A3b010	Heat Recovery Ventilator	ES Products	7.7

Measure Life:

The measure life is 20 years¹.

Other Resource Impacts:

An electric penalty results due to the electricity consumed by the system fans¹.

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh/Unit	ΔkW/Unit
G21A3b010	Heat Recovery Ventilator	Electric	ES Products	-133	-0.10

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21A3b010	Heat Recovery Ventilator	ES Products	1.00	1.00	1.00	1.00	1.00	0.34	0.21
	Energy Recovery Ventilator	ES Products	1.00	1.00	1.00	1.00	1.00	0.00	1.00

In-Service Rates:

All installations have a 100% in-service-rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Summer and winter coincidence factors are estimated using demand allocation methodology described by the Cadmus Demand Impact Model (2012) prepared for MA Program Administrators.

Energy Load Shape:

See Appendix 1.

Endnotes:

1: Guidehouse, August 2020. Comprehensive TRM Review MA19R17-B-TRM. Prepared for The Electric and Gas Program Administrators of Massachusetts.

1.31. HVAC- Swimming Pool Heater

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Lost Opportunity
Category	Custom

Description:

The installation of a high efficiency heat pump or gas swimming pool heater.

Baseline Efficiency:

The base case is a new, standard efficiency electric resistance hot water heater.

High Efficiency:

The high efficiency case is a heat pump or gas-fired water heater.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.¹

Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21A3b009	Heat Pump Swimming Pool Heater, <55 gallon, Energy Star, UEF 2.00	ES Products	1592	0.100
E21A3b009	Heat Pump Swimming Pool Heater, >55 gallon, UEF 2.70	ES Products	197	0.018

Measure Life:

The measure life is 13 years¹.

Other Resource Impacts:

The Gas Swimming Pool Heater measure increases gas consumption by 20.1 MMBtu/year.¹

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3b009	Heat Pump Swimming Pool Heater	ES Products	1.00	1.00	n/a	1.00	0.00	0.00	0.00
G21A3b016	Gas Swimming Pool Heater	ES Products	1.00	n/a	1.00	1.00	0.00	0.00	0.00

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

The programs assume no summer or winter peak savings because it is assumed heaters are not used during summer peak periods and do not operate during the winter.

Energy Load Shape:

See Appendix 1.

Endnotes:

1: Navigant Consulting, 2018. Water Heating, Boiler, and Furnace Cost Study (RES 19) Appendix E, Add-On Task 7: Residential Water Heater Analysis Memo.
 2018_Navigant_Water_Heater_Analysis_Memo http://ma-eeac.org/wordpress/wp-content/uploads/RES19_Assembled_Report_2018-09-27.pdf

1.32. Lighting - Fixture

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Lighting

Description:

The installation of Light-Emitting Diode (LED) fixtures, which offer comparable luminosity to incandescent and halogen fixtures at significantly less wattage and significantly longer lifetimes.

Baseline Efficiency:

The baseline efficiency case for a lost opportunity LED fixture is a combination of an incandescent fixture, halogen fixture, and a compact fluorescent fixture. The baseline efficiency case for a retrofit LED fixture is a combination of an incandescent fixture and halogen fixture.

High Efficiency:

The high efficiency case is an ENERGY STAR ® rated LED fixture.

Algorithms for Calculating Primary Energy Impact:

Unit savings are based on the algorithm below. Demand savings are derived from the Navigant Demand Impact Model.

Vendor calculated unit savings are calculated using the following algorithms and assumptions:

$$\Delta kWh = ((Watts_Ineff - Watts_EE) \times HOU)) / 1000 \times Qty_Bulbs \times 365$$

$$\Delta kW = \Delta kWh \times kW/kWh$$

$$kW/kWh = \text{Average kW reduction per kWh reduction: } 0.00025 \text{ kW/kWh}$$

Watts_Ineff = Rated watts of inefficient bulbs (either removed, through retrofit, or assumed to have been installed, through lost opportunity)

Watts_EE = Rated watts of efficient bulbs installed

Qty_Bulbs = Number of bulbs per fixture

365 = Days per year

HOU = Daily hours of use. The hours of use are largely based on recent NH evaluation studies for the ENERGY STAR Products Program and the Home Performance with ENERGY STAR Program, as well as increased hours of operation for ENERGY STAR Products to account for cross-sector sales at retailers

(i.e., businesses purchasing program incented fixtures). The direct installation delivery strategies (HPwES) are based on residential hours only but reflect higher hours of use since the programs direct contractors to only replace fixtures that are used for at least three hours per day. The following summarizes the key assumptions for daily hours of use:¹

- Lost opportunity LEDs installed in residential applications: 1.75 hours/day
- Lost opportunity LEDs installed in commercial applications (7% of all lost opportunity fixtures): 7 hours/day
- Retrofit HPwES LEDs (all installed in residential applications): 3.0 hours/day
- Retrofit HEA LEDs: (all installed in residential applications): 3.0 hours/day

Delta watts (WattsINEFF – WattsEE) are broken out by delivery strategy, and reflect a mix of program fixture wattages (for the efficient wattage), removed fixtures (for retrofit inefficient fixtures), and a blended mix of incandescents, halogens, and CFLs that would have been purchased in absence of the program measure.²

BC Measure ID	Measure Name	Program	Delta Watts per Fixture	Daily HOU	Number of Bulbs	ΔkWh	ΔkW
E21A3a009	LED Fixture	ES Products	34.2	2.1	1	26.4	0.007
E21A2a048	LED Fixture	HPwES	34.2	3	1	37.4	0.010
E21B1a048	LED Fixture	HEA	Vendor Calculated				
E21A3a010	LED Fixture (Hard to Reach)	ES Products	34.2	2.1	1	26.4	0.007
E21A1a024	LED Fixture	ES Homes	8.55	1.75	1	5.5	0.001

Measure Life:

The table below summarizes the measure lives for each of the measures listed above. Note these measure lives have been adjusted to account for the differential in measure life between the inefficient fixtures and LED fixtures (as well as the remaining useful life in the retrofit cases), and the potential for future lighting standards to lead the same sockets reached through the program to have been occupied by an LED in a period shorter than the technical life of the LED.³

BC Measure ID	Measure Name	Program	Adjusted Measure Life
E21A3a009	LED Fixture	ES Products	3
E21A2a048 E21B1a048	LED Fixture	HPwES/HEA	2
E21A3a010	LED Fixture (Hard to Reach)	ES Products	3
E21A1a024	LED Fixture	ES Homes	3

Other Resource Impacts:

Based on the 2018 NH Energy Star Products Program Evaluation report, fossil fuel interactive penalties for residential lighting programs are -2,272 Btu/kWh saved.⁸

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3a009	LED Fixture	ES Products	1.00	1.00	n/a	1.00	1.00	0.55	0.85
E21A2a048	LED Fixture	HPwES	0.99	1.00	n/a	1.00	1.00	0.55	0.85
E21B1a048	LED Fixture	HEA	1.00	0.91	n/a	0.91	0.91	0.55	0.85
E21A3a010	LED Fixture (Hard to Reach)	ES Products	1.00	1.00	n/a	1.00	1.00	0.55	0.85
E21A1a024	LED Fixture	ES Homes	1.00	1.00	n/a	1.00	1.00	0.55	0.85

In-Service Rates:

All HEA installations use an in-service rate of 100% because HEA realization rates account for uninstalled measures. All HPwES installations use in-service rate of 99% based on evaluation results.^{5,9} All other installations have a 100% in-service rate unless an evaluation finds otherwise.⁴

Realization Rates:

Based on evaluation results, all HEA installations use a realization rate of 91% and all HPwES installations use a realization rate of 100% because gross savings assumptions are adjusted to reflect evaluated results.^{5,9} All other installations have a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are based on prescriptive loadshapes from the updated Navigant Massachusetts Demand Impact Model.⁶

Energy Load Shape:

See Appendix 1 – “Lighting”.⁶

Impact Factors for Calculating Net Savings:⁷

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21A3a009	LED Fixture	ES Products	67%	n/a	n/a	33%
E21A3a010	LED Fixture (Hard to Reach)	ES Products	47%	n/a	n/a	53%

Endnotes:

1: Hours of use (residential) for the ES Products and HTR channel are based off of “New Hampshire ENERGY STAR® Products Program”, prepared by Cadmus for the New Hampshire ENERGY STAR Products New Hampshire Evaluation Measurement & Verification Working Group, October 17, 2018. The values reflect the daily weighted average LED hours of use. Cross-sector sales are based upon MA

RLPNC Cross-Sector Sale HOU Update”, Prepared by the NMR Group for the Massachusetts Program Administrators (PAs), August 2, 2018. The 2.1 hours per day for ES Products and HTR are calculated as the weighted combination of residential and commercial hours of use: (residential HOU*residential %)+(commercial HOU*commercial %) = (1.75*0.93)+(7.0*0.07). HOU for ES Homes reflects the residential HOU only. Hours of use for the HPwES and HEA are based on program requirements for contractors to only replace fixtures that are used for at least three hours per day.

2: The delta watts are based off of the “MA PAs (2018). 2019-2021 Lighting Worksheet”

(<https://etrm.anbetrack.com/etrm/api/v1/etrm/documents/5bd06d1d6c50367b3deba017/view?authToken=fe238b4571e888c7558f844a02040d1941948e021564ac20156f12ece790e6a86c8a6c488b1d838694b8d9>).

Note the delta watts for ES Homes is reduced by 75% to reflect the requirement that 75% of lamps be high-efficacy lamps for new construction

(https://www.energycodes.gov/sites/default/files/becu/2015_IECC_residential_requirements.pdf).

3: The direct installation measure life values come from RLPNC 18-5 Home Energy Assessment LED Net-to-Gross Consensus, Prepared by NMR Group, Inc. for the 2019—21 Planning Assumptions: Lighting Hours-of-Use and In-Service Rate, Prepared by NMR Group, Inc. for the Massachusetts Program Administrators (PAs) and Energy Efficiency Advisory Council (EEAC) Consultants, July 23, 2018 (http://ma-eeac.org/wordpress/wp-content/uploads/RLPNC_185_HEALEDTG_REPORT_23July2018_Final.pdf). These values reflect early replacement baselines, and assume that the replaced bulb, when it burnt out, would have been replaced by an LED at that time. Lighting measures with lost opportunity baselines (e.g., ES Products) add a year to measure life to reflect the different baseline as well as significantly lower hours of use.

4: In-service rates for ES Products and HTR channel, as well as ES Homes, are based on MA assumptions of 100% ISR for fixtures. In-service rates for HPwES and HEA are based on the NH study “Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL,” Prepared by Opinion Dynamics Corporation, June 11, 2020.

<https://www.puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/NHSaves-HPwES-Evaluation-Report-Final-20200611.pdf>

5: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

6: Navigant, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

7: “R1615 Light Emitting Diode (LED) Net-to- Gross Evaluation,” Prepared by the NMR Group, Inc. for the Connecticut EEB, August 7, 2017. The 2020 Connecticut net-to-gross values are applied to New Hampshire for 2021 to account for the relatively slower pace of market transformation, due in part to fewer program bulbs per home in New Hampshire (2.5 bulbs per home in 2019) compared to Connecticut (4 bulbs per home in 2019).

8: Table 22. PY2016 Residential Lighting Energy Savings by Utility. Shows evaluated annual net electric energy savings, and evaluated penalties for gas, oil, and propane. Using the values for Eversource, a total calculated heating energy penalty of 341,757,000,000 Btu was assessed on the 150,403,000 kWh of electrical energy savings. “New Hampshire ENERGY STAR® Products Program 2016 Evaluation Report”, prepared by Cadmus for the New Hampshire ENERGY STAR Products New Hampshire Evaluation Measurement & Verification Working Group, October 17, 2018.

9: Opinion Dynamics, July 29 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

1.33. Lighting – LED Lamp

Measure Code	[To Be Defined in ANB system]
Market	Residential
Program Type	Retrofit/Lost Opportunity
Category	Lighting

Description:

The installation of Light-Emitting Diode (LED) screw-in lamps and linear LEDs. LEDs offer comparable luminosity to incandescent and halogen lamps at significantly less wattage and significantly longer lamp lifetimes.

Baseline Efficiency:

The baseline efficiency case lost opportunity is a combination of an incandescent lamp, halogen lamp, and a compact fluorescent lamp. The baseline efficiency case for retrofit LED lamps is a combination of an incandescent lamp and halogen lamp.

High Efficiency:

The high efficiency case is an ENERGY STAR ® rated LED lamp.

Algorithms for Calculating Primary Energy Impact:

Unit savings are based on the algorithm below. Demand savings are derived from the Navigant Demand Impact Model.

Vendor calculated unit savings are calculated using the following algorithms and assumptions:¹

$$\Delta kWh = ((Watts_Ineff - Watts_EE) \times HOU) / 1000 \times 365$$

$$\Delta kW = \Delta kWh \times kW/kWh$$

$$kW/kWh = \text{Average kW reduction per kWh reduction: } 0.00025 \text{ kW/kWh}$$

Watts_Ineff = Rated watts of inefficient lamps (either removed, through retrofit, or assumed to have been installed in lieu of the program lamps, through lost opportunity)

Watts_EE = Rated watts of efficient lamps installed

365 = Days per year

HOU = Daily hours of use. The hours of use are largely based on recent NH evaluation studies for the ENERGY STAR Products Program and the Home Performance with ENERGY STAR Program, as well as increased hours of operation for ENERGY STAR Products to account for cross-sector sales at retailers (i.e., businesses purchasing program incented lamps). The direct installation delivery strategies (HPwES,

HEA) are based on residential hours only but reflect higher hours of use since the programs direct contractors to only replace lamps that are used for at least three hours per day. The following summarizes the key assumptions for daily hours of use:²

- Lost opportunity LEDs installed in residential applications: 1.75 hours/day
- Lost opportunity LEDs installed in commercial applications (7% of all lost opportunity lamps): 7 hours/day
- Retrofit HPwES LEDs (all installed in residential applications): 3.0 hours/day
- Retrofit HEA LEDs: (all installed in residential applications): 3.0 hours/day

Delta watts (Watts_Ineff – Watts_EE) are broken out by lamp style and delivery strategy, and reflect a mix of program lamp wattages (for the efficient wattage), removed lamps (for retrofit inefficient lamps), and a blended mix of incandescents, halogens, and CFLs that would have been purchased in absence of the program measure (for lost opportunity inefficient lamps).^{3, 11}

Note that the ENERGY STAR Homes values represent a weighted average (based on the distribution of LEDs in NH homes as identified as part of a recent saturation study) of general service lamps, reflectors, and other specialty values.⁴ The linear lamp values are based off of a separate research project in MA that specifically examined the characteristics (e.g., incanted technologies, rooms with linear lamps) of linear LEDs.⁵

BC Measure ID	Measure Name	Program	Delta Watts	Daily HOU	ΔkWh	ΔkW
E21A3a001	General Service Lamps	ES Products	40	2.1	30.7	0.008
E21A3a004	Reflector	ES Products	43	2.1	33.0	0.008
E21A3a003	Other Specialty	ES Products	35	2.1	26.8	0.007
E21A3a002	Linear	ES Products	17.9	1.6	10.5	0.003
E21A2a044	General Service Lamps	HPwES	32.2	3.0	35.3	0.009
E21A2a047	Reflector	HPwES	46.2	3.0	50.6	0.013
E21A2a046	Other Specialty	HPwES	46.2	3.0	50.6	0.013
E21A2a045	Linear	HPwES	17.9	3.0	19.6	0.005
E21B1a044	General Service Lamps	HEA	Vendor Calculated			
E21B1a047	Reflector	HEA	Vendor Calculated			
E21B1a046	Other Specialty	HEA	Vendor Calculated			
E21B1a045	Linear	HEA	Vendor Calculated			
E21A3a005	General Service Lamps (Hard to Reach)	ES Products	40	2.1	30.7	0.008
E21A3a008	Reflector (Hard to Reach)	ES Products	43	2.1	33.0	0.008
E21A3a007	Other Specialty (Hard to Reach)	ES Products	35	2.1	26.8	0.007
E21A3a006	Linear (Hard to Reach)	ES Products	17.9	1.6	10.5	0.003
E21A1a023	ES Homes Lighting	ES Homes	10.2	1.75	6.5	0.002

	General Service Lamps	Drop Ship	40	1.75	25.6	0.007
	Reflector	Drop Ship	43	1.75	27.5	0.007
	Other Specialty	Drop Ship	35	1.75	22.4	0.006

Measure Life:

The table below summarizes the measure lives for each of the measures listed above. Note these measure lives have been adjusted to account for the differential in measure life between the inefficient lamps and LEDs (as well as the remaining useful life in the retrofit cases), and the potential for future lighting standards to lead the same sockets reached through the program to have been occupied by an LED in a period shorter than the technical life of the LED.⁶

BC Measure ID	Measure Name	Program	Adjusted Measure Life
E21A3a001	General Service Lamps	ES Products/Drop Ship	3
E21A3a004	Reflector	ES Products/Drop Ship	2
E21A3a003	Other Specialty	ES Products/Drop Ship	3
E21A3a002	Linear	ES Products	10
E21A2a044 E21B1a044	General Service Lamps	HPwES/HEA	2
E21A2a047 E21B1a047	Reflector	HPwES/HEA	2
E21A2a046 E21B1a046	Other Specialty	HPwES/HEA	2
E21A2a045 E21B1a045	Linear	HPwES/HEA	10
E21A3a005	General Service Lamps (Hard to Reach)	ES Products	3
E21A3a008	Reflector (Hard to Reach)	ES Products	2
E21A3a007	Other Specialty (Hard to Reach)	ES Products	3
E21A3a006	Linear (Hard to Reach)	ES Products	10
E21A1a023	ES Homes Lighting	ES Homes	3

Other Resource Impacts:

Based on the 2018 NH Energy Star Products Program Evaluation report, fossil fuel interactive penalties for residential lighting programs are -2,272 Btu/kWh saved.¹⁰

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3a001	General Service Lamps	ES Products	0.86	1.00	n/a	1.00	1.00	0.55	0.85
E21A3a004	Reflector	ES Products	0.89	1.00	n/a	1.00	1.00	0.55	0.85
E21A3a003	Other Specialty	ES Products	0.89	1.00	n/a	1.00	1.00	0.55	0.85
E21A3a002	Linear	ES Products	0.89	1.00	n/a	1.00	1.00	0.55	0.85
E21B1a044	General Service Lamps	HEA	1.00	0.91	n/a	0.91	0.91	0.55	0.85
E21A2a044	General Service Lamps	HPwES	0.99	1.00	n/a	1.00	1.00	0.55	0.85
E21B1a047	Reflector	HEA	1.00	0.91	n/a	0.91	0.91	0.55	0.85
E21A2a047	Reflector	HPwES	0.99	1.00	n/a	1.00	1.00	0.55	0.85
E21B1a046	Other Specialty	HEA	1.00	0.91	n/a	0.91	0.91	0.55	0.85
E21A2a046	Other Specialty	HPwES	0.99	1.00	n/a	1.00	1.00	0.55	0.85
E21B1a045	Linear	HEA	1.00	0.91	n/a	0.91	0.91	0.55	0.85
E21A2a045 E21B1a045	Linear	HPwES	0.99	1.00	n/a	1.00	1.00	0.55	0.85

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A3a005	General Service Lamps (Hard to Reach)	ES Products	0.86	1.00	n/a	1.00	1.00	0.55	0.85
E21A3a008	Reflector (Hard to Reach)	ES Products	0.89	1.00	n/a	1.00	1.00	0.55	0.85
E21A3a007	Other Specialty (Hard to Reach)	ES Products	0.89	1.00	n/a	1.00	1.00	0.55	0.85
E21A3a006	Linear (Hard to Reach)	ES Products	0.89	1.00	n/a	1.00	1.00	0.55	0.85
E21A1a023	ES Homes Lighting	ES Homes	1.00	1.00	n/a	1.00	1.00	0.55	0.85
	General Service Lamps	Drop Ship	.50	1.00	n/a	1.00	1.00	0.55	0.85
	Reflector	Drop Ship	.50	1.00	n/a	1.00	1.00	0.55	0.85
	Other Specialty	Drop Ship	.50	1.00	n/a	1.00	1.00	0.55	0.85

In-Service Rates:

All HEA installations use an in-service rate of 100% because HEA realization rates account for uninstalled measures¹². All HPwES installations use an in-service rate of 99%.⁴ In-service for all other installations are based on MA evaluations.⁷

Realization Rates:

Based on evaluation results, all HEA installations use a realization rate of 91%.¹² All HPwES installations use a realization rate of 100% because gross savings assumptions are adjusted to reflect evaluated results.⁴ All other installations have a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are based on prescriptive loadshapes from the updated Navigant Massachusetts Demand Impact Model.⁸

Energy Load Shape:

See Appendix 1 – “Lighting”.⁸

Impact Factors for Calculating Net Savings:⁹

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21A3a001	General Service Lamps	ES Products	67%	n/a	n/a	33%
E21A3a004	Reflector	ES Products	67%	n/a	n/a	33%
E21A3a003	Other Specialty	ES Products	67%	n/a	n/a	33%
E21A3a002	Linear	ES Products	67%	n/a	n/a	33%
E21A3a005	General Service Lamps (Hard to Reach)	ES Products	47%	n/a	n/a	53%
E21A3a008	Reflector (Hard to Reach)	ES Products	47%	n/a	n/a	53%
E21A3a007	Other Specialty (Hard to Reach)	ES Products	47%	n/a	n/a	53%
E21A3a006	Linear (Hard to Reach)	ES Products	47%	n/a	n/a	53%

Endnotes:

- 1:** Note that interactive effects require modeling HVAC end-use consumption based on home characteristics and equipment (e.g., cooling, heating fuel) saturation assumptions. The data and models were not available for New Hampshire, so are not included in the TRM.
- 2:** Hours of use (residential) for the ES Products and HTR channel are based off of “New Hampshire ENERGY STAR® Products Program”, prepared by Cadmus for the New Hampshire ENERGY STAR Products New Hampshire Evaluation Measurement & Verification Working Group, October 17, 2018. The values reflect the daily weighted average LED hours of use. Cross-sector sales are based upon MA RLPNC Cross-Sector Sale HOU Update”, Prepared by the NMR Group for the Massachusetts Program Administrators (PAs), August 2, 2018. The 2.1 hours per day for ES Products and HTR channel are calculated as the weighted combination of residential and commercial hours of use: (residential HOU*residential %)+(commercial HOU*commercial %) = (1.75*0.93)+(7.0*0.07). HOU for ES Homes reflects the residential HOU only. Hours of use for the HPwES and HEA are based on program requirements for contractors to only replace fixtures that are used for at least three hours per day.
- 3:** NMR, 2020. Delta Watt Update (MA19R09-E). Delta watts for ES Products and HTR are based on both historical lamps sales in Massachusetts and the most recently available market adoption model (for PY2021). Note that Massachusetts data were used because the New Hampshire ENERGY STAR Product evaluation had not stratified the program data or forecasted baseline wattage by style at the time of this TRM. The delta watts for ES Homes is reduced by 75% to reflect the requirement that 75% of lamps be high-efficacy lamps for new construction (https://www.energycodes.gov/sites/default/files/becu/2015_IECC_residential_requirements.pdf).
- 4:** Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.
- 5:** RLPNC 18-7: TLED Product Impact Factor Estimation, Memo from NMR Group, Inc. to the Massachusetts Program Administrators, August 3, 2018.
- 6:** The direct installation measure life values come from RLPNC 18-5 Home Energy Assessment LED Net-to-Gross Consensus, Prepared by NMR Group, Inc. for the 2019—21 Planning Assumptions: Lighting Hours-of-Use and In-Service Rate, Prepared by NMR Group, Inc. for the Massachusetts Program Administrators (PAs) and Energy Efficiency Advisory Council (EEAC) Consultants, July 23,

2018 (http://ma-eeac.org/wordpress/wp-content/uploads/RLPNC_185_HEALEDNTG_REPORT_23July2018_Final.pdf). These values reflect early replacement baselines, and assume that the replaced bulb, when it burnt out, would have been replaced by an LED at that time. Lighting measures with lost opportunity baselines (e.g., ES Products) add a year to measure life to reflect the different baseline as well as significantly lower hours of use.

7: In-service rates for ES Products and HTR channel are based on the MA study “RLPNC 179: 2019—21 Planning Assumptions: Lighting Hours-of-Use and In-Service Rate,” Prepared by the NMR Group, Inc. for the Massachusetts Program Administrators, July 13, 2018. Note the ISR is adjusted downward for lamps that are assumed to never be installed but does account (through discounted values) for lamps that are not immediately installed but are likely to be installed in the future. The ISR for Drop Ship is estimated based on program experience with lighting kits and will be evaluated.

8: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

9: “R1615 Light Emitting Diode (LED) Net-to- Gross Evaluation,” Prepared by the NMR Group, Inc. for the Connecticut EEB, August 7, 2017. The 2020 Connecticut net-to-gross values are applied to New Hampshire for 2021 to account for the relatively slower pace of market transformation, due in part to fewer program bulbs per home in New Hampshire (2.5 bulbs per home in 2019) compared to Connecticut (4 bulbs per home in 2019).

10: Table 22. PY2016 Residential Lighting Energy Savings by Utility. Shows evaluated annual net electric energy savings, and evaluated penalties for gas, oil, and propane. Using the values for Eversource, a total calculated heating energy penalty of 341,757,000,000 Btu was assessed on the 150,403,000 kWh of electrical energy savings. “New Hampshire ENERGY STAR® Products Program 2016 Evaluation Report”, prepared by Cadmus for the New Hampshire ENERGY STAR Products New Hampshire Evaluation Measurement & Verification Working Group, October 17, 2018.

11: Delta watts for HPwES are based on NH study “Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL,” Prepared by Opinion Dynamics Corporation, June 11, 2020. <https://www.puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/NHSaves-HPwES-Evaluation-Report-Final-20200611.pdf>

12: Opinion Dynamics, July 29, 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

1.34. Thermostat – Wi-Fi Communicating

Measure Code	TBD
Market	Residential
Program Type	Retrofit
Category	HVAC

Description:

A communicating Wi-Fi enabled thermostat which allows remote set point adjustment and control via remote application. System requires an outdoor air temperature algorithm in the control logic to operate heating and cooling systems.

Baseline Efficiency:

The baseline efficiency case is an HVAC system with either a manual or a programmable thermostat.

High Efficiency:

The high efficiency case is an HVAC system that has a Wi-Fi thermostat installed.

Algorithms for Calculating Primary Energy Impact: ⁴

Unit savings are deemed based primarily on impact evaluation results.⁴ ES Products savings are deemed based on statewide data on saturation of residential cooling equipment and heating fuel types.³ For fuels that were not included in the impact evaluation (i.e. kerosene and wood pellets), unit savings are instead based on secondary research recommendations.¹

Direct install thermostats that control both heating and cooling systems should claim savings using the Cooling measure in the last line of the table below in addition to the relevant heating savings measure line.

The utilities are not claiming any peak kW demand reductions until impact evaluation results are available, as savings are driven by runtime reductions rather than demand reductions.

BC Measure ID	Measure Name	Energy Type	Program	ΔkWh	ΔkW	ΔMMbtu
E21B1b015 E21A2b015	Wi-Fi Thermostat, Electric Heating	Electricity	HEA HPwES	419.0	0	n/a
E21B1b016 G21B1b004 E21A2b016 G21A2b004	Wi-Fi Thermostat, Gas	NG - Res Heating	HEA HPwES	46.0	n/a	5.80
E21B1b017 E21A2b017	Wi-Fi Thermostat, Kerosene	Kerosene	HEA HPwES	n/a	n/a	3.10

E21B1b018 E21A2b018	Wi-Fi Thermostat, Oil	Fuel Oil - Residential Distillate	HEA HPwES	n/a	n/a	5.90
E21B1b019 E21A2b019	Wi-Fi Thermostat, Propane	Propane	HEA HPwES	n/a	n/a	5.80
E21B1b020 E21A2b020	Wi-Fi Thermostat, Wood Pellets	Pellet Wood	HEA HPwES	n/a	n/a	3.10
E21A3b026	Wi-Fi Thermostat (Heating & Cooling)	Fuel Blind	ES Products	46.00	n/a	4.92
G21A3b019	WiFi Thermostat (Heating Only)	NG - Res Heating	ES Products	n/a	n/a	5.80
G21A3b020	Wi-Fi Thermostat (Heating & Cooling)	NG - Res Heating	ES Products	46.0	n/a	5.80

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

No other impacts are reported.

Impact Factors for Calculating Adjusted Gross Savings: ^{1,3,4}

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1b015	Wi-Fi Thermostat, Electric	Electricity	HEA	1.00	0.91	n/a	0.91	0.91	n/a	n/a
E21A2b015	Wi-Fi Thermostat, Electric	Electricity	HPwES	0.99	1.00	n/a	1.00	1.00	n/a	n/a

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1b016 G21B1b004	Wi-Fi Thermostat, Gas	NG - Res Heating	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b016 G21A2b004	Wi-Fi Thermostat, Gas	NG - Res Heating	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1b017	Wi-Fi Thermostat, Kerosene	Kerosene	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b017	Wi-Fi Thermostat, Kerosene	Kerosene	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1b018	Wi-Fi Thermostat, Oil	Fuel Oil - Residential Distillate	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b018	Wi-Fi Thermostat, Oil	Fuel Oil - Residential Distillate	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1b019	Wi-Fi Thermostat, Propane	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b019	Wi-Fi Thermostat, Propane	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21B1b020	Wi-Fi Thermostat, Wood Pellets	Pellet Wood	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b020	Wi-Fi Thermostat, Wood Pellets	Pellet Wood	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A3b026 G21A3b019 G21A3b020	Wi-Fi Thermostat (Heating Only; Cooling Only; Heating & Cooling)	NG- Res Heating; Fuel Blind	ES Products	1.00	1.00	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All HEA installations have a 100% in-service-rate and all HPwES installations have a 99% in-service rate based on evaluation results.^{5 6} All ES Products installations use a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All HEA installations have a 91% realization rate and all HPwES installations have a 100% realization rate based on evaluation results.^{5 6} All ES Products installations use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

The utilities are not claiming any peak kW demand reductions until impact evaluation results are available, as savings are driven by runtime reductions rather than demand reductions.

Energy Load Shape:

See Appendix 1 “Weighted HVAC- All Homes”

Endnotes:

1: Navigant Consulting, September 2018. Wi-Fi Thermostat Impact Evaluation--Secondary Research Study Memo. http://ma-eeac.org/wordpress/wp-content/uploads/Wi-Fi-Thermostat-Impact-Evaluation-Secondary-Literature-Study_FINAL.pdf

2: Environmental Protection Agency, 2010. Life Cycle Cost Estimate for ENERGY STAR Programmable Thermostat. Assumed to have the same lifetime as a regular programmable thermostat

3: Itron 2020. New Hampshire Residential Baseline Study. Prepared for New Hampshire Evaluation, Measurement and Verification Working Group. Worksheet based on this analysis embedded here:



WiFi tStat Worksheet,
2021.xlsx

4: Navigant Consulting, August 2018. Home Energy Services (HES) Impact Evaluation, Table 5-13. https://ma-eeac.org/wp-content/uploads/RES34_HES-Impact-Evaluation-Report-with-ES_FINAL_29AUG2018.pdf

5: Opinion Dynamics, July 29, 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.

6: Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

1.35. Thermostat – Programmable

Measure Code	
Market	Residential
Program Type	Retrofit
Category	HVAC

Description:

Installation of a programmable thermostat, which gives the ability to adjust heating or air-conditioning operating times according to a pre-set schedule.

Baseline Efficiency:

The baseline efficiency case is an HVAC system without a programmable thermostat: either a manual thermostat or no thermostat.

High Efficiency:

The high efficiency case is an HVAC system that has a programmable thermostat installed.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on evaluation results.¹

BC Measure ID	Measure Name	Energy Type	Program	ΔkWh	ΔkW	ΔMMbtu
E21B1b009	Programmable Thermostat, Electric Heat	Electricity	HEA	251.0	n/a	n/a
E21B1b010 G21B1b003	Programmable Thermostat, Gas	NG - Res Heating	HEA	27	0.04	3.50
E21B1b011	Programmable Thermostat, Kerosene	Kerosene	HEA	n/a	n/a	3.50
E21B1b012	Programmable Thermostat, Oil	Fuel Oil - Residential Distillate	HEA	n/a	n/a	3.50
E21B1b013	Programmable Thermostat, Propane	Propane	HEA	n/a	n/a	3.50
E21B1b014	Programmable Thermostat, Wood Pellets	Pellet Wood	HEA	n/a	n/a	3.50

E21A2b009	Programmable Thermostat, Electric	Electricity	HPwES	251.0	n/a	n/a
E21A2b010 G21A2b003	Programmable Thermostat, Gas	NG - Res Heating	HPwES	n/a	n/a	3.50
E21A2b011	Programmable Thermostat, Kerosene	Kerosene	HPwES	n/a	n/a	3.50
E21A2b012	Programmable Thermostat, Oil	Fuel Oil - Residential Distillate	HPwES	n/a	n/a	3.50
E21A2b013	Programmable Thermostat, Propane	Propane	HPwES	n/a	n/a	3.50
E21A2b014	Programmable Thermostat, Wood Pellets	Pellet Wood	HPwES	n/a	n/a	3.50
TBD	Programmable Thermostat, AC only	Electricity	TBD	27.0	n/a	n/a
G21A3b011	Programmable Thermostat, Gas	Gas	ES Products	27.0	0.04	3.5

Thermostats that control both heating and central cooling may claim savings for both cooling (27.0 kWh/yr) and heating impacts (by fuel).

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

No other resource impacts are included.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21B1b009	Programmable Thermostat, Electric	Electricity	HEA	1.00	0.91	0.00	0.91	0.91	0.00	1.00

E21B1b010 G21B1b003	Programmable Thermostat, Gas	NG - Res Heating	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1b011	Programmable Thermostat, Kerosene	Kerosene		1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1b012	Programmable Thermostat, Oil	Fuel Oil - Residential Distillate	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1b013	Programmable Thermostat, Propane	Propane	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21B1b014	Programmable Thermostat, Wood Pellets	Pellet Wood	HEA	1.00	n/a	0.91	n/a	n/a	n/a	n/a
E21A2b009	Programmable Thermostat, Electric	Electricity	HPwES	0.99	1.00	n/a	1.00	1.00	0.00	1.00
E21A2b010	Programmable Thermostat, Gas	NG - Res Heating	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2b011	Programmable Thermostat, Kerosene	Kerosene	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2b012	Programmable Thermostat, Oil	Fuel Oil - Residential Distillate	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2b013	Programmable Thermostat, Propane	Propane	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
E21A2b014	Programmable Thermostat, Wood Pellets	Pellet Wood	HPwES	0.99	n/a	1.00	n/a	n/a	n/a	n/a
TBD	Programmable Thermostat, AC only	Electricity	TBD	1.00	1.00	0.00	1.00	1.00	1.00	0.00

Programmable thermostats that control both cooling and heating equipment should claim both the 27 kWh of electric energy savings associated with the cooling equipment at the impact factors listed above and any heating savings.

In-Service Rates:

All HEA installations have a 100% in-service rate and all HPwES installations have a 99% in-service rate based on evaluation results.^{4 5}

Realization Rates:

All HEA installations have a 91% realization rate and all HPwES installations have a 100% realization rate based on evaluation results.^{4,5}

Coincidence Factors:

Summer and winter coincidence factors are estimated using demand allocation methodology described the Navigant Demand Impact Model prepared for MA Program Administrators.³

Energy Load Shape:

See Appendix 1 “Weighted HVAC- All Homes”

Endnotes:

- 1:** Navigant Consulting, August 2018. Home Energy Services (HES) Impact Evaluation. https://ma-eeac.org/wp-content/uploads/RES34_HES-Impact-Evaluation-Report-with-ES_FINAL_29AUG2018.pdf
- 2:** Environmental Protection Agency, 2010. Life Cycle Cost Estimate for ENERGY STAR Programmable Thermostat.
- 3:** Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>
- 4:** Opinion Dynamics, July 29, 2020, New Hampshire Utilities, Home Energy Assistance Program Evaluation Report, 2016-2017 – FINAL.
- 5:** Opinion Dynamics, June 11, 2020, Home Performance with Energy Star Program Evaluation Report 2016-2017 – FINAL.

1.36. Whole Home – New Construction

Measure Code	RES-WH-NEW
Market	Residential
Program Type	Lost Opportunity
Category	Whole Home

Description:

The Program Administrators currently use vendor calculated energy savings using a RESNET accredited Rating Software Tool (REM/Rate) where a user inputs a detailed set of technical data about a project, comparing as-built projected energy consumption to that of a Baseline Home. This process is used to calculate electric and fossil fuel energy savings due to heating, cooling, and water heating for all homes.¹

Baseline Efficiency:

The Baseline Home is based on a User Defined Reference Home (UDRH), which was updated in 2019 to reflect the IECC 2015 code, with amendments as adopted by the state of NH.^{2, 3} UDRH heating system efficiencies and air infiltration rates remain more stringent than code to reflect the results of the 2017 NH Energy Star Homes evaluation.⁴

High Efficiency:

The high-efficiency case is represented by the specific energy characteristics of each “as-built” home completed through the program.

Algorithms for Calculating Primary Energy Impact:

Unit savings are custom calculated for each home for heating, cooling, and water heating end uses. Demand savings are derived from the Navigant Demand Impact Model. As noted below, because the values are custom generated on a site-by-site basis, they are not shown in the table below.

BC Measure ID	Measure Name	Program
E21A1a001 E21A1a012 G21A1a001 G21A1a002	Cooling, Electric Cooling, Electric SF Cooling, Electric, MF	ES Homes
E21A1a002 E21A1a013	Heating, Electric	ES Homes
E21A1a003 E21A1a014 G21A1a002	Heating, Gas Heating, Gas,SF Heating, Gas, MF	ES Homes

G21A1a005		
E21A1a004 E21A1a015	Heating, Oil	ES Homes
E21A1a005 E21A1a016	Heating, Propane	ES Homes
E21A1a006 E21A1a017	Heating, Wood Pellets	ES Homes
E21A1a007 E21A1a018	Hot Water, Electric	ES Homes
E21A1a008 E21A1a019 G21A1a003 G21A1a006	Hot Water, Gas Hot Water, Gas, SF Hot Water, Gas,MF	ES Homes
E21A1a009 E21A1a020	Hot Water, Oil	ES Homes
E21A1a010 E21A1a021	Hot Water, Propane	ES Homes
E21A1a011 E21A1a022	Hot Water, Wood Pellets	ES Homes

Measure Life:

The measure life is shown below and varies by end use.⁵

BC Measure ID	Measure Name	Program	EUL
E21A1a002 E21A1a013 E21A1a003 E21A1a014 E21A1a004 E21A1a015 E21A1a005 E21A1a016 E21A1a006 E21A1a017	Heating	ES Homes	25
E21A1a001 E21A1a012	Cooling	ES Homes	25
E21A1a007 E21A1a018 E21A1a008 E21A1a019 E21A1a009 E21A1a020 E21A1a010 E21A1a021 E21A1a011 E21A1a022	Water Heating	ES Homes	15

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A1a001 E21A1a012	Cooling, Electric	ES Homes	1.00	1.00	1.00	1.00	1.00	0.35	0.00
E21A1a002 E21A1a013	Heating, Electric	ES Homes	1.00	1.00	1.00	1.00	1.00	0.00	0.43
E21A1a003 E21A1a014	Heating, Gas	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E21A1a004 E21A1a015	Heating, Oil	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E21A1a005 E21A1a016	Heating, Propane	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E21A1a006 E21A1a017	Heating, Wood Pellets	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A1a007 E21A1a018	Hot Water, Electric	ES Homes	1.00	1.00	1.00	1.00	1.00	0.31	0.81
E21A1a008 E21A1a019	Hot Water, Gas	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E21A1a009 E21A1a020	Hot Water, Oil	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E21A1a010 E21A1a021	Hot Water, Propane	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E21A1a011 E21A1a022	Hot Water, Wood Pellets	ES Homes	1.00	1.00	1.00	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All energy realization rates are 100% because energy and demand savings are custom calculated based on project specific details.

Coincidence Factors:

Coincidence factors for electric end uses are based on prescriptive load shapes from the updated Navigant Demand Impact Model for Massachusetts.⁶

Coincidence factors for non-electric end uses are set to 100% as no electrical energy impacts are expected.

Energy Load Shape

See Appendix 1.

Endnotes:

1: Note that there are also prescriptive rebates for appliances, including clothes washers, clothes dryers, and refrigerators, as well as lighting, which are covered in other sections of the TRM.

2: See “ESHOMES UDRH update 02-23-2018, Revised 5-17-2019.docx”

3: Note the UDRH represents both single family and multifamily homes, and all measures (cooling heating, and hot water) are present in both single family and multifamily homes.

4: Energy and Resource Solutions, December 7, 2018. New Hampshire ENERGY STAR Homes Program Impact Evaluation. Prepared for the NH Program Administrators.

https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/NH_ESHomes_Report_Final_v4-2017.pdf

5: MA Technical Reference Manual 2019 Plan-Year Report Version, Page 244, “Chapter 1.60: Whole Home New Construction” section, accessed on February 14, 2020, and GDS Associates Inc. Measure Life Report, Residential and Commercial Industrial Lighting and HVAC Measures, Jun. 2007.

6: Navigant Consulting, 2018. RES 1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

1.37. Whole Home – Energy Report

Measure Code	
Market	Residential
Program Type	Custom
Category	Behavioral

Description:

Residential home energy report (“HER”) programs leverage behavior science to influence customers’ energy use practices. The program strategy involves sending customer-specific energy use reports to a sample of electric and / or natural gas customers. The implementation vendor calculates savings results based on statistical analysis of the differences in energy usage for the treatment group when compared to the energy usage of a control group.

Baseline Efficiency:

The baseline efficiency case is a control-group customer who does not receive home energy reports.

High Efficiency:

The high efficiency case is a customer who receives periodic mailed and/or emails home energy reports tailored and has access to a web-based dashboard that includes tailored messaging regarding ways of reducing energy use.

Algorithms for Calculating Primary Energy Impact:

Unit savings for Home Energy Reports are based on calculations from vendor results.

A lagged-dependent variable (LDV) model (sometimes also referred to as a post-period regression with pre-period controls) utilizes a panel data set (a cross-sectional time-series) to estimate energy savings from a randomized control trial (RCT) using pre-treatment (lagged) energy consumption value(s) as an independent control.

$$ADU_{k,t} = \alpha + \beta_1 treatment_k + \sum_j \beta_{2j} Month_t + \sum_i \beta_{3i} ADUlag_{k,t,i} + \varepsilon_{k,t}$$

Where:

- $ADU_{k,t}$ is average daily consumption of kWh by household k in month t ,
- α is the model intercept,
- $treatment_k$ is a binary variable with a value of 0 if household k is assigned to the control group and 1 if assigned to the treatment group,
- $Month_j$ is a binary variable with a value of 1 when $t=j$, and is 0 otherwise,
- $ADUlag_{k,t,i}$ is a vector of i baseline usage control variables. An evaluator may choose the form of these control values, as pre-treatment data availability may allow. A suggested formulation for this vector is the following three ($i=3$) LDV terms:

- $avg_preusage_k$ is the average daily usage across household k 's available pre-treatment meter reads for the year prior to the start of treatment,
- $avg_preusage_winter_k$ is the average daily usage over the months of December through March across household k 's available pre-treatment meter reads for the year prior to the start of treatment and,
- $avg_preusage_summer_k$ is the average daily usage over the months of June through September across household k 's available pre-treatment meter reads for the year prior to the start of treatment.

A simpler, alternative, formulation of this $ADUlag_{k,t,i}$ term can be a single ($i=1$) LDV representing household k 's average daily energy use in the same calendar month as t in year immediately preceding the program.

- $\varepsilon_{k,t}$ is the cluster-robust idiosyncratic error term for household k in month t .

The coefficient β_1 is the coefficient of interest; it is the estimate of average daily energy savings for a household in the treatment group.

Measure Life:

The measure life for Home Energy Reports is 1 year¹. As a behavioral measure, the intervention of regularly receiving a Home Energy Report is required to claim savings.

BC Measure ID	Measure Name	Program	Measure Life
E21A4a001 G21A4a001	Residential Whole Home Energy Report	[Abbr]	1

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21A4a001	Residential Whole Home Energy Report	Residential Behavior	1.00	1.00	NA	1.00	1.00	0.547	0.848
G21A4a001	Residential Whole Home Energy Report	Residential Behavior	1.00	NA	1.00	NA	NA	NA	NA

In-Service Rates:

All installations have 100% in-service-rates since reports are sent out regularly to participants.¹

Realization Rates:

Realization rates from Navigant's 2016 evaluation of Eversource New Hampshire Home Energy Report pilot program found that the realization rate for the normative behavior program design was 99.9%.¹

Coincidence Factors:

Summer and winter coincidence factors are based on a residential lighting loadshape.²

Energy Load Shape:

See Appendix 1.

Endnotes:

1: Navigant Consulting (2016). Home Energy Report Pilot Program Evaluation Final Report, Feb 2014-Feb 2015. Prepared for Eversource New Hampshire.

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>
2018_Navigant_Baseline_Loadshape_Comprehensive_Report

2. Commercial

2.1. C&I Active Demand Response

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Custom
Category	Active Demand Response

Description:

Active Demand Reduction includes C&I Load Curtailment Targeted Dispatch and Storage Daily Dispatch Performance.

The Load Curtailment offering is technology agnostic and provides an incentive for verifiable shedding of load in response to a signal or communication from the Program Administrators coinciding with system peak conditions. Large C&I customers that are subject to demand charges and/or direct capacity charges (determined by ICAP tags) with the ability to control lighting, HVAC, and/or process loads, can use this demand reduction performance offering to generate revenue by altering their operations a few times per year. The offering focuses on reducing demand during summer peak events typically targeting fewer than twenty hours per summer.

The C&I Storage Performance offering provides performance incentives for C&I storage performance. Since storage does not impact customer comfort or operations, storage resources are expected to be available for daily dispatch to maximize their value.

Baseline Efficiency:

Baseline conditions will be determined based on technology.

For Load Curtailment, baseline conditions are based on an adjustment settlement baseline with symmetric, additive adjustment. The symmetrically adjusted settlement baseline is developed based on a pool of the most recent 10 non-holiday weekdays. The baseline shape consists of average load per interval across the eligible days. The baseline is adjusted based on the difference between baseline and facility load in the second hour prior to the event (the baseline adjustment period), and the adjustment can be either to increase or decrease the estimated load reduction (i.e., symmetric adjustment). This adjustment accounts for weather-related and other differences of load magnitude.¹

For Storage, demand reduction is calculated based on battery load. A baseline value is not directly calculated for storage, instead, the counterfactual is the actual facility load without the battery, which is derived based on the facility load with the battery and the battery load.²

High Efficiency:

Active Demand Reduction does not directly increase efficiency. Load curtailment does reduce power consumption by curtailing use, but does not inherently reduce energy consumption.

Storage increases energy consumption due to round trip efficiency losses. Battery round trip efficiency losses are calculated on a per-project basis. For reference, evaluation results for daily dispatch storage reflect an impact of 240 kWh per year per kW of nameplate battery discharge capacity.²

Algorithms for Calculating Primary Energy Impact:

The Active Demand Reduction measure generates site-specific vendor-reported demand savings, which are validated by evaluation. Savings estimates for these projects are calculated using engineering analysis with project-specific details.

Measure Life:

As all C&I active demand response measures are based on Program Administrators calling demand reduction events each year, the deemed measure life is one year.

BC Measure ID	Measure Name	Program	Measure Life
E21C5a001	Load Curtailment Targeted Dispatch P4P Summer	C&I Active Demand Response	1
E21C5a002	Storage Daily Dispatch P4P (savings) Summer	C&I Active Demand Response	1
E21C5a003	Storage Daily Dispatch P4P (consumption) Summer	C&I Active Demand Response	1

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C5a001	Load Curtailment Targeted Dispatch P4P Summer	C&I Active Demand Response	1.00	0.981	1.00	0.981	1.00	1.00	0.00
E21C5a002	Storage Daily Dispatch P4P (savings) Summer	C&I Active Demand Response	1.00	1.04	1.00	1.04	1.00	1.00	0.00
E21C5a003	Storage Daily Dispatch P4P (consumption) Summer	C&I Active Demand Response	1.00	1.04	1.00	1.04	1.00	1.00	0.00

In-Service Rates:

In-service rates for commercial and industrial active demand response are assumed to be 100% by default, as measured performance in the ADR program is required to claim savings.

Realization Rates:

Electrical energy realization rates for this measure are assumed to be equal to summer peak demand realization rates.

Summer peak realization rates for interruptible load are based on a program evaluation of the 2019 summer demand reduction period for New Hampshire.¹ These realization rates are based on the overall program savings, rather than individual measure savings, and represent the retrospective realization rate (i.e. the evaluated symmetric savings estimate divided by the reported asymmetric savings estimate).

For daily and targeted storage dispatch programs, summer peak realization rates are based on an evaluation of Eversource battery storage demonstration projects.²

Coincidence Factors:

Coincidence factors for this measure are assumed to be 100%, as the scaling factor accounts for the coincidence of program events with the system peak. The programs are not claiming winter peak impacts due to the fact that the ISO-NE system is summer peaking.

Scaling Factors:

For planning the utilities use a scaling factor of 10% for load curtailment measures and 100% for daily dispatch measures, reflecting the AESC 2018 review of sensitivity analyses run by PJM load forecasters.³ For reporting utilities will use scaling factor values based on the most recent evaluation.

Energy Load Shape:

As commercial active demand response events are called on the day preceding the event, the most appropriate load shape to use is a symmetric load based on the 10 baseline day load shape at the same facility.¹

Endnotes:

1: ERS (2020). Cross-State C&I Active Demand Reduction Initiative Summer 2019 Evaluation Report. Prepared for Eversource, National Grid, and Unitil (MA, CT, and NH).

https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/Cross-State-CI-DR-S19-Evaluation-Report_04-15-2020.pdf

2: ERS (2020). Daily Dispatch Battery Project Evaluation Report. Prepared for Eversource. <https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee488776996f264267df7b6/view?authToken=8a34f8598773992325038987ea62e83319d208f835e892092c491823f78722e7a92604e473dc75021eb90f821f219b8cbc0ddafa2e207ed1924f97faecb70d5eaf3e5372d04fb6>

3: Avoided Energy Supply Components in New England: 2018 Report, page 105. <https://www.synapse-energy.com/sites/default/files/AESC-2018-17-080-Oct-ReRelease.pdf>

2.2. Building Envelope – Air Sealing and Insulation

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Building Shell

Description:

Air Sealing: Air sealing will decrease the infiltration of outside air through cracks and leaks in the building.

Insulation: The installation of high efficiency insulation in an existing structure.

Air sealing and insulation are offered through the Municipal Energy Solutions program, and apply to municipal buildings.

Baseline Efficiency: :

Air Sealing: The baseline efficiency case is the existing building before the air sealing measure is implemented. The baseline building is characterized by the existing air changes per hour (ACHPRE) for multi-family facilities, which is measured prior to the implementation of the air sealing measure. This will typically be a default value of a baseline/pre-retrofit ACH =0.5.

Insulation: The baseline efficiency case is characterized by the total R-value of the existing attic, basement, or sidewall (Rexist). This is calculated as the R-value of the existing insulation, estimated by the program contractor, plus the R-value of the ceiling, floor, or wall (for all projects: RCEILING = 3.36; RFLOOR = 6.16; RWALL = 6.65).

High Efficiency:

Air Sealing: The baseline efficiency case is the existing building after the air sealing measure is implemented. The high efficiency building is characterized by the new air changes per hour (ACHPOST) for multi-family facilities, which is measured after the air sealing measure is implemented. This will typically be a default value of a baseline/pre-retrofit ACH =0.4.

Insulation: The high efficiency case is characterized by the total R-value of the attic after the installation of additional attic, basement, or sidewall insulation. This is calculated as the sum of the existing R-value (Rexist) plus the R-value of the added insulation.

Algorithms for Calculating Primary Energy Impact:

Air Sealing:

Unit savings are calculated using the following algorithms and assumptions:

$$\begin{aligned} \text{kWh} &= (\text{Vol} \times \text{ACH} \times 0.018 \times \text{HDD} \times 24 / \eta_{\text{heating}}) / 3,413 \\ \text{MMBtu} &= (\text{Vol} \times \text{ACH} \times 0.018 \times \text{HDD} \times 24 / \eta_{\text{heating}}) / 1,000,000 \\ \text{kW} &= \text{kWh} \times \text{kW/kWh} \end{aligned}$$

Where:

Vol = [ft³] This is the air volume of the treated space, calculated from the dimensions of the space, which could include the number of floors, the floor area per floor, and the floor-to-ceiling height, or the dwelling floor area and number of dwellings. The treated space can be the entire building including the common areas, or just the individual dwelling units. (Auditor Input)

Δ ACH = [°F-day] Infiltration reduction in Air Changes per Hour, natural infiltration basis. This will typically be a default value, but the source of the assumption should be transparent and traceable, or it could come from a blower door test. (Stipulated Value or Blower Door Test)

HDD60 = Heating degree-days with temperature base of 60 degrees.¹

η_{heating} = [AFUE, COP, thermal efficiency (%)] Efficiency of the heating system, as determined on site (Auditor Input)

24 = Conversion factor: 24 hours per day

0.018 = [Btu / ft³ · °F] Air heat capacity: The specific heat of air (0.24 Btu / °F·lb) times the density of air (0.075 lb / ft³)

1,000,000 = Conversion factor: 1,000,000 Btu per MMBtu

3,413 = Conversion factor: 3,413 Btu / kWh

kW / kWh = Average kW reduction per kWh reduction: 0.00073 kW / kWh²

Insulation:

Unit savings are calculated using the following algorithms and assumptions:

$$\text{MMBtu}_{\text{annual}} = ((1/R_{\text{exist}} - 1/R_{\text{new}}) \times \text{HDD} \times 24 \times \text{Area}) / 1000000 \times \eta_{\text{heat}}$$

$$\text{kWh}_{\text{annual}} = \text{MMBtu}_{\text{annual}} \times 293.1$$

$$\text{kW} = \text{kWh}_{\text{annual}} \times \text{kW/kWh}_{\text{heating}}$$

Where,

R_{exist} = Existing effective R-value (R-ExistingInsulation + R-Assembly), ft²·°F/Btuh

R_{new} = New total effective R-value (R-ProposedMeasure + R-ExistingInsulation + R-Assembly), ft²·°F/Btuh

Area = Square footage of insulated area

η_{heat} = Efficiency of the heating system (AFUE or COP) 293.1 = Conversion constant (1MMBtu = 293.1 kWh)

24 = Conversion for hours per day

HDD = Heating Degree Days; dependent on location

1,000,000 = Conversion from Btu to MMBtu kW/kWh heating = Average annual kW reduction per kWh reduction²

Measure	kW/kWh Factor
Insulation (Electric)	0.00073
Insulation (Gas, Oil, Other FF)	0.00076
Insulation, Central AC in Electrically Heated Unit	0.00059

Measure Life:

The measure life is shown in the table below.³

BC Measure ID	Measure Name	Program	Measure Life
E21C3a015 E21C3a016 E21C3a017 E21C3a018 E21C3d017 E21C3d018 E21C3d019 E21C3d020	Air Sealing	Municipal Retrofit Municipal Direct Install	15
E21C3a051 E21C3a052 E21C3a053 E21C3a054 E21C3d051 E21C3d052 E21C3d053 E21C3d054	Insulation	Municipal Retrofit Municipal Direct Install	25
G21C1a017 G21C2a017	Air Sealing	Large C&I Retrofit Small C&I Retrofit	15
G21C1a018 G21C2a018	Insulation	Large C&I Retrofit Small C&I Retrofit	25

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:²

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3a015 E21C3d017	Air Sealing	Electric	Muni Retro Muni DI	1.00	1.00	n/a	n/a	n/a	0.00	0.43
E21C3a016 E21C3d018	Air Sealing	Gas	Muni Retro Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a017 E21C3d019	Air Sealing	Oil	Muni Retro Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a018 E21C3d020	Air Sealing	Propane	Muni Retro Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3a051 E21C3d051	Insulation	Electric	Muni Retro Muni DI	1.00	1.00	n/a	n/a	n/a	0.34	0.17
E21C3a052 E21C3d052	Insulation	Gas	Muni Retro Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a053 E21C3d053	Insulation	Oil	Muni Retro Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a054 E21C3d054	Insulation	Propane	Muni Retro Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1a017 G21C2a017	Air Sealing	Gas	Large C&I Retrofit Small C&I Retrofit	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1a018 G21C2a018	Insulation	Gas	Large C&I Retrofit Small C&I Retrofit	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Summer and winter coincidence factors for insulation are estimated using demand allocation methodology described in the Demand Impact Model.

A winter coincidence factor of 43% is utilized for air sealing.²

Energy Load Shape:

For electric air sealing and insulation, see Appendix 1 C&I Load Shapes “Hardwired Electric Heat”

For non-electric air sealing, see Appendix 1 C&I Load Shapes “Non-Electric Measures”

For non- electric insulation, see Appendix 1 C&I Load Shapes “Central Air Conditioner/ Heat Pump (Cooling)”

Endnotes:

1: The HDD should be calculated based on the TMY3 weather data of the nearest weather station.

<https://www7.ncdc.noaa.gov/CDO/cdoselect.cmd?datasetabbv=GSOD&countryabbv=&georegionabbv>

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

3: Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007.

https://library.cee1.org/system/files/library/8842/CEE_Eval_MeasureLifeStudyLights%2526HVACGDS_1Jun2007.pdf

2.3. Compressed Air – Air Compressor

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Compressed Air

Description:

Covers the installation of oil flooded, rotary screw compressors with Variable Speed Drive or Variable Displacement capacity control with properly sized air receiver. Efficient air compressors use various control schemes to improve compression efficiencies at partial loads.

Baseline Efficiency:

The baseline efficiency case is a typical load/unload compressor.

High Efficiency:

The high efficiency case is an oil-flooded, rotary screw compressor with Variable Speed Drive or Variable Displacement capacity control with a properly sized air receiver. Air receivers are designed to provide a supply buffer to meet short-term demand spikes which can exceed the compressor capacity. Installing a larger receiver tank to meet occasional peak demands can allow for the use of a smaller compressor.

Algorithms for Calculating Primary Energy Impact:

$$\Delta \text{ kWh} = (\text{HP COMPRESSOR}) \times (\text{Save}) \times (\text{Hours})$$

$$\Delta \text{ kW} = (\text{HP COMPRESSOR}) \times (\text{Save})$$

Where:

HP COMPRESSOR = Nominal rated horsepower of high efficiency air compressor

Save = Air compressor kW reduction per HP: 0.189¹

Hours = Annual operating hours of the air compressor

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b016	Air Compressor	LBES New	1.00	.99	.n/a	1.00	1.00	1.17	0.98
E21C2b016 E21C3b016	Air Compressor	SBES New Muni New	1.00	1.00	n/a	1.00	1.00	1.17	0.98

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.³

Coincidence Factors:

CFs from the prospective results of the 2015 study of prescriptive compressed air.¹

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Compressed Air – VFD Compressor”

Endnotes:

1: DNV GL, October 2015. Impact Evaluation of Prescriptive Chiller and Compressed Air Installations. Prepared for the MA PAs and EEAC. Result for VSD 25-75 HP used since “All” result includes savings from load/unload compressors, which are now baseline. http://ma-eeac.org/wordpress/wp-content/uploads/MA30-Prescriptive-Chiller-and-CAIR-Report_FINAL_151026.pdf

2: ERS, November 2005. Measure Life Study. Prepared for MA Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

3: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.4. Compressed Air – Air Nozzle

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity/ Retrofit
Category	Compressed Air

Description:

Covers the installation of engineered air nozzles which provide effective air nozzle action while reducing compressed air system air flow.

Baseline Efficiency:

The baseline efficiency case is a a standard nozzle on a compressed air system.

High Efficiency:

The high efficiency case is an engineered nozzle on the same compressed air system.

Algorithms for Calculating Primary Energy Impact:

Savings are calculated in a spreadsheet tool per the following:

$$\Delta kW = (FLOW_{BASE} - FLOW_{EE}) \times \frac{kW}{cfm}$$

$$\Delta kWh = \Delta kW \times hr$$

Where:

$FLOW_{BASE}$ = base case nozzle flow in cfm, at site specific pressure if available, or else at 100 psig

$FLOW_{EE}$ = energy efficient nozzle flow in cfm, at site specific pressure if available, or else at 100 psig

$\frac{kW}{cfm}$ = site specific compressor efficiency, default value of 0.29 if unavailable

Measure Life:

The measure life is 13 years.

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b017	Air Nozzle	LBES New	1.00	.99	n/a	1.00	1.00	0.80	0.54
E21C2b017 E21C3b017	Air Nozzle	SBES New Muni New	1.00	1.00	n/a	1.00	1.00	0.80	0.54

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs. ²

Coincidence Factors:

CFs from the prospective results of the 2015 study of prescriptive compressed air.¹

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Compressed Air – VFD Compressor”.

Endnotes:

1: DNV GL, October 2015. Impact Evaluation of Prescriptive Chiller and Compressed Air Installations. Prepared for Massachusetts Program Administrators and Massachusetts Energy Efficiency Advisory Council. http://ma-eeac.org/wordpress/wp-content/uploads/MA30-Prescriptive-Chiller-and-CAIR-Report_FINAL_151026.pdf

2: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.5. Compressed Air – Adding Compressor Capacity and/or Storage

Measure Code	[Code]
Market	Commercial
Program Type	Retrofit
Category	Compressed Air

Description:

Adding storage capacity to compressed air systems with previously insufficient storage results in less system pressure fluctuations and allows lower average system pressures, leading to air compressor energy savings when operated at lower system pressures. It also reduces cycling losses in compressor systems that use a compressor with load-unload controls for part-load modulation.

Baseline Efficiency:

The baseline is the site-specific air compressor energy consumption operating at the higher average system pressure with insufficient compressed air storage.

High Efficiency:

The high efficiency case is the site-specific air compressor energy consumption operating at the lower average system pressure after the added compressed air storage, and with reduced cycling losses for load/unload compressors.

Algorithms for Calculating Primary Energy Impact:

The energy savings are based on air compressor energy efficiency improvements resulting from two components: the lower average pressure after air storage capacity is added, and reduced cycling losses. The measure may realize one or both savings components, depending on baseline conditions.

The algorithm for calculating electric demand savings from the system pressure reduction is:

$$\Delta kW_{PR} = kW_{BASE} \times (psi_{BASE} - psi_{EE}) \times 0.4\%$$

Where:

ΔkW_{PR} = Average kW savings from the system pressure reduction

kW_{BASE} = Baseline air compressor system average input kW

psi_{BASE} = Baseline average system pressure, in psi

psi_{EE} = Energy efficient average system pressure with added storage, in psi

0.4%/psi = Compressor kW reduction factor¹

The algorithm for calculating annual electric energy savings from the system pressure reduction is:

$$\Delta kWh_{PR} = \Delta kW_{PR} \times \frac{hr}{yr}$$

Where:

ΔkWh_{PR} = Gross annual kWh savings from system pressure reduction

ΔkW_{PR} = Average kW savings from the system pressure reduction

$\frac{hr}{yr}$ = Annual compressed air system pressurization hours

The algorithm for calculating savings from the reduction in cycling losses is:

$$\Delta kW_{CL} = kW_{BASE,MOD} \times (\%kW_{BASE} - \%kW_{EE})$$

Where:

ΔkW_{CL} = Average kW savings from the reduction in cycling losses for load/unload compressors

$kW_{BASE,MOD}$ = Baseline air compressor input kW for the load-unload compressor that is the modulating or topping compressor

$\%kW_{BASE}$ = Percentage kW input in the base case (refer to %kW table, interpolate as needed)

$\%kW_{EE}$ = Percentage kW input in the energy efficient case after added storage (refer to % kW table, interpolate as needed)

Average Percent Capacity	Tank Plus Distribution System Storage per Compressor Capacity (use the modulating compressor capacity only)	% kW ²
25%	1 gal/cfm	70%
	3 gal/cfm	55%
	5 gal/cfm	50%
	10 gal/cfm	48%
50%	1 gal/cfm	88%
	3 gal/cfm	76%
	5 gal/cfm	71%
	10 gal/cfm	68%
75%	1 gal/cfm	96%
	3 gal/cfm	92%
	5 gal/cfm	89%
	10 gal/cfm	86%

The algorithm for calculating annual electric energy savings from the cycling losses is:

$$\Delta kWh_{CL} = \Delta kW_{CL} \times \frac{hr}{yr}$$

Where:

ΔkWh_{CL} = Gross annual kWh savings from the reduction in cycling losses for load/unload compressors

ΔkW_{CL} = Average kW savings from the reduction in cycling losses for load/unload compressors

$\frac{hr}{yr}$ = Annual operating hours of the load/unload topping compressor

Measure Life:

The measure life is 17 years for non-mechanical infrastructure³

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b020	Compressed air – compressor storage	LBES	1.00	.99	n/a	1.00	1.00	1.17	0.98
E21C2b020	Compressed air – compressor storage	SBES	1.00	1.00	n/a	1.00	1.00	1.17	0.98
E21C3b032	Compressed air – compressor storage	Muni	1.00	1.00		1.00	1.00	1.17	0.98

In-Service Rates:

All installations have 100% a in-service-rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.⁴

Coincidence Factors:

A summer coincidence factor of 117% and a winter coincidence factor of 98% is utilized.⁴

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Compressed Air- VFD Compressor”.

Endnotes:

1: Estimate based on ERS data of CAGI Compressor Data Sheets of 40 operating points of 10 compressors from 4 manufacturers, downloaded 5/21/20.

2: [Department of Energy Compressed Air Challenge. Improving Compressed Air System Performance A Sourcebook for Industry, Third Edition, DOE/EE-1340, \(approx. 2015\) p. 40.](#)

3: [Energy & Resource Solutions \(2005\). Measure Life Study. Prepared for The Massachusetts Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf](#) Measure life value represents the median MA Measure Life for 15-75 HP Efficient Compressors in the Compressed Air Category shown in Table 3-9 of the study.

4: [DNV GL \(2015\). Impact Evaluation of Prescriptive Chiller and Compressed Air Installations. Prepared for The Massachusetts Joint Utilities.](#)

DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.6. Compressed Air – Low Pressure Drop Filter

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit/Lost Opportunity
Category	Compressed Air

Description:

Filters remove solids and aerosols from compressed air systems. Low pressure drop filters have longer lives and lower pressure drops than traditional coalescing filters, resulting in low air compressor energy use.

Baseline Efficiency:

The baseline efficiency case is a standard coalescing filter with initial drop of between 1 and 2 pounds per sq inch (psi) with an end of life drop of 10 psi.

High Efficiency:

The high efficiency case is a low pressure drop filter with initial drop not exceeding 1 psi over life and 3 psi at element change. Filters must be deep-bed, “mist eliminator” style and installed on a single operating compressor rated 15 - 75 HP.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kW = kW_{BASE} \times (psi_{BASE} - psi_{EE}) \times 0.4\%$$

$$\Delta kWh = \Delta kW \times \frac{hr}{yr}$$

Where:

ΔkW = Average kW savings

ΔkWh = Gross annual kWh savings

kW_{BASE} = Air compressor system average input kW, site specific

psi_{BASE} = Baseline standard filter pressure drop, in psi

psi_{EE} = Energy efficient filter pressure drop, in psi

0.4%/psi = Compressor kW reduction factor¹

$\frac{hr}{yr}$ = Annual compressed air system pressurization hours

Measure Life:

The measure life is 5 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a032	Low Pressure Drop Filter	LBES Retro	1.00	.99	n/a	1.00	1.00	0.80	0.54
E21C1b043	Low Pressure Drop Filter	LBES New	1.00	.99	n/a	1.00	1.00	0.80	0.54
E21C1d032	Low Pressure Drop Filter	LBES DI	1.00	.99	n/a	1.00	1.00	0.80	0.54
E21C2a032	Low Pressure Drop Filter	SBES Retro	1.00	1.00	n/a	1.00	1.00	0.80	0.54
E21C2b043	Low Pressure Drop Filter	SBES New	1.00	1.00	n/a	1.00	1.00	0.80	0.54
E21C2d032	Low Pressure Drop Filter	SBES DI	1.00	1.00	n/a	1.00	1.00	0.80	0.54
E21C3a055	Low Pressure Drop Filter	Muni Retro	1.00	1.00	n/a	1.00	1.00	0.80	0.54
E21C3b065	Low Pressure Drop Filter	Muni New	1.00	1.00	n/a	1.00	1.00	0.80	0.54
E21C3d055	Low Pressure Drop Filter	Muni DI	1.00	1.00	n/a	1.00	1.00	0.80	0.54

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Realization rates are based on impact evaluation of PY 2004 compressed air installations.³

Realization rates are based on impact evaluation of NSTAR 2006 compressed air installations.⁴ The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.⁵

Coincidence Factors:

Summer and winter coincidence factors are CFs based on impact evaluation of PY 2004 compressed air installations.³

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Compressed Air – VFD Compressor”.

Endnotes:

1: Estimate based on ERS data of CAGI Compressor Data Sheets of 40 operating points of 10 compressors from 4 manufacturers, downloaded 5/21/20.

2: ERS, November 2005. Measure Life Study. Prepared for MA Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

3: DMI, 2006. Impact Evaluation of 2004 Compressed Air Prescriptive Rebates. Results analyzed in RLW Analytics, 2006. Sample Design and Impact Evaluation Analysis for Prescriptive Compressed Air Measures in Energy Initiative and Design 2000 Programs.

4: LW Analytics, 2008. Business & Construction Solutions (BS/BC) Programs Measurement & Verification - 2006 Final Report.

[DNV GL \(2015\). Impact Evaluation of Prescriptive Chiller and Compressed Air Installations. Prepared for The Massachusetts Joint Utilities.](#)

DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.7. Compressed Air – Refrigerated Air Dryer

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Compressed Air

Description:

The installation of cycling or variable frequency drive (VFD)-equipped refrigerated compressed air dryers. Refrigerated air dryers remove the moisture from a compressed air system to enhance overall system performance. An efficient refrigerated dryer cycles on and off or uses a variable speed drive as required by the demand for compressed air instead of running continuously. Only properly sized refrigerated air dryers used in a single-compressor system are eligible.

Baseline Efficiency:

The baseline efficiency case is a non-cycling refrigerated air dryer.

High Efficiency:

The high efficiency case is a cycling refrigerated dryer or a refrigerated dryer equipped with a VFD.

Algorithms for Calculating Primary Energy Impact:

$$\Delta \text{kWh} = (\text{CFM DRYER}) \times (\text{Save}) \times (\text{HRS})$$

$$\Delta \text{kW} = (\text{CFM DRYER}) \times (\text{Save})$$

Where:

CFM DRYER = Full flow rated capacity of the refrigerated air dryer in cubic feet per minute (CFM) obtained from equipment's Compressed Air Gas Institute Datasheet.

Save = Refrigerated air dryer kW reduction per dryer full flow rated CFM: 0.00554¹

HRS = Annual operating hours of the refrigerated air dryer

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b047	Refrigerated Air Dryer	LBES New	1.00	1.56	n/a	1.00	1.00	1.17	0.98

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C2b047	Refrigerated Air Dryer	SBES New	1.00	1.56	n/a	1.00	1.00	1.17	0.98
E21C3b078	Refrigerated Air Dryer	Muni New	1.00	1.56	n/a	1.00	1.00	1.17	0.98

In-Service Rates:

All installations have a 100% in-service rates unless an evaluation finds otherwise.

Realization Rates:

Realization rates are from the prospective results of the 2015 study of prescriptive compressed air.¹

Coincidence Factors:

Summer and winter coincidence factors are from the prospective results of the 2015 study of prescriptive compressed air.¹

Energy Load Shape:

See Appendix 1, C&I Load Shapes Table “C&I Compressed Air – Air Dryer”

Endnotes:

1 DNV GL, October 2015. Impact Evaluation of Prescriptive Chiller and Compressed Air Installations.

Prepared for MA Joint Utilities and MA EEAC. http://ma-eeac.org/wordpress/wp-content/uploads/MA30-Prescriptive-Chiller-and-CAIR-Report_FINAL_151026.pdf

2: ERS, November 2005. Measure Life Study. Prepared for MA Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

2.8. Compressed Air – Zero Loss Condensate Drain

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit/Lost Opportunity
Category	Compressed Air

Description:

Drains remove water from a compressed air system. Zero loss condensate drains remove water from a compressed air system without venting any air, resulting in less air demand and consequently less air compressor energy use.

Baseline Efficiency:

The baseline efficiency case a standard condensate drain on a compressor system.

High Efficiency:

The high efficiency case is installation of a zero loss condensate drain on a single operating compressor rated ≤ 75 HP.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = (CFM_{pipe}) \times (CFM_{save}) \times (Save) \times (Hours)$$

$$\Delta kW = (CFM_{pipe}) \times (CFM_{save}) \times (Save)$$

Where:

ΔkWh = Energy Savings

ΔkW = Demand savings

CFM_{pipe} = CFM capacity of piping that is served by the condensate drain, site specific

CFM_{saved} = Average CFM saved per CFM of piping capacity: 0.049¹

Save = Average savings per CFM, site specific if available, default value of 0.21 kW/CFM¹

Hours = Annual operating hours of the zero loss condensate drain.

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a046	Zero Loss Condensate Drains	LBES Retro	1.00	.99	1.00	1.00	1.00	0.80	0.54
E21C1b051	Zero Loss Condensate Drains	LBES New	1.00	.99	1.00	1.00	1.00	0.80	0.54
E21C1d046	Zero Loss Condensate Drains	LBES DI	1.00	.99	1.00	1.00	1.00	0.80	0.54
E21C2a046	Zero Loss Condensate Drains	SBES Retro	1.00	1.00	1.00	1.00	1.00	0.80	0.54
E21C2b051	Zero Loss Condensate Drains	SBES New	1.00	1.00	1.00	1.00	1.00	0.80	0.54
E21C2d046	Zero Loss Condensate Drains	SBES DI	1.00	1.00	1.00	1.00	1.00	0.80	0.54
E21C3a090	Zero Loss Condensate Drains	Muni Retro	1.00	1.00	1.00	1.00	1.00	0.80	0.54
E21C3b082	Zero Loss Condensate Drains	Muni New	1.00	1.00	1.00	1.00	1.00	0.80	0.54
E21C3d090	Zero Loss Condensate Drains	Muni DI	1.00	1.00	1.00	1.00	1.00	0.80	0.54

In-Service Rates:

All installations have a 100% in-service rate since unless an evaluation finds otherwise.

Realization Rates:

All program use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.³

Coincidence Factors:

Summer and winter coincidence factors are based on Massachusetts TRM values. Latest 2015 evaluation study did not yield a statistically significant sample size for updating CF values.

Energy Load Shape:

See Appendix 1, C&I Load Shapes Table “C&I Compressed Air – VFD Compressor”

Endnotes:

1: Prescriptive_CAIR_ZLD_LPDF_Tool.xlsx referenced by the Massachusetts TRM.

2: Energy & Resource Solutions, November 2005. Measure Life Study. Prepared for Massachusetts Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

3: [DNV GL \(2015\). Impact Evaluation of Prescriptive Chiller and Compressed Air Installations. Prepared for The Massachusetts Joint Utilities.](#)

DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.9. Custom Measures

Measure Code	[Code]
Market	Commercial
Program Type	Retrofit/Lost Opportunity
Category	Custom

Description:

The Custom project track is offered for electric and natural gas energy efficiency projects involving complex site-specific applications that require detailed engineering analysis and/or projects which do not qualify for incentives under any of the prescriptive rebate offering.

Baseline Efficiency:

Retrofit projects will use the existing system or performance as the baseline for all single baseline projects. Lost opportunity projects will generally refer to code, until such time as New Hampshire-specific industry standard practice (ISP) studies have been completed. If a New Hampshire-specific ISP has been established, lost opportunity projects should refer to that ISP if applicable. . If code does not apply and an ISP is not available, engineering judgement should be used to determine a project baseline.

High Efficiency:

The high efficiency scenario is specific to the custom project and may include one or more energy efficiency measures. Energy and demand savings calculations are based on projected or measured changes in equipment efficiencies and operating characteristics and are determined on a case-by-case basis.

Algorithms for Calculating Primary Energy Impact:

Gross energy and demand savings estimates for custom projects are calculated using engineering analysis with project-specific details. Custom analyses typically include a weather dependent load bin analysis, whole building energy model simulation, end-use metering or other engineering analysis and include estimates of savings, costs, and an evaluation of the projects' cost-effectiveness.

Measure Life:

For both lost-opportunity and retrofit custom applications, the measure life is determined on a case-by-case basis.²

Other Resource Impacts:

Other resource impacts should be determined on a case by case basis for custom projects.

Impact Factors for Calculating Adjusted Gross Savings:¹

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b001	Custom Large Compressed Air New	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1a001	Custom Large Compressed Air Retro	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1d001	Custom Large Compressed Air Direct Install	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1b002	Custom Large Hot Water New	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1a002	Custom Large Hot Water Retro	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1d002	Custom Large Hot Water Direct Install	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1b003	Custom Large HVAC New	LBES	1.000	0.900	0.87	1.000	1.000	1.00	0.385
E21C1a003	Custom Large HVAC Retro	LBES	1.000	0.900	0.87	1.000	1.000	0.70	0.85
E21C1d003	Custom Large HVAC Direct Install	LBES	1.000	0.900	0.87	1.000	1.000	0.70	0.85
E21C1b004	Custom Large Lighting New – Interior	LBES	1.000	0.990	n/a	1.000	1.000	0.80	0.61
E21C1b054	Custom Large Lighting New – Exterior	LBES	1.000	0.990	n/a	1.000	1.000	0.00	1.00
E21C1b055	Custom Large Lighting New – Controls	LBES	1.000	0.990	n/a	1.000	1.000	0.15	0.13
E21C1a004	Custom Large Lighting Retro – Interior	LBES	1.000	0.990	n/a	1.000	1.000	0.80	0.61
E21C1a047	Custom Large Lighting Retro – Exterior	LBES	1.000	0.990	n/a	1.000	1.000	0.00	1.00
E21C1a048	Custom Large Lighting Retro – Controls	LBES	1.000	0.990	n/a	1.000	1.000	0.15	0.13
E21C1d004	Custom Large Lighting Direct Install – Interior	LBES	1.000	0.990	n/a	1.000	1.000	0.80	0.61
E21C1d005	Custom Large Lighting Direct Install – Exterior	LBES	1.000	0.990	n/a	1.000	1.000	0.00	1.00
E21C1d006	Custom Large Lighting Direct Install – Controls	LBES	1.000	0.990	n/a	1.000	1.000	0.15	0.13
E21C1b005	Custom Large Motors New	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1a005	Custom Large Motors Retro	LBES	1.000	0.900	0.87	1.000	1.000	0.92	0.90
E21C1d007	Custom Large Motors Direct Install	LBES	1.000	0.900	0.87	1.000	1.000	0.92	0.90
E21C1b008	Custom Large Other New	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1a008	Custom Large Other Retro	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C1a010	Custom Large Other Direct Install	LBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00

E21C1b006	Custom Large Process New	LBES	1.000	0.900	0.87	1.000	1.000	0.95	0.45
E21C1a006	Custom Large Process Retro	LBES	1.000	0.900	0.87	1.000	1.000	0.95	0.90
E21C1d008	Custom Large Process Direct Install	LBES	1.000	0.900	0.87	1.000	1.000	0.95	0.90
E21C1b007	Custom Large Refrigeration New	LBES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C1a007	Custom Large Refrigeration Retro	LBES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C1d009	Custom Large Refrigeration Direct Install	LBES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C1b056	Custom Large Comprehensive Design	LBES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C3b001	Custom Muni Compressed Air New	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3a001	Custom Muni Compressed Air Retro	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3d001	Custom Muni Compressed Air Direct Install	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3b002	Custom Muni Hot Water New	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3a002	Custom Muni Hot Water Retro	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3d002	Custom Muni Hot Water Direct Install	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3b003	Custom Muni HVAC New	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3a003	Custom Muni HVAC Retro	MES	1.000	0.900	0.87	1.000	1.000	0.70	0.85
E21C3d003	Custom Muni HVAC Direct Install	MES	1.000	0.900	0.87	1.000	1.000	0.70	0.85
E21C3b004	Custom Muni Lighting New – Interior	MES	1.000	1.066	n/a	1.000	1.000	0.00	0.00
E21C3b085	Custom Muni Lighting New – Exterior	MES	1.000	1.027	n/a	1.000	1.000	0.00	0.00
E21C3b086	Custom Muni Lighting New – Controls	MES	1.000	1.00	n/a	1.000	1.000	0.00	0.00
E21C3a004	Custom Muni Lighting Retro – Interior	MES	1.000	1.066	n/a	1.000	1.000	0.80	0.61
E21C3a091	Custom Muni Lighting Retro – Exterior	MES	1.000	1.027	n/a	1.000	1.000	0.00	1.00
E21C3a092	Custom Muni Lighting Retro – Controls	MES	1.000	1.00	n/a	1.000	1.000	0.15	0.13
E21C3d004	Custom Muni Lighting Direct Install – Interior	MES	1.000	1.066	n/a	1.000	1.000	0.80	0.61
E21C3d005	Custom Muni Lighting Direct Install – Exterior	MES	1.000	1.027	n/a	1.000	1.000	0.00	1.00
E21C3d006	Custom Muni Lighting Direct Install – Controls	MES	1.000	1.00	n/a	1.000	1.000	0.15	0.13
E21C3b005	Custom Muni Motors New	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3a005	Custom Muni Motors Retro	MES	1.000	0.900	0.87	1.000	1.000	0.92	0.90

E21C3d007	Custom Muni Motors Direct Install	MES	1.000	0.900	0.87	1.000	1.000	0.92	0.90
E21C3b008	Custom Muni Other New	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3a008	Custom Muni Other Retro	MES	1.000	0.900	0.87	1.000	1.000	0.476	0.428
E21C3d010	Custom Muni Other Direct Install	MES	1.000	0.900	0.87	1.000	1.000	0.476	0.428
E21C3b006	Custom Muni Process New	MES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C3a006	Custom Muni Process Retro	MES	1.000	0.900	0.87	1.000	1.000	0.95	0.90
E21C3d008	Custom Muni Process Direct Install	MES	1.000	0.900	0.87	1.000	1.000	0.95	0.90
E21C3b007	Custom Muni Refrigeration New	MES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C3a007	Custom Muni Refrigeration Retro	MES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C3d009	Custom Muni Refrigeration Direct Install	MES	1.000	0.900	n/a	1.000	1.000	0.00	0.00
E21C2b001	Custom Small Compressed Air New	SBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C2a001	Custom Small Compressed Air Retro	SBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C2d001	Custom Small Compressed Air Direct Install	SBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C2b002	Custom Small Hot Water New	SBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C2a002	Custom Small Hot Water Retro	SBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C2d002	Custom Small Hot Water Direct Install	SBES	1.000	0.900	0.87	1.000	1.000	0.00	0.00
E21C2b003	Custom Small HVAC New	SBES	1.000	0.900	0.87	1.000	1.000	1.00	0.385
E21C2a003	Custom Small HVAC Retro	SBES	1.000	0.900	0.87	1.000	1.000	0.70	0.85
E21C2d003	Custom Small HVAC Direct Install	SBES	1.000	0.900	0.87	1.000	1.000	0.70	0.85
E21C2b004	Custom Small Lighting New - Interior	SBES	1.000	1.066	n/a	1.000	1.000	0.80	0.61
E21C2b054	Custom Small Lighting New - Exterior	SBES	1.000	1.027	n/a	1.000	1.000	0.00	1.00
E21C2b055	Custom Small Lighting New - Controls	SBES	1.000	1.00	n/a	1.000	1.000	0.15	0.13
E21C2a004	Custom Small Lighting Retro - Interior	SBES	1.000	1.066	n/a	1.000	1.000	0.70	0.85
E21C2a047	Custom Small Lighting Retro- Exterior	SBES	1.000	1.027	n/a	1.000	1.000	0.80	0.61
E21C2a048	Custom Small Lighting Retro - Controls	SBES	1.000	1.00	n/a	1.000	1.000	0.15	0.13
E21C2d004	Custom Small Lighting Direct Install - Interior	SBES	1.000	1.066	n/a	1.000	1.000	0.70	0.85
E21C2d005	Custom Small Lighting Direct Install - Exterior	SBES	1.000	1.027	n/a	1.000	1.000	0.80	0.61

E21C2d006	Custom Small Lighting Direct Install - Controls	SBES	1.000	1.00	n/a	1.000	1.000	0.15	0.13
E21C2b005	Custom Small Motors New	SBES	1.000	0.900	0.87	1.000	1.000	0.95	0.80
E21C2a005	Custom Small Motors Retro	SBES	1.000	0.900	0.87	1.000	1.000	0.92	0.90
E21C2d007	Custom Small Motors Direct Install	SBES	1.000	0.900	0.87	1.000	1.000	0.92	0.90
E21C2b008	Custom Small Other New	SBES	1.000	0.900	0.87	1.000	1.000	0.476	0.428
E21C2a008	Custom Small Other Retro	SBES	1.000	0.900	0.87	1.000	1.000	0.45	0.52
E21C2d010	Custom Small Other Direct Install	SBES	1.000	0.900	0.87	1.000	1.000	0.45	0.52
E21C2b006	Custom Small Process New	SBES	1.000	0.900	0.87	1.000	1.000	0.95	0.45
E21C2a006	Custom Small Process Retro	SBES	1.000	0.900	0.87	1.000	1.000	0.95	0.90
E21C2d008	Custom Small Process Direct Install	SBES	1.000	0.900	0.87	1.000	1.000	0.95	0.90
E21C2b007	Custom Small Refrigeration New	SBES	1.000	0.900	n/a	1.000	1.000	0.80	0.80
E21C2a007	Custom Small Refrigeration Retro	SBES	1.000	0.900	n/a	1.000	1.000	0.90	0.99
E21C2d009	Custom Small Refrigeration Direct Install	SBES	1.000	0.900	n/a	1.000	1.000	0.90	0.99
E21C2b056	Custom Small Comprehensive Design	SBES	1.000	0.900	n/a	1.000	1.000	0.90	0.99
G21C1a001	Custom Large Hot Water Retro	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1a002	Custom Large HVAC Retro	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1a003	Custom Large Other Retro	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1a004	Custom Large Process Retro	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1b001	Custom Large Hot Water New	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1b002	Custom Large HVAC New	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1b003	Custom Large Other New	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C1b004	Custom Large Process New	LBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2a001	Custom Small Hot Water Retro	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2a002	Custom Small HVAC Retro	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2a003	Custom Small Other Retro	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2a004	Custom Small Process Retro	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2b001	Custom Small Hot Water New	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2b002	Custom Small HVAC New	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
G21C2b003	Custom Small Other New	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a

G21C2b004	Custom Small Process New	SBES	1.000	n/a	0.87	n/a	n/a	n/a	n/a
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Impact Factors for Calculating Net Savings:

Free-ridership and spillover for custom lighting are based on study results from CT the nearby jurisdiction with programs and markets most similar to those in NH.⁴

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C2b004	Custom Small Lighting New - Interior	SBES	11%	5%	0%	94%
E21C2b054	Custom Small Lighting New - Exterior	SBES	11%	5%	0%	94%
E21C2b055	Custom Small Lighting New - Controls	SBES	11%	5%	0%	94%
E21C2a004	Custom Small Lighting Retro - Interior	SBES	11%	5%	0%	94%
E21C2a047	Custom Small Lighting Retro- Exterior	SBES	11%	5%	0%	94%
E21C2a048	Custom Small Lighting Retro - Controls	SBES	11%	5%	0%	94%
E21C2d004	Custom Small Lighting Direct Install - Interior	SBES	11%	5%	0%	94%
E21C2d005	Custom Small Lighting Direct Install - Exterior	SBES	11%	5%	0%	94%
E21C2d006	Custom Small Lighting Direct Install - Controls	SBES	11%	5%	0%	94%
E21C3b004	Custom Muni Lighting New – Interior	MES	11%	5%	0%	94%
E21C3b085	Custom Muni Lighting New – Exterior	MES	11%	5%	0%	94%
E21C3b086	Custom Muni Lighting New – Controls	MES	11%	5%	0%	94%
E21C3a004	Custom Muni Lighting Retro – Interior	MES	11%	5%	0%	94%
E21C3a091	Custom Muni Lighting Retro – Exterior	MES	11%	5%	0%	94%
E21C3a092	Custom Muni Lighting Retro – Controls	MES	11%	5%	0%	94%
E21C3d004	Custom Muni Lighting Direct Install – Interior	MES	11%	5%	0%	94%
E21C3d005	Custom Muni Lighting Direct Install – Exterior	MES	11%	5%	0%	94%
E21C3d006	Custom Muni Lighting Direct Install – Controls	MES	11%	5%	0%	94%
E21C1b004	Custom Large Lighting New – Interior	LBES	11%	5%	0%	94%

E21C1b054	Custom Large Lighting New – Exterior	LBES	11%	5%	0%	94%
E21C1b055	Custom Large Lighting New – Controls	LBES	11%	5%	0%	94%
E21C1a004	Custom Large Lighting Retro – Interior	LBES	11%	5%	0%	94%
E21C1a047	Custom Large Lighting Retro – Exterior	LBES	11%	5%	0%	94%
E21C1a048	Custom Large Lighting Retro – Controls	LBES	11%	5%	0%	94%
E21C1d004	Custom Large Lighting Direct Install – Interior	LBES	11%	5%	0%	94%
E21C1d005	Custom Large Lighting Direct Install – Exterior	LBES	11%	5%	0%	94%
E21C1d006	Custom Large Lighting Direct Install – Controls	LBES	11%	5%	0%	94%

Energy Load Shape:

See Appendix 1, C&I Load Shapes Table

- “C&I Interior Lighting – Prescriptive”
- “C&I Exterior Lighting”
- “C&I Lighting Controls”
- “C&I- Refrigeration”

Endnotes:

1: Realization rates for custom non lighting measures are based on a weighted average of realization rates from jurisdictions within New England, with a 50% weight for New Hampshire. To be updated once the Large C&I Custom Impact Evaluation is complete in 2021/2022.

Realization rates for custom lighting measures are based on DNV GL, September 2015. New Hampshire Utilities Large Commercial and Industrial (C&I) Retrofit And New Equipment & Construction Program Impact Evaluation.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2: Energy & Resource Solutions (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities; Table 1-2. [ERS 2005 Measure Life Study](#)

3: Baseline Categories and preliminary Out Year Factors are described at a high level in DNV GL, ERS (2018). Portfolio Model Companion Sheet. Additional background on the baseline categorization given in DNV GL, ERS (2018). Portfolio Model Methods and Assumptions – Electric and Natural Gas Memo. [2018 DNVGL ERS Portfolio Model Companion Sheet](#)

4: EMI, September 25, 2019 . C1644 EO Net-to-Gross Study, Final Report.

https://www.energizect.com/sites/default/files/C1644%20-%20EO%20NTG%20Final%20Report_9.25.19.pdf

Downstream NTG values are based on Energy Opportunities NTG Study Results for Lighting shown in Table ES-1-1 on p. ES-3.

2.10. Food Service – Dishwasher

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Dishwasher High Temperature: Installation of a qualified ENERGY STAR® high temperature commercial dishwasher in a building with gas domestic hot water. High temperature dishwashers use a booster heater to raise the rinse water temperature to 180 F – hot enough to sterilize dishes and assist in drying. Electric savings are achieved through savings to the electric booster.

Dishwasher Low Temperature: Installation of a qualified ENERGY STAR® low temperature commercial dishwasher in a facility with electric hot water heating. Low temperature dishwashers use the hot water supplied by the kitchen's existing water heater and use a chemical sanitizing agent in the final rinse cycle and sometimes a drying agent.

Baseline Efficiency:

Dishwasher High Temp: The baseline efficiency case is a commercial dishwasher with idle energy rates and water consumption as follows¹:

Dishwasher Type	Idle Energy Rate (kW)	Water Consumption (gal/rack)
High Temp Under Counter Dishwasher	0.76	1.09
High Temp Door Type Dishwasher	0.87	1.29
High Temp Single Tank Conveyer Dishwasher	1.93	0.87
High Temp Multi Tank Conveyer Dishwasher	2.59	0.97
High Temp Pots & Pans Dishwasher	1.20	0.70

Dishwasher Low Temp: The baseline efficiency case is a commercial dishwasher with idle energy rates and water consumption as follows¹:

Dishwasher Type	Idle Energy Rate (kW)	Water Consumption (gal/rack)
Low Temp Under Counter Dishwasher	0.50	1.73
Low Temp Door Type Dishwasher	0.60	2.10
Low Temp Single Tank Conveyor Dishwasher	1.60	1.31

Low Temp Multi Tank Conveyor Dishwasher	2.00	1.04

High Efficiency:

Dishwasher High Temp: The high efficiency case is a commercial dishwasher with idle energy rates and water consumption following ENERGY STAR® Efficiency Requirements² as follows:

Dishwasher Type	Idle Energy Rate (kW)	Water Consumption (gal/rack)
High Temp Under Counter Dishwasher	0.50	0.86
High Temp Door Type Dishwasher	0.70	0.89
High Temp Single Tank Conveyor Dishwasher	1.50	0.70
High Temp Multi Tank Conveyor Dishwasher	2.25	0.54
High Temp Pots & Pans Dishwasher	1.20	0.58

Dishwasher Low Temp: The high efficiency case is a commercial dishwasher with idle energy rates and water consumption following ENERGY STAR® Efficiency Requirements² as follows:

Dishwasher Type	Idle Energy Rate (kW)	Water Consumption (gal/rack)
Low Temp Under Counter Dishwasher	0.50	1.19
Low Temp Door Type Dishwasher	0.60	1.18
Low Temp Single Tank Conveyor Dishwasher	1.60	0.79
Low Temp Multi Tank Conveyor Dishwasher	2.00	0.54

Algorithms for Calculating Primary Energy Impact:

Dishwasher High Temp: Unit savings are deemed based on the Energy Star Commercial Kitchen Equipment Savings Calculator¹:

$$\text{kWh} = \text{kWh}$$

$$\text{kW} = \text{kWh} / \text{hours}$$

$$\text{MMBtu} = \text{MMBtu}$$

Where:

kWh = gross annual kWh savings from the measure. See table below.

kW = gross average kW savings from the measure. See table below.

MMBtu = gross average natural gas MMBtu savings from the measure. See table below.

Hours = Average annual equipment operating hours is 18 hours/ day, 6,570 hours/year¹.

BC Measure ID	Measure	Program	ΔkW	ΔkWh	ΔMMBtu
E21C1b026 E21C2b026 E21C3b040 E21C1c024 E21C2c024	High Temp Under Counter Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	0.32	1,791	n/a
E21C1b022 E21C2b022 E21C3b036 E21C1c020 E21C2c020	High Temp Door Type Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	0.74	4,151	n/a
E21C1b025 E21C2b025 E21C3b039 E21C1c023 E21C2c023	High Temp Single Tank Conveyer Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	0.75	4,243	n/a
E21C1b023 E21C2b023 E21C3b037 E21C1c021 E21C2c021	High Temp Multi Tank Conveyer Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	1.71	9,630	n/a
E21C1b024 E21C2b024 E21C3b038 E21C1c022 E21C2c022	High Temp Pots & Pans Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	0.18	1,032	n/a
E21C1b030 E21C2b030 E21C3b044 E21C1c028 E21C2c028	Low Temp Under Counter Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	0.39	2,178	n/a
E21C1b027 E21C2b027 E21C3b041 E21C1c025 E21C2c025	Low Temp Door Type Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	2.46	13,851	n/a
E21C1b029 E21C2b029 E21C3b043 E21C1c027 E21C2c027	Low Temp Single Tank Conveyer Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	2.07	11,685	n/a

E21C1b028 E21C2b028 E21C3b042 E21C1c026 E21C2c026	Low Temp Multi Tank Conveyor Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	2.86	16,131	n/a

Measure Life:

The measure life for a new high temperature dishwasher is given by type below ³:

BC Measure ID	Measure Name	Program	Measure Life
E21C1b026 E21C2b026 E21C3b040 E21C1c024 E21C2c024	High Temp Under Counter Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	10
E21C1b022 E21C2b022 E21C3b036 E21C1c020 E21C2c020	High Temp Door Type Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	15
E21C1b025 E21C2b025 E21C3b039 E21C1c023 E21C2c023	High Temp Single Tank Conveyor Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	20
E21C1b023 E21C2b023 E21C3b037 E21C1c021 E21C2c021	High Temp Multi Tank Conveyor Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	20
E21C1b024 E21C2b024 E21C3b038 E21C1c022 E21C2c022	High Temp Pots & Pans Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	10
E21C1b030 E21C2b030 E21C3b044 E21C1c028 E21C2c028	Low Temp Under Counter Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	10

E21C1b027 E21C2b027 E21C3b041 E21C1c025 E21C2c025	Low Temp Door Type Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	15
E21C1b029 E21C2b029 E21C3b043 E21C1c027 E21C2c027	Low Temp Single Tank Conveyor Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	20
E21C1b028 E21C2b028 E21C3b042 E21C1c026 E21C2c026	Low Temp Multi Tank Conveyor Dishwasher	LBES New SBES New Muni New LBES Mid SBES Mid	20

Other Resource Impacts:

Dishwasher high temp: There are water savings associated with this measure. ¹

Dishwasher Type	Annual water savings (gal/unit)
High Temp Under Counter Dishwasher	5,399
High Temp Door Type Dishwasher	35,056
High Temp Single Tank Conveyor Dishwasher	21,284
High Temp Multi Tank Conveyor Dishwasher	80,754
High Temp Pots & Pans Dishwasher	10,517

Dishwasher low temp: There are water savings associated with this measure. ¹

Dishwasher Type	Annual water savings (gal/unit)
Low Temp Under Counter Dishwasher	12,677
Low Temp Door Type Dishwasher	80,629
Low Temp Single Tank Conveyor Dishwasher	65,104
Low Temp Multi Tank Conveyor Dishwasher	93,900

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b026 E21C2b026 E21C3b040 E21C1c024 E21C2c024	High Temp Under Counter Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b022 E21C2b022 E21C3b036 E21C1c020 E21C2c020	High Temp Door Type Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b025 E21C2b025 E21C3b039 E21C1c023 E21C2c023	High Temp Single Tank Conveyer Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b023 E21C2b023 E21C3b037 E21C1c021 E21C2c021	High Temp Multi Tank Conveyer Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b024 E21C2b024 E21C3b038 E21C1c022 E21C2c022	High Temp Pots & Pans Dishwasher	SBES New LBES Mid SBES Mid Muni New	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b030 E21C2b030 E21C3b044 E21C1c028 E21C2c028	Low Temp Under Counter Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b027 E21C2b027 E21C3b041 E21C1c025 E21C2c025	Low Temp Door Type Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b029 E21C2b029 E21C3b043 E21C1c027 E21C2c027	Low Temp Single Tank Conveyer Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b028 E21C2b028	Low Temp Multi Tank Conveyor Dishwasher	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3b042 E21C1c026 E21C2c026									
E21C1b026 E21C2b026 E21C3b040	High Temp Under Counter Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b022 E21C2b022 E21C3b036	High Temp Door Type Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b025 E21C2b025 E21C3b039	High Temp Single Tank Conveyer Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b023 E21C2b023 E21C3b037	High Temp Multi Tank Conveyer Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b024 E21C2b024 E21C3b038	High Temp Pots & Pans Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b030 E21C2b030 E21C3b044	Low Temp Under Counter Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b027 E21C2b027 E21C3b041	Low Temp Door Type Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b029 E21C2b029 E21C3b043	Low Temp Single Tank Conveyor Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b028 E21C2b028 E21C3b042	Low Temp Multi Tank Conveyor Dishwasher	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90

In-Service Rates:

In-service rates are assumed to be 100% until an evaluation finds otherwise.

Realization Rates:

Realization rates are assumed to be 100% until an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs. ⁴

Coincidence Factors:

Coincidence Factors are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)⁵:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c024 E21C2c024	High Temp Under Counter Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c020 E21C2c020	High Temp Door Type Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c023 E21C2c023	High Temp Single Tank Conveyor Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c021 E21C2c021	High Temp Multi Tank Conveyor Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c022 E21C2c022	High Temp Pots & Pans Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c028 E21C2c028	Low Temp Under Counter Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c025 E21C2c025	Low Temp Door Type Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c027 E21C2c027	Low Temp Single Tank Conveyor Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86
E21C1c026 E21C2c026	Low Temp Multi Tank Conveyor Dishwasher	LBES Mid SBES Mid	0.225	0.085	0.0	0.86

Energy Load Shape:

See Appendix 1, C&I Load Shapes Table- “C&I Food Services”

Endnotes:

1. ENERGY STAR Commercial Kitchen Equipment Calculator. Updated October 2016.
Note: High temperature units are assumed to have natural gas hot water and electric temperature boosters. Low temperature units are assumed to have electric hot water. ENERGY STAR notes that a new version of the calculator will be available in fall 2020.
2. ENERGY STAR Commercial Dishwashers Key Product Criteria, version 2.0. Effective Feb 1, 2013.
Note: ENERGY STAR Commercial Dishwashers product specification version 3.0 is in its final form as of October 27, 2020 and will go into effect July 27, 2021.
3. FSTC Life Cycle Savings Calculators <https://fishnick.com/saveenergy/tools/calculators/>
4. DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

5. NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.11. Food Service – Fryer

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Electric Fryer: Installation of a qualified ENERGY STAR standard or large vat commercial fryer. ENERGY STAR commercial fryers save energy during cooking and idle times due to improved cooking efficiency and idle energy rates.

Gas Fryer: The installation of a natural-gas fired fryer that is either ENERGY STAR rated or has a heavy-load cooking efficiency of at least 50%. Qualified fryers use advanced burner and heat exchanger designs to use fuel more efficiently, as well as increased insulation to reduce standby heat loss.

Baseline Efficiency:

Electric Fryer: The baseline efficiency case for both, standard sized fryers and large capacity fryers is an electric deep-fat fryer of the same size with a cooking energy efficiency, shortening capacity, and idle energy rate as defined by any relevant U.S. federal requirements.

Gas Fryer: The baseline efficiency case is a gas deep-fat fryer of the same size with a cooking energy efficiency, shortening capacity, and idle energy rate as defined by any relevant U.S. federal requirements.

High Efficiency:

Electric Fryer: The high efficiency case for both, standard sized fryer and large capacity fryers is an electric deep-fat fryer with a cooking energy efficiency, shortening capacity, and idle energy rate in line with ENERGY STAR requirements.

Gas Fryer: The high efficiency case is an fryers is a deep-fat gas fryer with a cooking energy efficiency, shortening capacity, and idle energy rate in line with ENERGY STAR requirements.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = \Delta kWh$$

$$\Delta kW = \Delta kWh / \text{Hours}$$

Where:

ΔkWh = gross annual kWh savings from the measure per table below

ΔkW = gross average kW savings from the measure per table below

Hours = Annual hours of operation

$$\Delta MMBtu = \Delta MMBtu$$

Where:

$\Delta MMBtu$ = gross annual MMBtu gas savings from the measure per table below

Energy Savings for Commercial Fryer:

BC Measure ID	Measure Name	Program	ΔkW	ΔkWh	$\Delta MMBtu$
E21C1b033 E21C2b033 E21C3b050 E21C1c032 E21C2c032	Electric Fryer, Standard Vat	LBES New SBES New Muni LBES Mid SBES Mid	0.50	2,976	n/a
E21C1b032 E21C2b032 E21C3b049 E21C1c031 E21C2c031	Electric Fryer, Large Vat	LBES New SBES New Muni LBES Mid SBES Mid	0.50	2,841	n/a
G21C1b024 G21C2b024 G21C1c004 G21C2c004	Gas Fryer	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	78.3

Measure Life:

The measure life for a new commercial fryer is 12 years.¹

Other Resource Impacts:

There are no other resource impacts for these measures.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b033	Electric Fryer, Standard Vat	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
E21C1b032	Electric Fryer, Large Vat	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
G21C1b024	Gas Fryer	LBES New	1.00	n/a	1.00	1.00	1.00	n/a	n/a
E21C1b033 E21C2b033 E21C3b050 E21C1c032 E21C2c032	Electric Fryer, Standard Vat	SBES New Muni LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b032 E21C2b032 E21C3b049 E21C1c031 E21C2c031	Electric Fryer, Large Vat	SBES New Muni LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1b024 G21C2b024 G21C1c004 G21C2c004	Gas Fryer	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	1.00	1.00	n/a	n/a

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.²

Coincidence Factors:

Coincidence Factors are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)³:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c032 E21C2c032	Electric Fryer, Standard Vat	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c031 E21C2c031	Electric Fryer, Large Vat	LBES Mid SBES Mid	0.225	0.085	0	0.86
G21C1c004 G21C2c004	Gas Fryer	LBES Mid SBES Mid	0.237	0.07	0	0.83

Energy Load Shape:

See Appendix 1 C&I Load Shapes, “C&I Food Services”

Endnotes:

1: SupportTable_EUL.csv, from DEER Database for Energy-Efficient Resources; Version 2016, READI v.2.4.3 (Current Ex Ante data) found at <http://www.deeresources.com/>

2: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

3: NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors’ Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.12. Food Service – Griddle

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Electric Griddle: Installation of a qualified ENERGY STAR electric griddle.

Gas Griddle: Installation of a qualified ENERGY STAR gas griddle.

ENERGY STAR griddles save energy cooking and idle times due to improved cooking efficiency and idle energy rates.

Baseline Efficiency:

Electric Griddle: The baseline efficiency case is a typically sized, (6 sq. ft.) electric, commercial griddle with a cooking energy efficiency, production capacity, and idle energy rate as defined by any applicable U.S. federal requirements.

Gas Griddle: The baseline efficiency case is a typically sized, (6 sq. ft.) gas, commercial griddle with a cooking energy efficiency, production capacity, and idle energy rate as defined by any applicable U.S. federal requirements.

High Efficiency:

Electric Griddle: The high efficiency case is a typically sized (6 sq. ft.), electric, commercial griddle with a cooking energy efficiency, production capacity, and idle energy rate meeting the minimum ENERGY STAR requirements.

Gas Griddle: The high efficiency case is a typically sized (6 sq. ft.), gas, commercial griddle with a cooking energy efficiency, production capacity, and idle energy rate meeting the minimum ENERGY STAR requirements.

Algorithms for Calculating Primary Energy Impact:

BC Measure ID	Measure Name	Program	ΔkW	ΔkWh	$\Delta MMBtu$
E21C1b034 E21C2b034 E21C3b055 E21C1c033 E21C2c033	Commercial Electric Griddle	LBES New SBES New Muni LBES Mid SBES Mid	0.90	3,965	n/a

G21C1b025 G21C2b025 G21C1c005 G21C2c005	Commercial Gas Griddle	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	37.9
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For electric Griddle:

$$\Delta kWh = \Delta kWh$$

$$\Delta kW = \Delta kWh / \text{Hours}$$

Where:

ΔkWh = gross annual kWh savings from the measure per table above

ΔkW = gross average kW savings from the measure per table above

Hours = annual operating hours

For Gas Griddle:

$$\Delta MMBtu = MMBtu$$

Where:

$\Delta MMBtu$ = gross annual MMBtu gas savings from the measure per table above.

Measure Life:

The measure life for a new commercial griddle is 12 years.¹

Other Resource Impacts:

There are no other resource impacts for these measures.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b03	Electric Griddle	LBES New	1.00	.99	n/a	1.00	1.00	0.90	0.90
G21C1b025	Gas Griddle	LBES New	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C1b034 E21C2b034 E21C3b055 E21C1c033 E21C2c033	Electric Griddle	SBES New Muni LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
G21C1b025 G21C2b025 G21C1c005 G21C2c005	Gas Griddle	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs. ²

Coincidence Factors:

Coincidence Factors are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)³:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c033 E21C2c033	Electric Griddle	LBES Mid SBES Mid	0.225	0.085	0	0.86
G21C1c005 G21C2c005	Gas Griddle	LBES Mid SBES Mid	0.237	0.07	0	0.83

Energy Load Shape:

See Appendix 1 C&I Load Shapes, “C&I Food Services”.

Endnotes:

1: SupportTable_EUL.csv, from DEER Database for Energy-Efficient Resources; Version 2016, READI v.2.4.3 (Current Ex Ante data) found at <http://www.deeresources.com/>

2: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

3: NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors’ Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.13. Food Service – Holding Cabinet

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Installation of a qualified ENERGY STAR hot food holding cabinet (HFHC). ENERGY STAR hot food holding cabinets are 70 percent more energy efficient than standard models. Models that meet this requirement incorporate better insulation, reducing heat loss, and may also offer additional energy saving devices such as magnetic door gaskets, auto-door closures, or Dutch doors. The insulation of the cabinet also offers better temperature uniformity within the cabinet from top to bottom. Offering full size, 3/4 size, and 1/2 size HFHC.

Baseline Efficiency:

The baseline efficiency idle energy rate for a HFHC is a unit meeting any applicable federal energy efficiency standards.

High Efficiency:

The high efficiency idle energy rate for HFHC is based on the product interior volume in cubic feet (V) as shown below.¹

Size Category	Product Interior Volume, V (ft ³)	Product Idle Energy Consumption Rate (W)
Half size	$0 < V < 13$	$\leq 21.5 V$
3/4 size	$13 \leq V < 28$	$\leq 2.0 V + 254.0$
Full size	$28 \leq V$	$\leq 3.8 V + 203.5$

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed:

$$\text{kWh} = \text{kWh}$$

$$\text{kW} = \text{kWh} / \text{Hours}$$

Where:

kWh = gross annual kWh savings from the measure: See table below.

kW = gross average kW savings from the measure: See table below.

Hours = annual operating hours

Energy Savings for Commercial Hot Food Holding Cabinets

BC Measure ID	Measure Name	Program	ΔkW	ΔkWh
E21C1b037 E21C2b037 E21C3b058 E21C1c035 E21C2c035	Full Size	LBES New SBES New Muni LBES Mid SBES Mid	0.50	2,737
E21C1b036 E21C2b036 E21C3b057 E21C1c034 E21C2c034	3/4 Size	LBES New SBES New Muni LBES Mid SBES Mid	0.20	1,095
E21C1b038 E21C2b038 E21C3b059 E21C1c036 E21C2c036	1/2 Size	LBES New SBES New Muni LBES Mid SBES Mid	0.20	1,095

Measure Life:

The measure life for a new commercial HFHC is 12 years.²

Other Resource Impacts:

There are no other resource impacts for these measures.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b037	Hot Food Holding Cabinet Full Size	LBES New	1.00	0.99	n/a	1.00	1.00	0.90	0.90
E21C1b036	Hot Food Holding Cabinet 3/4 Size	LBES New	1.00	0.99	n/a	1.00	1.00	0.90	0.90
E21C1b038	Hot Food Holding Cabinet Half Size	LBES New	1.00	0.99	n/a	1.00	1.00	0.90	0.90
E21C2b037 E21C3b058 E21C1c035 E21C2c035	Hot Food Holding Cabinet Full Size	SBES New Muni LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C2b036 E21C3b057 E21C1c034 E21C2c034	Hot Food Holding Cabinet 3/4 Size	SBES New Muni LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C2b038 E21C3b059 E21C1c036 E21C2c036	Hot Food Holding Cabinet Half Size	SBES New Muni LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90

In-Service Rates:

All installations have a 100% in-service rate since programs include verification of equipment installations.

Realization Rates:

100% Realization Rates are assumed because savings are based on researched assumptions by ENERGY STAR. . The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.³

Coincidence Factors:

Coincidence Factors are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)⁴:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c035 E21C2c035	Hot Food Holding Cabinet Full Size	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c034 E21C2c034	Hot Food Holding Cabinet 3/4 Size	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c036 E21C2c036	Hot Food Holding Cabinet Half Size	LBES Mid SBES Mid	0.225	0.085	0	0.86

Energy Load Shape:

See Appendix 1 C&I Load Shapes, “C&I Food Services”.

Endnotes:

1: ENERGY STAR Program Requirements Product Specification for Commercial Hot Food Holding Cabinets, Version 2.0. Effective October 1, 2011.

https://www.energystar.gov/ia/partners/prod_development/revisions/downloads/hfhc/Final_V2.0_HFHC_Program_Requirements.pdf?b187-e770

2: FSTC Life Cycle Savings Calculators <https://fishnick.com/saveenergy/tools/calculators/>

3: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

4: NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.14. Food Service – Ice Machine

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Installation of a qualified ENERGY STAR commercial ice machine. Commercial ice machines meeting the ENERGY STAR specifications are on average 15 percent more energy efficient and 10 percent more water-efficient than standard models. ENERGY STAR qualified equipment includes ice-making head (IMH), self-contained (SCU), and remote condensing units (RCU).

Baseline Efficiency:

The baseline efficiency case is a non-ENERGY STAR commercial ice machine, which must be compliant with the applicable federal standard.¹

High Efficiency:

The high efficiency case is a commercial ice machine meeting the ENERGY STAR V3.0 Efficiency Requirements for commercial ice machines.

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated on a per-unit basis, based on the equipment type and daily ice harvest rate.

$$\text{kWh} = \text{kWh}_{\text{baseline}} - \text{kWh}_{\text{ee}}$$

$$\text{kW} = \text{kWh} / \text{hours}$$

Where:

kWh = gross annual kWh savings from the measure.

kWh_{baseline} = annual kWh usage for the base case, based on ice harvest rate H. See table below.

kWh_{ee} = annual kWh usage for the efficient case, based on ice harvest rate H. See table below.

kW = gross average kW savings from the measure.

Hours = Average annual equipment operating hours, see Hours section below.

Energy Savings Inputs for Commercial Ice Machine ²

BC Measure ID	Measure Name	Program	Daily Ice Harvest Rate, H (lb ice/24 hr)	Baseline Daily Energy Use (kWh/100 lb ice) ¹	Efficient Daily Energy Use (kWh/100 lb ice) ³
E21C1b039 E21C2b039 E21C3b060 E21C1c037 E21C2c037	Ice Making Head	LBES New SBES New Muni New LBES Mid SBES Mid	$H < 300$	$10 - 0.01233 \times H$	$9.20 - 0.01134 \times H$
			$300 \leq H < 800$	$7.05 - 0.0025 \times H$	$6.49 - 0.0023 \times H$
			$800 \leq H < 1500$	$5.55 - 0.00063 \times H$	$5.11 - 0.00058 \times H$
			$1500 \leq H < 4000$	4.61	4.24
E21C1b040 E21C2b040 E21C3b061 E21C1c038 E21C2c038	Self Contained Unit	LBES New SBES New Muni New LBES Mid SBES Mid	$50 \leq H < 1000$	$7.97 - 0.00342 \times H$	$7.17 - 0.00308 \times H$
			$1000 \leq H < 4000$	4.55	4.13
			$H < 110$	$14.79 - 0.0469 \times H$	$12.57 - 0.0399 \times H$
E21C1b041 E21C2b041 E21C3b062 E21C1c039 E21C2c039	Remote Condensing Unit (Batch)	LBES New SBES New Muni New LBES Mid SBES Mid	$110 \leq H < 200$	$12.42 - 0.02533 \times H$	$10.56 - 0.0215 \times H$
			$200 \leq H < 4000$	7.35	6.25
E21C1b042 E21C2b042 E21C3b063 E21C1c040 E21C2c040	Remote Condensing Unit (Continuous)	LBES New SBES New Muni New LBES Mid SBES Mid	$H < 800$	$9.7 - 0.0058 \times H$	$7.76 - 0.00464 \times H$
			$800 \leq H < 4000$	5.06	4.05

Measure Life:

The measure life for a new ice making machine is 8 years. ²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b039	Ice Machine - Ice Making Head	LBES New	1.00	0.99	n/a	1.00	1.00	0.9	0.9

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b040	Ice Machine - Remote Cond./Split Unit - Batch	LBES New	1.00	0.99	n/a	1.00	1.00	0.9	0.9
E21C1b041	Ice Machine - Remote Cond./Split Unit - Continuous	LBES New	1.00	0.99	n/a	1.00	1.00	0.9	0.9
E21C1b042	Ice Machine - Self Contained	LBES New	1.00	0.99	n/a	1.00	1.00	0.9	0.9
E21C2b039 E21C3b060 E21C1c037 E21C2c037	Ice Machine - Ice Making Head	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.9	0.9
E21C2b040 E21C3b061 E21C1c038 E21C2c038	Ice Machine - Remote Cond./Split Unit - Batch	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.9	0.9
E21C2b041 E21C3b062 E21C1c039 E21C2c039	Ice Machine - Remote Cond./Split Unit - Continuous	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.9	0.9
E21C2b042 E21C3b063 E21C1c040 E21C2c040	Ice Machine - Self Contained	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.9	0.9

In-Service Rates:

All installations have 100% in service rate since programs include verification of equipment installations.

Realization Rates:

100% realization rates are assumed because savings are based on researched assumptions. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.⁴

Coincidence Factors:

Coincidence Factors are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)⁵:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c037 E21C2c037	Ice Machine - Ice Making Head	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c038 E21C2c038	Ice Machine - Remote Cond./Split Unit - Batch	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c039 E21C2c039	Ice Machine - Remote Cond./Split Unit - Continuous	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c040 E21C2c040	Ice Machine - Self Contained	LBES Mid SBES Mid	0.225	0.085	0	0.86

Energy Load Shape:

See Appendix 1 “C&I Load Shapes, “C&I Food Services”.

Endnotes:

1: 10 CFR 431.136. Effective January 28, 2018

2: FOOD SERVICE COMMERCIAL ICE MACHINE. SWFS006-01. (CA) December 2018.

3: ENERGY STAR Program Requirements For Automatic Commercial Ice Makers. V3.0.

4: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

5: NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors’ Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.15. Food Service – Oven

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Combination Oven, Electric Convection Oven, Electric	Installation of a qualified ENERGY STAR commercial convection oven or commercial combination oven. ENERGY STAR commercial ovens save energy during preheat, cooking and idle times due to improved cooking efficiency, and preheat and idle energy rates. Combination ovens can be used either as convection ovens or as steamers.
Combination Oven, Gas Convection Oven, Gas Conveyor Oven, Gas Rack Oven, Gas	Installation of High Efficiency Gas Ovens

Baseline Efficiency:

The baseline efficiency case is a convection, combination, conveyor, or rack oven that meets applicable minimum federal efficiency standards and uses the same fuel as the proposed high efficiency equipment.

High Efficiency:

The high efficiency case is a commercial oven that meets the ENERGY STAR program requirements for its type and fuel, as shown below.¹ Note that combination ovens are rated based on their capacity in number of pans (P), and that no ENERGY STAR program requirements for conveyor ovens have yet been approved.

Oven Fuel	Measure Name	Efficiency Requirement	Idle rate
Electric	Convection Oven	$\geq 71\%$	$\leq 1.60 \text{ kW}$
Electric	Combination Oven	$\geq 55\%$ steam mode $\geq 76\%$ convection mode	$\leq 0.133P + 0.6400 \text{ kW}$ steam mode $\leq 0.080P + 0.4989 \text{ kW}$ convection mode
Gas	Convection Oven	$\geq 46\%$	$\leq 12,000 \text{ Btu/hr}$
Gas	Combination Oven	$\geq 41\%$ steam mode $\geq 56\%$ convection mode	$\leq 200P + 6,511 \text{ Btu/hr}$ steam mode $\leq 150P + 5,425 \text{ Btu/hr}$ convection mode

Gas	Conveyer Oven		
Gas	Rack Oven	$\geq 48\%$	$\leq 25,000$ Btu/hr

Ovens must be rated based on ASTM F1496 (Convection Oven), ASTM F2861 (Combination Oven), and ASTM 2093 (Conveyer Oven and Rack Oven).

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed.

$$\Delta kWh = kWh$$

$$\Delta kW = kWh / \text{hours}$$

$$\Delta MMBtu = MMBtu$$

Where:

ΔkWh = gross annual kWh savings from the measure. See table below.

ΔkW = gross average kW savings from the measure. See table below.

$\Delta MMBtu$ = gross average natural gas savings from the measure. See table below.

Hours = Annual hours of operation = 4,390 hr/yr at 12 hr/day

Energy Savings for Commercial Ovens

BC Measure ID	Measure Name	Program	ΔkW	ΔkWh	$\Delta MMBtu$
E21C1b021 E21C2b021 E21C3b035	Electric Full Size Convection Oven	LBES New SBES New Muni New LBES Mid SBES Mid	0.70	2,787	n/a
E21C1b019 E21C2b019 E21C3b031	Electric Combination Oven	LBES New SBES New Muni New LBES Mid SBES Mid	3.50	15,095	n/a
G21C1b022 G21C2b022 G21C1c002 G21C2c002	Gas Convection Oven	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	35.7
G21C1b021 G21C2b021 G21C1c001 G21C2c001	Gas Combination Oven	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	110.3
G21C1b023 G21C2b023 G21C1c003 G21C2c003	Gas Conveyer Oven	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	88.4

G21C1b026 G21C2b026 G21C1c007 G21C2c007	Gas Rack Oven	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	211.3
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Measure Life:

The measure life for a new commercial oven is 12 years. ²

Other Resource Impacts:

There are no other resource impacts for these measures.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b021	Electric Convection Oven	LBES New	1.00	0.99	n/a	1.00	1.00	0.90	0.90
E21C1b019	Electric Combination Oven	LBES New	1.00	0.99	n/a	1.00	1.00	0.90	0.90
G21C1b022	Gas Convection Oven	LBES New	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1b021	Gas Combination Oven	LBES New	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1b023	Gas Conveyer Oven	LBES New	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1b026	Gas Rack Oven	LBES New	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C1b021 E21C2b021 E21C3b035 E21C1c019 E21C2c019	Electric Convection Oven	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
E21C1b019 E21C2b019 E21C3b031 E21C1c018 E21C2c018	Electric Combination Oven	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
G21C1b022 G21C2b022 G21C1c002 G21C2c002	Gas Convection Oven	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1b021 G21C2b021 G21C1c001	Gas Combination Oven	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C2c001									
G21C1b023 G21C2b023 G21C1c003 G21C2c003	Gas Conveyer Oven	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1b026 G21C2b026 G21C1c007 G21C2c007	Gas Rack Oven	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have 100% in service rate since programs include verification of equipment installations

Realization Rates:

Installations have a 100% realization rate because programs use researched values for savings estimates. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.³

Coincidence Factors:

Coincidence Factors for electric ovens are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)⁴:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c019 E21C2c019	Electric Convection Oven	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c018 E21C2c018	Electric Combination Oven	LBES Mid SBES Mid	0.225	0.085	0	0.86
G21C1c002 G21C2c002	Gas Convection Oven	LBES Mid SBES Mid	0.237	0.07	0	0.83
G21C1c001 G21C2c001	Gas Combination Oven	LBES Mid SBES Mid	0.237	0.07	0	0.83
G21C1c003 G21C2c003	Gas Conveyer Oven	LBES Mid SBES Mid	0.237	0.07	0	0.83
G21C1c007 G21C2c007	Gas Rack Oven	LBES Mid SBES Mid	0.237	0.07	0	0.83

Energy Load Shape:

See Appendix 1 “C&I Load Shapes, “C&I Food Services”.

Endnotes:

- 1: ENERGY STAR Program Requirements for Commercial Ovens. Version 2.2.
<https://www.energystar.gov/sites/default/files/Commercial%20Ovens%20Final%20Version%202.2%20Specification.pdf>
- 2: FSTC Life Cycle Savings Calculators <https://fishnick.com/saveenergy/tools/calculators/>3: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>
- 4: NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors’ Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.16. Food Service – Steam Cooker

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Electric Steam Cooker: Installation of a qualified ENERGY STAR commercial steam cooker. ENERGY STAR steam cookers save energy during cooling and idle times due to improved cooking efficiency and idle energy rates.

Gas Steam Cooker: The installation of an ENERGY STAR rated natural-gas fired steamer, either connectionless or steam-generator design. Qualified steamers reduce heat loss due to better insulation, improved heat exchange, and more efficient steam delivery systems.

Baseline Efficiency:

Electric Steam Cooker: The Baseline Efficiency case is an electric steam cooker with a cooking efficiency, pan production capacity, preheat energy, and idle energy rate as defined by any relevant U.S. federal requirements.

Gas Steam Cooker: The baseline efficiency case is a gas steam cooker with a cooking efficiency, pan production capacity, preheat energy, and idle energy rate as defined by any relevant U.S. federal requirements.

High Efficiency:

Electric Steam Cooker: The High Efficiency case is an electric steam cooker with a cooking energy efficiency, pan production capacity, preheat energy, and an idle energy rate meeting the minimum ENERGY STAR requirements.

Gas Steam Cooker: The high efficiency case is a gas steam cooker with a cooking energy efficiency, pan production capacity, preheat energy, and an idle energy rate meeting the minimum ENERGY STAR requirements.

Algorithms for Calculating Primary Energy Impact:

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW	$\Delta MMBtu$
E21C1b048 E21C2b048 E21C3b079 E21C1c043 E21C2c043	Electric Steam Cooker	LBES New SBES New Muni New LBES Mid SBES Mid	30,156	6.89	n/a

G21C1b027 G21C2b027 G21C1c008 G21C2c008	Gas Steam Cooker	LBES New SBES New LBES Mid SBES Mid	n/a	n/a	370.7
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Quantity = Number of pans

Hours = Average annual equipment operating hours. See Hours section below.

Measure Life:

The measure life for a new steamer is 12 years.¹

Other Resource Impacts:

Electric Steam Cooker: Deemed annual water savings.

Gas Steam Cooker: Deemed annual water savings.²

Measure Name	Annual water savings (gal/unit)
Gas Steam Cooker	162,060

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b048	Electric Steam Cooker	LBES New	1.00	0.99	n/a	1.00	1.00	0.90	0.90
G21C1b027	Gas Steam Cooker	LBES New	1.00	n/a	1.00	1.00	1.00	n/a	n/a
E21C2b048 E21C3b079 E21C1c043 E21C2c043	Electric Steam Cooker	SBES New Muni New LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	0.90	0.90
G21C2b027 G21C1c008 G21C2c008	Gas Steam Cooker	SBES New LBES Mid SBES Mid	1.00	n/a	1.00	1.00	1.00	n/a	n/a

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs.³

Coincidence Factors:

Coincidence Factors are 0.9 for both summer and winter seasons to account for the fact that some restaurants close one day per week and some may not serve both lunch and dinner on weekdays.

Energy Load Shape:

See Appendix 1 See Appendix 1 “C&I Load Shapes, “C&I Food Services”.

Endnotes:

- 1: SupportTable_EUL.csv, from DEER Database for Energy-Efficient Resources; Version 2016, READI v.2.4.3 (Current Ex Ante data) found at <http://www.deeresources.com/>
- 2: ENERGY STAR Commercial Kitchen Equipment Calculator. Updated October 2016.
https://www.energystar.gov/buildings/sites/default/uploads/files/commercial_kitchen_equipment_calculator.xlsx
- 3: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.17. Food Service – Refrigerator

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Food Service

Description:

Installation of a qualified ENERGY STAR qualified reach-in refrigerator that replaces a standard efficiency unit of the same configuration and capacity. The refrigerator may have a solid door or transparent door. Measure savings are defined by configuration and internal volume as specified in the Energy Star commercial requirements presented below.

Baseline Efficiency:

The baseline case includes standard-efficiency, reach-in solid and transparent door refrigerators and are defined by the U.S. Department of Energy (DOE) federal requirements.

High Efficiency:

The high efficiency case is an ENERGY STAR qualified reach-in refrigerator having the same configuration and capacity as the baseline equipment.

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated and based on the Energy Star Commercial Kitchen Equipment Calculator.

$$\begin{aligned}\Delta kWh &= kWh_{BL} - kWh_{EE} \\ kWh_{BL} &= (kWh_D)_{BL} \times D \\ kWh_{EE} &= (kWh_D)_{EE} \times D\end{aligned}$$

Where,

ΔkWh = Annual electric energy savings (kWh)

kWh_{BL} = Annual electric energy consumption of baseline equipment (kWh). Calculate from table below.

kWh_{EE} = Annual electric energy consumption of efficient equipment (kWh). Calculate from table below.

kWh_D = Daily electric energy consumption (kWh)

D = Number of days of operation of the unit. Use site specific data if possible (365 days is default).

V = Internal volume of equipment (ft³)

Equipment Daily Consumption^{1,2}

Door Type	Size Thresholds	Baseline Refrigerator Daily Energy Consumption (kWh _D) _{BL}	Efficient Refrigerator Daily Energy Consumption (kWh _D) _{EE}
Solid Door	0 < V < 15	(0.05 x V) + 1.36	(0.022 x V) + 0.97
	15 < V < 30		(0.066 x V) + 0.31

	$30 < V < 50$		$(0.04 \times V) + 1.09$
	$50 < V$		$(0.024 \times V) + 1.89$
Transparent Door	$0 < V < 15$	$(0.1 \times V) + 0.86$	$(0.095 \times V) + 0.445$
	$15 < V < 30$		$(0.05 \times V) + 1.12$
	$30 < V < 50$		$(0.076 \times V) + 0.34$
	$50 < V$		$(0.105 \times V) - 1.111$

Measure Life³:

BC Measure ID	Measure Name	Program	Measure Life
E21C1c041 E21C2c041	Refrigerator, Transparent Door	LBES Mid SBES Mid	12
E21C1c042 E21C2c042	Refrigerator, Solid Door	LBES Mid SBES Mid	12

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1c041 E21C2c041	Refrigerator, Transparent Door	LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C1c042 E21C2c042	Refrigerator, Solid Door	LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

All programs use a 100% coincidence factor unless an evaluation finds otherwise.

Energy Load Shape:

See Appendix 1

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)⁴:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c041 E21C2c041	Refrigerator, Transparent Door	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c042 E21C2c042	Refrigerator, Solid Door	LBES Mid SBES Mid	0.225	0.085	0	0.86

Future application of measure-specific NEI values will be considered by the NH Benefit/Cost (B/C) Working Group, per Commission Order No. 26,323 , December 31, 2019.

Endnotes:

- 1:** Efficient equipment daily energy consumption is in line with ENERGY STAR. 2016. "ENERGY STAR® Program Requirements Product Specification for Commercial Refrigerators and Freezers - [Eligibility Criteria Version 4.0](#)." Effective on March 27, 2017.
- 2:** Baseline equipment daily energy consumption is defined by the U.S. Department of Energy (DOE) federal requirements. Code of Federal Regulations at 10 CFR 431.66.
- 3:** California Public Utilities Commission (CPUC), Energy Division. 2014. "DEER2014-EUL-table-update_2014-02-05.xlsx."
- 4:** NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

2.18. Food Service – Freezer

Measure Code		[To Be Defined in ANB system]
Market		Commercial
Program Type		Lost Opportunity
Category		Food Service

Description:

Installation of a qualified ENERGY STAR qualified reach-in freezer that replaces a standard efficiency unit of the same configuration and capacity. The freezer may have a solid door or transparent door. Measure savings are defined by configuration and internal volume as specified in the ENERGY STAR commercial requirements presented below.

Baseline Efficiency:

The baseline case includes standard-efficiency, reach-in, solid and transparent door freezers and are defined by the U.S. Department of Energy (DOE) federal requirements.

High Efficiency:

The high efficiency case is an ENERGY STAR qualified reach-in freezer having the same configuration and capacity as the baseline equipment .

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated and based on the ENERGY STAR Commercial Kitchen Equipment Calculator.

$$\begin{aligned}\Delta kWh &= kWh_{BL} - kWh_{EE} \\ kWh_{BL} &= (kWh_D)_{BL} \times D \\ kWh_{EE} &= (kWh_D)_{EE} \times D\end{aligned}$$

Where,

ΔkWh = Annual electric energy savings (kWh)

kWh_{BL} = Annual electric energy consumption of baseline equipment (kWh). Calculate from table below.

kWh_{EE} = Annual electric energy consumption of efficient equipment (kWh). Calculate from table below.

kWh_D = Daily electric energy consumption (kWh)

D = Number of days of operation of the unit. Use site specific data if possible (365 days is default).

V = Internal volume of equipment (ft³)

Equipment Daily Consumption^{1,2}

Door Type	Size Thresholds	Baseline Freezer Daily Energy Consumption (kWh _D) _{BL}	Efficient Freezer Daily Energy Consumption (kWh _D) _{EE}
Solid Door	$0 < V < 15$	$(0.22 \times V) + 1.38$	$(0.021 \times V) + 0.90$

	$15 < V < 30$		$(0.012 \times V) + 2.248$
	$30 < V < 50$		$(0.285 \times V) - 2.703$
	$50 < V$		$(0.142 \times V) + 4.445$
Transparent Door	All	$(0.29 \times V) + 2.95$	$(0.232 \times V) + 2.36$

Measure Life³:

BC Measure ID	Measure Name	Measure Life
E21C1c030 E21C2c030	Freezer, Transparent Door	12
E21C1c029 E21C2c029	Freezer, Solid Door	12

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1c030 E21C2c030	Freezer, Transparent Door	LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C1c029 E21C2c029	Freezer, Solid Door	LBES Mid SBES Mid	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

All programs use a 100% coincidence factor unless an evaluation finds otherwise.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Food Service”.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only)⁴:

BC Measure ID	Measure Name	Program	FR	SO _p	SO _{NP}	NTG
E21C1c030 E21C2c030	Freezer, Transparent Door	LBES Mid SBES Mid	0.225	0.085	0	0.86
E21C1c029 E21C2c029	Freezer, Solid Door	LBES Mid SBES Mid	0.225	0.085	0	0.86

Endnotes:

1: Efficient equipment daily energy consumption is in line with ENERGY STAR. 2016. "ENERGY STAR® Program Requirements Product Specification for Commercial Refrigerators and Freezers - [Eligibility Criteria Version 4.0.](#)" Effective on March 27, 2017.

2: Baseline equipment daily energy consumption is defined by the U.S. Department of Energy (DOE) federal requirements. Code of Federal Regulations at 10 CFR 431.66.

3: California Public Utilities Commission (CPUC), Energy Division. 2014. "DEER2014-EUL-table-update_2014-02-05.xlsx."

4: NMR, DNV-GL, and Tetra-Tech, Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study, Aug. 14, 2018 (Table 48, Table 52)

<https://ma-eeac.org/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

2.19. Hot Water – Faucet Aerators

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Hot Water

Description:

Installation of a faucet aerator with a flow rate of 1.5 GPM or less on an existing faucet with high flow in a commercial setting.

Baseline Efficiency:

The baseline efficiency case is an existing faucet aerator with Federal Standard flow rate of 2.2 GPM.¹

High Efficiency:

The high efficiency case is a low flow faucet aerator with EPA WaterSense² specified maximum flow rate of 1.5 GPM.

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated using the Federal Energy Management Program (“FEMP”) Energy Cost Calculator.³ kW savings are calculated using the demand impact model.⁴

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW	ΔMMBtu
E21C1a028 E21C1b031 E21C1d030 E21C2a028 E21C2b031 E21C2d030 E21C3a044 E21C3b045 E21C3d046	Faucet Aerator	Electric	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	309	0.01	n/a
E21C3a045 E21C3b046 E21C3d047 G21C1a005 G21C1b017 G21C2a005 G21C2b017	Faucet Aerator	Gas	LBES Retro LBES New LBES DI LBES Retro LBES New SBES DI SBES New	n/a	n/a	1.7

E21C3a046 E21C3b047 E21C3d048	Faucet Aerator	Oil	Muni Retro Muni New Muni DI	n/a	n/a	1.7
E21C3a047 E21C3b048 E21C3d049	Faucet Aerator	Propane	Muni Retro Muni New Muni Gas	n/a	n/a	1.7

Measure Life:

The measure life for a faucet aerator is 10 years.⁵

Other Resource Impacts:

There are deemed water savings of 5,460 gallons/unit.³

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a028	Faucet Aerator	Electric	LBES Retro LBES New LBES DI	1.00	0.99	1.00	1.00	1.00	0.31	0.81
E21C3a045	Faucet Aerator	Gas	LBES Retro LBES New LBES DI	1.00	n/a	0.99	n/a	n/a	n/a	n/a
E21C3a046	Faucet Aerator	Oil	LBES Retro LBES New LBES DI	1.00	n/a	0.99	n/a	n/a	n/a	n/a
E21C3a047	Faucet Aerator	Propane	LBES Retro LBES New LBES DI	1.00	n/a	0.99	n/a	n/a	n/a	n/a
E21C1b031 E21C1d030 E21C2a028 E21C2b031 E21C2d030 E21C3a044 E21C3b045 E21C3d046	Faucet Aerator	Electric	SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	1.00	1.00	1.00	1.00	1.00	0.31	0.81
E21C3b046 E21C3d047 G21C1a005 G21C1b017 G21C2a005 G21C2b017	Faucet Aerator	Gas	LBES Retro LBES New SBES Retro SBES New	1.00	n/a	1.00	n/a	n/a	n/a	n/a

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3b047 E21C3d048	Faucet Aerator	Oil	Muni Retro Muni New Muni Gas	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3b048 E21C3d049	Faucet Aerator	Propane	Muni Retro Muni New Muni Gas	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise. The LBES program uses a realization rate of 99.9% from a 2015 impact evaluation on commercial and industrial programs. ⁶

Coincidence Factors:

Summer and winter coincidence factors of 31% and 81% have been utilized per the MA demand impact model.⁴

Energy Load Shape:

For electric measures, see Appendix 1 C&I Load Shapes “Water Heater – Electric”.

For non-electric measures, see Appendix 1 C&I Load Shapes “Non- Electric Measures”

Endnotes:

1: In 1998, the Department of Energy adopted a maximum flow rate standard of 2.2 gpm at 60 psi for all faucets: 63 Federal Register 13307; March 18, 1998. <https://www.epa.gov/sites/production/files/2017-02/documents/ws-specification-home-final-suppstatement-v1.0.pdf>

2: WaterSense: Bathroom Faucets. <https://www.epa.gov/watersense/bathroom-faucets>

3: Federal Energy Management Program (“FEMP”) Energy Cost Calculator for Faucets and Showerheads. Available at: <https://www.energy.gov/eere/femp/energy-cost-calculator-faucets-andshowerheads-0>. On average, faucets are assumed to run 30 minutes per day, 260 days per year. Actual usage values should be used, when known, in lieu of default savings values.

4: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

5: Natural Gas Energy Efficiency Potential in Massachusetts. Prepared for GasNetworks, GDS Associates, April 2009. http://ma-eeac.org/wordpress/wp-content/uploads/5_Natural-Gas-EE-Potential-in-MA.pdf

6: DNV GL, September 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. Prepared for NH Electric and Gas Utilities.

<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>

2.20. Hot Water – Showerheads

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Hot Water

Description:

Thermostatic Shut-Off Valve: Installation of a stand-alone thermostatic shut-off valve on standard flow showerhead.

Low-Flow Showerhead, Electric, Gas, Oil, Propane: Installation of a low-flow showerhead with a flow rate of 1.5 GPM or less.

Baseline Efficiency:

Thermostatic Shut-Off Valve: The baseline efficiency is an existing standard-flow showerhead (2.5 GPM) with no thermostatic shut-off valve.

Low-Flow Showerhead, Electric, Gas, Oil, Propane: The baseline efficiency is an existing standard-flow showerhead (2.5 GPM).

High Efficiency:

Thermostatic Shut-Off Valve: The high efficiency case is a standard flow showerhead (2.5 GPM) with the addition of a stand-alone thermostatic shut-off valve.

Low-Flow Showerhead, Electric, Gas, Oil, Propane: The high efficiency case is a low-flow showerhead (1.5 GPM).

Algorithms for Calculating Primary Energy Impact:

Low-Flow Showerhead with Thermostatic Valve: Unit savings are deemed.¹ kW savings are calculated using the demand impact model.²

Low-Flow Showerhead, Electric and Low-Flow Showerhead, Gas: Unit savings are deemed.³

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW	ΔMMBtu
G21C1a006 G21C1b018 G21C2a006 G21C2b018	Thermostatic Shut-Off Valve	Gas	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	n/a	n/a	0.33

E21C1a033 E21C1b044 E21C1d033 E21C2a033 E21C2b044 E21C2d033 E21C3a056 E21C3b066 E21C3d056	Thermostatic Shut-Off Valve	Electric	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	69	0.01	
E21C3a058 E21C3b068 E21C3d058	Thermostatic Shut-Off Valve	<u>Oil</u>	Muni Retro Muni New Muni DI	n/a	n/a	0.33
E21C3a059 E21C3b069 E21C3d059	Thermostatic Shut-Off Valve	Propane	Muni Retro Muni New Muni DI	n/a	n/a	0.33
E21C1a034 E21C1b045 E21C1d034 E21C2a034 E21C2b045 E21C2d034 E21C3a060 E21C3b070 E21C3d060	Low-Flow Showerhead	Electric	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	507	0.09	
G21C1a007 G21C1b019 G21C2a007 G21C2b019	Low-Flow Showerhead	Gas	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni	n/a	n/a	2.65
E21C3a062 E21C3b072 E21C3d062	Low-Flow Showerhead	Oil	Muni Retro Muni New Muni DI	n/a	n/a	2.65
E21C3a063 E21C3b073 E21C3d063	Low-Flow Showerhead	Propane	Muni Retro Muni New Muni DI	n/a	n/a	2.65

Measure Life:

The measure life for all Showerheads is 10 years.⁴

Other Resource Impacts:

Thermostatic Shut-Off Valve: Annual water savings of 558 gallons per unit.¹

Low-Flow Showerhead, Electric, Gas, Oil, Propane: Annual water savings of 7,300 gallons per unit.³

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1a006 G21C1b018 G21C2a006 G21C2b018	Thermostatic Shut-Off Valve, Gas	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C1a033 E21C1b044 E21C1d033 E21C2a033 E21C2b044 E21C2d033 E21C3a056 E21C3b066 E21C3d056	Thermostatic Shut-Off Valve, Electric	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	1.00	1.00	n/a	1.00	1.00	0.31	0.81
E21C3a058 E21C3b068 E21C3d058	Thermostatic Shut-Off Valve, Oil	Muni Retro Muni New Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a059 E21C3b069 E21C3d059	Thermostatic Shut-Off Valve, Propane	Muni Retro Muni New Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C1a034 E21C1b045 E21C1d034 E21C2a034 E21C2b045 E21C2d034 E21C3a060 E21C3b070 E21C3d060	Low-Flow Showerhead, Electric	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni DI	1.00	1.00	n/a	1.00	1.00	0.31	0.81

G21C1a007 G21C1b019 G21C2a007 G21C2b019	Low-Flow Showerhead, Gas	LBES Retro LBES New LBES DI SBES Retro SBES New SBES DI Muni Retro Muni New Muni	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a062 E21C3b072 E21C3d062	Low-Flow Showerhead, Oil	Muni Retro Muni New Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a
E21C3a063 E21C3b073 E21C3d063	Low-Flow Showerhead, Propane	Muni Retro Muni New Muni DI	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All programs have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Summer and winter coincidence factors of 31% and 81% have been utilized per the MA demand impact model.²

Energy Load Shape:

For electric measures, see Appendix 1 C&I Load Shapes “Water Heater – Electric”.

For non-electric measures, see Appendix 1 C&I Load Shapes “Non- Electric Measures”

Endnotes:

1: National Grid, 2014. Review of ShowerStart evolve. Calculation document provided in the MA TRM.

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

3: Federal Energy Management Program (“FEMP”) Energy Cost Calculator for Faucets and Showerheads.. On average, showerheads are assumed to run 20 minutes per day, 365 days per year. Actual usage values should be used, when known, in lieu of default savings values. ΔMMBtu based on **Navigant Consulting (2018). Demand Impact Model Update.**

4: Natural Gas Energy Efficiency Potential in Massachusetts. Prepared for GasNetworks, GDS Associates, April 2009. http://ma-eeac.org/wordpress/wp-content/uploads/5_Natural-Gas-EE-Potential-in-MA.pdf

2.21. Hot Water - Steam Traps

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

Repair or replace malfunctioning steam traps.

Baseline Efficiency:

The baseline efficiency case is a failed steam trap.

High Efficiency:

The high efficiency case is a repaired or replaced steam trap.

Algorithms for Calculating Primary Energy Impact:

Deemed annual unit savings are as detailed in the table below¹:

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔMMBtu
G21C1a014 G21C2a014 E21C3a084 E21C3d084	Steam Trap	Gas	LBES Retro – Gas SBES Retro – Gas Muni Retro Muni DI	n/a	Low pressure (≤ 10 psig): 8.4 High pressure (>10 psig): 35.6
E21C3a085 E21C3d085	Steam Trap	Oil	Muni Retro Muni DI	n/a	Low pressure (≤ 10 psig): 8.4 High pressure (>10 psig): 35.6
E21C3a086 E21C3d086	Steam Trap	Propane	Muni Retro Muni DI	n/a	Low pressure (≤ 10 psig): 8.4 High pressure (>10 psig): 35.6

Measure Life:

The measure life is 6 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1a014 G21C2a014 E21C3a084 E21C3d084	Steam Trap	Gas	LBES Retro – Gas SBES Retro – Gas Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a085 E21C3d085	Steam Trap	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a086 E21C3d086	Steam Trap	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% electric realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

See Appendix 1 – “Boiler Distribution”.

Endnotes:

1: Energy and Resource Solutions, April 2018. Two-Tier Steam Trap Savings Study. Prepared for National Grid and Eversource of Massachusetts. <http://ma-eeac.org/wordpress/wp-content/uploads/MA-CIEC-Two-Tier-Steam-Traps-Memo-FINAL.pdf>

2: DNV GL, June 2015. Massachusetts 2013 Prescriptive Gas Impact Evaluation – Steam Trap Evaluation Phase I. Prepared for Massachusetts Gas Program Administrators and Massachusetts Energy Efficiency Advisory Council. <http://ma-eeac.org/wordpress/wp-content/uploads/MA-2013-Prescriptive-Gas-Impact-Evaluation-Steam-Trap-Evaluation-Phase-1.pdf>

2.22. HVAC – Boiler Reset Controls

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

Boiler Reset Controls: Boiler Reset Controls are devices that automatically control boiler water temperature based on outdoor or return water temperature using a software program.

Baseline Efficiency:

The baseline efficiency case is a boiler without reset controls.

High Efficiency:

The high efficiency case is a boiler without reset controls.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.¹

BC Measure ID	Measure Name	Fuel Type	Program	ΔMMBtu/unit
E21C3a019 E21C3d021 G21C1a010 G21C2a010	Boiler Reset Controls	Gas	Muni Retro Muni DI LBES Retro SBES Retro	35.5
E21C3a020 E21C3d022	Boiler Reset Control	Oil	Muni Retro Muni DI	35.5
E21C3a021 E21C3d023	Boiler Reset Control	Propane	Muni Retro Muni DI	35.5

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3a019 E21C3d021 G21C1a010 G21C2a010	Boiler Reset Controls	Gas	Muni Retro Muni DI LBES Retro SBES Retro	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a020 E21C3d022	Boiler Reset Control	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a021 E21C3d023	Boiler Reset Control	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

For electric measures, see Appendix 1 C&I Load Shapes “Boiler Distribution”.

For non-electric measures, see Appendix 1 C&I Load Shapes “Non- Electric Measures”

Endnotes:

- 1: GDS Associates, Inc. (2009). Natural Gas Energy Efficiency Potential in Massachusetts, as cited in the Massachusetts TRM. Study assumes 710.46 MMBTU base use with 5% savings factor. [GDS 2009 Natural Gas Energy Efficiency Potential in MA.](#)
- 2: ACEEE, 2006. Emerging Technologies Report: Advanced Boiler Controls.

2.23. HVAC – Circulator Pump

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

Single-phase circulator pumps used in C&I buildings used for hydronic heating and system hot water.

Baseline Efficiency:

The baseline system is a pump without an EC motor. The baseline system may have no control, a timer, aquastat, or be on demand. The baseline system is assumed to run a weighted average of these four control types.

High Efficiency:

The high efficiency case is a circulator pump with an ECM.

Algorithms for Calculating Primary Energy Impact:

Savings depend on application and pump size as described in table below.¹

Size	Type	kW	kWh
<= 1 HP	Hydronic Heating	$\Delta kW = 0.245 * HP_{\text{rated}} + 0.02$	$\Delta kWh = 1,325 * HP_{\text{rated}} + 111$
<= 1 HP	Service Hot Water	$\Delta kW = 0.245 * HP_{\text{rated}} + 0.02$	$\Delta kWh = 2,780 * HP_{\text{rated}} + 233$
> 1 HP	Hydronic Heating	$\Delta kW = 0.265$	$\Delta kWh = 1,436$
> 1 HP	Service Hot Water	$\Delta kW = 0.265$	$\Delta kWh = 3,013$

Measure Life:

The measure life is 20 years.²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:³

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b018	Circulator Pump	LBES New	1.000	0.999	n/a	1.000	1.000	0.820	0.050
E21C2b018	Circulator Pump	SBES New	1.000	1.000	n/a	1.000	1.000	0.820	0.050
E21C3b030	Circulator Pump	Muni New	1.000	1.000	n/a	1.000	1.000	0.820	0.050
E21C1c001	Midstream Circulator Pump	LBES Midstream	1.000	1.000	n/a	1.000	1.000	0.820	0.050
E21C2c001	Midstream Circulator Pump	SBES Midstream	1.000	1.000	n/a	1.000	1.000	0.820	0.050

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 82.0% and a winter coincidence factor of 5.0% are utilized.³

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Heating & Cooling”

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):⁴

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	2021 NTG
E21C1c001 E21C2c001	Midstream Circulator Pump	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860

Endnotes:

1: The Cadmus Group, 2017. Circulator Pump Technical Memo. Prepared for National Grid and Eversource engineers.

2: Energy & Resource Solutions, November 2005. Measure Life Study. Prepared for The Massachusetts Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

3: Navigant Consulting (2018). RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

4: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators. http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

2.24. HVAC- Demand Control Ventilation

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

The measure controls the quantity of outside air to an air handling system based on detected space CO₂ levels. The installed systems monitor the CO₂ in the spaces or return air and reduce the outside air use when possible to save energy while meeting indoor air quality standards.

Baseline Efficiency:

The baseline efficiency case assumes the relevant HVAC equipment has no ventilation control.

High Efficiency:

The high efficiency case is the installation of an outside air intake control based on CO₂ sensors.

Algorithms for Calculating Primary Energy Impact:

The energy and demand savings are calculated using the following algorithms and inputs:

$$\Delta kWh = kBtuh \times \frac{1 \text{ ton}}{12 \text{ kBtuh}} \times Save_{kWh}$$

$$\Delta kW = kBtuh \times \frac{1 \text{ ton}}{12 \text{ kBtuh}} \times Save_{kW}$$

Where:

$kBtuh$ = Capacity of the cooling equipment in kBtu per hour

$Save_{kWh}$ = Average annual kWh reduction per ton of cooling capacity: 170 kWh/ton¹

$Save_{kW}$ = Average kW reduction per ton of cooling capacity: 0.15 kW/ton²

Measure Life:

The measure life is 10 years.³

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a018 E21C1d020	Demand Control Ventilation	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.820	0.050
E21C2a018 E21C2d020	Demand Control Ventilation	SBES Retro SBES DI	1.000	1.000	n/a	1.000	1.000	0.820	0.050
E21C3a024 E21C3d026	Demand Control Ventilation	Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.820	0.050
E21C1c002 E21C2c002	Midstream Demand Control Ventilation	LBES Midstream SBES Midstream	1.000	1.000	n/a	1.000	1.000	0.820	0.050

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates⁴:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

CFs are based on Massachusetts TRM standard assumptions.

Energy Load Shape:

Appendix 1 C&I Load Shapes– “C&I Heating and Cooling”

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):⁵

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	2021 NTG
E21C1c002 E21C2c002	Midstream Demand Control Ventilation	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860

Endnotes:

- 1: Keena, Kevin, 2008. Analysis of CO2 Control Energy Savings on Unitary HVAC Units. Prepared for National Grid.
- 2: Keena, Kevin, 2008. Analysis of CO2 Control Energy Savings on Unitary HVAC Units. Prepared for National Grid.
- 3: Energy & Resource Solutions, November 2005. Measure Life Study. Prepared for The Massachusetts Joint Utilities; Table 1-1. Measure life is assumed to be the same

as Enthalpy Economizer. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

4: New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Impact Evaluation [report](#). Table 3

5: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators. http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

2.25. HVAC- Dual Enthalpy Economizer Controls

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

The measure is to upgrade the outside-air dry-bulb economizer to a dual enthalpy economizer. The system will continuously monitor the enthalpy of both the outside air and return air. The system will control the system dampers adjust the outside quantity based on the two readings.

Baseline Efficiency:

The baseline efficiency case for this measure assumes the relevant HVAC equipment is operating with a fixed dry-bulb economizer.

High Efficiency:

The high efficiency case is the installation of an outside air economizer utilizing two enthalpy sensors, one for outdoor air and one for return air.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = kBTuh \times \frac{1 \text{ ton}}{12 \text{ kBTuh}} \times SAVE_{kWh}$$

$$\Delta kW = kBTuh \times \frac{1 \text{ ton}}{12 \text{ kBTuh}} \times SAVE_{kW}$$

Where:

kBTu/h = Capacity of the cooling equipment in kBTu per hour (1 ton of cooling capacity equals 12 kBTu/h)

$SAVE_{kWh}$ = Average annual kWh reduction per ton of cooling capacity: 289 kWh/ton ¹

$SAVE_{kW}$ = Average kW reduction per ton of cooling capacity: 0.289 kW/ton ²

Measure Life:

The measure life is 10 years. ³

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a020 E21C1d022	Dual Enthalpy Economizer Controls	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.342	0.000
E21C2a020 E21C2d022	Dual Enthalpy Economizer Controls	SBES Retro SBES DI	1.000	1.000	n/a	1.000	1.000	0.342	0.000
E21C3a026 E21C3d028	Dual Enthalpy Economizer Controls	MES Retro MES DI	1.000	1.000	n/a	1.000	1.000	0.342	0.000
E21C1c004 E21C2c004	Midstream Dual Enthalpy Economizer Controls	LBES Midstream SBES Midstream	1.000	1.000	n/a	1.000	1.000	0.342	0.000

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are based on 2011 NEEP C&I Unitary AC Loadshape Project ⁴

Energy Load Shape:

See Appendix 1C&I Load Shapes – “C&I Heating and Cooling”.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):⁵

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	2021 NTG
E21C1c004 E21C2c004	Midstream Dual Enthalpy Economizer Controls	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860

Endnotes:

1, 2: Patel, Dinesh, 2001. Energy Analysis: Dual Enthalpy Control. Prepared for Eversource (NSTAR).

3: Energy & Resource Solutions, November (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

4: Coincidence Factors are from 2011 NEEP HVAC Loadshape Study Table 0-5 (ISO_NE on Peak for NE-North)

https://neep.org/sites/default/files/resources/NEEP_HVAC_Load_Shape_Report_Final_August2_0.pdf

5: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators.

http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

2.26. HVAC – Duct Insulation

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

For existing ductwork in non-conditioned spaces, insulate ductwork. This could include replacing un-insulated flexible duct with rigid insulated ductwork and installing 1" to 2" of duct-wrap insulation.

Baseline Efficiency:

The baseline efficiency case is existing, uninsulated ductwork in unconditioned spaces (e.g. attic or basement).

High Efficiency:

The high efficiency condition is insulated ductwork in unconditioned spaces.

Algorithms for Calculating Primary Energy Impact:

Deemed average annual MMBtu savings of 0.13¹ is assumed per unit, where unit is defined as number of square feet of ductwork treated.

Measure Life:

The measure life is 20 years.¹

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3a027 E21C3d029	Duct Insulation	Electric	Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.350	0.000
E21C3a028 E21C3d030	Duct Insulation	Gas	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a029 E21C3d031	Duct Insulation	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C3a030 E21C3d032	Duct Insulation	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

For electric measures, a summer coincidence factor of 35.0% is utilized.²

Energy Load Shape:

For electric measures, see Appendix 1 C&I Load Shapes “Weighted HVAC – Multi-Family”

For non-electric measures, see Appendix 1 C&I Load Shapes “Non-Electric Measures”.

Endnotes:

1: National Grid Staff Estimate, 2010. MA SBS-DI Duct Sealing and Insulation Scenario and Deemed Savings. <https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee4885c6996f2b5047df743/view?authToken=fa8e547661bf80dea8750ffa5a1d3608215165882ceaf6ebc0b7193a1ab071622426a78ec0a491b80535c621447604a03ab75d3119793c326860fd96007eec8b851ba43c196fab>

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. Weighted CF by end use (Table 3). <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

2.27. HVAC – Duct Sealing

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

For existing ductwork in non-conditioned spaces, seal ductwork. This could include sealing leaky fixed ductwork with mastic or aerosol.

Baseline Efficiency:

The baseline efficiency case is existing, non-sealed (leaky) in unconditioned spaces (e.g. attic or basement).

High Efficiency:

The high efficiency condition is air sealed ductwork in unconditioned spaces.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results:

$$\Delta \text{MMBtu} = \text{MMBtu/unit} \times \text{Units}$$

Where:

Unit = Number of square feet of ductwork treated

MMBtu/unit = Average annual MMBtu savings per unit: 0.13¹

Measure Life:

The measure life is 20 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a021 E21C1d023	Duct Sealing	Electric	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.350	0.000

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C2a021 E21C2d023	Duct Sealing	Electric	SBES Retro SBES DI	1.000	1.000	n/a	1.000	1.000	0.350	0.000
E21C3a031 E21C3d033	Duct Sealing	Electric	Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.350	0.000
E21C3a032 E21C3d034	Duct Sealing	Gas	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a033 E21C3d035	Duct Sealing	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a034 E21C3d036	Duct Sealing	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 35.0% is utilized.²

Energy Load Shape:

For electric measures, see Appendix 1 C&I Load Shapes “Weighted HVAC- Multi-Family”
 For non-electric measures, see Appendix 1 C&I Load Shapes “Non-Electric Measures”

Endnotes:

1: National Grid Staff Estimate, 2010. MA SBS-DI Duct Sealing and Insulation Scenario and Deemed Savings. <https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee4885c6996f2b5047df743/view?authToken=19819e606c75814d>

[e7e2d8af2fec676653fdc0f39f9bd79f566ee687c4851bcd91e2216408550e53766db986dc9c0640b2776bb702f79b7f56a42e07d73a2cebf5c6abfb39bd1](https://www.ma-eeac.org/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf)

2: Navigant Consulting, 2018. RES1 Demand Impact Model Update. Weighted CF by end use (Table 3).
<http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

2.28. HVAC – Energy Management System

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

The measure is the installation of a new building energy management system (EMS) or the expansion of an existing energy management system for control of non-lighting electric and gas end-uses in an existing building on existing equipment.

Baseline Efficiency:

The baseline for this measure assumes the relevant HVAC equipment has no centralized control.

High Efficiency:

The high efficiency case is the installation of a new EMS or the expansion of an existing EMS to control additional non-lighting electric or gas equipment. The EMS must be installed in an existing building on existing equipment.

Algorithms for Calculating Primary Energy Impact:

Gross energy and demand savings for energy management systems (EMS) are custom calculated using vendor tools. These tools are used to calculate energy and demand savings based on project-specific details including hours of operation, HVAC system equipment and efficiency and points controlled.

BC Measure ID	Measure Name	Fuel Type	Program	MMBtu/kWh
G21C1a012 G21C2a012	Energy Management System	Gas	LBES Retro – Gas SBES Retro – Gas	Calculated
E21C1a025 E21C1d027 E21C2a025 E21C2d027 E21C3a038 E21C3d040	Energy Management System	Electric	LBES Retro LBES DI SBES Retro SBES DI Muni Retro Muni DI	Calculated

Measure Life:

The measure life is 10 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a025 E21C1d027	Energy Management System	LBES Retro LBES DI	1.000	0.999	1.000	1.000	1.000	0.950	1.000
E21C2a025 E21C2d027	Energy Management System	SBES Retro SBES DI	1.000	1.000	1.000	1.000	1.000	0.950	1.000
E21C3a038 E21C3d040	Energy Management System	Muni Retro Muni DI	1.000	1.000	1.000	1.000	1.000	0.950	1.000
G21C1a012 G21C2a012	Energy Management System	LBES Retro – Gas SBES Retro – Gas	1.000	n/a	1.000	1.000	1.000	0.000	0.000

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 95.0% and a winter coincidence factor of 100.0% is utilized.³

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Heating and Cooling”

Endnotes:

- 1: Descriptions of the EMS savings calculation tools are included in the MA TRM Library “C&I Spreadsheet Tools” folder.
- 2: The Fleming Group, 1994. Persistence of Commercial/Industrial Non-Lighting Measures, Volume 3, Energy Management Control Systems. Prepared for New England Power Service Company.
- 3: New Hampshire common assumptions.

2.29. HVAC – Heat and Hot Water Combo Systems

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

Combo Condensing Furnace / Water Heater: Installation of a combination furnace.

Combo Condensing Boiler / Water Heater: This measure promotes the installation of a combined high-efficiency boiler and water heating unit. Combined boiler and water heating systems are more efficient than separate systems because they eliminate the standby heat losses of an additional tank.

Baseline Efficiency:

Combo Condensing Furnace / Water Heater: It is assumed that the baseline is an 85% AFUE furnace ¹ and a separate high draw gas fired storage water heater with an efficiency rating of 0.63 UEF.

Combo Condensing Boiler / Water Heater: The baseline efficiency case is a standard efficiency gas-fired storage tank hot water heater with a separate standard efficiency boiler for space heating purposes.

High Efficiency:

Combo Condensing Furnace / Water Heater: A new combination 97% AFUE furnace and 0.90 tankless water heater.

Combo Condensing Boiler / Water Heater: The high efficiency case is either a condensing, integrated water heater/boiler with an AFUE of $\geq 90\%$ or AFUE $\geq 95\%$.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.²

BC Measure ID	Measure Name	Δ MMBtu
G21C1b012 G21C2b012	Combo Condensing Furnace/Water Heater, Gas	15.1
G21C1b011 G21C2b011	Combo Condensing Boiler/Water Heater, Gas	30.5

Measure Life:

Combo Condensing Furnace / Water Heater: The measure life is 18 years.³

Combo Condensing Boiler/Water Heater: 20 years.⁴

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1b012 G21C2b012	Combo Condensing Furnace/Water Heater, Gas	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1b011 G21C2b011	Combo Condensing Boiler/Water Heater, Gas	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

See Appendix 1, C&I Load Shapes Table- "Heating and Cooling.

Endnotes:

1: Massachusetts TRM 2019 Plan-Year Report Version, 2020. Measure 3.30: HVAC Combo Furnace/Water Heater, Commercial Page 477.

2: The Cadmus Group, March 2015. High Efficiency Heating Equipment Impact Evaluation. Prepared for The Electric and Gas Program Administrators of Massachusetts, Part of the Residential Evaluation Program Area <https://neep.org/sites/default/files/resources/High-Efficiency-Heating-Equipment-Impact-Evaluation-Final-Report.pdf>

3: Environmental Protection Agency, 2009. Lifecycle Cost Estimate for Energy Star Furnace.

4: Natural Gas Energy Efficiency Potential in Massachusetts. Prepared for GasNetworks, GDS Associates, April 2009. http://ma-eeac.org/wordpress/wp-content/uploads/5_Natural-Gas-EE-Potential-in-MA.pdf

2.30. HVAC – Heating Systems - Boilers

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

The installation of a high efficiency natural gas fired condensing hot water boiler. High-efficiency condensing boilers can take advantage of improved design, sealed combustion, and condensing flue gases in a second heat exchanger to achieve improved efficiency.

Baseline Efficiency:

Baseline efficiency is an 85% AFUE boiler.

High Efficiency:

High efficiency is per table of efficiency thresholds below.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results. ¹

BC Measure ID	Measure Name	Program	ΔMMBtu
G21C1b010 G21C2b010	<= 300 MBH (0.95 TE)	LBES New SBES New	17.7
G21C1b009 G21C2b009	<= 300 MBH (0.90 TE)	LBES New SBES New	14.7
G21C1b008 G21C2b008	301-499 MBH (0.90 TE)	LBES New SBES New	28.0
G21C1b007 G21C2b007	500-999 MBH (0.90 TE)	LBES New SBES New	51.4
G21C1b006 G21C2b006	1000-1700 MBH (0.90 TE)	LBES New SBES New	94.5
G21C1b005 G21C2b005	1701+ MBH (0.90 TE)	LBES New SBES New	165.3

Measure Life:

The measure life is 25 years. ²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1b010 G21C2b010	<= 300 MBH (0.95 TE)	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1b009 G21C2b009	<= 300 MBH (0.90 TE)	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1b008 G21C2b008	301-499 MBH (0.90 TE)	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1b007 G21C2b007	500-999 MBH (0.90 TE)	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1b006 G21C2b006	1000-1700 MBH (0.90 TE)	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1b005 G21C2b005	1701+ MBH (0.90 TE)	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

See Appendix 1 “C&I Heating & Cooling”.

Endnotes:

1: DNV GL, NMR, March 2017. Gas Boiler Market Characterization Study Phase II. Prepared for Massachusetts Program Administrators and Energy Efficiency Advisory Council. <http://ma-eeac.org/wordpress/wp-content/uploads/Gas-Boiler-Market-Characterization-Study-Phase-II-Final-Report.pdf>

2: ASHRAE Applications Handbook, 2003; Page 36.3.

2.31. HVAC – Heating Systems – Condensing Unit Heaters

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

Installation of a condensing gas-fired unit heater for space heating with capacity up to 300 MBH and minimum combustion efficiency of 90%.

Baseline Efficiency:

The baseline efficiency case is a standard efficiency gas fired unit heater with minimum combustion efficiency of 80%, interrupted or intermittent ignition device (IID), and either power venting or an automatic flue damper.¹ As a note, the baseline efficiency referenced applies to 2016. Baseline requirements for 2017 and on have not been finalized.

High Efficiency:

The high efficiency case is a condensing gas unit heater with 90% AFUE or greater.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.²

BC Measure ID	Measure Name	Program	ΔMMBtu
G21C1b013 G21C2b013	Condensing Unit Heater (<= 300 MBH) – Gas	LBES New SBES New	40.9
E21C3b033	Condensing Unit Heater (<= 300 MBH) – Oil	MES New	40.9
E21C3b034	Condensing Unit Heater (<= 300 MBH) – Propane	MES New	40.9

Measure Life:

The measure life is 18 years.³

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1b013 G21C2b013	Condensing Unit Heater – Gas	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3b033	Condensing Unit Heater – Oil	MES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3b034	Condensing Unit Heater – Propane	MES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

See Appendix 1 “C&I Heating & Cooling”.

Endnotes:

1: 2012 International Energy Conservation Code

2: NYSERDA Deemed Savings Database (Rev 11); Measure Name: A.UNIT-HEATER-COND.<300000.CI.).N. The database provides savings of 204.6 MMBtu per million BTU/hr of heater input capacity. Assume average unit size of 200,000 BTU capacity.

3: Ecotrope, Inc., August 2003. Natural Gas Efficiency and Conservation Measure Resource Assessment for the Residential and Commercial Sectors. Prepared for the Energy Trust of Oregon.

<https://library.cee1.org/system/files/library/1366/544.pdf>

2.32. HVAC – Heating Systems – Furnaces

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

The installation of a high efficiency natural gas warm air furnace with an electronically commutated motor (ECM) for the fan. High efficiency furnaces are better at converting fuel into direct heat and better insulated to reduce heat loss. ECM fan motors significantly reduce fan motor electric consumption as compared to both shaped-pole and permanent split capacitor motors.

Baseline Efficiency:

The baseline efficiency in an 85% AFUE furnace.

High Efficiency:

The high efficiency scenario assumes either a gas-fired furnace equal or higher than 95% AFUE or 97% AFUE.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results. ¹

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW	ΔMMBtu
G21C1b014 G21C2b014	Furnace, 95%	LBES New SBES New	168	0.124	5.7
G21C1b015 G21C2b015	Furnace, 97%	LBES New SBES New	168	0.124	6.7

Measure Life:

The measure life is 18 years. ²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:³

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1b014 G21C2b014	Furnace, 95%	LBES New SBES New	1.000	1.000	1.000	n/a	n/a	0.000	0.160
G21C1b015 G21C2b015	Furnace, 97%	LBES New SBES New	1.000	1.000	1.000	n/a	n/a	0.000	0.160

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A winter coincidence factor of 16% is utilized. Values pertain to other resource impacts for the EC motors.

Energy Load Shape:

See Appendix 1 “C&I Heating & Cooling”.

Endnotes:

1: DNV-GL, 2015. Recalculation of Prescriptive Program Gas Furnace Savings Using New Baseline. Prepared for National Grid, Massachusetts.

2: ASHRAE Applications Handbook, 2003; Page 36.

3: Massachusetts TRM 2019 Plan-Year Report Version, 2020. Measure 3.42: HVAC Combo Furnace, Gas, Commercial Page 510

2.33. HVAC – Heating Systems – Infrared Heater

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

The installation of a gas-fired low intensity infrared heating system in place of unit heater, furnace, or other standard efficiency equipment. Infrared heating uses radiant heat as opposed to warm air to heat buildings. In commercial environments with high air exchange rates, heat loss is minimal because the space's heat comes from surfaces rather than air.

Baseline Efficiency:

The baseline efficiency case is a standard efficiency gas-fired unit heater with combustion efficiency of 80%.

High Efficiency:

The high efficiency case is a gas-fired low-intensity infrared heating unit.

Algorithms for Calculating Primary Energy Impact:

Unit savings are calculated as:

$$\Delta \text{MMBtu} = \frac{k\text{Btu}}{hr_{\text{input}}} \times \frac{EFLH_{\text{heating}}}{1000} \times \left(1 - \frac{HDD_{55} (55 - T_{\text{design}})}{HDD_{65} (55 - T_{\text{design}})} \right)$$

Where,

$\frac{k\text{Btu}}{hr_{\text{input}}}$ = Fuel input rating of the installed equipment

$EFLH_{\text{heating}}$ = Heating equivalent full-load hours

HDD_{55} = Heating degree days with 55-degree bases

HDD_{65} = Heating degree days with 65-degree base

T_{design} = Equipment design temperature

Alternatively, unit savings are deemed based on study results.¹

BC Measure ID	Measure Name	Fuel Type	Program	ΔMMBtu
G21C1b016 G21C2b016	Infrared Heater	Gas	LBES New SBES New	12.0
E21C3b064	Infrared Heater	Propane	MES New	12.0

Measure Life:

The measure life is 17 years. ²

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1b016 G21C2b016	Infrared Heater	LBES New SBES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3b064	Infrared Heater	MES New	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Not applicable for this measure since no electric savings are claimed.

Energy Load Shape:

See Appendix 1 “C&I Heating & Cooling”.

Endnotes:

1: KEMA, June 2013. Impact Evaluation of 2011 Prescriptive Gas Measures; Page 1-5. <http://ma-eeac.org/wordpress/wp-content/uploads/Impact-Evaluation-of-2011-Prescription-Gas-Measures-6.27.13.pdf>

2: Nexant, 2006. DSM Market Characterization Report. Prepared for Questar Gas.

2.34. HVAC – High Efficiency Chiller

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

This measure promotes the installation of efficient water-cooled and air-cooled water chilling packages for comfort cooling applications. Eligible chillers include air-cooled, water cooled rotary screw and scroll, and water-cooled centrifugal chillers for single chiller systems or for the lead chiller only in multi-chiller systems.

Baseline Efficiency:

The baseline efficiency case assumes compliance with the efficiency requirements as mandated by Massachusetts State Building Code. As described in Chapter 13 of the aforementioned document, energy efficiency must be met via compliance with the International Energy Conservation Code (IECC) 2015.

The table below details the specific efficiency requirements by equipment type and capacity.

Chiller - Minimum Efficiency Requirements ¹:

Chiller Minimum Efficiency Requirements						
	Size Category (Tons)	Units	Path A	Path A	Path B	Path B
			Full Load	IPLV	Full Load	IPLV
	Air-cooled chillers					
	< 150	EER	10.100	13.700	9.700	15.800
	≥ 150	EER	10.100	14.000	9.700	16.100
	Water cooled, electrically operated, positive displacement (rotary screw and scroll)					
	< 75	kW/ton	0.750	0.600	0.780	0.500
	≥ 75 and < 150	kW/ton	0.720	0.560	0.750	0.490
	≥ 150 and < 300	kW/ton	0.660	0.540	0.680	0.440
	≥ 300 and <600	kW/ton	0.610	0.520	0.625	0.410
	≥ 600	kW/ton	0.560	0.500	0.585	0.380
	Water cooled, electrically operated, centrifugal					
	< 150	kW/ton	0.610	0.550	0.695	0.440
	≥ 150 and < 300	kW/ton	0.610	0.550	0.635	0.400

	≥ 300 and < 400	kW/ton	0.560	0.520	0.595	0.390
	≥ 400 and < 600	kW/ton	0.560	0.500	0.585	0.380
	≥ 600	kW/ton	0.560	0.500	0.585	0.380

For water cooled ≤300 tons positive displacement is the baseline. For > 300 tons Centrifugal is the baseline. ²Path A is intended for applications where significant operating time is expected at full load. Path B is intended for applications where significant operating time is expected at part-load.

High Efficiency:

The high efficiency scenario assumes water chilling packages that exceed the efficiency levels required by Massachusetts State Building Code and meet the minimum efficiency requirements as stated in the New Construction HVAC energy efficiency rebate forms.

Algorithms for Calculating Primary Energy Impact:

Gross energy and demand savings for chiller installations may be custom calculated using the PA's Chillers savings calculation tool. These tools are used to calculate energy and demand savings based on site-specific chiller plant details including specific chiller plant equipment, operational staging, operating load profile and load profile.

Alternatively, the energy and demand savings may be calculated using the algorithms and inputs below. Please note that consistent efficiency types (FL or IPLV) must be used between the baseline and high efficiency cases. It is recommended that IPLV be used over FL efficiency types when possible.

Air-Cooled Chillers:

$$\text{kWh} = \text{Tons} * (12 / \text{EER}_{\text{BASE}} - 12 / \text{EER}_{\text{EE}}) * \text{Hours}$$

$$\text{kW} = \text{Tons} * (12 / \text{EER}_{\text{BASE}} - 12 / \text{EER}_{\text{EE}})$$

Water-Cooled Chillers:

$$\text{kWh} = \text{Tons} * (\text{kW} / \text{ton}_{\text{BASE}} - \text{kW} / \text{ton}_{\text{EE}}) * \text{Hours}$$

$$\text{kW} = \text{Tons} * (\text{kW} / \text{ton}_{\text{BASE}} - \text{kW} / \text{ton}_{\text{EE}}) * (\text{LF}/100)$$

Where:

Tons = Rated capacity of the cooling equipment

EER_{BASE} = Energy Efficiency Ratio of the baseline equipment. See table below for values.

EER_{EE} = Energy Efficiency Ratio of the efficient equipment. Site-specific.

$\text{kW} / \text{ton}_{\text{BASE}}$ = Energy efficiency rating of the baseline equipment. See table below for values.

$\text{kW} / \text{ton}_{\text{EE}}$ = Energy efficiency rating of the efficient equipment. Site-specific.

Hours = Equivalent full load hours for chiller operation

Measure Life:

The measure life is 23 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b053	Chillers – IPLV used	LBES New	1.000	0.999	n/a	1.000	1.000	0.490	0.060
E21C2b053	Chillers – IPLV used	SBES New	1.000	1.000	n/a	1.000	1.000	0.490	0.060
E21C3b084	Chillers – IPLV used	Muni New	1.000	1.000	n/a	1.000	1.000	0.490	0.060
E21C1b052	Chillers – FL used	LBES New	1.000	0.999	n/a	1.000	1.000	0.860	0.100
E21C2b052	Chillers – FL used	SBES New	1.000	1.000	n/a	1.000	1.000	0.860	0.100
E21C3b083	Chillers – FL used	Muni New	1.000	1.000	n/a	1.000	1.000	0.860	0.100

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are based on prospective statewide results from 2015 prescriptive chiller study.³

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Electric Chiller (Combined)”.

Endnotes:

1: Energy Solutions, 2018. Northeast Chillers Market Research.

2: Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007.

https://library.cee1.org/system/files/library/8842/CEE_Eval_MeasureLifeStudyLights%2526HVACGDS_1Jun2007.pdf

3: DNV GL, October 2015. Impact Evaluation of Prescriptive Chiller and Compressed Air Installations. Prepared for the MA PAs and EEAC. http://ma-eeac.org/wordpress/wp-content/uploads/MA30-Prescriptive-Chiller-and-CAIR-Report_FINAL_151026.pdf

2.35. HVAC – Hotel Occupancy Sensor

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

The measure is to the installation of hotel occupancy sensors (HOS) to control packaged terminal AC units (PTACs) with electric heat, heat pump units and/or fan coil units in hotels that operate all 12 months of the year.

Baseline Efficiency:

The baseline efficiency case assumes the equipment has no occupancy-based controls.

High Efficiency:

The high efficiency case is the installation of controls that include (a) occupancy sensors, (b) window/door switches for rooms that have operable window or patio doors, and (c) set back to 65°F in the heating mode and set forward to 78°F in the cooling mode when occupancy detector is in the unoccupied mode. Sensors controlled by a front desk system are not eligible.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on evaluation results¹.

BC Measure ID	Measure Name	Program	ΔkWh	ΔkW
E21C1a031 E21C1d031 E21C2a031 E21C2d031 E21C3a050 E21C3d050	Hotel Occupancy Sensor	LBES Retro LBES DI SBES Retro SBES DI Muni Retrofit Muni DI	438	0.090

Measure Life:

The measure life is 10 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a031 E21C1d031	Hotel Occupancy Sensor	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.820	0.050
E21C2a031 E21C2d031	Hotel Occupancy Sensor	SBES Retro SBES DI	1.000	1.000	n/a	1.000	1.000	0.820	0.050
E21C3a050 E21C3d050	Hotel Occupancy Sensor	Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.820	0.050

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are 82.0% for summer peak and 5.0% for winter peak.³

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Heating and Cooling”.

Endnotes:

1: MassSave, 2010. Energy Analysis: Hotel Guest Occupancy Sensors. Prepared for National Grid and Eversource (NSTAR).

2: Energy and Resource Solutions, November 2005. Measure Life Study. Prepared for MA Joint Utilities. HOS measure life assumed to be the same as that for occupancy-based lighting controls. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

3: New Hampshire Common Assumptions.

2.36. HVAC – Pipe Wrap

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

Pipe Wrap – Heating: Install insulation on steam pipes located in non-conditioned spaces.

Pipe Wrap – Hot Water: Install insulation on hot water heating pipes located in unconditioned spaces.

Baseline Efficiency:

Pipe Wrap – Heating: The baseline efficiency case is un-insulated steam piping in unconditioned space.

Pipe Wrap – Hot Water: The baseline efficiency case is un-insulated hot water heating piping in unconditioned space.

High Efficiency:

Pipe Wrap – Heating: The high efficiency condition is steam piping in unconditioned space with insulation installed.

Pipe Wrap – Hot Water: The high efficiency condition is hot water heating piping in unconditioned space with insulation installed.

Algorithms for Calculating Primary Energy Impact:

Gas unit savings are deemed based on study results.^{1,2} kW savings for hot water pipes with electric are calculated using the demand impact model.

Savings for steam pipes with electric heating is calculated as:

$$\Delta kWh = \frac{\left(\left(\frac{UA}{L}\right)_{baseline} - \left(\frac{UA}{L}\right)_{ee}\right)}{E_t \times 3,412} \times L \times \Delta T_{amb} \times hrs$$

Where,

$\left(\frac{UA}{L}\right)_{baseline}$ = Overall baseline heat transfer coefficient per unit length. 0.97 for 1.5”, 1.19 for 2”, and 1.70 for 3” copper pipes. For steel pipes, 1.23 for 1.5”, 1.51 for 2”, and 2.16 for 3”.

$\left(\frac{UA}{L}\right)_{ee}$ = Overall energy efficient heat transfer coefficient per unit length: 0.12 for all pipe sizes assuming fiber glass insulation of thickness equal to pipe diameter. Use 0.46 for rigid foam/cellular glass insulation of thickness equal to pipe diameter.

L = Length of the pipe insulated.

$$\Delta T_{amb} = 85^{\circ}\text{F}.^1$$

hrs = Annual operating hours.

E_t = Thermal efficiency of electric heater. Default value of 0.98.

$$\Delta kW = \frac{\Delta kWh}{8760}$$

Unit savings for gas measures are deemed based on an average of unit savings for 1.5 inch pipes and 3 inch pipes.¹

Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW	$\Delta MMBtu/\text{linera foot}$
G21C1a013 G21C2a013	Pipe Wrap – Heating	Gas	LBES Retro – Gas SBES Retro – Gas	n/a	n/a	.29 ¹
G21C1a008 G21C2a008	Pipe Wrap – Hot Water	Gas	LBES Retro – Gas SBES Retro – Gas	n/a	n/a	.29 ¹
E21C3a068 E21C3d068	Pipe Wrap – Heating	Gas	Muni Retro Muni DI	n/a	n/a	Calculated
E21C3a072 E21C3d072	Pipe Wrap – Hot Water	Gas	Muni Retro Muni DI	n/a	n/a	Calculated
E21C3a069 E21C3d069	Pipe Wrap – Heating	Oil	Muni Retro Muni DI	n/a	n/a	Calculated
E21C3a073 E21C3d073	Pipe Wrap – Hot Water	Oil	Muni Retro Muni DI	n/a	n/a	Calculated
E21C3a070 E21C3d070	Pipe Wrap – Heating	Propane	Muni Retro Muni DI	n/a	n/a	Calculated
E21C3a074 E21C3d074	Pipe Wrap – Hot Water	Propane	Muni Retro Muni DI	n/a	n/a	Calculated
E21C1a038 E21C1d038 E21C2a038 E21C2d038 E21C3a067 E21C3d067	Pipe Wrap – Heating	Electric	LBES Retro LBES DI SBES Retro SBES DI Muni Retro Muni DI	Calculated	Calculated	n/a
E21C1a039 E21C1d039 E21C2a039 E21C2d039 E21C3a071 E21C3d071	Pipe Wrap – Hot Water	Electric	LBES Retro LBES DI SBES Retro SBES DI Muni Retro Muni DI	Calculated	Calculated	n/a

Measure Life:

The measure life is 15 years.³

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:⁴

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
G21C1a013 G21C2a013 E21C3a068 E21C3d068	Pipe Wrap – Heating	Gas	LBES Retro – Gas SBES Retro – Gas Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
G21C1a008 G21C2a008 E21C3a072 E21C3d072	Pipe Wrap – Hot Water	Gas	LBES Retro – Gas SBES Retro – Gas Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a069 E21C3d069	Pipe Wrap – Heating	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a073 E21C3d073	Pipe Wrap – Hot Water	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a070 E21C3d070	Pipe Wrap – Heating	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a074 E21C3d074	Pipe Wrap – Hot Water	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C1a038 E21C1d038	Pipe Wrap – Heating	Electric	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.000	0.433
E21C2a038 E21C2d038 E21C3a067 E21C3d067	Pipe Wrap – Heating	Electric	SBES Retro SBES DI Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.000	0.433
E21C1a039 E21C1d039	Pipe Wrap – Hot Water	Electric	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.312	0.808
E21C2a039 E21C2d039 E21C3a071 E21C3d071	Pipe Wrap – Hot Water	Electric	SBES Retro SBES DI Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.312	0.808

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% electric realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 31.2% and a winter coincidence factor of 80.8% is utilized for insulation of hot water pipes with electric heating. For heating pipes with electric heating, a winter coincidence factor of 43.3% is utilized.⁴

Energy Load Shape:

For electric heating measures, see Appendix 1 C&I Load Shapes “Hardwired Electric Heat”.

For electric hot water measures, see Appendix 1 C&I Load Shapes “Water Heater – Electric”.

For non-electric measures, see Appendix 1 C&I Load Shapes “Non-electric Measures”

Endnotes:

1: National Grid Staff Calculation, 2010. Pipe insulation for SBS DI measures 2010 Excel Workbook.

<https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee4885c6996f2d3357df744/view?authToken=962981283a7d38ac721edb179c5b7bf83c006a08da8c2f38866e381295963d8580eab751291c33061971c75a15dc0166f2c592d030d479cbaf9f7aa54c0ecbf2fc61aac2f00300>

2: The Cadmus Group, July 2012. Massachusetts Multifamily Program Impact Analysis July 2012 – Revised May 2013. <https://api-plus.anbetrack.com/etrm-gateway/etrm/api/v1/etrm/documents/5ee4885a6996f2cca27df73e/view?authToken=c3f41e9663355f5cba1ed024ab30ea4536bb2244f8e59b5bb245644aad0600f2a7cd274d4a1ed7bdf33fa580f77ea7fb83e6341e0a43e7d5f9b52e5a311a397d19c852102c00d>

3: Natural Gas Energy Efficiency Potential in Massachusetts. Prepared for GasNetworks, GDS Associates, April 2009. http://ma-eeac.org/wordpress/wp-content/uploads/5_Natural-Gas-EE-Potential-in-MA.pdf

4: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

2.37. HVAC – Thermostat – Wi-Fi Communicating

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	HVAC

Description:

A Wi-Fi enabled communicating thermostat which allows remote set point adjustment and control via remote application. System requires an outdoor air temperature algorithm in the control logic to operate heating and cooling system.

Baseline Efficiency:

The baseline efficiency case is an HVAC system with either a manual or a programmable thermostat.

High Efficiency:

The high efficiency case is an HVAC system that has a Wi-Fi thermostat installed.

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on residential study results, adjusted for commercial buildings.¹

BC Measure ID	Measure Name	Fuel Type	Program	ΔkWh	ΔkW	$\Delta MMBtu$
E21C1a026 E21C1d028 E21C2a026 E21C2d028 E21C3a039 E21C3d041	Wi-Fi Thermostat	Electric	LBES Retro LBES DI SBES Retro SBES DI Muni Retro Muni DI	794	1.26	n/a
E21C3a040 E21C3d042 G21C1a016 G21C2a016	Wi-Fi Thermostat	Gas	Muni Retro Muni DI LBES Retro – Gas SBES Retro – Gas	n/a	n/a	9.86
E21C3a041 E21C3d043	Wi-Fi Thermostat	Oil	Muni Retro Muni DI	n/a	n/a	9.86
E21C3a042 E21C3d044	Wi-Fi Thermostat	Propane	Muni Retro Muni DI	n/a	n/a	9.86

Measure Life:

The measure life is 15 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel Type	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a026 E21C1d028	Wi-Fi Thermostat	Electric	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.346	0.000
E21C2a026 E21C2d028 E21C3a039 E21C3d041	Wi-Fi Thermostat	Electric	SBES Retro SBES DI Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.346	0.000
E21C3a040 E21C3d042 G21C1a016 G21C2a016	Wi-Fi Thermostat	Gas	Muni Retro Muni DI LBES Retro – Gas SBES Retro – Gas	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a041 E21C3d043	Wi-Fi Thermostat	Oil	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a
E21C3a042 E21C3d044	Wi-Fi Thermostat	Propane	Muni Retro Muni DI	1.000	n/a	1.000	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% electric realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Summer and winter Coincidence Factors are estimated using demand allocation methodology described the Demand Impact Model.³

Energy Load Shape:

See Appendix 1 “Weighted HVAC- All Homes”

Endnotes:

1: Navigant Consulting, September 2018. Wi-Fi Thermostat Impact Evaluation--Secondary Research Study Memo. http://ma-eeac.org/wordpress/wp-content/uploads/Wi-Fi-Thermostat-Impact-Evaluation-Secondary-Literature-Study_FINAL.pdf

(MA) This study is specifically applicable to residential settings and references New England RECS data. The savings values reported in this document use the same savings percentages as the “Best Fit for Massachusetts” line (2.0% of whole building electric energy use and 4.5% of whole building gas energy use), applied to the average electric and fuel consumption of a commercial building located in New England that is 5,000 sq ft or less, as is likely to be the applicable building type for this style of thermostat. This is 219 MMBtu/yr fuel use and 39,700 kWh/yr electric use, as calculated using 2012 CBECS data⁴

2: Assumed to have the same lifetime as a regular programmable thermostat. Environmental Protection Agency, 2010. Life Cycle Cost Estimate for ENERGY STAR Programmable Thermostat.

3: Navigant Consulting, 2018. RES1 Demand Impact Model Update. <http://ma-eeac.org/wordpress/wp-content/uploads/RES-1-FINAL-Comprehensive-Report-2018-07-27.pdf>

4: US EIA, 2016. 2012 CBECS microdata. Accessible in CSV and SAS format at <https://www.eia.gov/consumption/commercial/data/2012/index.php?view=microdata>

2.38. HVAC – Unitary Air Conditioner

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

This measure promotes the installation of high efficiency unitary air conditioning equipment in lost opportunity applications. Air conditioning (AC) systems are a major consumer of electricity and systems that exceed baseline efficiencies can save considerable amounts of energy. This measure applies to air, water, and evaporatively-cooled unitary AC systems, both single-package and split systems.

Baseline Efficiency:

The baseline efficiency case for new installations assumes compliance with the efficiency requirements as mandated by New Hampshire State Building Code.

High Efficiency:

The high efficiency case assumes the HVAC equipment meets or exceeds the Consortium for Energy Efficiency's (CEE) specification. This specification results in cost-effective energy savings by specifying higher efficiency HVAC equipment while ensuring that several manufacturers produce compliant equipment. The CEE specification is reviewed and updated annually to reflect changes to the ASHRAE and IECC energy code baseline as well as improvements in the HVAC equipment technology. Equipment efficiency is the rated efficiency of the installed equipment for each project.

Algorithms for Calculating Primary Energy Impact:

For units with cooling capacities less than 65 kBtu/h:

$$\Delta kWh = (kBtu/h) (1/ SEER_{BASE} - 1/ SEER_{EE}) (EFLH_{Cool})$$

$$\Delta kW = (kBtu/h) (1/ EER_{BASE} - 1/ EER_{EE})$$

For units with cooling capacities equal to or greater than 65 kBtu/h and EER available:

$$\Delta kWh = (kBtu/h) (1/ EER_{BASE} - 1/ EER_{EE}) (EFLH_{Cool})$$

$$\Delta kW = (kBtu/h) (1/ EER_{BASE} - 1/ EER_{EE})$$

For units with cooling capacities equal to or greater than 65 kBtu/h and IEER available:

$$\Delta kWh = (kBtu/h) (1/ IEER_{BASE} - 1/ IEER_{EE}) (HoursCool) \quad \Delta kWh = (kBtu/h) (1/ IEER_{BASE} - 1/ IEER_{EE})$$

Where:

ΔkWh = Gross annual kWh savings from the measure

ΔkW = Gross connected kW savings from the measure

kBtu/h = Capacity of the cooling equipment in kBtu per hour (1 ton of cooling capacity equals 12 kBtu/h).

$SEER_{BASE}$ = Seasonal Energy Efficiency Ratio of the baseline equipment

$SEER_{EE}$ = Seasonal Energy Efficiency Ratio of the energy efficient equipment

$EFLH_{Cool}$ = Cooling equivalent full load hours

EER_{BASE} = Energy Efficiency Ratio of the baseline equipment

EER_{EE} = Energy Efficiency Ratio of the energy efficient equipment

$IEER_{BASE}$ = Integrated Energy Efficiency Ratio of the baseline equipment

$IEER_{EE}$ = Integrated Energy Efficiency Ratio of the energy efficient equipment

HoursCool = Annual Cooling Hours

The baseline efficiency values are based on the IECC 2015.¹

Size (Btu/h)	Units with Electric Resistance of No Heating	Units with Heating Section Other Than Electric Resistance
< 65,000	13.0 SEER (Split System) 14.0 SEER (Single Package)	13.0 SEER (Split System) 14.0 SEER (Single Package)
≥65,000 and <135,000	11.2 EER 12.8 IEER	11.0 EER 12.6 IEER
≥135,000 and <240,000	11.0 EER 12.4 IEER	10.8 EER 12.2 IEER
≥240,000 and <760,000	10.0 EER 11.6 IEER	9.8 EER 11.4 IEER
≥760,000	9.7 EER 11.2 IEER	9.5 EER 11.0 IEER

Measure Life:

The measure life is 12 years.¹

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR_E	RR_{NE}	RR_{SP}	RR_{WP}	CF_{SP}	CF_{WP}
E21C1b049	Unitary Air Conditioner	LBES New	1.000	0.999	n/a	1.000	1.000	0.342	0.000
E21C2b049	Unitary Air Conditioner	SBES New	1.000	1.000	n/a	1.000	1.000	0.342	0.000
E21C3b080	Unitary Air Conditioner	Muni New	1.000	1.000	n/a	1.000	1.000	0.342	0.000
E21C1c007	Midstream Unitary Air Conditioners	LBES Midstream	1.000	1.000	n/a	1.000	1.000	0.342	0.000
E21C2c007	Midstream Unitary Air Conditioners	SBES Midstream	1.000	1.000	n/a	1.000	1.000	0.342	0.000

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 34.2% is utilized.²

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Electric Cooling Unitary Equipment”.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):³

BC Measure ID	Measure Name	Program	FR	SO _F	SO _{NP}	2021 NTG
E21C1c007 E21C2c007	Midstream Unitary Air Conditioners	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.86

Endnotes:

1: 2015 IECC (CT Code) Table C403.2.3(1).

2: KEMA, August 2011. C&I Unitary HVAC Loadshape Project Table 0-5 (ISO_NE on Peak for NE-North)

https://neep.org/sites/default/files/resources/NEEP_HVAC_Load_Shape_Report_Final_August2_0.pdf

3: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors’ Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators.

http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

2.39. HVAC – Heat Pump Systems

Measure Code	[Code]
Market	Commercial
Program Type	Retrofit/Lost Opportunity
Category	HVAC

Description:

This measure includes the installation of ductless mini split, ground source and water source heat pumps to serve the space heating and space cooling loads in a C&I facility. “Water source” refers to systems that use ground or lake water rather than a boiler as a loop heat source. The savings for this measure are realized through the increased nameplate efficiency between the baseline and installed equipment.

Baseline Efficiency:

For lost opportunity, the baseline is a code compliant heat pump unit of the same type as the high efficiency unit. Details regarding heat pump baseline efficiencies based on capacity and type are provided in a tabular format along with the savings algorithms.

For early retirement (retrofit), it is assumed that the new unit replaces the pre-existing heat pump unit, which is not at the end of its useful life. In this case, the baseline is the pre-existing, inefficient heat pump unit.

High Efficiency:

The high efficiency (or energy efficient) case is the site-specific heat pump unit. The energy efficient heat pump unit is assumed to be of the same type as the baseline unit.

Algorithms for Calculating Primary Energy Impact:

The savings for this measure are attributable to the increase in nameplate efficiency between the baseline and installed units.

The algorithm for calculating electric demand savings is:

$$\Delta kW = \Delta kW_{cool} + \Delta kW_{heat}$$

$$\Delta kW_{cool} = Cap_{cool} \times \left(\frac{1}{EER_{BASE}} - \frac{1}{EER_{EE}} \right)$$

$$\Delta kW_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right)$$

$$Cap_{heat} = Cap_{cool} \times 1.0 \text{ if unit is a cold climate ductless mini split heat pump}$$

$$Cap_{heat} = Cap_{cool} \times 0.9 \text{ for all other ductless mini split heat pump}$$

$$Cap_{heat} = Cap_{cool} \times \left(\frac{HSPF_{EE}}{EER_{EE}} \right) \text{ for water source and ground source heat pumps}$$

The algorithm for calculating annual electric energy savings is:

$$\Delta kWh = \Delta kWh_{cool} + \Delta kWh_{heat}$$

For ductless mini split heat pumps

$$\Delta kWh_{cool} = Cap_{cool} \times \left(\frac{1}{SEER_{BASE}} - \frac{1}{SEER_{EE}} \right) \times EFLH_{cool}$$

$$\Delta kWh_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right) \times EFLH_{heat}$$

For water source and ground source heat pumps

$$\Delta kWh_{cool} = Cap_{cool} \times \left(\frac{1}{EER_{BASE}} - \frac{1}{EER_{EE}} \right) \times EFLH_{cool}$$

$$\Delta kWh_{heat} = Cap_{heat} \times \left(\frac{1}{HSPF_{BASE}} - \frac{1}{HSPF_{EE}} \right) \times EFLH_{heat}$$

Where:

ΔkW = Gross annual demand savings for heat pump unit

ΔkW_{cool} = Gross annual cooling demand savings for heat pump unit

ΔkW_{heat} = Gross annual heating demand savings for heat pump unit. For non cold-climate ductless mini-split heat pump OR for facilities that employ supplemental heating sources (such as fossil fuel or electric resistance heat), $\Delta kW_{heat} = 0$

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient heat pump unit, from equipment specifications

Cap_{heat} = Heating capacity (in kBtu/h) of the energy efficient pump unit, from equipment specifications. Use given equations to convert from cooling capacity value if standard equipment literature does not provide this value

EER_{BASE} = Energy Efficiency Ratio of the baseline heat pump equipment

EER_{EE} = Energy Efficiency Ratio of the energy efficient heat pump unit, from equipment specifications

$HSPF_{BASE}$ = Heating Seasonal Performance Factor of baseline heat pump equipment

$HSPF_{EE}$ = Heating Seasonal Performance Factor of energy efficient heat pump unit, from equipment specifications

ΔkWh_{cool} = Gross annual cooling savings for heat pump unit
 ΔkWh_{heat} = Gross annual heating savings for heat pump unit

$SEER_{BASE}$ = Seasonal Energy Efficiency Ratio of baseline heat pump equipment

$SEER_{EE}$ = Seasonal Energy Efficiency Ratio of energy efficient heat pump unit, from equipment specifications

$EFLH_{cool}$ = Equivalent Full Load Hours for cooling

$EFLH_{heat}$ = Equivalent Full Load Hours for heating

0.9 = Conversion factor¹ to convert cooling capacity to heating capacity for ductless mini split heat pump units not on NEEP's cold climate air source heat pump (ccASHP) product list. The conversion factor for ccASHPs is 1.0.

Heat Pump Type	Cooling Capacity Range	Parameter	Value (Lost Opportunity)	Value (Retrofit)	Units
Ductless Mini Split	≤65,000 Btu/h	EER _{BASE}	12.73 ²	Pre-existing equipment EER	Btu/W-h
		SEER _{BASE}	14.00 ³	Pre-existing equipment SEER	Btu/W-h
		HSPF _{BASE}	8.20 ³	Pre-existing equipment HSPF	Btu/W-h
Water Source	<17,000 Btu/h	EER _{BASE}	12.20 ³	Pre-existing equipment EER	Btu/W-h
		HSPF _{BASE}	14.67 ³	Pre-existing equipment HSPF	Btu/W-h
	≥17,000 Btu/h	EER _{BASE}	13.00 ³	Pre-existing equipment EER	Btu/W-h
		HSPF _{BASE}	14.67 ³	Pre-existing equipment HSPF	Btu/W-h
Ground Source (Open Loop)	All Sizes	EER _{BASE}	18.00 ³	Pre-existing equipment EER	Btu/W-h
		HSPF _{BASE}	12.62 ³	Pre-existing equipment HSPF	Btu/W-h
Ground Source (Closed Loop)	All Sizes	EER _{BASE}	14.1 ³	Pre-existing equipment EER	Btu/W-h
		HSPF _{BASE}	10.91 ³	Pre-existing equipment HSPF	Btu/W-h
All		HSPF _{BASE}	3.142 For when baseline/pre-existing system is electric resistance heat		Btu/W-h
All		EFLH _{cool}	755 ⁴		hours
		EFLH _{heat}	1329 ⁴		hours

Measure Life:

The measure life is listed below by measure. Due to limitations with the avoided cost calculations in the Benefit/Cost Models, where measure lives are greater than 25 years, the models use a 25-year measure life.

BC Measure ID	Measure Name	Program	Measure Life
E21C1a022	Ductless Mini Split Heat Pump	LBES Retrofit	12 ⁵
E21C1d024	Ductless Mini Split Heat Pump	LBES DI	12 ⁵
E21C2a022	Ductless Mini Split Heat Pump	SBES Retrofit	12 ⁵
E21C2d024	Ductless Mini Split Heat Pump	SBES DI	12 ⁵
E21C3a035	Ductless Mini Split Heat Pump	Muni Retrofit	12 ⁵
E21C3d037	Ductless Mini Split Heat Pump	Muni DI	12 ⁵
E21C1b050	Water Source Heat Pump	LBES New	26 ⁶
E21C2b050	Water Source Heat Pump	SBES New	26 ⁶
E21C3b081	Water Source Heat Pump	Muni New	26 ⁶
E21C1b035	Ground Source Heat Pump	LBES New	26 ⁶
E21C2b035	Ground Source Heat Pump	SBES New	26 ⁶
E21C3b056	Ground Source Heat Pump	Muni New	26 ⁶
E21C1c003	Midstream DMSHP Systems	LBES Midstream	12 ⁵
E21C2c003	Midstream DMSHP Systems	SBES Midstream	12 ⁵
E21C1c006	Midstream Heat Pump Systems	LBES Midstream	12 ⁵
E21C2c006	Midstream Heat Pump Systems	SBES Midstream	12 ⁵
E21C1c009	Midstream Water Source Heat Pump Systems	LBES Midstream	26 ⁶
E21C2c009	Midstream Water Source Heat Pump Systems	SBES Midstream	26 ⁶

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a022	Ductless Mini Split Heat Pump	LBES Retrofit	1.000	0.999	1.000	1.000	1.000	0.342	0.000

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1d024	Ductless Mini Split Heat Pump	LBES DI	1.000	0.999	1.000	1.000	1.000	0.342	0.000
E21C2a022	Ductless Mini Split Heat Pump	SBES Retrofit	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C2d024	Ductless Mini Split Heat Pump	SBES DI	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C3a035	Ductless Mini Split Heat Pump	Muni Retrofit	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C3d037	Ductless Mini Split Heat Pump	Muni DI	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C1b050	Water Source Heat Pump	LBES New	1.000	0.999	1.000	1.000	1.000	0.342	0.342
E21C2b050	Water Source Heat Pump	SBES New	1.000	1.000	1.000	1.000	1.000	0.342	0.342
E21C3b081	Water Source Heat Pump	Muni New	1.000	1.000	1.000	1.000	1.000	0.342	0.342
E21C1b035	Ground Source Heat Pump	LBES New	1.000	0.999	1.000	1.000	1.000	0.342	0.342
E21C2b035	Ground Source Heat Pump	SBES New	1.000	1.000	1.000	1.000	1.000	0.342	0.342
E21C3b056	Ground Source Heat Pump	Muni New	1.000	1.000	1.000	1.000	1.000	0.342	0.342
E21C1c003	Midstream DMSHP Systems	LBES Midstream	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C2c003	Midstream DMSHP Systems	SBES Midstream	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C1c006	Midstream Heat Pump Systems	LBES Midstream	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C2c006	Midstream Heat Pump Systems	SBES Midstream	1.000	1.000	1.000	1.000	1.000	0.342	0.000
E21C1c009	Midstream Water Source Heat Pump Systems	LBES Midstream	1.000	1.000	1.000	1.000	1.000	0.342	0.342
E21C2c009	Midstream Water Source Heat Pump Systems	SBES Midstream	1.000	1.000	1.000	1.000	1.000	0.342	0.342

In-Service Rates:

All installations have 100.0% in-service-rates since programs include verification of equipment installations.

Realization Rates⁷:

All programs use 100.0% realization rate except for LBES (Retrofit, Direct Install, and NEC), which use a value of 99.9%.

Coincidence Factors⁸:

For ductless mini split heat pumps, summer coincidence factor is 34.2% and a winter coincidence factor is 0%.

For cold-climate ductless mini split heat pumps, is 34.2% and a winter coincidence factor is 34.2%.

For water source heat pumps and ground source heat pumps, summer & winter coincidence factor is 34.2%.

Energy Load Shape:

For ductless mini split heat pumps, see Appendix 1 – “DMSHP”

For water source and ground source heat pumps, see Appendix 1 – “Central Heat Pump”

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):⁹

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	2021 NTG
E21C1c003 E21C2c003	Midstream DMSHP Systems	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860
E21C1c006 E21C2c006	Midstream Heat Pump Systems	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860
E21C1c009 E21C2c009	Midstream Water Source Heat Pump Systems	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860

Endnotes:

- 1: Conversion factor is based on internal ERS analysis of Mass Save and NEEP ccASHp product data.
- 2: Since IECC 2015 does not provide EER requirements for air-cooled heat pumps < 65 kBtu/h, assume the following conversion from SEER to EER: EER≈SEER/1.1.
- 3: International Energy Conservation Code 2015, table C403.2.3(2) Minimum Efficiency Requirements: Electrically Operated Unitary and Applied Heat Pumps
- 4: KEMA((2011). C&I Unitary AC Loadshape Project - [Final Report](#). KEMA_2011_CI Unitary HVAC Load Shape Project
- 5: DNV GL (2018). Expected Useful Life (EUL) Estimation for Air-Conditioning Equipment from Current Age Distribution Memo.

- 6:http://weblegacy.ashrae.org/publicdatabase/system_service_life.asp?c_region=2&state=NA&building_function=NA&c_size=0&c_age=0&c_height=0&c_class=0&c_location=0&selected_system_type=1&c_equipment_type=NA. . See mean age of replaced water-to-air, geothermal heat pumps
- 7: New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Impact Evaluation [report](#). Table 3
8. Coincidence Factors are from 2011 NEEP HVAC Loadshape Study Table 0-5 (ISO_NE on Peak for NE-North)
- 9: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators. http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

2.40 HVAC – VRF Systems

Measure Code	[Code]
Market	Commercial
Program Type	Lost Opportunity
Category	HVAC

Description:

This measure includes in the installation of high-efficiency variable flow refrigerant (VRF) heat pumps.

Baseline Efficiency:

The baseline is a code compliant VRF heat pump unit. Details regarding heat pump baseline efficiencies based on capacity and type are provided in a tabular format along with the savings algorithms.

High Efficiency:

The high efficiency case is the site-specific VRF heat pump unit.

Algorithms for Calculating Primary Energy Impact:

The savings for this measure are attributable to the increase in nameplate efficiency between the baseline and installed units.

The algorithm for calculating electric demand savings is:

$$\Delta kW = Cap_{cool} \times \left(\frac{1}{EER_{BASE}} - \frac{1}{EER_{EE}} \right)$$

Where:

ΔkW = Gross annual demand savings for VRF unit

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient VRF unit, from equipment specifications

EER_{BASE} = Energy Efficiency Ratio of the baseline VRF equipment

EER_{EE} = Energy Efficiency Ratio of the energy efficient VRF unit, from equipment specifications

The algorithm for calculating annual electric energy savings is:

$$\Delta kWh = \Delta kWh_{cool} + \Delta kWh_{heat}$$

$$\Delta kWh_{cool} = Cap_{cool} \times \left(\frac{1}{IEER_{BASE}} - \frac{1}{IEER_{EE}} \right) \times EFLH_{cool}$$

$$\Delta kWh_{heat} = \frac{Cap_{heat}}{3.412} \times \left(\frac{1}{COP_{BASE}} - \frac{1}{COP_{EE}} \right) \times EFLH_{heat}$$

Where:

ΔkWh_{cool} = Gross annual cooling savings for VRF unit

ΔkWh_{heat} = Gross annual heating savings for VRF unit

Cap_{cool} = Cooling capacity (in kBtu/h) of the energy efficient VRF unit, from equipment specifications

Cap_{heat} = Heating capacity (in kBtu/h) of the energy efficient VRF unit, from equipment specifications.

$IEER_{BASE}$ = Integrated Energy Efficiency Ratio of baseline VRF equipment

$IEER_{EE}$ = Integrated Energy Efficiency Ratio of energy efficient VRF unit

COP_{BASE} = Coefficient of performance in heating mode of baseline VRF equipment

COP_{EE} = Coefficient of performance in heating mode of energy efficient VRF unit

VRF System Type	Parameter	Value ¹
Air Cooled	EER _{BASE}	11
	IEER _{BASE}	12.9
	COP _{BASE}	3.3
Water Cooled	EER _{BASE}	12
	IEER _{BASE}	16.0
	COP _{BASE}	4.2

Measure Life:

The measure life is 12 years.²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1c008 E21C2c008	Midstream VRF	LBES Midstream SBES Midstream	1.000	1.000	n/a	1.000	1.000	0.342	0.000

In-Service Rates:

All installations have a 100.0% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All installations have a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

The summer coincidence factor is 34.2% and the winter coincidence factor is 0%.³

Energy Load Shape:

See Appendix 1 – “Central Heat Pump”.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):⁴

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	2021 NTG
E21C1c008 E21C2c008	Midstream VRF	LBES Midstream SBES Midstream	0.225	0.085	0.000	0.860

Endnotes:

1: ANSI/ASHRAE/IES Standard 90.1-2013. Table 6.8.1-10

2: Energy & Resource Solutions, November. Measure Life Study. Prepared for The Massachusetts Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

3. Coincidence Factors are from 2011 NEEP HVAC Loadshape Study Table 0-5 (ISO_NE on Peak for NE-North)

4: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors’ Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators. http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

2.41. Refrigeration – Cooler Night Cover

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Installation of retractable aluminium woven fabric covers for open type refrigerated display cases, where the covers are deployed during the facility unoccupied hours in order to reduce refrigeration energy consumption.

Baseline Efficiency:

The baseline efficiency case is the annual operation of open-display cooler cases.

High Efficiency:

The high efficiency case is the use of night covers to protect the exposed area of display cooler cases during unoccupied hours.

Algorithms for Calculating Primary Energy Impact:

$$\Delta \text{kWh} = (\text{Width}) \times (\text{Save}) \times (\text{Hours})$$

$$\Delta \text{kW} = (\text{Width}) \times (\text{Save})$$

Where:

ΔkWh = Energy Savings

ΔkW = Connected load reduction

Width = Width of the opening that the night covers protect (ft)

Save = Savings factor based on the temperature of the case (kW/ft). See table below ¹

Hours = Annual hours that the night covers are in use

Cooler Case Temperature	Savings Factor
Low Temperature (-35 F to -5 F)	0.03 kW/ft
Medium Temperature (0 F to 30 F)	0.02 kW/ft
High Temperature (35 F to 55 F)	0.01 kW/ft

Measure Life:

The measure life for refrigeration add-on measures are 10 years. ²

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a017 E21C1d019	Cooler Night Covers	LBES Retro LBES DI	1.000	0.999	n/a	1.000	1.000	0.000	0.000
E21C2a017 E21C2d019	Cooler Night Covers	SBES Retro SBES DI	1.000	1.000	n/a	1.000	1.000	0.000	0.000
E21C3a023 E21C3d025	Cooler Night Covers	Muni Retro Muni DI	1.000	1.000	n/a	1.000	1.000	0.000	0.000

In-Service Rates:

All installations have 100% in-service rate since all programs require verification of equipment installation.

Realization Rates:

Large Business Energy Solution uses a 99.9% realization rate. All other programs use a 100.0% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are 0.0% since night cover usage occurs outside of peak demand hours.

Energy Load Shape:

See Appendix 1 C&I Load Shapes– “C&I Refrigeration”.

Endnotes:

1: CL&P Program Savings Documentation for 2011 Program Year, 2010. Factors based on Southern California Edison (1997). Effects of the Low Emissive Shields on Performance and Power Use of a Refrigerated Display Case. <https://www.econofrost.com/wp-content/uploads/2016/03/Ashrae.pdf>

2: Energy & Resource Solutions, November 2005. Measure Life Study. Prepared for The Massachusetts Joint Utilities; Page 4-5 to 4-6. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf

2.42. Lighting – Controls

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit/Lost Opportunity
Category	Lighting

Description:

This measure includes the installation of lighting controls in both lost-opportunity and retrofit applications. Occupancy sensors and daylight dimming controls are both included. Traffic-sensing occupancy sensors that control refrigerated case LEDs are also included as a separate section.

Baseline Efficiency:

The baseline efficiency case for retrofit applications is no controls.

The baseline efficiency case for new construction is code-compliant controls as mandated by the New Hampshire Building Code, which currently reflects IECC 2015 and ASHRAE Standard 90.1-2013.

The baseline efficiency case for refrigerated case LEDs is no controls.

High Efficiency:

The high efficiency case for retrofit applications is lighting fixtures connected to controls that reduce the pre-retrofit hours of operation.

The high efficiency case for new construction applications is lighting fixture controls that reduce the hours of operation further beyond code-compliant controls.

The high efficiency case for refrigerated case LEDs is traffic-sensing controls that are mounted on cases to dim case lighting from a high level to a low-power mode (assumed to be 25% of full power consumption) in less than 2 minutes when on traffic is sensed in the aisle.

Algorithms for Calculating Primary Energy Impact:

For retrofit applications:

$$\Delta \text{kWh} = \text{Controlled_kW} \times \text{Hours_base} \times (\%_{\text{sav}})$$

$$\Delta \text{kW} = (\text{Controlled_kW})$$

Where:

Controlled_kW = controlled fixture wattage

Hours_base = total annual hours that the connected kW operated in the pre-retrofit case

%_sav = percentage of kWh that is saved by utilizing this control measure, as shown in the study-informed deemed savings table below.¹

Control Type	% Savings Factor
Lighting Controls – Daylighting Dimming	0.28
Lighting Controls – Occupancy Sensor	0.24
Lighting Controls - Integral Dual Sensor	0.30
Lighting Controls - Integral Dual Sensors with Adaptive, Network-Capable Controls	0.35
Lighting Controls - Exterior Photocell	0.50

For lost opportunity applications:

$$\Delta kWh = \text{Controlled_kW} \times (\text{Hours_base} - \text{Hours_ee})$$

$$\Delta kW = (\text{Controlled_kW})$$

Where:

Controlled_kW = controlled fixture wattage

Hours_base = total annual hours that the connected Watts would have operated with code-compliant controls

Hours_ee = total annual hours that the connected kW operate with controls implemented, as determined on a per-application basis.

For refrigerated case LED controls:

$$\Delta kWh = \Delta kWh_{lights} + \Delta kWh_{refg}$$

$$\Delta kWh_{lights} = \Delta kW_{lights} \times \text{Hours}$$

$$\Delta kW_{lights} = kW_{hi} - (0.85 \times kW_{hi} + 0.15 \times kW_{lo})$$

$$\Delta kWh_{refg} = \Delta kWh_{lights} \times 0.28 \times \text{Eff_RS}$$

Where:

ΔkWh_{lights} = the lighting equipment contribution to savings

ΔkWh_{refg} = refrigeration interactive effects

kW_{hi} = the high-level lighting power per case, with deemed values shown in the table below

kW_{lo} = the low-level lighting power per case, with deemed values shown in the table below

Hours = the number of operating hours at the site, from application or deemed value shown in table below

0.85 = deemed fraction of time at high power⁴

0.15 = deemed fraction of time at low power⁴

0.28 = unit conversion between kW and tons of refrigeration

Eff_RS = efficiency of typical refrigeration system, with deemed values shown in the table below

Input	System type	Deemed Value	Unit	Source
kW_hi	5' case side mounted	13	W	4
	5' case center mounted	26	W	
	6' case side mounted	16	W	
	6' case center mounted	32	W	
kW_lo	5' case side mounted	8.5	W	4
	5' case center mounted	17	W	
	6' case side mounted	11	W	
	6' case center mounted	21	W	

Hours, if not available from site	All	4,910	Hr/yr	4
Eff_RS	Small business	1.6	kW/ton	5
	Large business	1.9	kW/ton	

Measure Life:

The table below provides measure life for control measures.^{2,4}

BC Measure ID	Measure Name	Program	Measure Life
E21C1a009 E21C1d011 E21C2a009 E21C2d011 E21C3a009 E21C3d011	Daylight Dimming	LBES Retrofit, LBES DI, SBES Retrofit, SBES DI, MES Retrofit, MES DI	9
E21C1b009 E21C2b009 E21C3b009	Daylight Dimming	LBES New, SBES New, MES New	10
E21C1a014 E21C1d016 E21C2a014 E21C2d016 E21C3a014 E21C3d016	Lighting Occupancy Sensors	LBES Retrofit, LBES DI, SBES Retrofit, SBES DI, MES Retrofit, MES DI	10
E21C1b014 E21C2b014 E21C3b014	Lighting Occupancy Sensors	LBES New, SBES New, MES New	10

Other Resource Impacts:

Heating penalties for large C&I occupancy sensors are from a 12-month MA data logging study.⁵
 Penalties for small business and municipal programs are from the 2018 MA small business lighting impact evaluation.⁷

BC Measure ID	Measure Name	Program	MMBtu/kWh
E21C1a009 E21C1b009 E21C1d011	Daylight Dimming	LBES	-0.002728
E21C2a009 E21C2b009 E21C2d011 E21C3a009 E21C3b009 E21C3d011	Daylight Dimming	SBES, MES	-0.004080
E21C1a014 E21C1b014 E21C1d016	Lighting Occupancy Sensors	LBES	-0.002728
E21C2a014 E21C2b014 E21C2d016 E21C3a014 E21C3b014 E21C3d016	Lighting Occupancy Sensors	SBES, MES	-0.004080

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a009 E21C1b009 E21C1d011	Daylight Dimming	LBES	1.000	0.999	1.000	1.000	1.000	0.138	0.134
E21C1a014 E21C1b014 E21C1d016	Lighting Occupancy Sensors	LBES	1.000	0.999	1.000	1.000	1.000	0.138	0.134
E21C2a009 E21C2b009 E21C2d011 E21C3a009 E21C3b009 E21C3d011	Daylight Dimming	SBES, MES	1.000	1.000	1.000	1.000	1.000	0.170	0.130
E21C2a014 E21C2b014 E21C2d016 E21C3a014 E21C3b014 E21C3d016	Lighting Occupancy Sensors	SBES, MES	1.000	1.000	1.000	1.000	1.000	0.180	0.130

In-Service Rates:

All installations have a 100% in-service-rate unless an evaluation finds otherwise.

Realization Rates:

Realization rates are 100% until evaluated. NH evaluations that have sampled a non-statistically significant number of lighting controls projects produced realization rates slightly greater than 100%, including for Large Business custom electric sites and Small Business and Municipal lighting projects, some of which included controls.^{9, 10} For refrigerated case lighting controls, realization rates are defaulted to 100% as the cited research for savings calculations is a study, and not an evaluation.⁴

Coincidence Factors:

Summer and winter coincidence factors for small business and municipal programs are based on a MA study of lighting occupancy sensors in small businesses.⁶ For large businesses, coincidence factors are based on a MA impact evaluation of the large C&I prescriptive lighting program.⁵

Impact Factors for Calculating Net Savings¹¹:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1a009 E21C1b009 E21C1d011 E21C2a009 E21C2b009 E21C2d011 E21C3a009 E21C3b009 E21C3d011	Daylight Dimming	LBES, SBES, MES	11%	5%	0%	94%
E21C1a014 E21C1b014 E21C1d016 E21C2a014 E21C2b014 E21C2d016 E21C3a014 E21C3b014 E21C3d016	Lighting Occupancy Sensors	LBES, SBES, MES	11%	5%	0%	94%

Energy Load Shape:

Energy load shapes are based on site-level metering of project sites in MA.⁸

Measure Name	Summer On-peak	Winter On-peak	Summer Off-peak	Winter Off-peak
Interior Lighting	34.3%	30.3%	18.1%	17.4%
Exterior Lighting	19.2%	20.1%	29.0%	31.6%

Endnotes:

- 1: DNV KEMA, October 27, 2014. Retrofit Lighting Controls Measures Summary of Findings. Final Report. (MA). <https://ma-eeac.org/wp-content/uploads/Lighting-Retrofit-Control-Measures-Final-Report.pdf> (NOTE: Report applies to daylight dimming and occupancy sensors. Dual sensor control savings factors are engineering calculated. Exterior controls factor only apply to On/Off photocells for lighting systems that operate on 24 hours per day, 7 days per week. Exterior controls with bi-level occupancy, dimming functions, or any other advanced/networked controls would receive a <0.50 savings factor in accordance with the table provided. Savings for integral occupancy sensors for high bay fixtures are custom calculated.)
- 2: ERS, November 17, 2005. Measure Life Study. Prepared for MA Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf
- 3: Pacific Northwest National Laboratory, October 2009. Demonstration Assessment of Light-Emitting Diode (LED) Freezer Case Lighting. https://www1.eere.energy.gov/buildings/publications/pdfs/ssl/gateway_freezer-case.pdf
- 4: Southern California Edison, January 2016. Refrigerated Case Door Aisle Traffic Sensor. Work paper SCE13CS003, revision 2.. <http://www.deeresources.net/workpapers>
- 5: DNV KEMA, June 21, 2013. Impact Evaluation of 2010 Prescriptive Lighting Installations. (MA) <https://ma-eeac.org/wp-content/uploads/Impact-Evaluation-of-2010-Prescriptive-Lighting-Installations-Final-Report-6-21-13.pdf>
- 6: Cadmus Group, October 23, 2012. Small Business Direct Install Program: Pre/Post Lighting Occupancy Sensor Study. (MA) Available as appendix C-1 in https://ma-eeac.org/wp-content/uploads/Massachusetts-Small-Business-Direct-Install_2010-2012-Impact-Evaluations-1.29.13.pdf
- 7: DNV GL, ERS, June 7, 2018. Impact Evaluation of PY2016 Small Business Initiative: Phase I https://ma-eeac.org/wp-content/uploads/P69-Impact-Eval-of-MA-Small-Business-Initiative-Phase-I-Lighting_Report_FINAL.pdf
- 8: DNV GL, 2018. P72 Prescriptive C&I Loadshapes of Savings.
- 9: DNV GL, June 21, 2018. Impact Evaluation of 2016 New Hampshire Commercial & Industrial Small Business and Municipal Lighting. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/small-business-and-municipal-lighting-impact-evaluation.pdf>. See sample projects including controls, which produced an overall realization rate of 106.6%.
- 10: DNV GL, September 25, 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf> See 100.8% realization rate for custom electric measures in table 16.
- 11: EMI, September 25, 2019 . C1644 EO Net-to-Gross Study, Final Report. https://www.energizect.com/sites/default/files/C1644%20-%20EO%20NTG%20Final%20Report_9.25.19.pdf
Downstream NTG values are based on Energy Opportunities NTG Study Results for Lighting shown in Table ES-1-1 on p. ES-3.

2.43. Lighting - Retrofit

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Lighting

Description:

This measure includes efficient lighting products including, but not limited to, efficient Light-Emitting Diode (LED) lamps and fixtures, promoted through direct install retrofit programs, and installed in commercial and industrial buildings (C&I).

Midstream measures include efficient lighting products including, but not limited to, efficient Light-Emitting Diode (LED) lamps and fixtures, promoted through point-of-sale (also referred to as midstream) distributors.

Baseline Efficiency:

For C&I lighting retrofit installations, the baseline efficiency case is project-specific and is determined using actual fixture counts and wattages from the existing space.

All midstream measures assume a blend of retrofit and lost opportunity baseline,¹ determined using assumed wattages for each of the replaced lamps or fixtures

High Efficiency:

For C&I lighting retrofit installations, the high efficiency case is project-specific and is determined using actual fixture counts and wattages for the project.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = (\sum_{i=1}^n ((Count_i * Watts_i / 1000)_{BASE}) - \sum_{j=1}^n (Count_j * Watts_j / 1000)_{EE}) \times (Hours)$$

$$\Delta kW = \sum_{i=1}^n ((Count_i * Watts_i / 1000)_{BASE}) - \sum_{j=1}^n (Count_j * Watts_j / 1000)_{EE}$$

Where:

n = Total number of fixture types in baseline or pre-retrofit case

m = Total number of installed fixture types

Count_i = Quantity of existing fixtures of type i.

Watts_i = Existing fixture or baseline wattage for fixture type i

Count_j = Quantity of efficient fixtures of type j.

Watts_j = Efficient fixture wattage for fixture type j.

1000 = Conversion factor: 1000 watts per kW.

Hours = Lighting annual hours of operation.

For retrofit installations, the annual hours of operation is project-specific and determined using actual building operation data in which the lighting equipment was installed. If site specific hours of operation are unavailable or if vendor estimates of building operating hours are unrealistically different from standard building type operating hours, then refer to the operating hours defined for midstream lighting, which is based on a program evaluation from CT.¹

For Midstream:

$$\Delta kWh = n * (\text{DeltaWatts}/1000) * \text{Hours}$$

$$\Delta kW = n * \text{DeltaWatts} / 1000$$

Where:

n = Total number of fixture or lamp types in project.

DeltaWatts = Calculated difference between efficient and baseline wattage (see table below)

1000 = Conversion factor: 1000 watts per kW.

Hours = Lighting annual hours of operation.

The following delta watt values are based on C&I Upstream Lighting, Mass Saves.²

Product	Product Type	delta Watts ²
BR20/PAR20	Screw-In LEDs	28.1
BR20/PAR30	Screw-In LEDs	38.1
BR40/PAR38	Screw-In LEDs	44.2
MR16	Screw-In LEDs	22.1
A-line, 75/100w	Screw-In LEDs	30.5
Decoratives	Screw-In LEDs	13.6
LED Retrofit kit, <25W	Screw-In LEDs	38.4
LED Retrofit kit, >25W	Screw-In LEDs	49.656.6
Stairwell Kit, Low-Output w/sensor	LED Stairwell Kits	41.319.2
Stairwell Kit, Mid-Output w/sensor	LED Stairwell Kits	35.640.0
G24 LED	Screw-In LEDs	15.3
G23 LED	Screw-In LEDs	8.4
T8 TLED, 4ft	Linear LEDs	13.8
T8 TLED, 2ft	Linear LEDs	6.9
A-line, 40/60w	Screw-In LEDs	21.7
2x4 LED Fixture Standard	Linear LEDs	33.0
2x4 LED Fixture Premium	Linear LEDs	37.0
2x2 LED Fixture Standard	Linear LEDs	29.0
2x2 LED Fixture Premium	Linear LEDs	33.0
1x4 LED Fixture Standard	Linear LEDs	16.0
1x4 LED Fixture Premium	Linear LEDs	20.0
2x4 LED Fixture Standard w Controls	Linear LEDs w Controls	42.9
2x4 LED Fixture Premium w Controls	Linear LEDs w Controls	48.1
2x2 LED Fixture Standard w Controls	Linear LEDs w Controls	37.7

2x2 LED Fixture Premium w Controls	Linear LEDs w Controls	42.9
1x4 LED Fixture Standard w Controls	Linear LEDs w Controls	20.8
1x4 LED Fixture Premium w Controls	Linear LEDs w Controls	26.0
T5 LED	Linear LEDs	20.0
U-Bend LED	Linear LEDs	23.4
High/Low Bay 50-99W	High Bay/Low Bay	174.0
High/Low Bay 100-199W	High Bay/Low Bay	229.0
High/Low Bay >= 200W	High Bay/Low Bay	334.0
Exterior LED 20-99W	Exterior LEDs	101.5
Exterior LED 100-199W	Exterior LEDs	176.5
Exterior LED >= 200W	Exterior LEDs	231.5
1x4 LED Troffer Retrofit Kit - Premium	Linear LEDs	37.3
1x4 LED Troffer Retrofit Kit - Standard	Linear LEDs	29.5
2x2 LED Troffer Retrofit Kit - Premium	Linear LEDs	19.6
2x2 LED Troffer Retrofit Kit - Standard	Linear LEDs	18.1
2x4 LED Troffer Retrofit Kit - Premium	Linear LEDs	56.2
2x4 LED Troffer Retrofit Kit - Standard	Linear LEDs	53.5
LED Ambient/Strip/Wrap	Linear LEDs	21.8
Mogul High Bay	High Bay/Low Bay	283.6
Mogul Low Bay	High Bay/Low Bay	191.0
Mogul Ext 175W	Exterior LEDs	141.9
Mogul Ext 250W	Exterior LEDs	184.9
Mogul Ext 400W	Exterior LEDs	283.3
LED Tubes, 3ft Type A	Linear LEDs	12.0
LED Tubes, 8ft Type A	Linear LEDs	25.1
Parking Garage, 20-99W - Standard	Exterior LEDs	122.9
Parking Garage, 20-99W - Premium	Exterior LEDs	130.5
Parking Garage, 100-199W - Standard	Exterior LEDs	249.4
Parking Garage, 100-199W - Premium	Exterior LEDs	253.9
Parking Garage, >= 200W - Standard	Exterior LEDs	561.6
Parking Garage, >= 200W - Premium	Exterior LEDs	583.1
High/Low Bay LED, 20-99W w/controls	High Bay/Low Bay w Controls	189.5
High/Low Bay LED, 100-199W w/controls	High Bay/Low Bay w Controls	260.1
High/Low Bay LED, >= 200W w/controls	High Bay/Low Bay w Controls	388.4

Midstream lighting measures will calculate gross energy savings using annual hours of operation defined for the building type in which the lamp was installed. These categories and hours of use are defined in the table below.

Midstream Hours of Use by Building Type

The following hours of operation are based on a program evaluation from CT.³ Parking garages are included as an additional building type category that has not yet been evaluated. A review of TRM best practices indicates 8760 hours of use for parking garages.

Building Type	Hours of Use
24x7 lighting	8,760
Automotive	4,056
Education	2,967
Grocery	5,468
Health Care	5,564
Hotel/Motel	3,064
Industrial	5,793
Large Office	4,098
Other	6,211 *
Parking Lot/ Streetlights	6,887
Religious Building/ Convention Center	913
Restaurant	5,018
Retail	4,939
Small Office	3,748
Warehouse	5,667
Parking Garage	8,760

*Other includes recreational and entertainment facilities, service-oriented facilities, and other miscellaneous building types.

Measure Life:

The table below summarizes the adjusted measure lives (AML) for each measure. Note these AML values account for the estimated fraction of program lighting measures that are assumed to be lost opportunity (replace on failure) vs. retrofit (early replacement) based on MA evaluation research, as well as future year adjustments driven by expectations of high efficiency market adoption.

Measure Category	Measure	AML
Ambient Linear	TLED	10.53
Ambient Linear	LED Fixture	10.99
High/Low Bay	TLED	12.81
High/Low Bay	LED Fixture	12.84 r
High/Low Bay	LED Lamp	12.56
Exterior/Outdoor	TLED	10.12
Exterior/Outdoor	LED Fixture	10.18

Exterior/Outdoor	LED Lamp	9.74
Screw-Based	A-Line	4.69
Screw-Based	Downlight/Track	5.86
Screw-Based	Decorative	3.78

The table below summarizes the adjusted measure lives (AML) for each of the midstream measures. Note these AML values account for the estimated fraction of program lighting measures that are assumed to be lost opportunity (replace on failure) vs. retrofit (early replacement) based on MA evaluation research, as well as [future year adjustments driven by expectations of high efficiency market adoption](#).⁴

BC Measure ID	Measure Category	Measure	Program	AML
E21C1c015 E21C2c015	Ambient Linear	TLED	LBES Midstream, SBES Midstream	10.53
E21C1c013 E21C2c013 E21C1c014 E21C2c014	Ambient Linear	LED Fixture	LBES Midstream, SBES Midstream	10.99
E21C1c012 E21C2c012	High/Low Bay	TLED	LBES Midstream, SBES Midstream	12.81
E21C1c012 E21C2c012	High/Low Bay	LED Fixture	LBES Midstream, SBES Midstream	12.84
E21C1c012 E21C2c012	High/Low Bay	LED Lamp	LBES Midstream, SBES Midstream	12.56
E21C1c011 E21C2c011	Exterior/Outdoor	TLED	LBES Midstream, SBES Midstream	10.12
E21C1c011 E21C2c011	Exterior/Outdoor	LED Fixture	LBES Midstream, SBES Midstream	10.18
E21C1c011 E21C2c011	Exterior/Outdoor	LED Lamp	LBES Midstream, SBES Midstream	9.74
E21C1c016 E21C2c016	Screw-Based	A-Line	LBES Midstream, SBES Midstream	4.69

E21C1c010 E21C2c010	Screw-Based	Downlight/Track	LBES Midstream, SBES Midstream	5.86
E21C1c016 E21C2c016	Screw-Based	Decorative	LBES Midstream, SBES Midstream	3.78

Other Resource Impacts:

Heating penalties for downstream, interior lighting systems (non-turnkey) are from a 12-month MA data logging study.³ Penalties for interior turnkey are from the 2018 MA small business lighting impact evaluation.⁴

BC Measure ID	Measure Name	Program	MMBtu/kWh
E21C1a012 E21C1a013 E21C2a012 E21C2a013 E21C3a012 E21C3a013	Interior Lighting	LBES, SBES, MES	-0.000691
E21C1d014 E21C1d015 E21C2d014 E21C2d015 E21C3d014 E21C3d015	Interior Lighting (turnkey direct-install)	LBES, SBES, MES	-0.004080
E21C1a010 E21C1a011 E21C1d012 E21C1d013 E21C2a010 E21C2a011 E21C2d012 E21C2d013 E21C3a010 E21C3a011 E21C3d012 E21C3d013	Exterior Lighting	LBES, SBES, MES	n/a

Midstream: The following heating penalties are associated with lighting projects, determined from MA lighting evaluations.⁵

BC Measure ID	Measure Name	Program	MMBtu/kWh
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E21C1c010 E21C2c010	LED Downlight	LBES Midstream, SBES Midstream	-0.000329
E21C1c011 E21C2c011	LED Exterior	LBES Midstream, SBES Midstream	N/A
E21C1c012 E21C2c012	LED High Bay/Low Bay	LBES Midstream, SBES Midstream	-0.000162
E21C1c013 E21C2c013	LED Linear Fixture	LBES Midstream, SBES Midstream	-0.000162
E21C1c014 E21C2c014	LED Linear Fixture with Controls	LBES Midstream, SBES Midstream	-0.000162
E21C1c015 E21C2c015	LED Linear Lamp	LBES Midstream, SBES Midstream	-0.000162
E21C1c016 E21C2c016	LED Screw In	LBES Midstream, SBES Midstream	-0.000329
E21C1c017 E21C2c017	LED Stairwell Kit	LBES Midstream, SBES Midstream	N/A

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a012 E21C1a013	Interior Lighting	LBES	1.000	0.999	1.000	1.000	0.504	0.389
E21C2a012 E21C2a013 E21C3a012 E21C3a013	Interior Lighting	SBES, MES	1.000	1.066	1.135	1.000	0.504	0.389
E21C1a010 E21C1a011	Exterior Lighting	LBES	1.000	0.999	1.000	1.000	0.000	1.000
E21C2a010 E21C2a011 E21C3a010 E21C3a011	Exterior Lighting	SBES, MES	1.000	1.027	1.000	1.000	0.000	1.000
E21C1d014 E21C1d015	Interior Lighting (turnkey direct-install)	LBES	1.000	0.999	1.000	1.000	0.504	0.389
E21C2d014 E21C2d015 E21C3d014 E21C3d015	Interior Lighting (turnkey direct-install)	SBES, MES	1.000	1.066	1.135	1.000	0.504	0.389

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1d012 E21C1d013	Exterior Lighting (turnkey direct-install)	LBES	1.000	0.999	1.000	1.000	0.000	1.000
E21C2d012 E21C2d013 E21C3d012 E21C3d013	Exterior Lighting (turnkey direct-install)	SBES, MES	1.000	1.027	1.000	1.000	0.000	1.000

Midstream:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1c010 E21C2c010	LED Downlight	LBES Midstream, SBES Midstream	0.859	1.267	1.000	1.000	0.70	0.49
E21C1c011 E21C2c011	LED Exterior	LBES Midstream, SBES Midstream	0.955	0.989	1.000	1.000	0.00	1.00
E21C1c012 E21C2c012	LED High Bay/Low Bay	LBES Midstream, SBES Midstream	0.996	0.747	1.000	1.000	0.83	0.65
E21C1c013 E21C2c013	LED Linear Fixture	LBES Midstream, SBES Midstream	0.971	1.135	1.000	1.000	0.83	0.65
E21C1c014 E21C2c014	LED Linear Fixture with Controls	LBES Midstream, SBES Midstream	0.971	1.135	1.000	1.000	0.83	0.65
E21C1c015 E21C2c015	LED Linear Lamp	LBES Midstream, SBES Midstream	0.971	1.135	1.000	1.000	0.83	0.65
E21C1c016 E21C2c016	LED Screw In	LBES Midstream, SBES Midstream	0.714	1.712	1.000	1.000	0.70	0.49
E21C1c017 E21C2c017	LED Stairwell Kit	LBES Midstream, SBES Midstream	0.955	0.989	1.000	1.000	0.82	0.82

In-Service Rates:

All downstream installations have 100.0% in service rate since programs include verification of equipment installations.

Midstream in-service rates are based on the C1635 Impact Evaluation of PY 2016 and 2017 Energy Opportunities (EO) Program Report.⁸

Realization Rates:

Large Business Energy Solutions uses a 99.9% realization rate. Realization rates for Small Business Energy Solutions and Municipal Energy Solutions are based on NH evaluation results for municipal and small business facilities.⁵ They account for operational hours of use adjustments, electric HVAC

interactive adjustments for kWh and summer peak kW, and other adjustments. Exterior lighting realization rates account for the same adjustments except the HVAC interactive adjustment.

Midstream realization rates are based on the C1635 Impact Evaluation of PY 2016 and 2017 Energy Opportunities (EO) Program Report.⁸ The HVAC interaction adjustment factor is determined from MA⁸,² and CT⁸ lighting project evaluations.

Coincidence Factors:

Summer and winter coincidence factors are based on NH evaluation results.^{5, 6}

Midstream summer and winter coincidence factors are based on MA 2017 Upstream Lighting Impact evaluation.⁹ LED screw-in coincident factors also applied to LED downlights.

Impact Factors for Calculating Net Savings:

Midstream and downstream free-ridership and spillover are based on study results from CT—which is the nearby jurisdiction with programs and markets most similar to those in NH.¹⁰

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1c010 E21C2c010	LED Downlight	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1c011 E21C2c011	LED Exterior	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1c012 E21C2c012	LED High Bay/Low Bay	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1c013 E21C2c013	LED Linear Fixture	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1c014 E21C2c014	LED Linear Fixture with Controls	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1c015 E21C2c015	LED Linear Lamp	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1c016 E21C2c016	LED Screw In	LBES Midstream, SBES Midstream	50%	23%	0%	73%
E21C1c017 E21C2c017	LED Stairwell Kit	LBES Midstream, SBES Midstream	27%	11%	0%	84%
E21C1a012 E21C1a013 E21C2a012 E21C2a013 E21C3a012 E21C3a013	Interior Lighting	LBES, SBES, MES	11%	5%	0%	94%

E21C1d014 E21C1d015 E21C2d014 E21C2d015 E21C3d014 E21C3d015	Interior Lighting (turnkey direct-install)	LBES, SBES, MES	11%	5%	0%	94%
E21C1a010 E21C1a011 E21C2a010 E21C2a011 E21C3a010 E21C3a011	Exterior Lighting	LBES, SBES, MES	11%	5%	0%	94%
E21C1d012 E21C1d013 E21C2d012 E21C2d013 E21C3d012 E21C3d013	Exterior Lighting (turnkey direct-install)	LBES, SBES, MES	11%	5%	0%	94%

Energy Load Shape:

Energy load shapes are based on site-level metering of project sites in MA.⁷

Measure Name	Summer On-peak	Winter On-peak	Summer Off-peak	Winter Off-peak
Interior Lighting	34.3%	30.3%	18.1%	17.4%
Exterior Lighting	19.2%	20.1%	29.0%	31.6%

Endnotes:

- 1: DNV GL, June 30, 2020. C1635 Impact Evaluation of PY 2016 & 2017 Energy Opportunities Program, Draft Report. Table 5-17. Interior Fixture Hours of Use Results by Building Type. Available at: <https://www.energizect.com/connecticut-energy-efficiency-board/evaluation-reports>
- 2: DNV GL, April 6, 2020. MA19C14-E-LGHTMKT: 2019 C&I Lighting Inventory and Market Model Updates. https://ma-eeac.org/wp-content/uploads/MA19C14-E-LGHTMKT_2019-CI-Lighting-Inventory-and-Market-Model-Report_Final_2020.04.06.pdf
- 3: DNV KEMA, June 21, 2013. Impact Evaluation of 2010 Prescriptive Lighting Installations. <https://ma-eeac.org/wp-content/uploads/Impact-Evaluation-of-2010-Prescriptive-Lighting-Installations-Final-Report-6-21-13.pdf>
- 4: DNV GL, ERS, June 7, 2018. Impact Evaluation of PY2016 Small Business Initiative: Phase I https://ma-eeac.org/wp-content/uploads/P69-Impact-Eval-of-MA-Small-Business-Initiative-Phase-I-Lighting_Report_FINAL.pdf
- 5: DNV GL, June 21, 2018. Impact Evaluation of 2016 New Hampshire Commercial & Industrial Small Business and Municipal Lighting. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/small-business-and-municipal-lighting-impact-evaluation.pdf>

- 6:** DNV GL, September 25, 2015. New Hampshire Utilities Large Commercial & Industrial (C&I) Retrofit and New Equipment & Construction Program Impact Evaluation.
<https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/New%20Hampshire%20Large%20C&I%20Program%20Impact%20Study%20Final%20Report.pdf>
- 7:** DNV GL, 2018. P72 Prescriptive C&I Loadshapes of Savings.
- 8:** DNV GL, June 30, 2020, C1635 Impact Evaluation of PY 2016 and 2017 Energy Opportunities (EO) Program. Table 6-14: Upstream Lighting In-Service Rate Results and Table 6-19: Upstream Lighting kWh Realization Rate Recommendations Without In-Service Rates. Prepared for Connecticut Energy Efficiency Board (EEB). Available at: <https://www.energizect.com/connecticut-energy-efficiency-board/evaluation-reports>
- 9:** DNV GL, November 22, 2017. Impact Evaluation of PY2015 Massachusetts Commercial and Industrial Upstream Lighting Initiative. <https://ma-eeac.org/wp-content/uploads/Upstream-Lighting-Initiative-Impact-Evaluation-PY2015.pdf>
- 10:** EMI, September 25, 2019 . C1644 EO Net-to-Gross Study, Final Report.
https://www.energizect.com/sites/default/files/C1644%20-%20EO%20NTG%20Final%20Report_9.25.19.pdf
- Mistream NTG values are based on Recommendation 2 on p. ES-6 and p. 51. For midstream, screw in values are applied to screw in lights, and linear values are applied to all other light types, which is consistent with the application of screw in and linear NTG values in the MA TRM. Downstream NTG values are based on Energy Opportunities NTG Study Results for Lighting shown in Table ES-1-1 on p. ES-3.

2.44 Lighting – New Construction and Major Renovation

Measure Code	TBD
Market	Commercial
Program Type	Lost opportunity
Category	Lighting

Description:

The implementation of various lighting design principles aimed at creating a quality and appropriate lighting experience while reducing unnecessary light usage. This is often done by a professional in a new construction or major renovation situation. Advanced lighting design uses techniques like maximizing task lighting and efficient fixtures to create a system of optimal energy efficiency and functionality.

Baseline Efficiency:

The Baseline Efficiency assumes compliance with lighting power density requirements as mandated by New Hampshire State Building Code, which currently reflects IECC 2015 with direct reference for compliance to ASHRAE Standard 90.1-2013. These standards specify the maximum lighting power densities (LPDs) by building type (building area method) and interior space type (space-by-space method). LPDs apply to all new construction and major renovation projects.

High Efficiency:

The high efficiency scenario assumes lighting systems that achieve lighting power densities below those required by New Hampshire State Building Code. Actual site lighting power densities should be determined on a case-by-case basis. Please refer to the current year application form for minimum percentage better than code efficiency requirements.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = \sum_{i=1}^n ((LPD_base_i - Controlled \times LPD_proposed_i) \times Area_i \times Hours_i \times 1/1000)$$

$$\Delta kW Fixture = \sum_{i=1}^n ((LPD_base_i - LPD_proposed_i) \times 1/1000 \times Area_i \times 1/1000)$$

$$\Delta kW Controlled = \sum_{i=1}^n (LPD_proposed_i \times Area_i \times 1/1000)$$

Where:

n = Total number of spaces, or 1 for Building Area Method

LPD_base_i = Baseline lighting power density for building or space type i (Watts/ft²)

Area_i = Area of building or space i (ft²)

Hours_i = Annual hours of operation of the lighting equipment for space type i

LPD_proposed_i = Proposed lighting power density for building or space type i (Watts/ft²)

Controlled = Min % of controlled lighting above required amounts

1000 = Conversion factor: 1000 watts per 1 kW

Note on HVAC system interaction: Additional Electric savings from cooling system interaction are included in the calculation of adjusted gross savings for Lighting Systems projects. The HVAC interaction adjustment factor is determined from lighting project evaluations and is included in the energy realization rates and demand coincidence factors and realization rates.

Measure Life:

Measure lives are deemed based on study results from MA.¹

BC Measure ID	Measure Name	Program	Measure Life
E21C1b013 E21C2b013 E21C3b013	Performance Lighting (Interior)	LBES, SBES, MES	15
E21C1b011 E21C2b011 E21C3b011	Performance Lighting (Exterior)	LBES, SBES, MES	15
E21C1b012 E21C2b012 E21C3b012	Performance Lighting w/ controls (Interior)	LBES, SBES, MES	15
E21C1b010 E21C2b010 E21C3b010	Performance Lighting w/ controls (Exterior)	LBES, SBES, MES	15

Other Resource Impacts:

Heating penalties are from alighting program evaluation performed on lighting systems in Massachusetts.²

BC Measure ID	Measure Name	Program	MMBtu/kWh
E21C1b012 E21C2b012 E21C3b012 E21C1b013 E21C2b013 E21C3b013	Performance lighting (interior) w/ and w/out controls	LBES, SBES, MES	-0.000162279
E21C1b010 E21C2b010 E21C3b010 E21C1b011 E21C2b011 E21C3b011	Performance lighting (exterior) w/ and w/out controls	LBES, SBES, MES	n/a

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1b012 E21C1b013	Performance lighting (interior)	LBES	1.000	0.999	1.000	1.000	1.000	0.504	0.389
E21C2b012 E21C3b012 E21C2b013 E21C3b013	Performance lighting (interior)	SBES, MES	1.000	1.066	1.000	1.135	1.000	0.504	0.389
E21C1b010 E21C1b011	Performance lighting (exterior)	LBES	1.000	0.999	1.000	1.000	1.000	0.000	1.000
E21C2b010 E21C3b010 E21C2b011 E21C3b011	Performance lighting (exterior)	SBES, MES	1.000	1.027	1.000	1.000	1.000	0.000	1.000

In-Service Rates:

All installations have a 100.0% in service rate unless an evaluation finds otherwise.

Realization Rates:

Large Business Energy Solutions uses a 99.9% realization rate. Energy and demand realization rates for Small Business Energy Solutions and Municipal Energy Solutions are based on a NH study of municipal and small business customers.³ Realization rates for summer peak demand savings in interior systems reflect a 113.5% HVAC interactive multiplier.

Coincidence Factors:

All coincidence factors are based on a NH study of municipal and small business customers.³

Impact Factors for Calculating Net Savings⁵:

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	NTG
E21C1b013 E21C2b013 E21C3b013	Performance Lighting (Interior)	LBES, SBES, MES	11%	5%	0%	94%
E21C1b011 E21C2b011 E21C3b011	Performance Lighting (Exterior)	LBES, SBES, MES	11%	5%	0%	94%
E21C1b012 E21C2b012 E21C3b012	Performance Lighting w/ controls (Interior)	LBES, SBES, MES	11%	5%	0%	94%
E21C1b010 E21C2b010 E21C3b010	Performance Lighting w/ controls (Exterior)	LBES, SBES, MES	11%	5%	0%	94%

Energy Load Shape:

Energy load shapes are based the MA P72 C&I loadshape study.⁴

Measure Name	Summer On-peak	Winter On-peak	Summer Off-peak	Winter Off-peak
Interior Lighting	34.3%	30.3%	18.1%	17.4%
Exterior Lighting	19.2%	20.1%	29.0%	31.6%

Endnotes:

- 1: DNV GL, ERS, July 22, 2019. Lighting Outyear Factor and Equivalent Measure Life. https://ma-eeac.org/wp-content/uploads/Lighting-Outyear-Factor-and-Equivalent-Measure-Life-Update_Final.pdf
 - 2: DNV GL, ERS, NMR, November 22, 2017. Impact Evaluation of PY2015 Massachusetts Commercial and Industrial Upstream Lighting Initiative <https://ma-eeac.org/wp-content/uploads/Upstream-Lighting-Initiative-Impact-Evaluation-PY2015.pdf>
 - 3: DNV GL, June 21, 2018. Impact Evaluation of 2016 New Hampshire Commercial & Industrial Small Business and Municipal Lighting <https://www.puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/small-business-and-municipal-lighting-impact-evaluation.pdf>
 - 4: DNV GL, 2018. P72 Prescriptive C&I Loadshapes of Savings
 - 5: DNV GL June 30, 2020. C1635 Impact Evaluation of PY 2016 & 2017 Energy Opportunities Program, Table 5-20. (CT). Available at: <https://www.energizect.com/connecticut-energy-efficiency-board/evaluation-reports>
 - 5: EMI, September 25, 2019 . C1644 EO Net-to-Gross Study, Final Report. https://www.energizect.com/sites/default/files/C1644%20-%20EO%20NTG%20Final%20Report_9.25.19.pdf
- Downstream NTG values are based on Energy Opportunities NTG Study Results for Lighting shown in Table ES-1-1 on p. ES-3.

2.45. Motors & Drives - Variable Frequency Drive

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit/Lost Opportunity
Category	Motors and Drives

Description:

This measure covers the installation of variable speed drives according to the terms and conditions stated on the statewide worksheet. The measure covers multiple end use types and building types. The installation of this measure saves energy since the power required to rotate a pump or fan at lower speeds requires less power than when rotated at full speed.

Baseline Efficiency:

The baseline efficiency case measure varies with equipment type. All baselines assume either a constant or 2-speed motor. Air or water volume/temperature is controlled using valves, dampers, and/or reheats. If the project includes a motor replacement, air or water volume/temperature is controlled using valves, dampers, and/or reheats.

High Efficiency:

In the high efficiency case, pump flow or fan air volume is directly controlled using downstream information. The pump or fan will automatically adjust its speed based on inputted set points and the downstream feedback it receives.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = HP \times \frac{kWh}{HP} \Delta kW_{SP} = HP \times \frac{kW_{SP}}{HP} \Delta kW_{WP} = HP \times \frac{kW_{WP}}{HP}$$

Where:

HP = Rated horsepower for the impacted motor

η = Motor efficiency

$\frac{kWh}{HP}$ = Annual electric energy reduction based on building and equipment type. See table below.

$\frac{kW_{SP}}{HP}$ = Summer demand reduction based on building and equipment type. See table below.

$\frac{kW_{WP}}{HP}$ = Winter demand reduction based on building and equipment type. See table below.

Savings factors below already account for motor efficiency and consequently an adjustment is not required in the algorithm.

Savings Factors for C&I VFDs without Motor Replacement (kWh/HP¹ and kW/HP)²

Building Type	Building Exhaust Fan	Cooling Tower Fan	Chilled Water Pump	Boiler Feed Water Pump	Hot Water Circulating Pump	MAF - Make-up Air Fan	Return Fan	Supply Fan	WS Heat Pump
Annual Energy Savings Factors (kWh/HP)									
University/College	3641	449	745	2316	2344	3220	1067	1023	3061
Elem/High School	3563	365	628	1933	1957	3402	879	840	2561
Multi-Family	3202	889	1374	2340	2400	3082	1374	1319	3713
Hotel/Motel	3151	809	1239	2195	2239	3368	1334	1290	3433
Health	3375	1705	2427	2349	2406	3002	1577	1487	3670
Warehouse	3310	455	816	2002	2087	3229	1253	1205	2818
Restaurant	3440	993	1566	1977	2047	2628	1425	1363	3542
Retail	3092	633	1049	1949	2000	2392	1206	1146	2998
Grocery	3126	918	1632	1653	1681	2230	1408	1297	3285
Offices	3332	950	1370	1866	1896	3346	1135	1076	3235
Summer Demand Savings Factors (kW/HP_{SP})									
University/College	0.109	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Elem/High School	0.377	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Multi-Family	0.109	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Hotel/Motel	0.109	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Health	0.109	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Warehouse	0.109	-0.023	0.174	0.457	0.091	0.261	0.287	0.274	0.218
Restaurant	0.261	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Retail	0.109	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Grocery	0.261	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Offices	0.109	-0.023	0.174	0.457	0.091	0.109	0.287	0.274	0.218
Winter Demand Savings Factors (kW/HP_{WP})									
University/College	0.377	-0.006	0.184	0.457	0.21	0.109	0.26	0.252	0.282
Elem/High School	0.457	-0.006	0.184	0.457	0.21	0.109	0.26	0.252	0.282
Multi-Family	0.109	-0.006	0.184	0.355	0.21	0.109	0.26	0.252	0.282
Hotel/Motel	0.109	-0.006	0.184	0.418	0.21	0.109	0.26	0.252	0.282

Health	0.377	-0.006	0.184	0.275	0.21	0.109	0.26	0.252	0.282
Warehouse	0.377	-0.006	0.184	0.178	0.21	0.261	0.26	0.252	0.282
Restaurant	0.109	-0.006	0.184	0.355	0.21	0.109	0.26	0.252	0.282
Retail	0.109	-0.006	0.184	0.275	0.21	0.109	0.26	0.252	0.282
Grocery	0.457	-0.006	0.184	0.418	0.21	0.109	0.26	0.252	0.282
Offices	0.457	-0.006	0.184	0.418	0.21	0.109	0.26	0.252	0.282

Savings Factors for C&I VFDs with Motor Replacement (kWh/HP¹ and kW/HP²) :

Building Type	Building Exhaust Fan	Cooling Tower Fan	Chilled Water Pump	Boiler Feed Water Pump	Hot Water Circulating Pump	MAF - Make-up Air Fan	Return Fan	Supply Fan
Annual Energy Savings Factors (kWh/HP)								
University/College	3,802	486	780	2,415	2,442	3,381	1,143	1,100
Elem/High School	3,721	396	657	2,015	2,040	3,561	941	903
Multi-Family	3,368	954	1,435	2,443	2,504	3,248	1,466	1,412
Hotel/Motel	3,317	866	1,294	2,291	2,335	3,534	1,425	1,381
Health	3,541	1,815	2,535	2,453	2,510	3,168	1,676	1,586
Warehouse	3,476	496	853	2,098	2,183	3,396	1,342	1,294
Restaurant	3,606	1,066	1,636	2,067	2,138	2,794	1,519	1,457
Retail	3,258	685	1,097	2,036	2,087	2,558	1,288	1,229
Grocery	3,292	1,001	1,710	1,724	1,753	2,396	1,498	1,386
Offices	3,498	1,014	1,432	1,947	1,977	3,512	1,210	1,151
Summer Demand Savings Factors (kW/HP_{SP})								
University/College	0.257	(0.004)	0.465	0.952	0.190	0.257	0.679	0.706
Elem/High School	1.187	(0.006)	0.697	1.428	0.286	0.385	1.019	1.058
Multi-Family	0.385	(0.006)	0.697	1.428	0.286	0.385	1.019	1.058
Hotel/Motel	0.257	(0.004)	0.465	0.952	0.190	0.257	0.679	0.706
Health	0.128	(0.002)	0.232	0.476	0.095	0.128	0.340	0.353
Warehouse	0.770	(0.012)	1.394	2.855	0.571	1.677	2.038	2.117
Restaurant	0.839	(0.006)	0.697	1.428	0.286	0.385	1.019	1.058
Retail	0.514	(0.008)	0.930	1.904	0.381	0.514	1.358	1.411
Grocery	0.280	(0.002)	0.232	0.476	0.095	0.128	0.340	0.353
Offices	0.257	(0.004)	0.465	0.952	0.190	0.257	0.679	0.706
Winter Demand Savings Factors (kW/HP_{WP})								
University/College	0.791	(0.001)	0.384	0.952	0.437	0.257	0.563	0.544
Elem/High School	1.428	(0.002)	0.575	1.428	0.655	0.385	0.844	0.816
Multi-Family	0.385	(0.002)	0.575	1.123	0.661	0.385	0.844	0.816

Hotel/Motel	0.257	(0.001)	0.384	0.874	0.438	0.257	0.563	0.544
Health	0.396	(0.001)	0.192	0.294	0.223	0.128	0.281	0.272
Warehouse	2.374	(0.003)	1.151	1.181	1.384	1.677	1.688	1.632
Restaurant	0.385	(0.002)	0.575	1.123	0.661	0.385	0.844	0.816
Retail	0.514	(0.002)	0.767	1.178	0.893	0.514	1.125	1.088
Grocery	0.476	(0.001)	0.192	0.437	0.219	0.128	0.281	0.272
Offices	0.952	(0.001)	0.384	0.874	0.438	0.257	0.563	0.544

Measure Life:

The measure life for lost opportunity is 15 years. For retrofit, this measure was determined to be an add on, single baseline measure, so it will leverage the same 15 year life as lost opportunity. ³

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a043 E21C1d043 E21C2a043 E21C2d043 E21C3a087 E21C3d087	Variable Frequency Drive	LBES Retro LBES DI SBES Retro SBES DI Muni Retro Muni DI	1.00	0.946	n/a	1.265	1.415	1.00	1.00
E21C1a044 E21C1d044 E21C2a044 E21C2d044 E21C3a088 E21C3d088	Variable Frequency Drive with Motor	LBES Retro LBES DI SBES Retro SBES DI Muni Retro Muni DI	1.00	0.946	n/a	1.265	1.415	1.00	1.00

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

Realization rates are based on study results.⁴

Coincidence Factors:

CFs for all programs set to 100% since summer and winter demand savings are based on evaluation results.

Energy Load Shape:

See Appendix 1 C&I Load Shape “C&I VFD (Combined)”.

Endnotes:

- 1:** Chan, Tumin, 2010. Formulation of a Prescriptive Incentive for the VFD and Motors & VFD impact tables at NSTAR.
- 2:** For Chilled Water Pump, Hot Water Circ. Pump, Return Fan, Supply Fan, and WSHP Circ. Loop: kW/HP estimates derived from Cadmus, 2012. Variable Speed Drive Loadshape Project. Prepared for the NEEP Regional Evaluation, Measurement & Verification Forum. Other drive type kW/HP savings estimates based on Chan, Tumin (2010). Formulation of a Prescriptive Incentive for the VFD and Motors & VFD impact tables at NSTAR. Prepared for NSTAR.
- 3:** Energy & Resource Solutions, November (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities. https://www.ers-inc.com/wp-content/uploads/2018/04/Measure-Life-Study_MA-Joint-Utilities_ERS.pdf, Baseline Categories and preliminary Out Year Factors are described at a high level in DNV GL, ERS (2018). Portfolio Model Companion Sheet. Additional background on the baseline categorization given in DNV GL, ERS (2018). Portfolio Model Methods and Assumptions – Electric and Natural Gas Memo
- 4:** DNV GL (2020). Impact Evaluation of PY 2017 Small Business Initiative Non-Lighting Measures.

2.46. Refrigeration - Case Motor Replacement

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Replacement of shaded-pole (SP) or permanently-split capacitor (PSC) motors with electronically commutated motors (ECMs) in the evaporators for multi-deck and freestanding coolers and freezers, typically on the retail floor of convenience stores, liquor stores, and grocery stores.¹

Baseline Efficiency:

The baseline efficiency case is the existing case motor, either SP or PSC type.

High Efficiency:

The high efficiency case is the replacement of the existing case motor with an ECM.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = \Delta kWh_{Motor} + \Delta kWh_{Heat}$$

$$\Delta kWh_{Motor} = kW_{Motor} \times LRF \times Hours$$

$$\Delta kWh_{Heat} = \Delta kWh_{Motor} \times 0.28 \times Eff_{RS}$$

$$\Delta kW = \frac{\Delta kWh}{8,760}$$

Where:

ΔkWh_{Motor} = Energy savings due to increased efficiency of case motor

ΔkWh_{Heat} = Energy savings due to reduced heat from evaporator fans

kW_{Motor} = Rated input power of the existing case motor

LRF = Load reduction factor: 53% when SP motors are replaced, 29% when PSC motors are replaced².

$Hours$ = Average runtime of case motors (8,500 hours)³

0.28 = Conversion of kW to tons: 3,413 Btuh/kW divided by 12,000 Btuh/ton.

Eff_{RS} = Efficiency of typical refrigeration system (1.6 kW/ton)⁴

ΔkW = Average demand savings

8,760 = Hours per year

Measure Life:

The measure life is 15 years⁵. This measure is determined to have an add-on single baseline in retrofit scenarios.

This measure is determined to have an add-on single baseline in retrofit scenarios.

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a016	Case Motor Replacement	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C1d018	Case Motor Replacement	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C2a016	Case Motor Replacement	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C2d018	Case Motor Replacement	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3a016	Case Motor Replacement	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3d018	Case Motor Replacement	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

All programs use a coincidence factor of 100% since demand savings are average and expected to be consistent.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

- 1: The assumptions and algorithms used in this section are specific to NRM products.
- 2: Load factor is an estimate by NRM based on several pre- and post-meter readings of installations
- 3: Conservative value based on 15 years of NRM field observations and experience.
- 4: Select Energy (2004). Cooler Control Measure Impact Spreadsheet Users’ Manual. Prepared for NSTAR.

5: Energy & Resource Solutions (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities; 15-year measure life for retrofit motor installations.

2.47. Refrigeration – Door Heater Controls

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Installation of controls to reduce the run time of door and frame heaters for freezers and walk-in or reach-in coolers. The reduced heating results in a reduced cooling load.

Baseline Efficiency:

The baseline efficiency case is a cooler or freezer door heater that operates 8,760 hours per year without any controls.

High Efficiency:

The high efficiency case is a cooler or freezer door heater connected to a heater control system, which controls the door heaters by measuring the ambient humidity and temperature of the store, calculating the dew point, and using pulse width modulation (PWM) to control the anti-sweat heater based on specific algorithms for freezer and cooler doors. Door temperature is typically maintained about 5°F above the store air dew point temperature.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kW = \frac{V \times A}{1,000} \times \%Off$$

$$\Delta kWh = \Delta kW \times 8,760$$

Where:

V = Nameplate heater voltage

A = Nameplate heater amperage

%Off = Controlled door heater off time: 46% for freezers and 74% for coolers¹

8,760 = Hours per year

Measure Life:

The measure life is 10 years².

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a019	Door Heater Controls	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	0.50	1.00
E21C1d021	Door Heater Controls	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	0.50	1.00
E21C2a019	Door Heater Controls	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	0.50	1.00
E21C2d021	Door Heater Controls	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	0.50	1.00
E21C3a025	Door Heater Controls	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	0.50	1.00
E21C3d027	Door Heater Controls	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	0.50	1.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

The CF values are based on MA TRM³ until NH-specific evaluations are available.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

1:The value is an estimate by NRM based on hundreds of downloads of hours of use data from Door Heater controllers. These values are also supported by Select Energy Services, Inc. (2004). Cooler Control Measure Impact Spreadsheet User’s Manual. Prepared for NSTAR. .

2: Energy & Resource Solutions (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities; Table 1-1

3: MA TRM (2020). 2019 Pan-Year Report Version. 3.82. Refrigeration – Door Heater Controls

2.48. Refrigeration – Electronic Defrost Control

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Install a controller to activate evaporator defrost only when necessary in a refrigeration system.

Baseline Efficiency:

The baseline efficiency case is an evaporator electric defrost system that uses a time clock to initiate defrost.

High Efficiency:

The high efficiency case is an evaporator electric defrost system with defrost controls based on refrigeration system runtime or load conditions.

Algorithms for Calculating Primary Energy Impact:

$$\begin{aligned}\Delta kWh &= \Delta kWh_{Defrost} + \Delta kWh_{Heat} \\ \Delta kWh_{Defrost} &= kW_{Defrost} \times Hr/Day \times 365 \times DRF \\ \Delta kWh_{Heat} &= \Delta kWh_{Defrost} \times 0.28 \times Eff_{RS} \\ \Delta kW &= \frac{\Delta kWh}{8,760}\end{aligned}$$

Where:

$\Delta kWh_{Defrost}$ = Energy savings due to reduced runtime of defrost heaters

ΔkWh_{Heat} = Energy savings due to reduced heat from the defrost heaters

$kW_{Defrost}$ = Rated input power of the defrost heater

Hr/Day = Existing scheduled defrost hours per day

DRF = Defrost reduction factor – annual average of 35%¹

365 = Days per year

0.28 = Conversion of kW to tons: 3,413 Btuh/kW divided by 12,000 Btuh/ton.

Eff_{RS} = Efficiency of typical refrigeration system (1.6 kW/ton)²

ΔkW = Average demand savings

8,760 = Hours per year

Measure Life:

The measure life is 10 years³.

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a024	Electronic Defrost Control	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C1d026	Electronic Defrost Control	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C2a024	Electronic Defrost Control	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C2d026	Electronic Defrost Control	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3a037	Electronic Defrost Control	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3d039	Electronic Defrost Control	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

All programs set coincident factors to 100% since demand savings are average and expected to be consistent.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

- 1: Supported by 3rd party evaluation: Independent Testing was performed by Intertek Testing Service on a Walk-in Freezer that was retrofitted with Smart Electric Defrost capability.
- 2: Assumed average refrigeration efficiency for typical installations. Conservative value based on 15 years of NRM field observations and experience. Value supported by Select Energy (2004). Cooler Control Measure Impact Spreadsheet Users’ Manual. Prepared for NSTAR.
- 3: Energy & Resource Solutions (2005). Measure Life Study – refrigeration controls for large C&I retrofit. Prepared for The Massachusetts Joint Utilities.

2.49. Refrigeration – Evaporator Fan Control

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Installation of controls to modulate the evaporator fans based on the temperature in a refrigerated space.

Baseline Efficiency:

The baseline efficiency case is an evaporator fan which runs for 8,760 annual hours.

High Efficiency:

The high efficiency case is an evaporator fan with controls to reduce the fan speed or cycle the fan off when the refrigerated space temperature setpoint is met.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = \Delta kWh_{Fan} + \Delta kWh_{Heat} + \Delta kWh_{Control}$$

$$kW_{Fan} = \frac{V \times A \times PF \times \sqrt{Phase}}{1,000}$$

$$\Delta kWh_{Fan} = kW_{Fan} \times \%Off \times 8760$$

$$\Delta kWh_{Heat} = \Delta kWh_{Fan} \times 0.28 \times Eff_{RS}$$

$$\Delta kWh_{Control} = [kW_{CP} \times Hours_{CP} + kW_{Fan} \times (1 - \%Off) \times 8760] \times 5\%$$

$$\Delta kW = \frac{\Delta kWh}{8760}$$

Where:

ΔkWh_{Fan} = Energy savings due to reduced runtime of evaporator fans

ΔkWh_{Heat} = Energy savings due to reduced heat from the defrost heaters

$\Delta kWh_{Control}$ = Energy savings due to optimized controls, estimated at 5% of compressor and fan energy by consensus estimates used in MA TRM

V = Rated fan motor voltage

A = Rated fan motor amperage per, phase-to-ground

PF = Typical evaporator fan motor power factor, 0.55¹

$Phase$ = Phase of electric power supplying the evaporator motor

$\%Off$ = Reduction in annual evaporator fan run hours, 46%².

8760 = Hours per year

kW_{CP} = Nameplate input kW of the compressor

$Hours_{CP}$ = Equivalent full load hours of compressor operations: 4,072 hours³

0.28 = Conversion of kW to tons: 3,413 Btuh/kW divided by 12,000 Btuh/ton.

Eff_{RS} = Efficiency of typical refrigeration system (1.6 kW/ton)³

ΔkW = Average demand savings
 8,760 = Hours per year

Measure Life:

The measure life is 10 years⁴.

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a027	Evaporator Fan Control	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C1d029	Evaporator Fan Control	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C2a027	Evaporator Fan Control	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C2d029	Evaporator Fan Control	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3a043	Evaporator Fan Control	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3d045	Evaporator Fan Control	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

All programs use CF values of 100% since demand savings are average and expected to be consistent.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

1: Conservative value based on 15 years of NRM field observations and experience.

2: The value is an estimate by NRM based on hundreds of downloads of hours of use data. These values are also supported by Select Energy Services, Inc. (2004). Cooler Control Measure Impact Spreadsheet User's Manual. Prepared for NSTAR

3: Conservative value based on 15 years of NRM field observations and experience. Value supported by Select Energy (2004). Cooler Control Measure Impact Spreadsheet Users' Manual. Prepared for NSTAR.

4: Energy & Resource Solutions (2005). Measure Life Study – fan control retrofit. Prepared for The Massachusetts Joint Utilities.

2.50. Refrigeration – Novelty Cooler Shutoff

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Installation of controls to shut off a facility's novelty coolers for non-perishable goods based on pre-programmed store hours.

Baseline Efficiency:

The baseline efficiency case a novelty cooler energized for 8,760 annual hours.

High Efficiency:

The high efficiency case is a novelty cooler whose energized hours follow the store's occupied hours, and is de-energized during unoccupied hours.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = kW_{NC} \times DC_{AVG} \times (Hours_{UNOCC} - 1) \times 365$$

$$\Delta kW = 0$$

Where:

kW_{NC} = Rated nameplate input power to the novelty cooler

DC_{AVG} = Weighted average annual duty cycle: 49%¹

$Hours_{UNOCC}$ = Daily unoccupied hours of the store

365 = Days per year

Measure Life:

The measure life is 10 years².

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a037	Novelty Cooler Shutoff	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	0.00	0.00
E21C1d037	Novelty Cooler Shutoff	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	0.00	0.00
E21C2a037	Novelty Cooler Shutoff	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	0.00	0.00
E21C2d037	Novelty Cooler Shutoff	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	0.00	0.00
E21C3a066	Novelty Cooler Shutoff	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	0.00	0.00
E21C3d066	Novelty Cooler Shutoff	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	0.00	0.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are zero since all energy savings occur during off-peak hours.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

1: Estimated value from NRM experience, supported by Select Energy Services, Inc. (2004). Cooler Control Measure Impact Spreadsheet Users’ Manual. Prepared for NSTAR. The study gives a less conservative value than used by NRM.

2: Energy & Resource Solutions (2005). Measure Life Study – cooler shutoff retrofit. Prepared for The Massachusetts Joint Utilities.

2.51. Refrigeration – Vending Miser

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Installation of controls intended to reduce the energy consumption of vending machine lighting and refrigeration systems. Qualifying controls must power down these systems during periods of inactivity but, in the case of refrigerated machines, must always maintain a cool product that meets customer expectations. This measure applies to refrigerated beverage vending machines, non-refrigerated snack vending machines, and glass front refrigerated coolers. This measure should not be applied to ENERGY STAR® qualified vending machines, as they already have built-in controls.

Baseline Efficiency:

The baseline efficiency case is a standard efficiency refrigerated beverage vending machine, nonrefrigerated snack vending machine, or glass front refrigerated cooler without a control system capable of powering down lighting and refrigeration systems during periods of inactivity.

High Efficiency:

The high efficiency case is a standard efficiency refrigerated beverage vending machine, non-refrigerated snack vending machine, or glass front refrigerated cooler with a control system capable of powering down lighting and refrigeration systems during periods of inactivity.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = kW_{rated} \times Hours \times SAVE$$

$$\Delta kW = \frac{\Delta kWh}{Hours}$$

Where:

kW_{rated} = Rated kW of connected equipment; if not available, use default values in table below

$Hours$ = Annual operating hours of connected equipment; if not available, use default value of 8,760

$SAVE$ = Percent savings factor, see table below for values

Vending Machine and Cooler Controls Savings Factors ¹

Equipment Type	kW rated	SAVE
Refrigerated Beverage Vending Machines	0.40	46%
Non-Refrigerated Snack Vending Machines	0.085	25%
Glass Front Refrigerated Coolers	0.46	35%

Measure Life:

The measure life is 5 years².

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a045	Vending Miser	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	0.00	0.00
E21C1d045	Vending Miser	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	0.00	0.00
E21C2a045	Vending Miser	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	0.00	0.00
E21C2d045	Vending Miser	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	0.00	0.00
E21C3a089	Vending Miser	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	0.00	0.00
E21C3d089	Vending Miser	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	0.00	0.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

Coincidence factors are 0.00 since energy savings occur during off-peak hours (hours of vending machine inactivity).

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

1: USA Technologies Energy Management Product Sheets (2006). [USA Tech 2006 Energy Management Product Sheets](#)

2: Energy & Resource Solutions (2005). Measure Life Study – vending control retrofit. Prepared for The Massachusetts Joint Utilities.

2.52. Refrigeration – ECM Evaporator Fan Motors for Walk-in Coolers and Freezers

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Retrofit
Category	Refrigeration

Description:

Installation of various sizes of electronically commutated motors (ECMs) in walk-in coolers and freezers to replace existing evaporator fan motors.

Baseline Efficiency:

The baseline efficiency case is an existing evaporator fan motor which is not ECM.

High Efficiency:

The high efficiency case is the replacement of existing evaporator fan motors with ECMs.

Algorithms for Calculating Primary Energy Impact:

$$\Delta kWh = \Delta kWh_{Motor} + \Delta kWh_{Heat}$$

$$\Delta kWh_{Motor} = \frac{V \times A \times PF \times \sqrt{Phase}}{1,000} \times LRF \times Hours$$

$$\Delta kWh_{Heat} = \Delta kWh_{Motor} \times 0.28 \times Eff_{RS}$$

$$\Delta kW = \frac{\Delta kWh}{8,760}$$

Where:

ΔkWh_{Motor} = Energy savings due to increased efficiency of evaporator motor

ΔkWh_{Heat} = Energy savings due to reduced heat from evaporator fans

V = Rated fan motor voltage

A = Rated fan motor amperage per, phase-to-ground

PF = Typical existing fan motor power factor, 0.55¹

$Phase$ = Phase of electric power supplying the evaporator motor

LRF = Load reduction factor of 65%².

$Hours$ = Annual fan operating hours

0.28 = Conversion of kW to tons: 3,413 Btuh/kW divided by 12,000 Btuh/ton.

Eff_{RS} = Efficiency of typical refrigeration system (1.6 kW/ton)¹

ΔkW = Average demand savings

8,760 = Hours per year

Measure Life:

The measure life is 15 years³.

Other Resource Impacts:

There are no other resource impacts for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Fuel	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1a023	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	Electric	LBES - Retrofit	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C1d025	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	Electric	LBES – Direct Install	1.00	0.999	n/a	1.00	1.00	1.00	1.00
E21C2a023	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	Electric	SBES - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C2d025	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	Electric	SBES – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3a036	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	Electric	Muni - Retrofit	1.00	1.00	n/a	1.00	1.00	1.00	1.00
E21C3d038	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	Electric	Muni – Direct Install	1.00	1.00	n/a	1.00	1.00	1.00	1.00

In-Service Rates:

All installations have a 100% in service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

All programs set coincident factors to 100% since demand savings are average and expected to be consistent.

Energy Load Shape:

See Appendix 1 C&I Load Shapes “C&I Refrigeration”.

Endnotes:

- 1:** Conservative value based on 15 years of NRM field observations and experience.
- 2:** Load factor is an estimate by NRM based on several pre- and post-meter readings of installations; the value is supported by RLW Analytics (2007). Small Business Services Custom Measure Impact Evaluation. Prepared for National Grid.
- 3:** Energy & Resource Solutions (2005). Measure Life Study. Prepared for The Massachusetts Joint Utilities; 15-year measure life for retrofit motor installations.

2.53. Midstream Hot Water – Water Heaters

Measure Code	[To Be Defined in ANB system]
Market	Commercial
Program Type	Lost Opportunity
Category	Hot Water

Description:

- Midstream Heat Pump Water Heater 120 gallons
- Midstream Heat Pump Water Heater 80 gallons.
- Midstream Heat Pump Water Heater 50 gallons.
- Midstream Indirect Water Heater, Gas: Indirect water heaters use a storage tank that is heated by the main boiler. The energy stored by the water tank allows the boiler to turn off and on less often, saving considerable energy.
- Midstream On Demand Tankless Water Heater, Gas: Tankless water heaters circulate water through a heat exchanger to be heated for immediate use, eliminating the standby heat loss associated with a storage tank.
- Midstream Volume Water Heater, Gas: Installation of a high-efficiency gas-fired water heater.
- Midstream Condensing Water Heater, Gas: Installation of a high efficiency condensing gas water heater
-

Baseline Efficiency:

All Water Heaters: The baseline efficiency case assumes compliance with the efficiency requirements as mandated by Massachusetts State Building Code. As described in the MA State Building Code, energy efficiency must be met via compliance with the relevant International Energy Conservation Code (IECC).

- Midstream Heat Pump Water Heater
- Midstream Indirect Water Heater: For indirect water heaters the baseline is a hot water boiler operating at 78% recovery efficiency. Additionally, a baseline storage water heater was assumed for purpose of estimating standby losses.¹
- Midstream On Demand Tankless Water Heater, Gas: For on-demand tankless water heaters the baseline is a code-compliant gas-fired storage water heater with EF = 0.61.¹
- Midstream Volume Water Heater, Gas: The assumed baseline is a code specified 80% TE volume water heater.
- Midstream Condensing Water Heater, Gas: The assumed baseline is a code specified 80% TE water heater.
-

High Efficiency:

- Midstream Heat Pump Water Heater
- Midstream Indirect Water Heater: The high efficiency scenario is an indirect water heater with a Combined Appliance Efficiency (CAE) of 85% or greater.
- Midstream On Demand Tankless Water Heater, Gas: The high efficiency equipment is either a gas-fired instantaneous hot water heater with an Energy Factor of at least 0.90.

- Midstream Volume Water Heater, Gas: The high efficiency case is a volume water heater with a 94% TE
- Midstream Condensing Water Heater, Gas: The high efficiency case is a high efficiency stand alone commercial water heater with a thermal efficiency of 94% or greater and a capacity greater than 75,000 btu/h.
-

Algorithms for Calculating Primary Energy Impact:

Unit savings are deemed based on study results.

BC Measure ID	Measure Name	Program	ΔkWh	ΔMMBtu	ΔMMBtu / Mbtuh
E21C1c044 E21C2c044	Midstream Heat Pump Water Heater, 120 gallons	LBES Mid SBES Mid			
E21C1c046 E21C2c046	Midstream Heat Pump Water Heater, 80 gallons	LBES Mid SBES Mid			
E21C1c045 E21C2c045	Midstream Heat Pump Water Heater, 50 gallons	LBES Mid SBES Mid	914.63		
G21C1c009 G21C2c009	Midstream Indirect Water Heater	LBES Mid SBES Mid		19.0	
G21C1c010 G21C2c010	Midstream on Demand Tankless Water Heater	LBES Mid SBES Mid		8.9	
G21C1c011 G21C2c011	Midstream Volume Water Heater	LBES Mid SBES Mid			0.6077
G21C1c012 G21C2c012	Midstream Condensing Gas Water Heater	LBES Mid SBES Mid			0.1441

Measure Life:

BC Measure ID	Measure Name	Program	Measure Life
E21C1c044 E21C2c044 E21C1c045 E21C2c045 E21C1c046 E21C2c046	Midstream Heat Pump Water Heater, 120 gallons Midstream Heat Pump Water Heater, 80 gallons Midstream Heat Pump Water Heater, 50 gallons	LBES Mid SBES Mid	13 ⁶
G21C1c009 G21C2c009	Midstream Indirect Water Heater:	LBES Mid SBES Mid	15 ³
G21C1c010 G21C2c010	Midstream on Demand Tankless Water Heater, Gas:	LBES Mid SBES Mid	20 ⁴
G21C1c011	Midstream Volume Water Heater, Gas:	LBES Mid	15

G21C2c011		SBES Mid	
G21C1c012 G21C2c012	Midstream Condensing Gas Water Heater	LBES Mid SBES Mid	15

Other Resource Impacts:

There are no other resource impacts identified for this measure.

Impact Factors for Calculating Adjusted Gross Savings:

BC Measure ID	Measure Name	Program	ISR	RR _E	RR _{NE}	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
E21C1c044 E21C2c044	Midstream Heat Pump Water Heater, 120 gallons	LBES Mid SBES Mid	1.00	1.00	n/a	n/a	n/a	0.413	0.747
E21C1c046 E21C2c046	Midstream Heat Pump Water Heater, 80 gallons	LBES Mid SBES Mid	1.00	1.00	n/a	n/a	n/a	0.413	0.747
E21C1c045 E21C2c045	Midstream Heat Pump Water Heater, 50 gallons	LBES Mid SBES Mid	1.00	1.00	n/a	n/a	n/a	0.413	0.747
G21C1c009 G21C2c009	Midstream Indirect Water Heater	LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1c010 G21C2c010	Midstream on Demand Tankless Water Heater, Gas	LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1c011 G21C2c011	Midstream Volume Water Heater, Gas	LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a
G21C1c012 G21C2c012	Midstream Condensing Gas Water Heater	LBES Mid SBES Mid	1.00	n/a	1.00	n/a	n/a	n/a	n/a

In-Service Rates:

All installations have a 100% in-service rate unless an evaluation finds otherwise.

Realization Rates:

All programs use a 100% realization rate unless an evaluation finds otherwise.

Coincidence Factors:

A summer coincidence factor of 43.1% and a winter coincidence factor of 74.7% are utilized.

Energy Load Shape:

For heat pump water heaters, see Appendix 1 – “Water Heater - Heat Pump”.

For all remaining water heaters, see Appendix 1 – “Water Heater – Natural Gas/Fuel Oil”.

Impact Factors for Calculating Net Savings (Upstream/Midstream Only):^{5,7}

BC Measure ID	Measure Name	Program	FR	SO _P	SO _{NP}	2021 NTG
E21C1c044 E21C2c044 E21C1c045 E21C2c045 E21C1c046 E21C2c046	Midstream Heat Pump Water Heater, 120 gallons Midstream Heat Pump Water Heater, 80 gallons Midstream Heat Pump Water Heater, 50 gallons	LBES Mid SBES Mid	22.5%	8.5%	0.0%	86%
G21C1c009 G21C2c009	Midstream Indirect Water Heater	LBES Mid SBES Mid	70.00%	0.0%	0.0%	30.00%
G21C1c010 G21C2c010	Midstream on Demand Tankless Water Heater	LBES Mid SBES Mid	40.0%	0%	0.0%	60.00%
G21C1c011 G21C2c011	Midstream Volume Water Heater	LBES Mid SBES Mid	40.0%	0%	0.0%	60.00%
G21C1c012 G21C2c012	Midstream Condensing Gas Water Heater	LBES Mid SBES Mid	70.00%	0%	0.0%	30.00%

Endnotes:

1: Title 10, Code of Federal Regulations, Part 430 - Energy Conservation Program for Consumer Products, Subpart C - Energy and Water Conservation Standards and Their Effective Dates. January 1, 2010; Energy Conservation standards for Residential Water Heaters, Direct Heating Equipment, and Pool Heaters: Final Rule, Federal Register, 75 FR 20112, April 16, 2010

2: Savings for indirect water heaters are based on: KEMA, June 27, 2013. Impact Evaluation of 2011 Prescriptive Gas Measures Final Report. <http://ma-eeac.org/wordpress/wp-content/uploads/Impact-Evaluation-of-2011-Prescription-Gas-Measures-6.27.13.pdf>

For volume and tankless water heaters, savings are based on: Massachusetts Technical Reference Manual for Estimating Savings from Energy Efficiency Measures. 2019 Plan-Year Report Version. May 2020.

3: GDS Associates, Inc. (2009). Natural Gas Energy Efficiency Potential in Massachusetts. Prepared for GasNetworks; Table B-2a, measure C-WH-16. http://ma-eeac.org/wordpress/wp-content/uploads/5_Natural-Gas-EE-Potential-in-MA.pdf

4: Hewitt, D. Pratt, J. & Smith, G., December 2005. Tankless Gas Water Heaters: Oregon Market Status. Prepared for the Energy Trust of Oregon. https://www.energytrust.org/wp-content/uploads/2016/11/051206_TanklessGasWaterHeaters0.pdf

5: NMR, DNV GL, and Tetra Tech, August 2018. Massachusetts Sponsors' Commercial and Industrial Programs Free-ridership and Spillover Study. Prepared for Massachusetts Program Administrators. http://ma-eeac.org/wordpress/wp-content/uploads/TXC_49_CI-FR-SO-Report_14Aug2018.pdf

6: Navigant Consulting (2018). Water Heating, Boiler, and Furnace Cost Study (RES 19) Add-On Task Residential Water Heater Analysis Memo. 2018 Navigant Water Heater Analysis Memo

7: DNV GL, NMR, Tetra Tech (2018) Massachusetts Commercial and Industrial Upstream HVAC/Heat Pump and Hot Water NTG and Market Effects Indicator Study. https://ma-eeac.org/wp-content/uploads/TXC_35_Report_5Sep2018_FINAL.pdf

Appendix 1: Energy Load Shapes

The section includes a table or reference with the time-of-use pattern of a typical customer's electrical energy consumption for each segment and end use. Because the value of avoided energy varies throughout the year, load shapes are used to allocate energy savings into specific time periods in order to better reflect its time-dependent value. Load shapes are defined as follows based on ISO-NE definitions:

- Summer On-Peak: 7 am to 11 pm, weekdays, during the months of June through September, except ISO-NE holidays;
- Summer Off-Peak: All other hours during the months of June through September (includes weekends and holidays);
- Winter On-Peak: 7 am to 11 pm, weekdays, during the months of October through May, except ISO-NE holidays; and
- Winter Off-Peak: All other hours during the months of October through May (includes weekends and holidays).

Table A1.1. Residential Energy Load Shapes

Load Shape Description	Total Energy			
	Summer		Winter	
	On Peak	Off Peak	On Peak	Off Peak
Non-Electric Measures	0.0%	0.0%	0.0%	0.0%
Clothes Washer	18.3%	15.4%	36.4%	29.9%
24-hour operation	15.2%	18.3%	30.5%	36.1%
Clothes Dryer - Electric	16.9%	14.2%	38.9%	30.0%
Clothes Dryer - Natural Gas	15.9%	16.4%	37.6%	30.1%
Hardwired Electric Heat	0.0%	0.0%	43.1%	56.9%
Lighting	19.0%	15.1%	35.1%	30.7%
Primary TV and Peripherals	15.4%	17.6%	32.2%	34.8%
Primary Desktop Computer	17.5%	17.3%	33.5%	31.7%
Primary Refrigerator	18.2%	20.9%	29.0%	31.9%
Secondary Refrigerator	19.9%	23.6%	26.3%	30.2%
Freezer	17.1%	20.7%	28.7%	33.6%
Dehumidifier	24.9%	29.7%	22.0%	23.3%
Pool Pump	54.5%	38.2%	4.9%	2.4%
Dishwasher	14.8%	16.3%	34.1%	34.8%
Water Heater - Electric	15.2%	11.9%	41.5%	31.4%
Water Heater - Heat Pump	14.9%	13.0%	39.1%	33.0%
Water Heater - Natural Gas/Fuel Oil	13.3%	11.6%	40.9%	34.2%
Central Air Conditioner/Heat Pump (Cooling)	47.3%	42.2%	6.6%	3.8%

Room or Window Air Conditioner	47.5%	47.4%	2.9%	2.2%
Mini-Split Air Conditioner/Heat Pump (Cooling)	43.4%	40.2%	7.4%	9.0%
Mini-Split Heat Pump (Heating)	0.0%	0.0%	42.9%	57.1%
Furnace Fan	0.0%	0.0%	44.6%	55.4%
Boiler Distribution	0.0%	0.0%	45.0%	55.0%
Weighted HVAC - All Homes	23.2%	21.7%	25.4%	29.7%
Weighted HVAC - Multi-family	25.2%	23.7%	23.2%	27.9%
Weighted HVAC - Multi-family Low Income	22.4%	21.6%	25.4%	30.6%
Weighted HVAC - Single Family	22.5%	20.8%	26.1%	30.5%
Weighted HVAC - Single Family Low Income	23.1%	21.7%	25.3%	29.9%
Central Heat Pump	10.1%	9.0%	35.1%	45.7%
DMSHP	8.0%	7.4%	36.4%	48.2%
Electric Resistance with AC	6.0%	5.0%	45.0%	44.0%

Source: Navigant (2018). RES1 Demand Impact Model Update

C&I energy loadshapes except where noted are derived from site-level metering of project sites in MA.
 See DNV GL, 2018. P72 Prescriptive C&I Loadshapes of Savings.

NHSAVES PROGRAMS
2021 Statewide Goals
Statewide & Company-Specific Programs

Description	Program Budget ⁽¹⁾	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Statewide Programs	\$ 88,882,154	136,911,908	1,571,675,777	16,072	16,048	112,699	2,314,715	456,869
Municipal Program	\$ 1,952,552	3,628,249	43,221,284	340	390	3,163	67,786	224
All Other Statewide Programs								
Sub-total	\$ 90,834,706	140,540,157	1,614,897,061	16,412	16,439	115,862	2,382,501	457,093
Company Specific Programs ⁽²⁾	\$ 2,969,313	2,545,254	2,545,254	549	354	-	-	34,783
Total Electric	\$ 93,804,019	143,085,410	1,617,442,315	16,962	16,793	115,862	2,382,501	491,875
<u>Gas Utilities</u>								
Statewide Programs	\$ 11,181,313	27,420	483,169	7	6	162,861	2,508,861	13,619
Company Specific Programs ⁽²⁾	\$ 857,174	-	-			21,391	21,391	72,100
Total Gas	\$ 12,038,487	27,420	483,169	7	6	184,252	2,530,251	85,719
Grand Total	\$ 105,842,506	143,112,830	1,617,925,484	16,968	16,799	300,113	4,912,752	577,595

Notes:

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

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

**NHSAVES PROGRAMS
 2021 Statewide Goals
 Statewide Programs ⁽¹⁾**

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Assistance	\$ 18,246,708	2,601,832	36,057,818	483.7	359.6	39,358.1	817,208.3	1,941
NH Home Performance w/Energy Star	\$ 8,588,081	1,603,032	19,679,793	385.6	233.0	50,160.2	985,949.2	3,100
EnergyStar® Homes	\$ 3,364,757	1,628,763	38,251,847	419.5	22.1	17,539.6	434,577.4	797
EnergyStar® Products	\$ 13,719,480	23,900,663	161,803,671	5,176.1	3,728.2	5,368.4	74,253.6	443,126
Sub-total	\$ 43,919,026	29,734,290	255,793,129	6,465.0	4,342.9	112,426.2	2,311,988.5	448,964
Commercial & Industrial								
Large Business Energy Solutions	\$ 25,729,788	63,472,247	795,658,922	5,330.9	7,041.2	107.4	1,074.2	1,805
Small Business Energy Solutions	\$ 19,233,341	43,705,371	520,223,726	4,276.1	4,664.3	165.3	1,652.6	6,100
Municipal Program	\$ 1,952,552	3,628,249	43,221,284	340.1	390.5	3,162.7	67,786.0	224
Sub-total	\$ 46,915,680	110,805,866	1,359,103,932	9,947.1	12,096.0	3,435.3	70,512.7	8,129
Total Electric	\$ 90,834,706	140,540,157	1,614,897,061	16,412.1	16,438.9	115,861.5	2,382,501.2	457,093
<u>Gas Utilities</u>								
Residential								
Home Energy Assistance	\$ 2,066,275	-	-	-	-	9,541.4	204,110.9	453
NH Home Performance w/Energy Star	\$ 1,448,128	8,754	197,536	-	4.8	12,472.0	229,591.6	843
EnergyStar® Homes	\$ 1,346,744	-	-	-	-	7,218.1	178,612.5	198
EnergyStar® Products	\$ 1,463,811	8,662	126,002	4.6	(0.4)	19,265.2	325,727.6	11,216
Sub-total	\$ 6,324,958	17,416	323,538	4.6	4.4	48,496.6	938,042.7	12,709
Commercial & Industrial								
Large Business Energy Solutions	\$ 2,685,689	-	-	-	-	83,319.0	1,034,433.9	294
Small Business Energy Solutions	\$ 2,170,666	10,004	159,631	2.0	1.8	31,045.3	536,384.0	616
Sub-total	\$ 4,856,355	10,004	159,631	2.0	1.8	114,364.3	1,570,817.9	910
Total Gas	\$ 11,181,313	27,420	483,169	6.6	6.2	162,860.9	2,508,860.6	13,619
Grand Total	\$ 102,016,019	140,567,576	1,615,380,230	16,418.7	16,445.1	278,722.4	4,891,362	470,712

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.

NHSAVES PROGRAMS
2021 Statewide Goals
Company-Specific Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Reports	\$ 327,410	2,545,254	2,545,254	549.5	354.4	-	-	32,956
Education	\$ 268,292	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 104,163	-	-	-	-	-	-	-
Residential Active Demand Response	\$ 139,564	-	-	-	-	-	-	1,685
Energy Optimization Pilot	\$ 458,310	-	-	-	-	-	-	-
Sub-total	\$ 1,297,739	2,545,254	2,545,254	549.5	354.4	-	-	34,641
Commercial & Industrial								
Smart Start	\$ 38,489	-	-	-	-	-	-	-
C&I Customer Partnerships	\$ 21,782	-	-	-	-	-	-	-
Education	\$ 367,393	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 183,070	-	-	-	-	-	-	-
C&I Active Demand Response	\$ 1,060,840	-	-	-	-	-	-	142
Sub-total	\$ 1,671,574	-	-	-	-	-	-	142
Total Residential and C&I	\$ 2,969,313	2,545,254	2,545,254	549.5	354.4	-	-	34,783
<u>Gas Utilities</u>								
Residential								
Home Energy Reports	\$ 216,300	-	-	-	-	16,390.7	16,390.7	39,100
Education	\$ 86,974	-	-	-	-	-	-	-
Residential Financing	\$ 7,500	-	-	-	-	-	-	-
AIM Initiative	\$ 460,250	-	-	-	-	5,000.0	5,000.0	33,000
Sub-total	\$ 771,024	-	-	-	-	21,391	21,391	72,100
Commercial & Industrial								
Education	\$ 86,150	-	-	-	-	-	-	-
Sub-total	\$ 86,150	-	-	-	-	-	-	-
Total Residential and C&I	\$ 857,174	-	-			21,391	21,391	72,100
Grand Total	\$ 3,826,487	2,545,254	2,545,254	549.5	354.4	21,390.7	21,391	106,883

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 PROGRAMS
2022 Statewide Goals
Statewide & Company-Specific Programs

Description	Program Budget ⁽¹⁾	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Statewide Programs	\$ 105,699,001	148,908,362	1,808,603,641	15,688	16,589	125,981	2,587,496	266,047
Municipal Program	\$ 1,949,935	3,255,757	39,900,472	290	331	3,250	69,961	217
All Other Statewide Programs								
Sub-total	\$ 107,648,935	152,164,119	1,848,504,113	15,978	16,920	129,231	2,657,457	266,263
Company Specific Programs ⁽²⁾	\$ 3,887,927	3,239,690	3,239,690	699	451	-	-	35,691
Total Electric	\$ 111,536,862	155,403,810	1,851,743,803	16,677	17,371	129,231	2,657,457	301,955
<u>Gas Utilities</u>								
Statewide Programs	\$ 13,008,239	34,531	538,817	11	9	188,372	2,927,821	15,628
Company Specific Programs ⁽²⁾	\$ 698,133	-	-			49,203	49,203	72,100
Total Gas	\$ 13,706,372	34,531	538,817	11	9	237,575	2,977,023	87,728
Grand Total	\$ 125,243,234	155,438,341	1,852,282,621	16,688	17,380	366,806	5,634,481	389,682

Notes:

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

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

NHSaves PROGRAMS
2022 Statewide Goals
Statewide Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Assistance	\$ 21,794,265	3,191,110	43,099,753	590.0	435.0	49,395.3	1,025,377.8	2,407
NH Home Performance w/Energy Star	\$ 9,633,346	1,696,699	21,259,816	397.7	245.5	51,391.0	1,010,270.6	3,141
EnergyStar® Homes	\$ 3,585,684	1,768,891	41,521,046	451.6	22.5	18,540.8	459,383.3	764
EnergyStar® Products	\$ 12,748,843	17,114,059	167,490,360	3,873.7	2,856.7	6,529.9	91,224.9	252,090
Sub-total	\$ 47,762,138	23,770,758	273,370,975	5,313.1	3,559.8	125,857.0	2,586,256.6	258,401
Commercial & Industrial								
Large Business Energy Solutions	\$ 34,115,152	77,734,351	975,376,475	6,280.5	8,531.5	123.9	1,239.4	1,902
Small Business Energy Solutions	\$ 23,821,711	47,403,253	559,856,190	4,094.3	4,498.0	-	-	5,743
Municipal Program	\$ 1,949,935	3,255,757	39,900,472	290.0	330.8	3,249.7	69,961.0	217
Sub-total	\$ 59,886,797	128,393,361	1,575,133,138	10,664.8	13,360.4	3,373.6	71,200.4	7,862
Total Electric	\$ 107,648,935	152,164,119	1,848,504,113	15,977.9	16,920.2	129,230.7	2,657,457.0	266,263
<u>Gas Utilities</u>								
Residential								
Home Energy Assistance	\$ 2,356,050	-	-	-	-	10,595.0	227,191.7	490
NH Home Performance w/Energy Star	\$ 1,600,824	13,897	221,840	3.2	7.3	13,584.3	249,751.1	887
EnergyStar® Homes	\$ 1,592,055	-	-	-	-	9,318.1	230,432.7	256
EnergyStar® Products	\$ 1,634,490	10,314	152,085	5.3	(0.5)	21,807.4	367,780.5	12,930
Sub-total	\$ 7,183,419	24,211	373,925	8.5	6.8	55,304.9	1,075,156.0	14,562
Commercial & Industrial								
Large Business Energy Solutions	\$ 3,334,466	-	-	-	-	98,160.9	1,250,421.1	388
Small Business Energy Solutions	\$ 2,490,353	10,321	164,892	2.1	1.8	34,906.3	602,243.5	678
Sub-total	\$ 5,824,820	10,321	164,892	2.1	1.8	133,067.1	1,852,664.6	1,066
Total Gas	\$ 13,008,239	34,531	538,817	10.6	8.6	188,372.0	2,927,820.6	15,628
Grand Total	\$ 120,657,174	152,198,651	1,849,042,930	15,988.5	16,928.8	317,602.6	5,585,278	281,891

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.

NHSAVES PROGRAMS
2022 Statewide Goals
Company-Specific Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Reports	\$ 316,070	3,239,690	3,239,690	699.4	451.1	-	-	32,956
Education	\$ 340,607	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 151,404	-	-	-	-	-	-	-
Residential Active Demand Response	\$ 198,262	-	-	-	-	-	-	2,528
Energy Optimization Pilot	\$ 548,495	-	-	-	-	-	-	-
Sub-total	\$ 1,554,838	3,239,690	3,239,690	699.4	451.1	-	-	35,484
Commercial & Industrial								
Smart Start	\$ 37,985	-	-	-	-	-	-	-
C&I Customer Partnerships	\$ 39,120	-	-	-	-	-	-	-
Education	\$ 476,718	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 254,900	-	-	-	-	-	-	-
C&I Active Demand Response	\$ 1,524,366	-	-	-	-	-	-	208
Sub-total	\$ 2,333,089	-	-	-	-	-	-	208
Total Residential and C&I	\$ 3,887,927	3,239,690	3,239,690	699.4	451.1	-	-	35,691
<u>Gas Utilities</u>								
Residential								
Home Energy Reports	\$ 217,250	-	-	-	-	21,502.9	21,502.9	39,100
Education	\$ 95,044	-	-	-	-	-	-	-
Residential Financing	\$ 8,300	-	-	-	-	-	-	-
AIM Initiative	\$ 280,250	-	-	-	-	27,700.0	27,700.0	33,000
Sub-total	\$ 600,844	-	-	-	-	49,203	49,203	72,100
Commercial & Industrial								
Education	\$ 97,289	-	-	-	-	-	-	-
Sub-total	\$ 97,289	-	-	-	-	-	-	-
Total Residential and C&I	\$ 698,133	-	-			49,203	49,203	72,100
Grand Total	\$ 4,586,060	3,239,690	3,239,690	699.4	451.1	49,202.9	49,203	107,791

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 PROGRAMS
2023 Statewide Goals
Statewide & Company-Specific Programs

Description	Program Budget ⁽¹⁾	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Statewide Programs	\$ 124,280,647	168,072,699	2,093,304,999	16,640	18,444	136,083	2,789,589	117,433
Municipal Program	\$ 1,954,679	3,024,579	37,301,036	270	329	3,250	69,961	209
All Other Statewide Programs								
Sub-total	\$ 126,235,326	171,097,279	2,130,606,036	16,910	18,772	139,333	2,859,550	117,642
Company Specific Programs ⁽²⁾	\$ 4,923,375	5,030,000	5,030,000	791	510	-	-	37,019
Total Electric	\$ 131,158,701	176,127,279	2,135,636,036	17,701	19,282	139,333	2,859,550	154,661
<u>Gas Utilities</u>								
Statewide Programs	\$ 15,427,034	33,817	603,122	8	7	221,629	3,438,704	16,220
Company Specific Programs ⁽²⁾	\$ 710,370	-	-			62,610	62,610	72,100
Total Gas	\$ 16,137,404	33,817	603,122	8	7	284,239	3,501,314	88,320
Grand Total	\$ 147,296,106	176,161,096	2,136,239,157	17,709	19,289	423,572	6,360,864	242,981

Notes:

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

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

NHSaves PROGRAMS
2023 Statewide Goals
Statewide Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Assistance	\$ 25,656,123	3,735,315	50,103,663	699.1	502.5	56,127.9	1,162,559.0	2,728
NH Home Performance w/Energy Star	\$ 10,653,196	1,788,561	22,707,606	410.3	259.2	52,543.6	1,032,665.2	3,180
EnergyStar® Homes	\$ 3,845,581	1,964,087	45,927,293	496.5	36.0	19,554.5	484,512.1	837
EnergyStar® Products	\$ 12,876,094	15,193,773	189,304,130	3,614.7	2,656.9	7,691.9	108,200.0	103,744
Sub-total	\$ 53,030,994	22,681,735	308,042,691	5,220.7	3,454.6	135,917.8	2,787,936.4	110,489
Commercial & Industrial								
Large Business Energy Solutions	\$ 44,630,665	94,540,953	1,187,986,401	7,439.0	10,505.1	165.3	1,652.6	1,936
Small Business Energy Solutions	\$ 26,618,987	50,850,011	597,275,907	3,980.4	4,484.0	-	-	5,008
Municipal Program	\$ 1,954,679	3,024,579	37,301,036	270.0	328.6	3,249.7	69,961.0	209
Sub-total	\$ 73,204,332	148,415,544	1,822,563,344	11,689.5	15,317.7	3,414.9	71,613.6	7,153
Total Electric	\$ 126,235,326	171,097,279	2,130,606,036	16,910.1	18,772.3	139,332.7	2,859,549.9	117,642
<u>Gas Utilities</u>								
Residential								
Home Energy Assistance	\$ 2,713,815	1,223	20,792	0.4	-	12,015.2	258,565.3	540
NH Home Performance w/Energy Star	\$ 1,791,511	10,512	236,795	-	5.8	15,012.6	276,228.2	947
EnergyStar® Homes	\$ 1,823,272	-	-	-	-	13,425.0	320,111.9	306
EnergyStar® Products	\$ 1,808,383	12,165	186,196	5.6	(0.5)	23,622.3	397,812.7	13,231
Sub-total	\$ 8,136,980	23,900	443,782	5.9	5.3	64,075.1	1,252,718.0	15,024
Commercial & Industrial								
Large Business Energy Solutions	\$ 4,140,552	-	-	-	-	117,770.2	1,500,117.3	438
Small Business Energy Solutions	\$ 3,149,503	9,917	159,339	2.0	1.7	39,783.5	685,868.5	758
Sub-total	\$ 7,290,055	9,917	159,339	2.0	1.7	157,553.7	2,185,985.8	1,195
Total Gas	\$ 15,427,034	33,817	603,122	8.0	7.0	221,628.8	3,438,703.9	16,220
Grand Total	\$ 141,662,360	171,131,096	2,131,209,157	16,918.1	18,779.3	360,961.5	6,298,254	133,862

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.

NHSAVES PROGRAMS
2023 Statewide Goals
Company-Specific Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Reports	\$ 319,677	5,030,000	5,030,000	790.7	510.1	-	-	32,956
Education	\$ 395,992	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 199,177	-	-	-	-	-	-	-
Residential Active Demand Response	\$ 283,633	-	-	-	-	-	-	3,760
Energy Optimization Pilot	\$ 482,234	-	-	-	-	-	-	-
Sub-total	\$ 1,680,712	5,030,000	5,030,000	790.7	510.1	-	-	36,716
Commercial & Industrial								
Smart Start	\$ 37,030	-	-	-	-	-	-	-
C&I Customer Partnerships	\$ 59,312	-	-	-	-	-	-	-
Education	\$ 584,667	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 371,215	-	-	-	-	-	-	-
C&I Active Demand Response	\$ 2,190,438	-	-	-	-	-	-	303
Sub-total	\$ 3,242,663	-	-	-	-	-	-	303
Total Residential and C&I	\$ 4,923,375	5,030,000	5,030,000	790.7	510.1	-	-	37,019
<u>Gas Utilities</u>								
Residential								
Home Energy Reports	\$ 218,300	-	-	-	-	34,910.0	34,910.0	39,100
Education	\$ 95,540	-	-	-	-	-	-	-
Residential Financing	\$ 8,500	-	-	-	-	-	-	-
AIM Initiative	\$ 280,250	-	-	-	-	27,700.0	27,700.0	33,000
Sub-total	\$ 602,590	-	-	-	-	62,610	62,610	72,100
Commercial & Industrial								
Education	\$ 107,780	-	-	-	-	-	-	-
Sub-total	\$ 107,780	-	-	-	-	-	-	-
Total Residential and C&I	\$ 710,370	-	-			62,610	62,610	72,100
Grand Total	\$ 5,633,745	5,030,000	5,030,000	790.7	510.1	62,610.0	62,610	109,119

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 PROGRAMS
2021-2023 Statewide Goals
Statewide & Company-Specific Programs

Description	Program Budget ⁽¹⁾	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Statewide Programs	\$ 318,861,802	453,892,969	5,473,584,417	48,400	51,081	374,763	7,691,800	840,348
Municipal Program	\$ 5,857,165	9,908,585	120,422,793	900	1,050	9,662	207,708	650
All Other Statewide Programs								
Sub-total	\$ 324,718,967	463,801,555	5,594,007,210	49,300	52,131	384,425	7,899,508	840,998
Company Specific Programs ⁽²⁾	\$ 11,780,615	10,814,944	10,814,944	2,040	1,316	-	-	62,093
Total Electric	\$ 336,499,582	474,616,499	5,604,822,154	51,340	53,447	384,425	7,899,508	903,091
<u>Gas Utilities</u>								
Statewide Programs	\$ 39,616,587	95,768	1,625,108	25	22	572,862	8,875,385	45,467
Company Specific Programs ⁽²⁾	\$ 2,265,677	-	-			133,204	133,204	198,100
Total Gas	\$ 41,882,264	95,768	1,625,108	25	22	706,065	9,008,589	243,567
Grand Total	\$ 378,381,846	474,712,267	5,606,447,262	51,365	53,469	1,090,490	16,908,097	1,146,658

Notes:

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

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

NHSAVES PROGRAMS
2021-2023 Statewide Goals
Statewide Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Assistance	\$ 65,697,095	9,528,257	129,261,234	1,772.9	1,297.2	144,881.3	3,005,145.1	7,076
NH Home Performance w/Energy Star	\$ 28,874,623	5,088,291	63,647,216	1,193.7	737.7	154,094.7	3,028,885.0	9,421
EnergyStar® Homes	\$ 10,796,022	5,361,741	125,700,186	1,367.6	80.6	55,634.9	1,378,472.8	2,398
EnergyStar® Products	\$ 39,344,417	56,208,494	518,598,160	12,664.6	9,241.9	19,590.2	273,678.6	798,959
Sub-total	\$ 144,712,158	76,186,783	837,206,796	16,998.7	11,357.3	374,201.0	7,686,181.5	817,854
Commercial & Industrial								
Large Business Energy Solutions	\$ 104,475,606	235,747,551	2,959,021,798	19,050.5	26,077.8	396.6	3,966.2	5,643
Small Business Energy Solutions	\$ 69,674,039	141,958,635	1,677,355,823	12,350.8	13,646.3	165.3	1,652.6	16,851
Municipal Program	\$ 5,857,165	9,908,585	120,422,793	900.2	1,050.0	9,662.0	207,707.9	650
Sub-total	\$ 180,006,810	387,614,771	4,756,800,414	32,301.4	40,774.1	10,223.9	213,326.7	23,144
Total Electric	\$ 324,718,967	463,801,555	5,594,007,210	49,300.1	52,131.4	384,424.9	7,899,508.2	840,998
<u>Gas Utilities</u>								
Residential								
Home Energy Assistance	\$ 7,136,139	1,223	20,792	0.4	-	32,151.5	689,867.9	1,483
NH Home Performance w/Energy Star	\$ 4,840,463	33,163	656,172	3.2	17.9	41,068.9	755,571.0	2,676
EnergyStar® Homes	\$ 4,762,071	-	-	-	-	29,961.3	729,157.0	760
EnergyStar® Products	\$ 4,906,684	31,141	464,283	15.5	(1.4)	64,694.9	1,091,320.8	37,377
Sub-total	\$ 21,645,358	65,527	1,141,246	19.1	16.5	167,876.6	3,265,916.7	42,296
Commercial & Industrial								
Large Business Energy Solutions	\$ 10,160,707	-	-	-	-	299,250.0	3,784,972.3	1,119
Small Business Energy Solutions	\$ 7,810,522	30,241	483,862	6.1	5.3	105,735.1	1,824,496.0	2,052
Sub-total	\$ 17,971,229	30,241	483,862	6.1	5.3	404,985.1	5,609,468.3	3,171
Total Gas	\$ 39,616,587	95,768	1,625,108	25.2	21.8	572,861.7	8,875,385.0	45,467
Grand Total	\$ 364,335,554	463,897,323	5,595,632,318	49,325.4	52,153.2	957,286.6	16,774,893	886,465

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.

NHSAVES PROGRAMS
2021-2023 Statewide Goals
Company-Specific Programs ⁽¹⁾

Description	Program Budget	kWh Savings		kW Savings		MMBtu Savings		Customers Count
		Annual	Lifetime	Winter kW	Summer kW	Annual	Lifetime	
<u>Electric Utilities</u>								
Residential								
Home Energy Reports	\$ 963,157	10,814,944	10,814,944	2,039.6	1,315.6	-	-	53,468
Education	\$ 1,004,890	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 454,744	-	-	-	-	-	-	-
Residential Active Demand Response	\$ 621,459	-	-	-	-	-	-	7,973
Energy Optimization Pilot	\$ 1,489,039	-	-	-	-	-	-	-
Sub-total	\$ 4,533,289	10,814,944	10,814,944	2,039.6	1,315.6	-	-	61,441
Commercial & Industrial								
Smart Start	\$ 113,505	-	-	-	-	-	-	-
C&I Customer Partnerships	\$ 120,214	-	-	-	-	-	-	-
Education	\$ 1,428,777	-	-	-	-	-	-	-
Forward Capacity Market Expenses ⁽²⁾	\$ 809,185	-	-	-	-	-	-	-
C&I Active Demand Response	\$ 4,775,644	-	-	-	-	-	-	652
Sub-total	\$ 7,247,325	-	-	-	-	-	-	652
Total Residential and C&I	\$ 11,780,615	10,814,944	10,814,944	2,039.6	1,315.6	-	-	62,093
<u>Gas Utilities</u>								
Residential								
Home Energy Reports	\$ 651,850	-	-	-	-	72,803.6	72,803.6	99,100
Education	\$ 277,558	-	-	-	-	-	-	-
Residential Financing	\$ 24,300	-	-	-	-	-	-	-
AIM Initiative	\$ 1,020,750	-	-	-	-	60,400.0	60,400.0	99,000
Sub-total	\$ 1,974,458	-	-	-	-	133,204	133,204	198,100
Commercial & Industrial								
Education	\$ 291,219	-	-	-	-	-	-	-
Sub-total	\$ 291,219	-	-	-	-	-	-	-
Total Residential and C&I	\$ 2,265,677	-	-			133,204	133,204	198,100
Grand Total	\$ 14,046,292	10,814,944	10,814,944	2,039.6	1,315.6	133,203.6	133,204	260,193

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 - 2021 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	\$ 39,810	\$ 57,108	\$ 167,735	\$ 108,000	\$ 372,653	\$ 42,660	\$ 41,841	\$ 84,501	\$ 457,154
	External Admin	\$ 2,844	\$ 35,232	\$ 14,186	\$ 70,967	\$ 123,228	\$ 3,047	\$ 7,500	\$ 10,547	\$ 133,776
	Rebate/Services	\$ 1,177,231	\$ 1,053,294	\$ 11,881,431	\$ 1,182,247	\$ 15,294,203	\$ 1,261,516	\$ 430,409	\$ 1,691,925	\$ 16,986,128
	Implementation Services	\$ 78,198	\$ 169,848	\$ 579,326	\$ 171,262	\$ 998,633	\$ 83,796	\$ 30,955	\$ 114,751	\$ 1,113,384
	Marketing	\$ 52,606	\$ 32,086	\$ 454,952	\$ 35,000	\$ 574,643	\$ 56,372	\$ 12,000	\$ 68,372	\$ 643,015
	EM&V	\$ 71,089	\$ 53,477	\$ 688,781	\$ 70,000	\$ 883,347	\$ 76,179	\$ 20,000	\$ 96,179	\$ 979,526
	Total	\$ 1,421,776	\$ 1,401,044	\$ 13,786,411	\$ 1,637,476	\$ 18,246,708	\$ 1,523,570	\$ 542,705	\$ 2,066,275	\$ 20,312,983
HP w/EnergyStar®	Internal Admin	\$ 12,802	\$ 53,108	\$ 78,452	\$ 60,000	\$ 204,362	\$ 33,762	\$ 25,000	\$ 58,762	\$ 263,124
	External Admin	\$ 914	\$ 15,232	\$ 6,635	\$ 1,750	\$ 24,532	\$ 2,412	\$ 2,500	\$ 4,912	\$ 29,443
	Rebate/Services	\$ 378,579	\$ 854,809	\$ 5,607,076	\$ 313,685	\$ 7,154,150	\$ 998,401	\$ 189,830	\$ 1,188,231	\$ 8,342,380
	Implementation Services	\$ 25,147	\$ 109,185	\$ 270,959	\$ 100,000	\$ 505,291	\$ 66,319	\$ 9,000	\$ 75,319	\$ 580,610
	Marketing	\$ 16,917	\$ 33,657	\$ 212,797	\$ 15,000	\$ 278,371	\$ 44,615	\$ 6,000	\$ 50,615	\$ 328,985
	EM&V	\$ 22,861	\$ 56,095	\$ 322,419	\$ 20,000	\$ 421,375	\$ 60,290	\$ 10,000	\$ 70,290	\$ 491,665
	Total	\$ 457,221	\$ 1,122,087	\$ 6,498,338	\$ 510,435	\$ 8,588,081	\$ 1,205,798	\$ 242,330	\$ 1,448,128	\$ 10,036,209
EnergyStar® Homes	Internal Admin	\$ 7,570	\$ 45,535	\$ 24,231	\$ 35,000	\$ 112,335	\$ 29,101	\$ 20,000	\$ 49,101	\$ 161,436
	External Admin	\$ 541	\$ 14,609	\$ 2,049	\$ 5,500	\$ 22,699	\$ 2,079	\$ 3,500	\$ 5,579	\$ 28,278
	Rebate/Services	\$ 223,853	\$ 458,387	\$ 1,716,354	\$ 290,155	\$ 2,688,749	\$ 860,545	\$ 251,938	\$ 1,112,483	\$ 3,801,232
	Implementation Services	\$ 14,869	\$ 98,288	\$ 83,688	\$ 50,000	\$ 246,845	\$ 57,162	\$ 11,000	\$ 68,162	\$ 315,007
	Marketing	\$ 10,003	\$ 19,989	\$ 65,724	\$ 12,000	\$ 107,716	\$ 38,454	\$ 6,000	\$ 44,454	\$ 152,170
	EM&V	\$ 13,518	\$ 33,315	\$ 99,581	\$ 40,000	\$ 186,414	\$ 51,965	\$ 15,000	\$ 66,965	\$ 253,379
	Total	\$ 270,354	\$ 670,122	\$ 1,991,626	\$ 432,655	\$ 3,364,757	\$ 1,039,306	\$ 307,438	\$ 1,346,744	\$ 4,711,501
Energy Star® Products	Internal Admin	\$ 26,547	\$ 92,133	\$ 117,697	\$ 58,510	\$ 294,887	\$ 27,322	\$ 25,000	\$ 52,322	\$ 347,209
	External Admin	\$ 1,896	\$ 24,464	\$ 9,954	\$ 2,000	\$ 38,314	\$ 1,952	\$ 1,500	\$ 3,452	\$ 41,766
	Rebate/Services	\$ 785,027	\$ 1,096,814	\$ 8,337,006	\$ 1,286,964	\$ 11,505,811	\$ 807,961	\$ 416,513	\$ 1,224,474	\$ 12,730,285
	Implementation Services	\$ 52,146	\$ 164,068	\$ 406,503	\$ 61,000	\$ 683,717	\$ 53,669	\$ 10,000	\$ 63,669	\$ 747,386
	Marketing	\$ 35,080	\$ 44,907	\$ 401,480	\$ 50,000	\$ 531,467	\$ 36,105	\$ 15,000	\$ 51,105	\$ 582,572
	EM&V	\$ 47,405	\$ 74,846	\$ 488,034	\$ 55,000	\$ 665,285	\$ 48,790	\$ 20,000	\$ 68,790	\$ 734,074
	Total	\$ 948,100	\$ 1,497,232	\$ 9,760,674	\$ 1,513,474	\$ 13,719,480	\$ 975,798	\$ 488,013	\$ 1,463,811	\$ 15,183,292

NHSAVES ENERGY EFFICIENCY PROGRAM - 2021 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	\$ 7,052	\$ 8,129	\$ 8,137	\$ 13,000	\$ 36,318	\$ 19,752	\$ 3,500	\$ 23,252	\$ 59,570
	External Admin	\$ 428	\$ -	\$ 688	\$ 4,500	\$ 5,616	\$ 1,411	\$ 3,000	\$ 4,411	\$ 10,027
	Rebate/Services	\$ 177,214	\$ 25,000	\$ 576,367	\$ 256,183	\$ 1,034,764	\$ 590,995	\$ 42,300	\$ 633,295	\$ 1,668,059
	Implementation Services	\$ 13,853	\$ 11,586	\$ 28,103	\$ 43,000	\$ 96,541	\$ 38,798	\$ 5,830	\$ 44,628	\$ 141,170
	Marketing	\$ 7,919	\$ 645	\$ 25,211	\$ 2,750	\$ 36,525	\$ 19,197	\$ 8,970	\$ 28,167	\$ 64,692
	EM&V	\$ 45,401	\$ 7,073	\$ 15,300	\$ 20,200	\$ 87,974	\$ 35,271	\$ 2,000	\$ 37,271	\$ 125,245
	Total	\$ 251,867	\$ 52,434	\$ 653,805	\$ 339,633	\$ 1,297,739	\$ 705,424	\$ 65,600	\$ 771,024	\$ 2,068,763
Total Residential	Internal Admin	\$ 93,781	\$ 256,012	\$ 396,252	\$ 274,510	\$ 1,020,555	\$ 152,597	\$ 115,341	\$ 267,938	\$ 1,288,493
	External Admin	\$ 6,623	\$ 89,537	\$ 33,513	\$ 84,717	\$ 214,390	\$ 10,900	\$ 18,000	\$ 28,900	\$ 243,289
	Rebate/Services	\$ 2,741,904	\$ 3,488,305	\$ 28,118,234	\$ 3,329,233	\$ 37,677,676	\$ 4,519,418	\$ 1,330,991	\$ 5,850,408	\$ 43,528,085
	Implementation Services	\$ 184,213	\$ 552,974	\$ 1,368,578	\$ 425,262	\$ 2,531,027	\$ 299,744	\$ 66,785	\$ 366,529	\$ 2,897,556
	Marketing	\$ 122,525	\$ 131,285	\$ 1,160,162	\$ 114,750	\$ 1,528,722	\$ 194,742	\$ 47,970	\$ 242,712	\$ 1,771,434
	EM&V	\$ 200,273	\$ 224,806	\$ 1,614,115	\$ 205,200	\$ 2,244,394	\$ 272,495	\$ 67,000	\$ 339,495	\$ 2,583,889
	Total	\$ 3,349,318	\$ 4,742,919	\$ 32,690,855	\$ 4,433,672	\$ 45,216,764	\$ 5,449,896	\$ 1,646,086	\$ 7,095,982	\$ 52,312,747
Total %	Internal Admin	2.8%	5.4%	1.2%	6.2%	2.3%	2.8%	7.0%	3.8%	2.5%
	External Admin	0.2%	1.9%	0.1%	1.9%	0.5%	0.2%	1.1%	0.4%	0.5%
	Rebate/Services	81.9%	73.5%	86.0%	75.1%	83.3%	82.9%	80.9%	82.4%	83.2%
	Implementation Services	5.5%	11.7%	4.2%	9.6%	5.6%	5.5%	4.1%	5.2%	5.5%
	Marketing	3.7%	2.8%	3.5%	2.6%	3.4%	3.6%	2.9%	3.4%	3.4%
	EM&V	6.0%	4.7%	4.9%	4.6%	5.0%	5.0%	4.1%	4.8%	4.9%
	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 - 2021 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	\$ 47,852	\$ 69,056	\$ 229,235	\$ 95,000	\$ 441,143	\$ 50,919	\$ 85,000	\$ 135,919	\$ 577,062
	External Admin	\$ 3,418	\$ 12,185	\$ 19,388	\$ 10,000	\$ 44,990	\$ 3,637	\$ -	\$ 3,637	\$ 48,628
	Rebate/Services	\$ 1,415,040	\$ 654,376	\$ 18,064,667	\$ 1,937,665	\$ 22,071,747	\$ 1,505,751	\$ 682,168	\$ 2,187,920	\$ 24,259,667
	Implementation Services	\$ 93,994	\$ 163,498	\$ 730,004	\$ 120,000	\$ 1,107,496	\$ 100,020	\$ 43,981	\$ 144,000	\$ 1,251,496
	Marketing	\$ 63,232	\$ 39,072	\$ 685,309	\$ 25,000	\$ 812,614	\$ 67,286	\$ 15,000	\$ 82,286	\$ 894,900
	EM&V	\$ 85,449	\$ 58,001	\$ 1,038,347	\$ 70,000	\$ 1,251,797	\$ 90,927	\$ 41,000	\$ 131,927	\$ 1,383,724
	Total	\$ 1,708,986	\$ 996,188	\$ 20,766,949	\$ 2,257,665	\$ 25,729,788	\$ 1,818,540	\$ 867,149	\$ 2,685,689	\$ 28,415,477
Small Business Energy Solutions	Internal Admin	\$ 40,294	\$ 74,368	\$ 163,351	\$ 95,000	\$ 373,013	\$ 45,727	\$ 46,039	\$ 91,766	\$ 464,779
	External Admin	\$ 2,878	\$ 12,185	\$ 13,815	\$ 15,000	\$ 43,878	\$ 3,266	\$ -	\$ 3,266	\$ 47,145
	Rebate/Services	\$ 1,191,537	\$ 702,498	\$ 12,872,732	\$ 1,664,838	\$ 16,431,605	\$ 1,352,223	\$ 425,896	\$ 1,778,119	\$ 18,209,725
	Implementation Services	\$ 79,148	\$ 170,967	\$ 520,195	\$ 95,000	\$ 865,310	\$ 89,822	\$ 25,000	\$ 114,822	\$ 980,131
	Marketing	\$ 53,245	\$ 31,153	\$ 488,346	\$ 25,000	\$ 597,743	\$ 60,425	\$ 14,611	\$ 75,036	\$ 672,780
	EM&V	\$ 71,953	\$ 44,921	\$ 739,918	\$ 65,000	\$ 921,791	\$ 81,656	\$ 26,000	\$ 107,656	\$ 1,029,447
	Total	\$ 1,439,054	\$ 1,036,092	\$ 14,798,356	\$ 1,959,838	\$ 19,233,341	\$ 1,633,120	\$ 537,546	\$ 2,170,666	\$ 21,404,007
Municipal	Internal Admin	\$ 4,972	\$ 15,936	\$ 15,531	\$ 10,000	\$ 46,439	\$ -	\$ -	\$ -	\$ 46,439
	External Admin	\$ 355	\$ 6,093	\$ 1,313	\$ -	\$ 7,762	\$ -	\$ -	\$ -	\$ 7,762
	Rebate/Services	\$ 147,040	\$ 92,819	\$ 1,223,871	\$ 160,000	\$ 1,623,730	\$ -	\$ -	\$ -	\$ 1,623,730
	Implementation Services	\$ 9,767	\$ 22,407	\$ 49,457	\$ 22,200	\$ 103,832	\$ -	\$ -	\$ -	\$ 103,832
	Marketing	\$ 6,571	\$ 4,479	\$ 46,429	\$ 5,000	\$ 62,478	\$ -	\$ -	\$ -	\$ 62,478
	EM&V	\$ 8,879	\$ 21,584	\$ 70,347	\$ 7,500	\$ 108,311	\$ -	\$ -	\$ -	\$ 108,311
	Total	\$ 177,584	\$ 163,318	\$ 1,406,950	\$ 204,700	\$ 1,952,552	\$ -	\$ -	\$ -	\$ 1,952,552
Other*	Internal Admin	\$ 9,933	\$ 8,129	\$ 11,476	\$ 10,500	\$ 40,039	\$ 1,697	\$ -	\$ 1,697	\$ 41,736
	External Admin	\$ 609	\$ -	\$ 971	\$ 9,000	\$ 10,580	\$ 121	\$ -	\$ 121	\$ 10,701
	Rebate/Services	\$ 229,660	\$ 25,000	\$ 904,369	\$ 101,250	\$ 1,260,280	\$ 50,177	\$ 20,000	\$ 70,177	\$ 1,330,456
	Implementation Services	\$ 19,512	\$ 16,586	\$ 34,535	\$ 52,500	\$ 123,132	\$ 3,333	\$ 5,550	\$ 8,883	\$ 132,015
	Marketing	\$ 33,816	\$ 809	\$ 33,039	\$ 7,500	\$ 75,164	\$ 2,242	\$ -	\$ 2,242	\$ 77,406
	EM&V	\$ 61,227	\$ 15,343	\$ 51,810	\$ 34,000	\$ 162,380	\$ 3,030	\$ -	\$ 3,030	\$ 165,410
	Total	\$ 354,757	\$ 65,867	\$ 1,036,200	\$ 214,750	\$ 1,671,574	\$ 60,600	\$ 25,550	\$ 86,150	\$ 1,757,724

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

NHSAVES ENERGY EFFICIENCY PROGRAM - 2021 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	\$ 103,051	\$ 167,490	\$ 419,592	\$ 210,500	\$ 900,633	\$ 98,343	\$ 131,039	\$ 229,382	\$ 1,130,015
	External Admin	\$ 7,260	\$ 30,463	\$ 35,487	\$ 34,000	\$ 107,210	\$ 7,025	\$ -	\$ 7,025	\$ 114,235
	Rebate/Services	\$ 2,983,277	\$ 1,474,693	\$ 33,065,639	\$ 3,863,753	\$ 41,387,362	\$ 2,908,151	\$ 1,128,065	\$ 4,036,216	\$ 45,423,578
	Implementation Services	\$ 202,421	\$ 373,458	\$ 1,334,191	\$ 289,700	\$ 2,199,770	\$ 193,174	\$ 74,531	\$ 267,705	\$ 2,467,475
	Marketing	\$ 156,864	\$ 75,512	\$ 1,253,123	\$ 62,500	\$ 1,547,999	\$ 129,954	\$ 29,611	\$ 159,565	\$ 1,707,564
	EM&V	\$ 227,508	\$ 139,849	\$ 1,900,423	\$ 176,500	\$ 2,444,280	\$ 175,613	\$ 67,000	\$ 242,613	\$ 2,686,893
	Total	\$ 3,680,381	\$ 2,261,465	\$ 38,008,455	\$ 4,636,953	\$ 48,587,254	\$ 3,512,260	\$ 1,430,245	\$ 4,942,505	\$ 53,529,759
Total C&I and Municipal %	Internal Admin	2.8%	7.4%	1.1%	4.5%	1.9%	2.8%	9.2%	4.6%	2.1%
	External Admin	0.2%	1.3%	0.1%	0.7%	0.2%	0.2%	0.0%	0.1%	0.2%
	Rebate/Services	81.1%	65.2%	87.0%	83.3%	85.2%	82.8%	78.9%	81.7%	84.9%
	Implementation Services	5.5%	16.5%	3.5%	6.2%	4.5%	5.5%	5.2%	5.4%	4.6%
	Marketing	4.3%	3.3%	3.3%	1.3%	3.2%	3.7%	2.1%	3.2%	3.2%
	EM&V	6.2%	6.2%	5.0%	3.8%	5.0%	5.0%	4.7%	4.9%	5.0%
	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	\$ 196,832	\$ 423,502	\$ 815,845	\$ 485,010	\$ 1,921,188	\$ 250,940	\$ 246,380	\$ 497,320	\$ 2,418,508
	External Admin	\$ 13,883	\$ 120,000	\$ 69,000	\$ 118,717	\$ 321,600	\$ 17,924	\$ 18,000	\$ 35,924	\$ 357,524
	Rebate/Services	\$ 5,725,181	\$ 4,962,998	\$ 61,183,873	\$ 7,192,986	\$ 79,065,038	\$ 7,427,569	\$ 2,459,055	\$ 9,886,624	\$ 88,951,663
	Implementation Services	\$ 386,633	\$ 926,432	\$ 2,702,769	\$ 714,962	\$ 4,730,797	\$ 492,919	\$ 141,315	\$ 634,234	\$ 5,365,031
	Marketing	\$ 279,389	\$ 206,797	\$ 2,413,285	\$ 177,250	\$ 3,076,721	\$ 324,696	\$ 77,581	\$ 402,277	\$ 3,478,998
	EM&V	\$ 427,781	\$ 364,655	\$ 3,514,538	\$ 381,700	\$ 4,688,674	\$ 448,108	\$ 134,000	\$ 582,108	\$ 5,270,782
	Total	\$ 7,029,699	\$ 7,004,385	\$ 70,699,310	\$ 9,070,625	\$ 93,804,019	\$ 8,962,156	\$ 3,076,331	\$ 12,038,487	\$ 105,842,505
Grand Total % (Residential, C&I and Municipal)	Internal Admin	2.8%	6.0%	1.2%	5.3%	2.0%	2.8%	8.0%	4.1%	2.3%
	External Admin	0.2%	1.7%	0.1%	1.3%	0.3%	0.2%	0.6%	0.3%	0.3%
	Rebate/Services	81.4%	70.9%	86.5%	79.3%	84.3%	82.9%	79.9%	82.1%	84.0%
	Implementation Services	5.5%	13.2%	3.8%	7.9%	5.0%	5.5%	4.6%	5.3%	5.1%
	Marketing	4.0%	3.0%	3.4%	2.0%	3.3%	3.6%	2.5%	3.3%	3.3%
	EM&V	6.1%	5.2%	5.0%	4.2%	5.0%	5.0%	4.4%	4.8%	5.0%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NHSAVES ENERGY EFFICIENCY PROGRAM - 2022 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	\$ 50,885	\$ 57,108	\$ 211,085	\$ 110,000	\$ 429,078	\$ 50,449	\$ 60,000	\$ 110,449	\$ 539,527
	External Admin	\$ 3,283	\$ 35,232	\$ 17,852	\$ 60,000	\$ 116,367	\$ 3,255	\$ 16,169	\$ 19,424	\$ 135,792
	Rebate/Services	\$ 1,349,264	\$ 1,062,073	\$ 14,295,757	\$ 1,638,881	\$ 18,345,975	\$ 1,337,723	\$ 578,043	\$ 1,915,765	\$ 20,261,740
	Implementation Services	\$ 95,204	\$ 169,848	\$ 1,004,678	\$ 142,016	\$ 1,411,746	\$ 94,389	\$ 33,250	\$ 127,639	\$ 1,539,385
	Marketing	\$ 60,733	\$ 41,339	\$ 466,536	\$ 35,000	\$ 603,608	\$ 60,214	\$ 17,188	\$ 77,402	\$ 681,010
	EM&V	\$ 82,072	\$ 69,327	\$ 666,092	\$ 70,000	\$ 887,492	\$ 81,370	\$ 24,000	\$ 105,370	\$ 992,862
	Total	\$ 1,641,440	\$ 1,434,927	\$ 16,662,000	\$ 2,055,898	\$ 21,794,265	\$ 1,627,400	\$ 728,650	\$ 2,356,050	\$ 24,150,315
HP w/EnergyStar®	Internal Admin	\$ 19,761	\$ 55,763	\$ 89,394	\$ 63,000	\$ 227,918	\$ 40,528	\$ 32,000	\$ 72,528	\$ 300,446
	External Admin	\$ 1,275	\$ 15,994	\$ 7,561	\$ 2,000	\$ 26,829	\$ 2,615	\$ 3,500	\$ 6,115	\$ 32,944
	Rebate/Services	\$ 523,974	\$ 971,311	\$ 6,104,204	\$ 404,020	\$ 8,003,509	\$ 1,074,642	\$ 230,974	\$ 1,305,616	\$ 9,309,125
	Implementation Services	\$ 36,971	\$ 114,644	\$ 425,481	\$ 120,000	\$ 697,096	\$ 75,826	\$ 9,000	\$ 84,826	\$ 781,923
	Marketing	\$ 23,585	\$ 36,693	\$ 197,583	\$ 20,000	\$ 277,860	\$ 48,372	\$ 8,000	\$ 56,372	\$ 334,232
	EM&V	\$ 31,872	\$ 61,000	\$ 282,261	\$ 25,000	\$ 400,133	\$ 65,368	\$ 10,000	\$ 75,368	\$ 475,500
	Total	\$ 637,438	\$ 1,255,404	\$ 7,106,484	\$ 634,020	\$ 9,633,346	\$ 1,307,350	\$ 293,474	\$ 1,600,824	\$ 11,234,170
EnergyStar® Homes	Internal Admin	\$ 9,783	\$ 47,812	\$ 27,748	\$ 38,000	\$ 123,343	\$ 36,226	\$ 38,000	\$ 74,226	\$ 197,569
	External Admin	\$ 631	\$ 15,339	\$ 2,347	\$ 6,500	\$ 24,817	\$ 2,337	\$ 3,500	\$ 5,837	\$ 30,655
	Rebate/Services	\$ 259,418	\$ 457,904	\$ 1,879,251	\$ 242,756	\$ 2,839,329	\$ 960,571	\$ 340,977	\$ 1,301,548	\$ 4,140,877
	Implementation Services	\$ 18,304	\$ 103,202	\$ 132,070	\$ 55,000	\$ 308,577	\$ 67,778	\$ 11,000	\$ 78,778	\$ 387,354
	Marketing	\$ 11,677	\$ 19,889	\$ 61,330	\$ 14,000	\$ 106,896	\$ 43,237	\$ 12,000	\$ 55,237	\$ 162,133
	EM&V	\$ 15,780	\$ 34,327	\$ 87,614	\$ 45,000	\$ 182,721	\$ 58,429	\$ 18,000	\$ 76,429	\$ 259,150
	Total	\$ 315,594	\$ 678,473	\$ 2,190,361	\$ 401,256	\$ 3,585,684	\$ 1,168,578	\$ 423,477	\$ 1,592,055	\$ 5,177,739
Energy Star® Products	Internal Admin	\$ 27,505	\$ 96,739	\$ 117,103	\$ 65,262	\$ 306,610	\$ 32,571	\$ 35,000	\$ 67,571	\$ 374,181
	External Admin	\$ 1,775	\$ 25,687	\$ 9,904	\$ 2,100	\$ 39,466	\$ 2,101	\$ 1,575	\$ 3,676	\$ 43,142
	Rebate/Services	\$ 729,333	\$ 787,242	\$ 7,930,848	\$ 1,236,210	\$ 10,683,632	\$ 863,645	\$ 490,252	\$ 1,353,897	\$ 12,037,530
	Implementation Services	\$ 51,461	\$ 172,335	\$ 557,365	\$ 55,000	\$ 836,161	\$ 60,938	\$ 12,000	\$ 72,938	\$ 909,099
	Marketing	\$ 32,829	\$ 35,132	\$ 258,826	\$ 34,500	\$ 361,287	\$ 38,875	\$ 20,000	\$ 58,875	\$ 420,162
	EM&V	\$ 44,363	\$ 57,571	\$ 369,752	\$ 50,000	\$ 521,686	\$ 52,533	\$ 25,000	\$ 77,533	\$ 599,219
	Total	\$ 887,266	\$ 1,174,707	\$ 9,243,798	\$ 1,443,072	\$ 12,748,843	\$ 1,050,663	\$ 583,827	\$ 1,634,490	\$ 14,383,333

NHSAVES ENERGY EFFICIENCY PROGRAM - 2022 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	\$ 8,124	\$ 8,536	\$ 10,359	\$ 15,500	\$ 42,519	\$ 16,507	\$ 4,000	\$ 20,507	\$ 63,026
	External Admin	\$ 524	\$ -	\$ 876	\$ 7,750	\$ 9,150	\$ 1,065	\$ 3,000	\$ 4,065	\$ 13,215
	Rebate/Services	\$ 215,413	\$ 25,000	\$ 701,583	\$ 243,874	\$ 1,185,870	\$ 437,710	\$ 43,600	\$ 481,310	\$ 1,667,180
	Implementation Services	\$ 15,199	\$ 12,171	\$ 49,306	\$ 52,500	\$ 129,176	\$ 30,885	\$ 6,030	\$ 36,915	\$ 166,091
	Marketing	\$ 9,696	\$ 1,695	\$ 28,431	\$ 4,500	\$ 44,322	\$ 19,702	\$ 8,970	\$ 28,672	\$ 72,994
	EM&V	\$ 13,103	\$ 2,690	\$ 96,759	\$ 31,250	\$ 143,801	\$ 26,625	\$ 2,750	\$ 29,375	\$ 173,176
	Total	\$ 262,060	\$ 50,091	\$ 887,314	\$ 355,374	\$ 1,554,838	\$ 532,494	\$ 68,350	\$ 600,844	\$ 2,155,682
Total Residential	Internal Admin	\$ 116,058	\$ 265,958	\$ 455,690	\$ 291,762	\$ 1,129,468	\$ 176,281	\$ 169,000	\$ 345,281	\$ 1,474,749
	External Admin	\$ 7,488	\$ 92,252	\$ 38,540	\$ 78,350	\$ 216,630	\$ 11,373	\$ 27,744	\$ 39,117	\$ 255,747
	Rebate/Services	\$ 3,077,402	\$ 3,303,530	\$ 30,911,642	\$ 3,765,741	\$ 41,058,315	\$ 4,674,291	\$ 1,683,846	\$ 6,358,137	\$ 47,416,452
	Implementation Services	\$ 217,140	\$ 572,200	\$ 2,168,899	\$ 424,516	\$ 3,382,756	\$ 329,816	\$ 71,280	\$ 401,096	\$ 3,783,852
	Marketing	\$ 138,521	\$ 134,747	\$ 1,012,706	\$ 108,000	\$ 1,393,974	\$ 210,400	\$ 66,158	\$ 276,558	\$ 1,670,531
	EM&V	\$ 187,190	\$ 224,915	\$ 1,502,478	\$ 221,250	\$ 2,135,833	\$ 284,324	\$ 79,750	\$ 364,074	\$ 2,499,908
	Total	\$ 3,743,798	\$ 4,593,602	\$ 36,089,956	\$ 4,889,619	\$ 49,316,976	\$ 5,686,485	\$ 2,097,778	\$ 7,784,263	\$ 57,101,239
Total %	Internal Admin	3.1%	5.8%	1.3%	6.0%	2.3%	3.1%	8.1%	4.4%	2.6%
	External Admin	0.2%	2.0%	0.1%	1.6%	0.4%	0.2%	1.3%	0.5%	0.4%
	Rebate/Services	82.2%	71.9%	85.7%	77.0%	83.3%	82.2%	80.3%	81.7%	83.0%
	Implementation Services	5.8%	12.5%	6.0%	8.7%	6.9%	5.8%	3.4%	5.2%	6.6%
	Marketing	3.7%	2.9%	2.8%	2.2%	2.8%	3.7%	3.2%	3.6%	2.9%
	EM&V	5.0%	4.9%	4.2%	4.5%	4.3%	5.0%	3.8%	4.7%	4.4%
	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 - 2022 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	\$ 65,548	\$ 72,509	\$ 272,269	\$ 115,000	\$ 525,326	\$ 61,804	\$ 89,000	\$ 150,804	\$ 676,130
	External Admin	\$ 4,229	\$ 12,947	\$ 23,027	\$ 12,000	\$ 52,203	\$ 3,987	\$ 6,000	\$ 9,987	\$ 62,191
	Rebate/Services	\$ 1,738,089	\$ 733,587	\$ 24,467,166	\$ 2,668,856	\$ 29,607,699	\$ 1,638,801	\$ 1,115,311	\$ 2,754,112	\$ 32,361,811
	Implementation Services	\$ 122,639	\$ 171,743	\$ 1,194,873	\$ 150,000	\$ 1,639,254	\$ 115,633	\$ 60,280	\$ 175,913	\$ 1,815,167
	Marketing	\$ 78,235	\$ 31,836	\$ 779,834	\$ 35,000	\$ 924,906	\$ 73,766	\$ 18,200	\$ 91,966	\$ 1,016,872
	EM&V	\$ 105,723	\$ 45,992	\$ 1,114,049	\$ 100,000	\$ 1,365,764	\$ 99,684	\$ 52,000	\$ 151,684	\$ 1,517,448
	Total	\$ 2,114,464	\$ 1,068,615	\$ 27,851,217	\$ 3,080,856	\$ 34,115,152	\$ 1,993,675	\$ 1,340,791	\$ 3,334,466	\$ 37,449,619
Small Business Energy Solutions	Internal Admin	\$ 52,173	\$ 78,087	\$ 181,536	\$ 110,000	\$ 421,795	\$ 56,590	\$ 60,000	\$ 116,590	\$ 538,385
	External Admin	\$ 3,366	\$ 12,946	\$ 15,353	\$ 20,000	\$ 51,666	\$ 3,651	\$ 6,000	\$ 9,651	\$ 61,317
	Rebate/Services	\$ 1,383,428	\$ 885,914	\$ 16,313,543	\$ 1,946,317	\$ 20,529,201	\$ 1,500,536	\$ 526,646	\$ 2,027,182	\$ 22,556,383
	Implementation Services	\$ 97,614	\$ 179,594	\$ 796,684	\$ 125,000	\$ 1,198,893	\$ 105,877	\$ 32,000	\$ 137,877	\$ 1,336,770
	Marketing	\$ 62,271	\$ 37,058	\$ 519,956	\$ 30,000	\$ 649,285	\$ 67,542	\$ 10,238	\$ 77,780	\$ 727,065
	EM&V	\$ 84,150	\$ 53,926	\$ 742,795	\$ 90,000	\$ 970,871	\$ 91,273	\$ 30,000	\$ 121,273	\$ 1,092,144
	Total	\$ 1,683,002	\$ 1,247,525	\$ 18,569,867	\$ 2,321,317	\$ 23,821,711	\$ 1,825,469	\$ 664,884	\$ 2,490,353	\$ 26,312,064
Municipal	Internal Admin	\$ 5,505	\$ 16,733	\$ 13,750	\$ 12,000	\$ 47,988	\$ -	\$ -	\$ -	\$ 47,988
	External Admin	\$ 355	\$ 6,093	\$ 1,163	\$ -	\$ 7,611	\$ -	\$ -	\$ -	\$ 7,611
	Rebate/Services	\$ 145,974	\$ 89,545	\$ 1,235,632	\$ 150,000	\$ 1,621,151	\$ -	\$ -	\$ -	\$ 1,621,151
	Implementation Services	\$ 10,300	\$ 23,554	\$ 60,343	\$ 25,000	\$ 119,197	\$ -	\$ -	\$ -	\$ 119,197
	Marketing	\$ 6,571	\$ 4,847	\$ 39,383	\$ 7,500	\$ 58,300	\$ -	\$ -	\$ -	\$ 58,300
	EM&V	\$ 8,879	\$ 22,547	\$ 56,261	\$ 8,000	\$ 95,688	\$ -	\$ -	\$ -	\$ 95,688
	Total	\$ 177,584	\$ 163,318	\$ 1,406,533	\$ 202,500	\$ 1,949,935	\$ -	\$ -	\$ -	\$ 1,949,935
Other*	Internal Admin	\$ 15,139	\$ 8,536	\$ 14,977	\$ 12,100	\$ 50,752	\$ 2,086	\$ -	\$ 2,086	\$ 52,838
	External Admin	\$ 871	\$ -	\$ 1,267	\$ 11,200	\$ 13,337	\$ 135	\$ -	\$ 135	\$ 13,472
	Rebate/Services	\$ 341,897	\$ 25,000	\$ 1,345,875	\$ 130,000	\$ 1,842,772	\$ 55,312	\$ 23,500	\$ 78,812	\$ 1,921,583
	Implementation Services	\$ 28,165	\$ 17,171	\$ 62,502	\$ 63,125	\$ 170,964	\$ 3,903	\$ 6,500	\$ 10,403	\$ 181,366
	Marketing	\$ 32,063	\$ 1,852	\$ 42,800	\$ 8,250	\$ 84,964	\$ 2,490	\$ -	\$ 2,490	\$ 87,454
	EM&V	\$ 70,218	\$ 2,940	\$ 61,143	\$ 36,000	\$ 170,301	\$ 3,364	\$ -	\$ 3,364	\$ 173,665
	Total	\$ 488,353	\$ 55,498	\$ 1,528,563	\$ 260,675	\$ 2,333,089	\$ 67,289	\$ 30,000	\$ 97,289	\$ 2,430,378

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

NHSaves ENERGY EFFICIENCY PROGRAM - 2022 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	\$ 138,365	\$ 175,864	\$ 482,531	\$ 249,100	\$ 1,045,861	\$ 120,479	\$ 149,000	\$ 269,479	\$ 1,315,340
	External Admin	\$ 8,821	\$ 31,986	\$ 40,810	\$ 43,200	\$ 124,817	\$ 7,773	\$ 12,000	\$ 19,773	\$ 144,590
	Rebate/Services	\$ 3,609,388	\$ 1,734,046	\$ 43,362,216	\$ 4,895,173	\$ 53,600,823	\$ 3,194,648	\$ 1,665,458	\$ 4,860,106	\$ 58,460,929
	Implementation Services	\$ 258,718	\$ 392,062	\$ 2,114,402	\$ 363,125	\$ 3,128,307	\$ 225,413	\$ 98,780	\$ 324,193	\$ 3,452,500
	Marketing	\$ 179,139	\$ 75,593	\$ 1,381,973	\$ 80,750	\$ 1,717,455	\$ 143,798	\$ 28,438	\$ 172,236	\$ 1,889,691
	EM&V	\$ 268,971	\$ 125,405	\$ 1,974,247	\$ 234,000	\$ 2,602,623	\$ 194,322	\$ 82,000	\$ 276,322	\$ 2,878,945
	Total	\$ 4,463,403	\$ 2,534,956	\$ 49,356,179	\$ 5,865,348	\$ 62,219,886	\$ 3,886,433	\$ 2,035,676	\$ 5,922,109	\$ 68,141,995
Total C&I and Municipal %	Internal Admin	3.1%	6.9%	1.0%	4.2%	1.7%	3.1%	7.3%	4.6%	1.9%
	External Admin	0.2%	1.3%	0.1%	0.7%	0.2%	0.2%	0.6%	0.3%	0.2%
	Rebate/Services	80.9%	68.4%	87.9%	83.5%	86.1%	82.2%	81.8%	82.1%	85.8%
	Implementation Services	5.8%	15.5%	4.3%	6.2%	5.0%	5.8%	4.9%	5.5%	5.1%
	Marketing	4.0%	3.0%	2.8%	1.4%	2.8%	3.7%	1.4%	2.9%	2.8%
	EM&V	6.0%	4.9%	4.0%	4.0%	4.2%	5.0%	4.0%	4.7%	4.2%
	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	\$ 254,423	\$ 441,822	\$ 938,221	\$ 540,862	\$ 2,175,329	\$ 296,760	\$ 318,000	\$ 614,760	\$ 2,790,089
	External Admin	\$ 16,308	\$ 124,238	\$ 79,350	\$ 121,550	\$ 341,447	\$ 19,146	\$ 39,744	\$ 58,890	\$ 400,337
	Rebate/Services	\$ 6,686,790	\$ 5,037,576	\$ 74,273,858	\$ 8,660,914	\$ 94,659,138	\$ 7,868,939	\$ 3,349,304	\$ 11,218,243	\$ 105,877,381
	Implementation Services	\$ 475,859	\$ 964,262	\$ 4,283,301	\$ 787,641	\$ 6,511,063	\$ 555,229	\$ 170,060	\$ 725,289	\$ 7,236,352
	Marketing	\$ 317,660	\$ 210,340	\$ 2,394,679	\$ 188,750	\$ 3,111,429	\$ 354,198	\$ 94,596	\$ 448,794	\$ 3,560,222
	EM&V	\$ 456,161	\$ 350,320	\$ 3,476,725	\$ 455,250	\$ 4,738,456	\$ 478,646	\$ 161,750	\$ 640,396	\$ 5,378,852
	Total	\$ 8,207,201	\$ 7,128,559	\$ 85,446,135	\$ 10,754,967	\$ 111,536,862	\$ 9,572,918	\$ 4,133,454	\$ 13,706,372	\$ 125,243,233
Grand Total % (Residential, C&I and Municipal)	Internal Admin	3.1%	6.2%	1.1%	5.0%	2.0%	3.1%	7.7%	4.5%	2.2%
	External Admin	0.2%	1.7%	0.1%	1.1%	0.3%	0.2%	1.0%	0.4%	0.3%
	Rebate/Services	81.5%	70.7%	86.9%	80.5%	84.9%	82.2%	81.0%	81.8%	84.5%
	Implementation Services	5.8%	13.5%	5.0%	7.3%	5.8%	5.8%	4.1%	5.3%	5.8%
	Marketing	3.9%	3.0%	2.8%	1.8%	2.8%	3.7%	2.3%	3.3%	2.8%
	EM&V	5.6%	4.9%	4.1%	4.2%	4.2%	5.0%	3.9%	4.7%	4.3%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NHSAVES ENERGY EFFICIENCY PROGRAM - 2023 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	\$ 64,403	\$ 58,551	\$ 255,762	\$ 162,231	\$ 540,947	\$ 61,005	\$ 52,432	\$ 113,436	\$ 654,383
	External Admin	\$ 3,788	\$ 16,793	\$ 21,631	\$ 65,000	\$ 107,213	\$ 3,589	\$ 9,000	\$ 12,589	\$ 119,801
	Rebate/Services	\$ 1,545,676	\$ 1,113,967	\$ 17,020,460	\$ 1,877,768	\$ 21,557,871	\$ 1,464,108	\$ 782,333	\$ 2,246,441	\$ 23,804,312
	Implementation Services	\$ 115,547	\$ 120,377	\$ 1,545,196	\$ 200,000	\$ 1,981,120	\$ 109,449	\$ 27,000	\$ 136,449	\$ 2,117,569
	Marketing	\$ 70,086	\$ 45,778	\$ 457,630	\$ 55,000	\$ 628,494	\$ 66,387	\$ 18,800	\$ 85,187	\$ 713,681
	EM&V	\$ 94,711	\$ 64,512	\$ 596,256	\$ 85,000	\$ 840,479	\$ 89,713	\$ 30,000	\$ 119,713	\$ 960,191
	Total	\$ 1,894,211	\$ 1,419,978	\$ 19,896,935	\$ 2,444,999	\$ 25,656,123	\$ 1,794,250	\$ 919,565	\$ 2,713,815	\$ 28,369,937
HP w/EnergyStar®	Internal Admin	\$ 24,692	\$ 58,551	\$ 99,144	\$ 68,000	\$ 250,386	\$ 49,794	\$ 35,000	\$ 84,794	\$ 335,180
	External Admin	\$ 1,452	\$ 16,793	\$ 8,385	\$ 2,200	\$ 28,831	\$ 2,929	\$ 4,000	\$ 6,929	\$ 35,760
	Rebate/Services	\$ 592,597	\$ 1,105,846	\$ 6,647,780	\$ 477,765	\$ 8,823,988	\$ 1,195,054	\$ 253,484	\$ 1,448,538	\$ 10,272,526
	Implementation Services	\$ 44,300	\$ 120,377	\$ 598,981	\$ 140,000	\$ 903,657	\$ 89,336	\$ 10,000	\$ 99,336	\$ 1,002,993
	Marketing	\$ 26,870	\$ 41,009	\$ 177,402	\$ 30,000	\$ 275,281	\$ 54,187	\$ 12,500	\$ 66,687	\$ 341,969
	EM&V	\$ 36,311	\$ 68,348	\$ 231,394	\$ 35,000	\$ 371,053	\$ 73,226	\$ 12,000	\$ 85,226	\$ 456,280
	Total	\$ 726,222	\$ 1,410,924	\$ 7,763,085	\$ 752,965	\$ 10,653,196	\$ 1,464,527	\$ 326,984	\$ 1,791,511	\$ 12,444,707
EnergyStar® Homes	Internal Admin	\$ 11,493	\$ 50,202	\$ 30,866	\$ 40,000	\$ 132,561	\$ 43,357	\$ 40,000	\$ 83,357	\$ 215,918
	External Admin	\$ 676	\$ 16,106	\$ 2,610	\$ 7,000	\$ 26,393	\$ 2,550	\$ 4,000	\$ 6,550	\$ 32,943
	Rebate/Services	\$ 275,831	\$ 456,938	\$ 2,054,069	\$ 270,143	\$ 3,056,980	\$ 1,040,580	\$ 459,552	\$ 1,500,131	\$ 4,557,111
	Implementation Services	\$ 20,620	\$ 108,362	\$ 186,478	\$ 36,750	\$ 352,210	\$ 77,788	\$ 14,500	\$ 92,288	\$ 444,498
	Marketing	\$ 12,507	\$ 20,910	\$ 55,230	\$ 15,000	\$ 103,647	\$ 47,183	\$ 15,000	\$ 62,183	\$ 165,830
	EM&V	\$ 16,901	\$ 34,850	\$ 72,039	\$ 50,000	\$ 173,791	\$ 63,761	\$ 15,000	\$ 78,761	\$ 252,552
	Total	\$ 338,028	\$ 687,369	\$ 2,401,291	\$ 418,893	\$ 3,845,581	\$ 1,275,220	\$ 548,052	\$ 1,823,272	\$ 5,668,853
Energy Star® Products	Internal Admin	\$ 27,712	\$ 101,576	\$ 125,164	\$ 58,765	\$ 313,217	\$ 37,266	\$ 36,000	\$ 73,266	\$ 386,483
	External Admin	\$ 1,630	\$ 26,972	\$ 10,586	\$ 1,000	\$ 40,187	\$ 2,192	\$ 5,000	\$ 7,192	\$ 47,380
	Rebate/Services	\$ 665,094	\$ 572,067	\$ 8,329,403	\$ 1,175,856	\$ 10,742,419	\$ 894,387	\$ 602,070	\$ 1,496,457	\$ 12,238,876
	Implementation Services	\$ 49,719	\$ 181,015	\$ 756,182	\$ 55,000	\$ 1,041,916	\$ 66,860	\$ 18,000	\$ 84,860	\$ 1,126,775
	Marketing	\$ 30,157	\$ 28,635	\$ 223,961	\$ 30,000	\$ 312,753	\$ 40,554	\$ 25,000	\$ 65,554	\$ 378,308
	EM&V	\$ 40,753	\$ 47,726	\$ 292,123	\$ 45,000	\$ 425,602	\$ 54,803	\$ 26,250	\$ 81,053	\$ 506,655
	Total	\$ 815,066	\$ 957,991	\$ 9,737,417	\$ 1,365,620	\$ 12,876,094	\$ 1,096,063	\$ 712,320	\$ 1,808,383	\$ 14,684,476

NHSAVES ENERGY EFFICIENCY PROGRAM - 2023 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	\$ 9,409	\$ 4,629	\$ 13,108	\$ 17,200	\$ 44,346	\$ 18,394	\$ 4,500	\$ 22,894	\$ 67,239
	External Admin	\$ 468	\$ -	\$ 1,109	\$ 5,500	\$ 7,077	\$ 1,082	\$ 3,000	\$ 4,082	\$ 11,159
	Rebate/Services	\$ 191,072	\$ -	\$ 872,305	\$ 246,625	\$ 1,310,002	\$ 441,448	\$ 35,800	\$ 477,248	\$ 1,787,250
	Implementation Services	\$ 16,880	\$ 12,785	\$ 79,192	\$ 61,500	\$ 170,357	\$ 33,000	\$ 8,400	\$ 41,400	\$ 211,758
	Marketing	\$ 8,664	\$ 957	\$ 30,783	\$ 3,800	\$ 44,204	\$ 20,017	\$ 6,900	\$ 26,917	\$ 71,121
	EM&V	\$ 50,234	\$ 7,295	\$ 19,647	\$ 27,550	\$ 104,726	\$ 27,050	\$ 3,000	\$ 30,050	\$ 134,776
	Total	\$ 276,727	\$ 25,666	\$ 1,016,144	\$ 362,175	\$ 1,680,712	\$ 540,990	\$ 61,600	\$ 602,590	\$ 2,283,302
Total Residential	Internal Admin	\$ 137,709	\$ 273,509	\$ 524,044	\$ 346,195	\$ 1,281,457	\$ 209,816	\$ 167,932	\$ 377,747	\$ 1,659,204
	External Admin	\$ 8,015	\$ 76,665	\$ 44,321	\$ 80,700	\$ 209,701	\$ 12,342	\$ 25,000	\$ 37,342	\$ 247,043
	Rebate/Services	\$ 3,270,270	\$ 3,248,817	\$ 34,924,016	\$ 4,048,157	\$ 45,491,261	\$ 5,035,577	\$ 2,133,238	\$ 7,168,815	\$ 52,660,076
	Implementation Services	\$ 247,065	\$ 542,916	\$ 3,166,028	\$ 493,250	\$ 4,449,259	\$ 376,434	\$ 77,900	\$ 454,334	\$ 4,903,593
	Marketing	\$ 148,284	\$ 137,290	\$ 945,005	\$ 133,800	\$ 1,364,379	\$ 228,329	\$ 78,200	\$ 306,529	\$ 1,670,908
	EM&V	\$ 238,910	\$ 222,731	\$ 1,211,459	\$ 242,550	\$ 1,915,650	\$ 308,553	\$ 86,250	\$ 394,803	\$ 2,310,453
	Total	\$ 4,050,254	\$ 4,501,928	\$ 40,814,872	\$ 5,344,652	\$ 54,711,707	\$ 6,171,050	\$ 2,568,520	\$ 8,739,570	\$ 63,451,276
Total %	Internal Admin	3.4%	6.1%	1.3%	6.5%	2.3%	3.4%	6.5%	4.3%	2.6%
	External Admin	0.2%	1.7%	0.1%	1.5%	0.4%	0.2%	1.0%	0.4%	0.4%
	Rebate/Services	80.7%	72.2%	85.6%	75.7%	83.1%	81.6%	83.1%	82.0%	83.0%
	Implementation Services	6.1%	12.1%	7.8%	9.2%	8.1%	6.1%	3.0%	5.2%	7.7%
	Marketing	3.7%	3.0%	2.3%	2.5%	2.5%	3.7%	3.0%	3.5%	2.6%
	EM&V	5.9%	4.9%	3.0%	4.5%	3.5%	5.0%	3.4%	4.5%	3.6%
	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 - 2023 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	\$ 85,769	\$ 76,135	\$ 333,855	\$ 125,000	\$ 620,759	\$ 75,145	\$ 100,000	\$ 175,145	\$ 795,904
	External Admin	\$ 5,045	\$ 13,747	\$ 28,236	\$ 15,000	\$ 62,028	\$ 4,420	\$ 6,000	\$ 10,420	\$ 72,448
	Rebate/Services	\$ 2,058,459	\$ 725,781	\$ 32,661,452	\$ 3,697,788	\$ 39,143,480	\$ 1,803,475	\$ 1,689,565	\$ 3,493,040	\$ 42,636,520
	Implementation Services	\$ 153,880	\$ 180,400	\$ 1,859,872	\$ 170,000	\$ 2,364,151	\$ 134,819	\$ 53,650	\$ 188,469	\$ 2,552,620
	Marketing	\$ 93,337	\$ 32,057	\$ 847,221	\$ 40,000	\$ 1,012,615	\$ 81,775	\$ 20,000	\$ 101,775	\$ 1,114,391
	EM&V	\$ 126,131	\$ 46,429	\$ 1,105,071	\$ 150,000	\$ 1,427,631	\$ 110,507	\$ 61,196	\$ 171,703	\$ 1,599,334
	Total	\$ 2,522,621	\$ 1,074,549	\$ 36,835,707	\$ 4,197,788	\$ 44,630,665	\$ 2,210,141	\$ 1,930,411	\$ 4,140,552	\$ 48,771,218
Small Business Energy Solutions	Internal Admin	\$ 68,509	\$ 81,991	\$ 188,210	\$ 125,000	\$ 463,710	\$ 71,330	\$ 60,000	\$ 131,330	\$ 595,040
	External Admin	\$ 4,030	\$ 13,747	\$ 15,918	\$ 25,000	\$ 58,695	\$ 4,196	\$ 6,300	\$ 10,496	\$ 69,191
	Rebate/Services	\$ 1,644,212	\$ 808,209	\$ 18,412,848	\$ 2,191,118	\$ 23,056,387	\$ 1,711,913	\$ 878,369	\$ 2,590,281	\$ 25,646,668
	Implementation Services	\$ 122,913	\$ 188,653	\$ 1,048,500	\$ 150,000	\$ 1,510,066	\$ 127,974	\$ 52,702	\$ 180,676	\$ 1,690,742
	Marketing	\$ 74,554	\$ 34,953	\$ 477,620	\$ 45,000	\$ 632,127	\$ 77,623	\$ 20,000	\$ 97,623	\$ 729,750
	EM&V	\$ 100,748	\$ 49,272	\$ 622,982	\$ 125,000	\$ 898,002	\$ 104,897	\$ 34,200	\$ 139,097	\$ 1,037,099
	Total	\$ 2,014,966	\$ 1,176,825	\$ 20,766,078	\$ 2,661,118	\$ 26,618,987	\$ 2,097,932	\$ 1,051,571	\$ 3,149,503	\$ 29,768,490
Municipal	Internal Admin	\$ 6,038	\$ 17,570	\$ 12,759	\$ 15,000	\$ 51,367	\$ -	\$ -	\$ -	\$ 51,367
	External Admin	\$ 355	\$ 6,092	\$ 1,079	\$ -	\$ 7,526	\$ -	\$ -	\$ -	\$ 7,526
	Rebate/Services	\$ 144,909	\$ 86,107	\$ 1,248,247	\$ 140,000	\$ 1,619,262	\$ -	\$ -	\$ -	\$ 1,619,262
	Implementation Services	\$ 10,833	\$ 24,758	\$ 71,080	\$ 30,000	\$ 136,671	\$ -	\$ -	\$ -	\$ 136,671
	Marketing	\$ 6,571	\$ 4,916	\$ 32,379	\$ 8,500	\$ 52,365	\$ -	\$ -	\$ -	\$ 52,365
	EM&V	\$ 8,879	\$ 23,875	\$ 42,233	\$ 12,500	\$ 87,488	\$ -	\$ -	\$ -	\$ 87,488
	Total	\$ 177,584	\$ 163,318	\$ 1,407,777	\$ 206,000	\$ 1,954,679	\$ -	\$ -	\$ -	\$ 1,954,679
Other*	Internal Admin	\$ 23,991	\$ 8,963	\$ 20,086	\$ 13,500	\$ 66,540	\$ 2,560	\$ -	\$ 2,560	\$ 69,100
	External Admin	\$ 1,298	\$ -	\$ 1,699	\$ 13,400	\$ 16,397	\$ 151	\$ -	\$ 151	\$ 16,548
	Rebate/Services	\$ 505,907	\$ -	\$ 1,965,023	\$ 133,750	\$ 2,604,680	\$ 61,428	\$ 25,000	\$ 86,428	\$ 2,691,108
	Implementation Services	\$ 43,043	\$ 17,785	\$ 107,024	\$ 73,781	\$ 241,634	\$ 4,592	\$ 7,500	\$ 12,092	\$ 253,726
	Marketing	\$ 47,859	\$ 1,327	\$ 50,853	\$ 9,000	\$ 109,040	\$ 2,785	\$ -	\$ 2,785	\$ 111,825
	EM&V	\$ 83,529	\$ 15,512	\$ 66,330	\$ 39,000	\$ 204,372	\$ 3,764	\$ -	\$ 3,764	\$ 208,136
	Total	\$ 705,629	\$ 43,587	\$ 2,211,016	\$ 282,431	\$ 3,242,663	\$ 75,280	\$ 32,500	\$ 107,780	\$ 3,350,443

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

NHSAVES ENERGY EFFICIENCY PROGRAM - 2023 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	\$ 184,307	\$ 184,659	\$ 554,911	\$ 278,500	\$ 1,202,377	\$ 149,034	\$ 160,000	\$ 309,034	\$ 1,511,411
	External Admin	\$ 10,729	\$ 33,585	\$ 46,932	\$ 53,400	\$ 144,646	\$ 8,767	\$ 12,300	\$ 21,067	\$ 165,712
	Rebate/Services	\$ 4,353,487	\$ 1,620,097	\$ 54,287,569	\$ 6,162,657	\$ 66,423,810	\$ 3,576,816	\$ 2,592,934	\$ 6,169,750	\$ 72,593,560
	Implementation Services	\$ 330,669	\$ 411,596	\$ 3,086,476	\$ 423,781	\$ 4,252,522	\$ 267,385	\$ 113,852	\$ 381,237	\$ 4,633,758
	Marketing	\$ 222,321	\$ 73,254	\$ 1,408,073	\$ 102,500	\$ 1,806,148	\$ 162,184	\$ 40,000	\$ 202,184	\$ 2,008,332
	EM&V	\$ 319,288	\$ 135,088	\$ 1,836,617	\$ 326,500	\$ 2,617,493	\$ 219,168	\$ 95,396	\$ 314,564	\$ 2,932,056
	Total	\$ 5,420,800	\$ 2,458,279	\$ 61,220,578	\$ 7,347,338	\$ 76,446,995	\$ 4,383,353	\$ 3,014,482	\$ 7,397,835	\$ 83,844,829
Total C&I and Municipal %	Internal Admin	3.4%	7.5%	0.9%	3.8%	1.6%	3.4%	5.3%	4.2%	1.8%
	External Admin	0.2%	1.4%	0.1%	0.7%	0.2%	0.2%	0.4%	0.3%	0.2%
	Rebate/Services	80.3%	65.9%	88.7%	83.9%	86.9%	81.6%	86.0%	83.4%	86.6%
	Implementation Services	6.1%	16.7%	5.0%	5.8%	5.6%	6.1%	3.8%	5.2%	5.5%
	Marketing	4.1%	3.0%	2.3%	1.4%	2.4%	3.7%	1.3%	2.7%	2.4%
	EM&V	5.9%	5.5%	3.0%	4.4%	3.4%	5.0%	3.2%	4.3%	3.5%
	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	\$ 322,016	\$ 458,168	\$ 1,078,954	\$ 624,695	\$ 2,483,833	\$ 358,850	\$ 327,932	\$ 686,781	\$ 3,170,615
	External Admin	\$ 18,744	\$ 110,250	\$ 91,253	\$ 134,100	\$ 354,347	\$ 21,109	\$ 37,300	\$ 58,409	\$ 412,755
	Rebate/Services	\$ 7,623,757	\$ 4,868,914	\$ 89,211,586	\$ 10,210,814	\$ 111,915,070	\$ 8,612,393	\$ 4,726,172	\$ 13,338,565	\$ 125,253,635
	Implementation Services	\$ 577,734	\$ 954,512	\$ 6,252,504	\$ 917,031	\$ 8,701,781	\$ 643,819	\$ 191,752	\$ 835,571	\$ 9,537,352
	Marketing	\$ 370,605	\$ 210,544	\$ 2,353,078	\$ 236,300	\$ 3,170,527	\$ 390,513	\$ 118,200	\$ 508,713	\$ 3,679,240
	EM&V	\$ 558,198	\$ 357,819	\$ 3,048,076	\$ 569,050	\$ 4,533,143	\$ 527,720	\$ 181,646	\$ 709,366	\$ 5,242,509
	Total	\$ 9,471,054	\$ 6,960,207	\$ 102,035,450	\$ 12,691,990	\$ 131,158,701	\$ 10,554,403	\$ 5,583,001	\$ 16,137,404	\$ 147,296,105
Grand Total % (Residential, C&I and Municipal)	Internal Admin	3.4%	6.6%	1.1%	4.9%	1.9%	3.4%	5.9%	4.3%	2.2%
	External Admin	0.2%	1.6%	0.1%	1.1%	0.3%	0.2%	0.7%	0.4%	0.3%
	Rebate/Services	80.5%	70.0%	87.4%	80.5%	85.3%	81.6%	84.7%	82.7%	85.0%
	Implementation Services	6.1%	13.7%	6.1%	7.2%	6.6%	6.1%	3.4%	5.2%	6.5%
	Marketing	3.9%	3.0%	2.3%	1.9%	2.4%	3.7%	2.1%	3.2%	2.5%
	EM&V	5.9%	5.1%	3.0%	4.5%	3.5%	5.0%	3.3%	4.4%	3.6%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NHSAVES ENERGY EFFICIENCY PROGRAM - 2021-2023 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	\$ 155,098	\$ 172,767	\$ 634,583	\$ 380,231	\$ 1,342,677	\$ 154,114	\$ 154,272	\$ 308,386	\$ 1,651,063
	External Admin	\$ 9,915	\$ 87,257	\$ 53,670	\$ 195,967	\$ 346,809	\$ 9,890	\$ 32,669	\$ 42,560	\$ 389,368
	Rebate/Services	\$ 4,072,171	\$ 3,229,334	\$ 43,197,647	\$ 4,698,897	\$ 55,198,049	\$ 4,063,347	\$ 1,790,785	\$ 5,854,132	\$ 61,052,181
	Implementation Services	\$ 288,948	\$ 460,073	\$ 3,129,199	\$ 513,278	\$ 4,391,498	\$ 287,635	\$ 91,205	\$ 378,840	\$ 4,770,338
	Marketing	\$ 183,425	\$ 119,203	\$ 1,379,117	\$ 125,000	\$ 1,806,745	\$ 182,973	\$ 47,988	\$ 230,961	\$ 2,037,706
	EM&V	\$ 247,871	\$ 187,316	\$ 1,951,130	\$ 225,000	\$ 2,611,317	\$ 247,261	\$ 74,000	\$ 321,261	\$ 2,932,578
	Total	\$ 4,957,427	\$ 4,255,950	\$ 50,345,346	\$ 6,138,372	\$ 65,697,095	\$ 4,945,220	\$ 2,190,919	\$ 7,136,139	\$ 72,833,235
HP w/EnergyStar®	Internal Admin	\$ 57,254	\$ 167,422	\$ 266,990	\$ 191,000	\$ 682,666	\$ 124,084	\$ 92,000	\$ 216,084	\$ 898,750
	External Admin	\$ 3,642	\$ 48,019	\$ 22,581	\$ 5,950	\$ 80,191	\$ 7,955	\$ 10,000	\$ 17,955	\$ 98,147
	Rebate/Services	\$ 1,495,150	\$ 2,931,966	\$ 18,359,061	\$ 1,195,470	\$ 23,981,647	\$ 3,268,096	\$ 674,288	\$ 3,942,385	\$ 27,924,031
	Implementation Services	\$ 106,418	\$ 344,207	\$ 1,295,420	\$ 360,000	\$ 2,106,045	\$ 231,481	\$ 28,000	\$ 259,481	\$ 2,365,526
	Marketing	\$ 67,373	\$ 111,359	\$ 587,781	\$ 65,000	\$ 831,512	\$ 147,174	\$ 26,500	\$ 173,674	\$ 1,005,186
	EM&V	\$ 91,044	\$ 185,444	\$ 836,074	\$ 80,000	\$ 1,192,561	\$ 198,884	\$ 32,000	\$ 230,884	\$ 1,423,445
	Total	\$ 1,820,881	\$ 3,788,415	\$ 21,367,907	\$ 1,897,420	\$ 28,874,623	\$ 3,977,675	\$ 862,788	\$ 4,840,463	\$ 33,715,086
EnergyStar® Homes	Internal Admin	\$ 28,846	\$ 143,548	\$ 82,845	\$ 113,000	\$ 368,239	\$ 108,684	\$ 98,000	\$ 206,684	\$ 574,923
	External Admin	\$ 1,848	\$ 46,055	\$ 7,007	\$ 19,000	\$ 73,909	\$ 6,966	\$ 11,000	\$ 17,966	\$ 91,876
	Rebate/Services	\$ 759,102	\$ 1,373,229	\$ 5,649,673	\$ 803,054	\$ 8,585,058	\$ 2,861,696	\$ 1,052,467	\$ 3,914,163	\$ 12,499,221
	Implementation Services	\$ 53,794	\$ 309,852	\$ 402,235	\$ 141,750	\$ 907,631	\$ 202,728	\$ 36,500	\$ 239,228	\$ 1,146,859
	Marketing	\$ 34,187	\$ 60,788	\$ 182,283	\$ 41,000	\$ 318,258	\$ 128,875	\$ 33,000	\$ 161,875	\$ 480,133
	EM&V	\$ 46,199	\$ 102,492	\$ 259,234	\$ 135,000	\$ 542,926	\$ 174,155	\$ 48,000	\$ 222,155	\$ 765,081
	Total	\$ 923,976	\$ 2,035,965	\$ 6,583,278	\$ 1,252,804	\$ 10,796,022	\$ 3,483,104	\$ 1,278,967	\$ 4,762,071	\$ 15,558,093
Energy Star® Products	Internal Admin	\$ 81,764	\$ 290,448	\$ 359,965	\$ 182,537	\$ 914,713	\$ 97,159	\$ 96,000	\$ 193,159	\$ 1,107,873
	External Admin	\$ 5,301	\$ 77,123	\$ 30,444	\$ 5,100	\$ 117,968	\$ 6,245	\$ 8,075	\$ 14,320	\$ 132,288
	Rebate/Services	\$ 2,179,453	\$ 2,456,123	\$ 24,597,256	\$ 3,699,029	\$ 32,931,862	\$ 2,565,993	\$ 1,508,835	\$ 4,074,828	\$ 37,006,691
	Implementation Services	\$ 153,326	\$ 517,418	\$ 1,720,049	\$ 171,000	\$ 2,561,793	\$ 181,467	\$ 40,000	\$ 221,467	\$ 2,783,260
	Marketing	\$ 98,066	\$ 108,675	\$ 884,267	\$ 114,500	\$ 1,205,508	\$ 115,533	\$ 60,000	\$ 175,533	\$ 1,381,041
	EM&V	\$ 132,522	\$ 180,142	\$ 1,149,908	\$ 150,000	\$ 1,612,572	\$ 156,126	\$ 71,250	\$ 227,376	\$ 1,839,948
	Total	\$ 2,650,432	\$ 3,629,929	\$ 28,741,889	\$ 4,322,166	\$ 39,344,417	\$ 3,122,524	\$ 1,784,160	\$ 4,906,684	\$ 44,251,101

NHSAVES ENERGY EFFICIENCY PROGRAM - 2021-2023 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	\$ 24,585	\$ 21,294	\$ 31,604	\$ 45,700	\$ 123,183	\$ 54,653	\$ 12,000	\$ 66,653	\$ 189,836
	External Admin	\$ 1,420	\$ -	\$ 2,673	\$ 17,750	\$ 21,843	\$ 3,558	\$ 9,000	\$ 12,558	\$ 34,401
	Rebate/Services	\$ 583,700	\$ 50,000	\$ 2,150,255	\$ 746,682	\$ 3,530,636	\$ 1,470,153	\$ 121,700	\$ 1,591,853	\$ 5,122,489
	Implementation Services	\$ 45,933	\$ 36,541	\$ 156,601	\$ 157,000	\$ 396,075	\$ 102,683	\$ 20,260	\$ 122,943	\$ 519,018
	Marketing	\$ 26,279	\$ 3,297	\$ 84,425	\$ 11,050	\$ 125,051	\$ 58,916	\$ 24,840	\$ 83,756	\$ 208,806
	EM&V	\$ 108,737	\$ 17,058	\$ 131,706	\$ 79,000	\$ 336,502	\$ 88,945	\$ 7,750	\$ 96,695	\$ 433,197
	Total	\$ 790,654	\$ 128,191	\$ 2,557,263	\$ 1,057,182	\$ 4,533,289	\$ 1,778,908	\$ 195,550	\$ 1,974,458	\$ 6,507,747
Total Residential	Internal Admin	\$ 347,547	\$ 795,479	\$ 1,375,986	\$ 912,467	\$ 3,431,480	\$ 538,694	\$ 452,272	\$ 990,966	\$ 4,422,446
	External Admin	\$ 22,126	\$ 258,454	\$ 116,374	\$ 243,767	\$ 640,720	\$ 34,615	\$ 70,744	\$ 105,359	\$ 746,080
	Rebate/Services	\$ 9,089,576	\$ 10,040,652	\$ 93,953,892	\$ 11,143,132	\$ 124,227,252	\$ 14,229,285	\$ 5,148,075	\$ 19,377,360	\$ 143,604,613
	Implementation Services	\$ 648,418	\$ 1,668,090	\$ 6,703,505	\$ 1,343,028	\$ 10,363,042	\$ 1,005,994	\$ 215,965	\$ 1,221,959	\$ 11,585,002
	Marketing	\$ 409,330	\$ 403,322	\$ 3,117,873	\$ 356,550	\$ 4,287,074	\$ 633,471	\$ 192,328	\$ 825,799	\$ 5,112,873
	EM&V	\$ 626,373	\$ 672,453	\$ 4,328,052	\$ 669,000	\$ 6,295,878	\$ 865,372	\$ 233,000	\$ 1,098,372	\$ 7,394,250
	Total	\$ 11,143,370	\$ 13,838,450	\$ 109,595,683	\$ 14,667,944	\$ 149,245,447	\$ 17,307,431	\$ 6,312,385	\$ 23,619,816	\$ 172,865,262
Total %	Internal Admin	3.1%	5.7%	1.3%	6.2%	2.3%	3.1%	7.2%	4.2%	2.6%
	External Admin	0.2%	1.9%	0.1%	1.7%	0.4%	0.2%	1.1%	0.4%	0.4%
	Rebate/Services	81.6%	72.6%	85.7%	76.0%	83.2%	82.2%	81.6%	82.0%	83.1%
	Implementation Services	5.8%	12.1%	6.1%	9.2%	6.9%	5.8%	3.4%	5.2%	6.7%
	Marketing	3.7%	2.9%	2.8%	2.4%	2.9%	3.7%	3.0%	3.5%	3.0%
	EM&V	5.6%	4.9%	3.9%	4.6%	4.2%	5.0%	3.7%	4.7%	4.3%
	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 - 2021-2023 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	\$ 199,169	\$ 217,700	\$ 835,358	\$ 335,000	\$ 1,587,228	\$ 187,868	\$ 274,000	\$ 461,868	\$ 2,049,096
	External Admin	\$ 12,692	\$ 38,879	\$ 70,650	\$ 37,000	\$ 159,222	\$ 12,045	\$ 12,000	\$ 24,045	\$ 183,266
	Rebate/Services	\$ 5,211,589	\$ 2,113,744	\$ 75,193,285	\$ 8,304,309	\$ 90,822,926	\$ 4,948,027	\$ 3,487,045	\$ 8,435,072	\$ 99,257,998
	Implementation Services	\$ 370,513	\$ 515,641	\$ 3,784,748	\$ 440,000	\$ 5,110,902	\$ 350,471	\$ 157,910	\$ 508,382	\$ 5,619,284
	Marketing	\$ 234,805	\$ 102,966	\$ 2,312,365	\$ 100,000	\$ 2,750,135	\$ 222,827	\$ 53,200	\$ 276,027	\$ 3,026,162
	EM&V	\$ 317,304	\$ 150,422	\$ 3,257,467	\$ 320,000	\$ 4,045,192	\$ 301,118	\$ 154,196	\$ 455,314	\$ 4,500,506
	Total	\$ 6,346,071	\$ 3,139,353	\$ 85,453,873	\$ 9,536,309	\$ 104,475,606	\$ 6,022,356	\$ 4,138,351	\$ 10,160,707	\$ 114,636,313
Small Business Energy Solutions	Internal Admin	\$ 160,975	\$ 234,446	\$ 533,097	\$ 330,000	\$ 1,258,518	\$ 173,647	\$ 166,039	\$ 339,685	\$ 1,598,204
	External Admin	\$ 10,274	\$ 38,878	\$ 45,087	\$ 60,000	\$ 154,239	\$ 11,113	\$ 12,300	\$ 23,413	\$ 177,652
	Rebate/Services	\$ 4,219,177	\$ 2,396,621	\$ 47,599,123	\$ 5,802,273	\$ 60,017,194	\$ 4,564,671	\$ 1,830,911	\$ 6,395,582	\$ 66,412,776
	Implementation Services	\$ 299,675	\$ 539,214	\$ 2,365,379	\$ 370,000	\$ 3,574,268	\$ 323,673	\$ 109,702	\$ 433,375	\$ 4,007,643
	Marketing	\$ 190,070	\$ 103,164	\$ 1,485,922	\$ 100,000	\$ 1,879,155	\$ 205,591	\$ 44,849	\$ 250,440	\$ 2,129,596
	EM&V	\$ 256,851	\$ 148,118	\$ 2,105,695	\$ 280,000	\$ 2,790,664	\$ 277,826	\$ 90,200	\$ 368,026	\$ 3,158,690
	Total	\$ 5,137,022	\$ 3,460,442	\$ 54,134,302	\$ 6,942,273	\$ 69,674,039	\$ 5,556,521	\$ 2,254,001	\$ 7,810,522	\$ 77,484,560
Municipal	Internal Admin	\$ 16,515	\$ 50,239	\$ 42,040	\$ 37,000	\$ 145,794	\$ -	\$ -	\$ -	\$ 145,794
	External Admin	\$ 1,066	\$ 18,277	\$ 3,556	\$ -	\$ 22,898	\$ -	\$ -	\$ -	\$ 22,898
	Rebate/Services	\$ 437,922	\$ 268,471	\$ 3,707,750	\$ 450,000	\$ 4,864,144	\$ -	\$ -	\$ -	\$ 4,864,144
	Implementation Services	\$ 30,900	\$ 70,719	\$ 180,880	\$ 77,200	\$ 359,699	\$ -	\$ -	\$ -	\$ 359,699
	Marketing	\$ 19,712	\$ 14,241	\$ 118,191	\$ 21,000	\$ 173,144	\$ -	\$ -	\$ -	\$ 173,144
	EM&V	\$ 26,638	\$ 68,007	\$ 168,842	\$ 28,000	\$ 291,486	\$ -	\$ -	\$ -	\$ 291,486
	Total	\$ 532,752	\$ 489,954	\$ 4,221,259	\$ 613,200	\$ 5,857,165	\$ -	\$ -	\$ -	\$ 5,857,165
Other*	Internal Admin	\$ 49,064	\$ 25,628	\$ 46,539	\$ 36,100	\$ 157,330	\$ 6,342	\$ -	\$ 6,342	\$ 163,673
	External Admin	\$ 2,778	\$ -	\$ 3,936	\$ 33,600	\$ 40,314	\$ 406	\$ -	\$ 406	\$ 40,721
	Rebate/Services	\$ 1,077,465	\$ 50,000	\$ 4,215,266	\$ 365,000	\$ 5,707,731	\$ 166,917	\$ 68,500	\$ 235,417	\$ 5,943,148
	Implementation Services	\$ 90,720	\$ 51,541	\$ 204,062	\$ 189,406	\$ 535,730	\$ 11,828	\$ 19,550	\$ 31,378	\$ 567,108
	Marketing	\$ 113,738	\$ 3,988	\$ 126,692	\$ 24,750	\$ 269,168	\$ 7,517	\$ -	\$ 7,517	\$ 276,685
	EM&V	\$ 214,974	\$ 33,795	\$ 179,283	\$ 109,000	\$ 537,052	\$ 10,158	\$ -	\$ 10,158	\$ 547,210
	Total	\$ 1,548,739	\$ 164,953	\$ 4,775,778	\$ 757,856	\$ 7,247,325	\$ 203,169	\$ 88,050	\$ 291,219	\$ 7,538,544

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

NHSAVES ENERGY EFFICIENCY PROGRAM - 2021-2023 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	\$ 425,723	\$ 528,013	\$ 1,457,034	\$ 738,100	\$ 3,148,871	\$ 367,857	\$ 440,039	\$ 807,896	\$ 3,956,766
	External Admin	\$ 26,810	\$ 96,035	\$ 123,229	\$ 130,600	\$ 376,673	\$ 23,564	\$ 24,300	\$ 47,864	\$ 424,537
	Rebate/Services	\$ 10,946,152	\$ 4,828,836	\$ 130,715,424	\$ 14,921,582	\$ 161,411,995	\$ 9,679,615	\$ 5,386,456	\$ 15,066,071	\$ 176,478,066
	Implementation Services	\$ 791,808	\$ 1,177,116	\$ 6,535,069	\$ 1,076,606	\$ 9,580,599	\$ 685,972	\$ 287,162	\$ 973,134	\$ 10,553,733
	Marketing	\$ 558,324	\$ 224,358	\$ 4,043,170	\$ 245,750	\$ 5,071,602	\$ 435,936	\$ 98,049	\$ 533,985	\$ 5,605,587
	EM&V	\$ 815,766	\$ 400,342	\$ 5,711,287	\$ 737,000	\$ 7,664,395	\$ 589,102	\$ 244,396	\$ 833,498	\$ 8,497,894
	Total	\$ 13,564,584	\$ 7,254,701	\$ 148,585,212	\$ 17,849,638	\$ 187,254,135	\$ 11,782,046	\$ 6,480,402	\$ 18,262,448	\$ 205,516,583
Total C&I and Municipal %	Internal Admin	3.1%	7.3%	1.0%	4.1%	1.7%	3.1%	6.8%	4.4%	1.9%
	External Admin	0.2%	1.3%	0.1%	0.7%	0.2%	0.2%	0.4%	0.3%	0.2%
	Rebate/Services	80.7%	66.6%	88.0%	83.6%	86.2%	82.2%	83.1%	82.5%	85.9%
	Implementation Services	5.8%	16.2%	4.4%	6.0%	5.1%	5.8%	4.4%	5.3%	5.1%
	Marketing	4.1%	3.1%	2.7%	1.4%	2.7%	3.7%	1.5%	2.9%	2.7%
	EM&V	6.0%	5.5%	3.8%	4.1%	4.1%	5.0%	3.8%	4.6%	4.1%
	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	\$ 773,271	\$ 1,323,492	\$ 2,833,020	\$ 1,650,567	\$ 6,580,350	\$ 906,551	\$ 892,311	\$ 1,798,862	\$ 8,379,212
	External Admin	\$ 48,936	\$ 354,488	\$ 239,603	\$ 374,367	\$ 1,017,393	\$ 58,179	\$ 95,044	\$ 153,223	\$ 1,170,617
	Rebate/Services	\$ 20,035,728	\$ 14,869,489	\$ 224,669,316	\$ 26,064,714	\$ 285,639,247	\$ 23,908,900	\$ 10,534,531	\$ 34,443,432	\$ 320,082,679
	Implementation Services	\$ 1,440,226	\$ 2,845,206	\$ 13,238,574	\$ 2,419,634	\$ 19,943,641	\$ 1,691,966	\$ 503,127	\$ 2,195,094	\$ 22,138,735
	Marketing	\$ 967,654	\$ 627,680	\$ 7,161,043	\$ 602,300	\$ 9,358,677	\$ 1,069,407	\$ 290,377	\$ 1,359,784	\$ 10,718,460
	EM&V	\$ 1,442,139	\$ 1,072,795	\$ 10,039,339	\$ 1,406,000	\$ 13,960,273	\$ 1,454,474	\$ 477,396	\$ 1,931,870	\$ 15,892,143
	Total	\$ 24,707,954	\$ 21,093,151	\$ 258,180,895	\$ 32,517,582	\$ 336,499,582	\$ 29,089,477	\$ 12,792,787	\$ 41,882,264	\$ 378,381,843
Grand Total % (Residential, C&I and Municipal)	Internal Admin	3.1%	6.3%	1.1%	5.1%	2.0%	3.1%	7.0%	4.3%	2.2%
	External Admin	0.2%	1.7%	0.1%	1.2%	0.3%	0.2%	0.7%	0.4%	0.3%
	Rebate/Services	81.1%	70.5%	87.0%	80.2%	84.9%	82.2%	82.3%	82.2%	84.6%
	Implementation Services	5.8%	13.5%	5.1%	7.4%	5.9%	5.8%	3.9%	5.2%	5.9%
	Marketing	3.9%	3.0%	2.8%	1.9%	2.8%	3.7%	2.3%	3.2%	2.8%
	EM&V	5.8%	5.1%	3.9%	4.3%	4.1%	5.0%	3.7%	4.6%	4.2%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NHSAVES ELECTRIC PROGRAMS - 2021 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

	Liberty		NHEC		Eversource		Unitil		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	293	6,137,948	90	1,956,415	1,433	25,328,906	124	2,634,550	1,941	36,057,818
B/C Ratio ¹ / Planned Budget	2.43	\$1,421,776	1.24	\$1,401,044	1.91	\$13,786,411	1.77	\$1,637,476	1.89	\$18,246,708
/ Lifetime MMBtu Savings		40,648		45,589		664,423		66,548		817,208
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	50	1,206,383	166	3,316,751	2,824	14,077,632	60	1,079,027	3,100	19,679,793
B/C Ratio ¹ / Planned Budget	1.80	\$457,221	2.64	\$1,122,087	3.54	\$6,498,338	1.70	\$510,435	3.22	\$8,588,081
/ Lifetime MMBtu Savings		26,913		102,874		830,445		25,717		985,949
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	60	2,598,453	100	7,774,166	517	26,413,649	120	1,465,579	797	38,251,847
B/C Ratio ¹ / Planned Budget	6.19	\$270,354	6.64	\$670,122	4.55	\$1,991,626	3.23	\$432,655	4.93	\$3,364,757
/ Lifetime MMBtu Savings		47,051		121,097		227,119		39,310		434,577
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	28,290	12,185,483	51,969	17,811,910	301,201	112,634,643	61,666	19,171,636	443,126	161,803,671
B/C Ratio ¹ / Planned Budget	1.53	\$948,100	1.58	\$1,497,232	1.49	\$9,760,674	2.25	\$1,513,474	1.58	\$13,719,480
/ Lifetime MMBtu Savings		923		3,408		34,083		35,839		74,254
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	235	61,431,882	31	35,598,876	1,355	634,763,524	184	63,864,640	1,805	795,658,922
B/C Ratio ¹ / Planned Budget	3.35	\$1,708,986	1.68	\$996,188	3.17	\$20,766,949	1.77	\$2,257,665	3.00	\$25,729,788
/ Lifetime MMBtu Savings		0		0		0		1,074		1,074
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	318	57,230,193	210	32,401,337	5,124	385,359,276	448	45,232,920	6,100	520,223,726
B/C Ratio ¹ / Planned Budget	4.15	\$1,439,054	2.88	\$1,036,092	2.57	\$14,798,356	2.00	\$1,959,838	2.65	\$19,233,341
/ Lifetime MMBtu Savings		0		0		0		1,653		1,653
Municipal										
Number of Participants / Lifetime kWh Savings	94	4,546,461	15	2,014,853	104	29,962,700	11	6,697,270	224	43,221,284
B/C Ratio ¹ / Planned Budget	1.95	\$177,584	1.71	\$163,318	2.84	\$1,406,950	5.14	\$204,700	2.90	\$1,952,552
/ Lifetime MMBtu Savings		1,104		3,170		61,337		2,175		67,786
Educational Programs										
Number of Participants / Planned Budget	0	\$72,760	0	\$92,869	0	\$385,606	0	\$84,450	0	\$635,685
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	10,290	796	0	0	1,649	0	22,844	1,749	34,783	2,545
/ Planned Budget		\$533,864		\$20,000		\$1,271,342		\$469,933		\$2,295,139
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$5,432	0	\$33,057	0	\$0	0	\$38,489
Utility Performance Incentive										
Planned Budget		\$386,633		\$384,942		\$3,886,644		\$498,884		\$5,157,104
TOTAL PLANNED BUDGET		\$7,416,333	\$7,389,327		\$74,585,953		\$9,569,509		\$98,961,123	

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS
SBC¹ and RGGI Funding Allocation
2021 Budget

Program Allocation Summary

Program	RGGI	SBC ¹	TOTAL
HEA²			
Liberty	2.94355%	97.05645%	100.00000%
NHEC	2.54110%	97.45890%	100.00000%
Eversource	2.59436%	97.40564%	100.00000%
Unitil	3.28140%	96.71860%	100.00000%
Municipal			
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 ³	SBC HEA ⁴
Liberty	\$ 1,421,776	\$41,851	\$1,379,926
NHEC	\$ 1,401,044	\$35,602	\$1,365,442
Eversource	\$ 13,786,411	\$357,669	\$13,428,742
Unitil	\$ 1,637,476	\$53,732	\$1,583,744
Total	\$ 18,246,708	\$488,854	\$17,757,854

Notes:

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

² HEA Allocation

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

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

³ 17.0% of Total RGGI Funds including SB 268 funding less RGGI HEA Performance Incentive

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

NHSAVES ELECTRIC PROGRAMS - 2021 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	285	5,957,274	88	1,906,700	1,396	24,671,782	120	2,548,100	1,889	35,083,857
B/C Ratio ¹ / Planned Budget	2.43	\$1,379,926	1.24	\$1,365,442	1.91	\$13,428,742	1.77	\$1,583,744	1.89	\$17,757,854
/ Lifetime MMBtu Savings		39,452		44,431		647,185		64,364		795,432
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	50	1,206,383	166	3,316,751	2,824	14,077,632	60	1,079,027	3,100	19,679,793
B/C Ratio ¹ / Planned Budget	1.80	\$457,221	2.64	\$1,122,087	3.54	\$6,498,338	1.70	\$510,435	3.22	\$8,588,081
/ Lifetime MMBtu Savings		26,913		102,874		830,445		25,717		985,949
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	60	2,598,453	100	7,774,166	517	26,413,649	120	1,465,579	797	38,251,847
B/C Ratio ¹ / Planned Budget	6.19	\$270,354	6.64	\$670,122	4.55	\$1,991,626	3.23	\$432,655	4.93	\$3,364,757
/ Lifetime MMBtu Savings		47,051		121,097		227,119		39,310		434,577
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	28,290	12,185,483	51,969	17,811,910	301,201	112,634,643	61,666	19,171,636	443,126	161,803,671
B/C Ratio ¹ / Planned Budget	1.53	\$948,100	1.58	\$1,497,232	1.49	\$9,760,674	2.25	\$1,513,474	1.58	\$13,719,480
/ Lifetime MMBtu Savings		923		3,408		34,083		35,839		74,254
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	235	61,431,882	31	35,598,876	1,355	634,763,524	184	63,864,640	1,805	795,658,922
B/C Ratio ¹ / Planned Budget	3.35	\$1,708,986	1.68	\$996,188	3.17	\$20,766,949	1.77	\$2,257,665	3.00	\$25,729,788
/ Lifetime MMBtu Savings		0		0		0		1,074		1,074
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	318	57,230,193	210	32,401,337	5,124	385,359,276	448	45,232,920	6,100	520,223,726
B/C Ratio ¹ / Planned Budget	4.15	\$1,439,054	2.88	\$1,036,092	2.57	\$14,798,356	2.00	\$1,959,838	2.65	\$19,233,341
/ Lifetime MMBtu Savings		0		0		0		1,653		1,653
Municipal										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio ¹ / Planned Budget	1.95	\$0	1.71	\$0	2.84	\$0	5.14	\$0	2.90	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Educational Programs										
Number of Participants / Planned Budget	0	\$72,760	0	\$92,869	0	\$385,606	0	\$84,450	0	\$635,685
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	10,290	796	0	0	1,649	0	22,844	1,749	34,783	2,545
/ Planned Budget		\$533,864		\$20,000		\$1,271,342		\$469,933		\$2,295,139
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$5,432	0	\$33,057	0	\$0	0	\$38,489
Utility Performance Incentive										
Planned Budget		\$374,565		\$374,002		\$3,789,590		\$484,671		\$5,022,827
TOTAL PLANNED BUDGET		\$7,184,829		\$7,179,467		\$72,724,281		\$9,296,863		\$96,385,440

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS - 2021 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	9	180,674	2	49,714	37	657,123	4	86,450	52	973,961
B/C Ratio ¹ / Planned Budget	2.43	\$41,851	1.24	\$35,602	1.91	\$357,669	1.77	\$53,732	1.89	\$488,854
/ Lifetime MMBtu Savings		1,197		1,158		17,238		2,184		21,776
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Municipal										
Number of Participants / Lifetime kWh Savings	94	4,546,461	15	2,014,853	104	29,962,700	11	6,697,270	224	43,221,284
B/C Ratio ¹ / Planned Budget	1.95	\$177,584	1.71	\$163,318	2.84	\$1,406,950	5.14	\$204,700	2.90	\$1,952,552
/ Lifetime MMBtu Savings		1,104		3,170		61,337		2,175		67,786
Educational Programs										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
/ Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Utility Performance Incentive										
Planned Budget		\$12,069		\$10,941		\$97,054		\$14,214		\$134,277
TOTAL PLANNED BUDGET		\$231,504		\$209,861		\$1,861,673		\$272,646		\$2,575,683

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES GAS PROGRAMS - 2021 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets and Lifetime MMBtu Savings

	Liberty		Unitil		Total	
Home Energy Assistance						
Number of Units / Lifetime MMBtu Savings	369	152,082	84	52,029	453	204,111
B/C Ratio ¹ / Planned Budget	1.85	\$1,523,570	1.69	\$542,705	1.81	\$2,066,275
Home Performance w/ENERGY STAR						
Number of Participants / Lifetime MMBtu Savings	768	199,886	75	29,706	843	229,592
B/C Ratio ¹ / Planned Budget	1.70	\$1,205,798	1.29	\$242,330	1.63	\$1,448,128
ENERGY STAR Homes						
Number of Homes / Lifetime MMBtu Savings	98	111,685	100	66,928	198	178,612
B/C Ratio ¹ / Planned Budget	1.07	\$1,039,306	2.17	\$307,438	1.32	\$1,346,744
ENERGY STAR Products						
Number of Participants / Lifetime MMBtu Savings	1,623	209,793	9,593	115,935	11,216	325,728
B/C Ratio ¹ / Planned Budget	2.12	\$975,798	2.33	\$488,013	2.19	\$1,463,811
/ Lifetime kWh Savings		209,982		-83,980		126,002
Large Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	210	783,596	84	250,837	294	1,034,434
B/C Ratio ¹ / Planned Budget	3.92	\$1,818,540	2.59	\$867,149	3.49	\$2,685,689
Small Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	485	422,955	131	113,429	616	536,384
B/C Ratio ¹ / Planned Budget	2.36	\$1,633,120	1.95	\$537,546	2.26	\$2,170,666
Education						
/ Planned Budget		\$120,774		\$52,350		\$173,124
Company Specific Programs						
Number of Participants / Lifetime MMBtu Savings	63,000	18,169	9,100	3,222	72,100	21,391
/ Planned Budget		\$645,250		\$38,800		\$684,050
Utility Performance Incentive						
Planned Budget		\$492,919		\$169,198		\$662,117
Total Program Expenses		\$9,455,075		\$3,245,530		\$12,700,604

NHSAVES ELECTRIC PROGRAMS - 2022 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

	Liberty		NHEC		Eversource		Unitil		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	331	6,916,936	102	1,727,453	1,806	31,873,869	168	2,581,495	2,407	43,099,753
B/C Ratio ¹ / Planned Budget	2.50	\$1,641,440	1.39	\$1,434,927	2.12	\$16,662,000	2.02	\$2,055,898	2.09	\$21,794,265
/ Lifetime MMBtu Savings		46,351		50,142		836,986		91,899		1,025,378
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	69	1,675,125	174	3,475,049	2,824	14,651,813	74	1,457,830	3,141	21,259,816
B/C Ratio ¹ / Planned Budget	1.89	\$637,438	2.64	\$1,255,404	3.48	\$7,106,484	2.04	\$634,020	3.17	\$9,633,346
/ Lifetime MMBtu Savings		36,530		107,369		830,469		35,903		1,010,271
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	70	3,031,508	100	7,774,166	569	29,055,014	25	1,660,358	764	41,521,046
B/C Ratio ¹ / Planned Budget	6.61	\$315,594	7.00	\$678,473	4.85	\$2,190,361	3.21	\$401,256	5.23	\$3,585,684
/ Lifetime MMBtu Savings		54,893		121,097		249,831		33,563		459,383
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	18,758	12,490,763	28,368	13,793,103	162,468	121,448,102	42,495	19,758,392	252,090	167,490,360
B/C Ratio ¹ / Planned Budget	1.73	\$887,266	1.73	\$1,174,707	1.81	\$9,243,798	2.80	\$1,443,072	1.91	\$12,748,843
/ Lifetime MMBtu Savings		923		3,408		42,095		44,798		91,225
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	276	66,684,578	31	34,907,798	1,425	786,069,425	170	87,714,674	1,902	975,376,475
B/C Ratio ¹ / Planned Budget	2.82	\$2,114,464	1.57	\$1,068,615	3.10	\$27,851,217	1.64	\$3,080,856	2.91	\$34,115,152
/ Lifetime MMBtu Savings		0		0		0		1,239		1,239
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	380	61,094,680	240	35,378,858	4,767	417,671,255	356	45,711,398	5,743	559,856,190
B/C Ratio ¹ / Planned Budget	3.20	\$1,683,002	2.84	\$1,247,525	2.29	\$18,569,867	1.66	\$2,321,317	2.32	\$23,821,711
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	93	4,283,174	15	1,699,431	98	28,238,868	11	5,679,000	217	39,900,472
B/C Ratio ¹ / Planned Budget	1.94	\$177,584	1.63	\$163,318	2.89	\$1,406,533	5.01	\$202,500	2.92	\$1,949,935
/ Lifetime MMBtu Savings		1,104		3,170		61,337		4,350		69,961
Educational Programs										
Number of Participants / Planned Budget	0	\$93,100	0	\$100,181	0	\$520,143	0	\$103,900	0	\$817,325
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	10,307	1,153	0	0	2,474	0	22,911	2,087	35,691	3,240
/ Planned Budget		\$657,313		\$0		\$1,863,156		\$512,149		\$3,032,618
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$5,408	0	\$32,577	0	\$0	0	\$37,985
Utility Performance Incentive										
Planned Budget		\$451,396		\$391,773		\$4,697,746		\$591,523		\$6,132,438
TOTAL PLANNED BUDGET		\$8,658,597	\$7,520,332		\$90,143,881		\$11,346,490		\$117,669,300	

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS
SBC¹ and RGGI Funding Allocation
2022 Budget

Program Allocation Summary

Program	RGGI	SBC ¹	TOTAL
HEA²			
Liberty	2.44959%	97.55041%	100.00000%
NHEC	2.38374%	97.61626%	100.00000%
Eversource	2.06239%	97.93761%	100.00000%
Unitil	2.51101%	97.48899%	100.00000%
Municipal			
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 ³	SBC HEA ⁴
Liberty	\$ 1,641,440	\$40,209	\$1,601,231
NHEC	\$ 1,434,927	\$34,205	\$1,400,722
Eversource	\$ 16,662,000	\$343,635	\$16,318,366
Unitil	\$ 2,055,898	\$51,624	\$2,004,274
Total	\$ 21,794,265	\$469,672	\$21,324,593

Notes:

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

² HEA Allocation

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

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

³ 17.0% of Total RGGI Funds including SB 268 funding less RGGI HEA Performance Incentive

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

NHSAVES ELECTRIC PROGRAMS - 2022 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	323	6,747,500	100	1,686,275	1,768	31,216,506	164	2,516,674	2,355	42,166,955
B/C Ratio ¹ / Planned Budget	2.50	\$1,601,231	1.39	\$1,400,722	2.12	\$16,318,366	2.02	\$2,004,274	2.09	\$21,324,593
/ Lifetime MMBtu Savings		45,215		48,947		819,725		89,591		1,003,478
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	69	1,675,125	174	3,475,049	2,824	14,651,813	74	1,457,830	3,141	21,259,816
B/C Ratio ¹ / Planned Budget	1.89	\$637,438	2.64	\$1,255,404	3.48	\$7,106,484	2.04	\$634,020	3.17	\$9,633,346
/ Lifetime MMBtu Savings		36,530		107,369		830,469		35,903		1,010,271
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	70	3,031,508	100	7,774,166	569	29,055,014	25	1,660,358	764	41,521,046
B/C Ratio ¹ / Planned Budget	6.61	\$315,594	7.00	\$678,473	4.85	\$2,190,361	3.21	\$401,256	5.23	\$3,585,684
/ Lifetime MMBtu Savings		54,893		121,097		249,831		33,563		459,383
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	18,758	12,490,763	28,368	13,793,103	162,468	121,448,102	42,495	19,758,392	252,090	167,490,360
B/C Ratio ¹ / Planned Budget	1.73	\$887,266	1.73	\$1,174,707	1.81	\$9,243,798	2.80	\$1,443,072	1.91	\$12,748,843
/ Lifetime MMBtu Savings		923		3,408		42,095		44,798		91,225
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	276	66,684,578	31	34,907,798	1,425	786,069,425	170	87,714,674	1,902	975,376,475
B/C Ratio ¹ / Planned Budget	2.82	\$2,114,464	1.57	\$1,068,615	3.10	\$27,851,217	1.64	\$3,080,856	2.91	\$34,115,152
/ Lifetime MMBtu Savings		0		0		0		1,239		1,239
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	380	61,094,680	240	35,378,858	4,767	417,671,255	356	45,711,398	5,743	559,856,190
B/C Ratio ¹ / Planned Budget	3.20	\$1,683,002	2.84	\$1,247,525	2.29	\$18,569,867	1.66	\$2,321,317	2.32	\$23,821,711
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio ¹ / Planned Budget	1.94	\$0	1.63	\$0	2.89	\$0	5.01	\$0	2.92	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Educational Programs										
Number of Participants / Planned Budget	0	\$93,100	0	\$100,181	0	\$520,143	0	\$103,900	0	\$817,325
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	10,307	1,153	0	0	2,474	0	22,911	2,087	35,691	3,240
/ Planned Budget		\$657,313		\$0		\$1,863,156		\$512,149		\$3,032,618
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$5,408	0	\$32,577	0	\$0	0	\$37,985
Utility Performance Incentive										
Planned Budget		\$439,417		\$380,910		\$4,601,486		\$577,546		\$5,999,360
TOTAL PLANNED BUDGET		\$8,428,826		\$7,311,945		\$88,297,454		\$11,078,390		\$115,116,616

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS - 2022 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	8	169,437	2	41,178	37	657,362	4	64,821	52	932,798
B/C Ratio ¹ / Planned Budget	2.50	\$40,209	1.39	\$34,205	2.12	\$343,635	2.02	\$51,624	2.09	\$469,672
/ Lifetime MMBtu Savings		1,135		1,195		17,262		2,308		21,900
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Municipal										
Number of Participants / Lifetime kWh Savings	93	4,283,174	15	1,699,431	98	28,238,868	11	5,679,000	217	39,900,472
B/C Ratio ¹ / Planned Budget	1.94	\$177,584	1.63	\$163,318	2.89	\$1,406,533	5.01	\$202,500	2.92	\$1,949,935
/ Lifetime MMBtu Savings		1,104		3,170		61,337		4,350		69,961
Educational Programs										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
/ Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Utility Performance Incentive										
Planned Budget		\$11,979		\$10,864		\$96,259		\$13,977		\$133,078
TOTAL PLANNED BUDGET		\$229,771		\$208,387		\$1,846,427		\$268,101		\$2,552,685

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSaves GAS PROGRAMS - 2022 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets and Lifetime MMBtu Savings

	Liberty		Unitil		Total	
Home Energy Assistance						
Number of Units / Lifetime MMBtu Savings	385	161,480	105	65,712	490	227,192
B/C Ratio ¹ / Planned Budget	1.94	\$1,627,400	1.63	\$728,650	1.84	\$2,356,050
Home Performance w/ENERGY STAR						
Number of Participants / Lifetime MMBtu Savings	802	217,227	85	32,524	887	249,751
B/C Ratio ¹ / Planned Budget	1.81	\$1,307,350	1.24	\$293,474	1.71	\$1,600,824
ENERGY STAR Homes						
Number of Homes / Lifetime MMBtu Savings	116	137,258	140	93,175	256	230,433
B/C Ratio ¹ / Planned Budget	1.24	\$1,168,578	2.33	\$423,477	1.53	\$1,592,055
ENERGY STAR Products						
Number of Participants / Lifetime MMBtu Savings	1,743	226,569	11,187	141,211	12,930	367,780
B/C Ratio ¹ / Planned Budget	2.26	\$1,050,663	2.53	\$583,827	2.36	\$1,634,490
/ Lifetime kWh Savings		246,097		-94,012		152,085
Large Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	221	863,253	167	387,169	388	1,250,421
B/C Ratio ¹ / Planned Budget	4.19	\$1,993,675	2.78	\$1,340,791	3.62	\$3,334,466
Small Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	518	463,430	160	138,814	678	602,243
B/C Ratio ¹ / Planned Budget	2.45	\$1,825,469	2.06	\$664,884	2.34	\$2,490,353
Education						
/ Planned Budget		\$134,533		\$57,800		\$192,333
Company Specific Programs						
Number of Participants / Lifetime MMBtu Savings	63,000	45,025	9,100	4,178	72,100	49,203
/ Planned Budget		\$465,250		\$40,550		\$505,800
Utility Performance Incentive						
Planned Budget		\$526,510		\$227,340		\$753,850
Total Program Expenses		\$10,099,428		\$4,360,794		\$14,460,222

NHSAVES ELECTRIC PROGRAMS - 2023 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

	Liberty		NHEC		Eversource		Unitil		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	396	8,274,564	102	2,476,827	2,040	36,316,478	190	3,035,794	2,728	50,103,663
B/C Ratio ¹ / Planned Budget	2.71	\$1,894,211	1.60	\$1,419,978	2.14	\$19,896,935	2.23	\$2,444,999	2.16	\$25,656,123
/ Lifetime MMBtu Savings		54,586		52,649		945,728		109,597		1,162,559
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	88	2,103,746	183	3,641,262	2,824	15,225,995	86	1,736,604	3,180	22,707,606
B/C Ratio ¹ / Planned Budget	2.29	\$726,222	2.62	\$1,410,924	3.42	\$7,763,085	2.16	\$752,965	3.15	\$10,653,196
/ Lifetime MMBtu Savings		47,241		112,088		830,492		42,844		1,032,665
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	80	3,548,718	100	7,840,638	626	32,668,267	31	1,869,669	837	45,927,293
B/C Ratio ¹ / Planned Budget	7.55	\$338,028	7.38	\$687,369	5.23	\$2,401,291	2.64	\$418,893	5.54	\$3,845,581
/ Lifetime MMBtu Savings		62,734		121,097		274,803		25,878		484,512
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	18,758	13,301,818	8,811	12,216,525	57,862	142,847,306	18,312	20,938,481	103,744	189,304,130
B/C Ratio ¹ / Planned Budget	2.10	\$815,066	2.05	\$957,991	2.13	\$9,737,417	3.53	\$1,365,620	2.27	\$12,876,094
/ Lifetime MMBtu Savings		927		3,408		50,107		53,758		108,200
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	276	72,329,360	31	35,942,650	1,458	964,853,642	170	114,860,749	1,936	1,187,986,401
B/C Ratio ¹ / Planned Budget	2.71	\$2,522,621	1.71	\$1,074,549	3.07	\$36,835,707	1.67	\$4,197,788	2.89	\$44,630,665
/ Lifetime MMBtu Savings		0		0		0		1,653		1,653
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	380	64,483,665	205	31,713,559	4,067	453,538,464	356	47,540,219	5,008	597,275,907
B/C Ratio ¹ / Planned Budget	3.04	\$2,014,966	2.77	\$1,176,825	2.31	\$20,766,078	1.53	\$2,661,118	2.31	\$26,618,987
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	93	4,052,504	14	1,429,081	91	26,599,451	11	5,220,000	209	37,301,036
B/C Ratio ¹ / Planned Budget	1.95	\$177,584	1.57	\$163,318	2.96	\$1,407,777	5.35	\$206,000	3.00	\$1,954,679
/ Lifetime MMBtu Savings		1,104		3,170		61,337		4,350		69,961
Educational Programs										
Number of Participants / Planned Budget	0	\$120,060	0	\$43,654	0	\$699,195	0	\$117,750	0	\$980,659
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	10,333	1,914	0	0	3,710	0	22,977	3,116	37,019	5,030
/ Planned Budget		\$862,296		\$20,600		\$2,495,934		\$526,856		\$3,905,686
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$5,000	0	\$32,030	0	\$0	0	\$37,030
Utility Performance Incentive										
Planned Budget		\$520,908		\$382,536		\$5,610,188		\$698,059		\$7,211,692
TOTAL PLANNED BUDGET		\$9,991,962		\$7,342,743		\$107,645,638		\$13,390,050		\$138,370,393

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS
SBC¹ and RGGI Funding Allocation
2023 Budget

Program Allocation Summary

Program	RGGI	SBC ¹	TOTAL
HEA²			
Liberty	2.03600%	97.96400%	100.00000%
NHEC	2.31044%	97.68956%	100.00000%
Eversource	1.65653%	98.34347%	100.00000%
Unitil	2.02515%	97.97485%	100.00000%
Municipal			
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 ³	SBC HEA ⁴
Liberty	\$ 1,894,211	\$38,566	\$1,855,645
NHEC	\$ 1,419,978	\$32,808	\$1,387,170
Eversource	\$ 19,896,935	\$329,598	\$19,567,337
Unitil	\$ 2,444,999	\$49,515	\$2,395,484
Total	\$ 25,656,123	\$450,487	\$25,205,636

Notes:

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

² HEA Allocation

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

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

³ 17.0% of Total RGGI Funds including SB 268 funding less RGGI HEA Performance Incentive

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

NHSAVES ELECTRIC PROGRAMS - 2023 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	388	8,106,094	100	2,419,602	2,006	35,714,886	186	2,974,315	2,680	49,214,896
B/C Ratio ¹ / Planned Budget	2.71	\$1,855,645	1.60	\$1,387,170	2.14	\$19,567,337	2.23	\$2,395,484	2.16	\$25,205,636
/ Lifetime MMBtu Savings		53,474		51,433		930,061		107,377		1,142,346
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	88	2,103,746	183	3,641,262	2,824	15,225,995	86	1,736,604	3,180	22,707,606
B/C Ratio ¹ / Planned Budget	2.29	\$726,222	2.62	\$1,410,924	3.42	\$7,763,085	2.16	\$752,965	3.15	\$10,653,196
/ Lifetime MMBtu Savings		47,241		112,088		830,492		42,844		1,032,665
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	80	3,548,718	100	7,840,638	626	32,668,267	31	1,869,669	837	45,927,293
B/C Ratio ¹ / Planned Budget	7.55	\$338,028	7.38	\$687,369	5.23	\$2,401,291	2.64	\$418,893	5.54	\$3,845,581
/ Lifetime MMBtu Savings		62,734		121,097		274,803		25,878		484,512
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	18,758	13,301,818	8,811	12,216,525	57,862	142,847,306	18,312	20,938,481	103,744	189,304,130
B/C Ratio ¹ / Planned Budget	2.10	\$815,066	2.05	\$957,991	2.13	\$9,737,417	3.53	\$1,365,620	2.27	\$12,876,094
/ Lifetime MMBtu Savings		927		3,408		50,107		53,758		108,200
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	276	72,329,360	31	35,942,650	1,458	964,853,642	170	114,860,749	1,936	1,187,986,401
B/C Ratio ¹ / Planned Budget	2.71	\$2,522,621	1.71	\$1,074,549	3.07	\$36,835,707	1.67	\$4,197,788	2.89	\$44,630,665
/ Lifetime MMBtu Savings		0		0		0		1,653		1,653
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	380	64,483,665	205	31,713,559	4,067	453,538,464	356	47,540,219	5,008	597,275,907
B/C Ratio ¹ / Planned Budget	3.04	\$2,014,966	2.77	\$1,176,825	2.31	\$20,766,078	1.53	\$2,661,118	2.31	\$26,618,987
/ Lifetime MMBtu Savings		0		0		0		0		0
Municipal										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio ¹ / Planned Budget	1.95	\$0	1.57	\$0	2.96	\$0	5.35	\$0	3.00	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Educational Programs										
Number of Participants / Planned Budget	0	\$120,060	0	\$43,654	0	\$699,195	0	\$117,750	0	\$980,659
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	10,333	1,914	0	0	3,710	0	22,977	3,116	37,019	5,030
/ Planned Budget		\$862,296		\$20,600		\$2,495,934		\$526,856		\$3,905,686
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$5,000	0	\$32,030	0	\$0	0	\$37,030
Utility Performance Incentive										
Planned Budget		\$509,020		\$371,749		\$5,514,632		\$684,006		\$7,079,408
TOTAL PLANNED BUDGET		\$9,763,923		\$7,135,831		\$105,812,708		\$13,120,481		\$135,832,943

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS - 2023 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	8	168,470	2	57,226	34	601,592	4	61,479	48	888,767
B/C Ratio ¹ / Planned Budget	2.71	\$38,566	1.60	\$32,808	2.14	\$329,598	2.23	\$49,515	2.16	\$450,487
/ Lifetime MMBtu Savings		1,111		1,216		15,666		2,220		20,214
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Municipal										
Number of Participants / Lifetime kWh Savings	93	4,052,504	14	1,429,081	91	26,599,451	11	5,220,000	209	37,301,036
B/C Ratio ¹ / Planned Budget	1.95	\$177,584	1.57	\$163,318	2.96	\$1,407,777	5.35	\$206,000	3.00	\$1,954,679
/ Lifetime MMBtu Savings		1,104		3,170		61,337		4,350		69,961
Educational Programs										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
/ Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Utility Performance Incentive										
Planned Budget		\$11,888		\$10,787		\$95,556		\$14,053		\$132,284
TOTAL PLANNED BUDGET		\$228,038		\$206,912		\$1,832,931		\$269,568		\$2,537,450

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES GAS PROGRAMS - 2023 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets and Lifetime MMBtu Savings

	Liberty		Unitil		Total	
Home Energy Assistance						
Number of Units / Lifetime MMBtu Savings	410	175,872	130	82,693	540	258,565
B/C Ratio ¹ / Planned Budget	2.03	\$1,794,250	1.70	\$919,565	1.92	\$2,713,815
Home Performance w/ENERGY STAR						
Number of Participants / Lifetime MMBtu Savings	843	240,953	104	35,275	947	276,228
B/C Ratio ¹ / Planned Budget	1.91	\$1,464,527	1.28	\$326,984	1.80	\$1,791,511
ENERGY STAR Homes						
Number of Homes / Lifetime MMBtu Savings	126	188,199	180	131,913	306	320,112
B/C Ratio ¹ / Planned Budget	1.65	\$1,275,220	2.70	\$548,052	1.97	\$1,823,272
ENERGY STAR Products						
Number of Participants / Lifetime MMBtu Savings	1,779	233,093	11,453	164,720	13,231	397,813
B/C Ratio ¹ / Planned Budget	2.37	\$1,096,063	2.57	\$712,320	2.45	\$1,808,383
/ Lifetime kWh Savings		267,896		-81,700		186,196
Large Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	237	949,217	200	550,900	438	1,500,117
B/C Ratio ¹ / Planned Budget	4.43	\$2,210,141	2.92	\$1,930,411	3.73	\$4,140,552
Small Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	569	517,192	189	168,677	758	685,868
B/C Ratio ¹ / Planned Budget	2.53	\$2,097,932	1.68	\$1,051,571	2.25	\$3,149,503
Education						
/ Planned Budget		\$151,020		\$52,300		\$203,320
Company Specific Programs						
Number of Participants / Lifetime MMBtu Savings	63,000	56,110	9,100	6,500	72,100	62,610
/ Planned Budget		\$465,250		\$41,800		\$507,050
Utility Performance Incentive						
Planned Budget		\$580,492		\$307,065		\$887,557
Total Program Expenses		\$11,134,895		\$5,890,066		\$17,024,962

NHSAVES ELECTRIC PROGRAMS - 2021-2023 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets, Lifetime kWh and MMBtu Savings

	Liberty		NHEC		Eversource		Unitil		Total	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	1,020	21,329,448	294	6,160,695	5,279	93,519,252	482	8,251,839	7,076	129,261,234
B/C Ratio ¹ / Planned Budget	2.56	\$4,957,427	1.40	\$4,255,950	2.07	\$50,345,346	2.03	\$6,138,372	2.06	\$65,697,095
/ Lifetime MMBtu Savings		141,585		148,380		2,447,137		268,043		3,005,145
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	207	4,985,253	523	10,433,061	8,471	43,955,440	220	4,273,461	9,421	63,647,216
B/C Ratio ¹ / Planned Budget	2.02	\$1,820,881	2.63	\$3,788,415	3.48	\$21,367,907	1.99	\$1,897,420	3.18	\$28,874,623
/ Lifetime MMBtu Savings		110,683		322,331		2,491,406		104,465		3,028,885
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	210	9,178,678	301	23,388,971	1,711	88,136,931	176	4,995,606	2,398	125,700,186
B/C Ratio ¹ / Planned Budget	6.81	\$923,976	7.00	\$2,035,965	4.89	\$6,583,278	3.03	\$1,252,804	5.24	\$10,796,022
/ Lifetime MMBtu Savings		164,678		363,292		751,753		98,750		1,378,473
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	65,807	37,978,063	89,148	43,821,539	521,532	376,930,050	122,473	59,868,509	798,959	518,598,160
B/C Ratio ¹ / Planned Budget	1.77	\$2,650,432	1.75	\$3,629,929	1.80	\$28,741,889	2.82	\$4,322,166	1.90	\$39,344,417
/ Lifetime MMBtu Savings		2,774		10,224		126,285		134,395		273,679
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	788	200,445,820	93	106,449,325	4,238	2,385,686,591	524	266,440,063	5,643	2,959,021,798
B/C Ratio ¹ / Planned Budget	2.92	\$6,346,071	1.65	\$3,139,353	3.11	\$85,453,873	1.68	\$9,536,309	2.92	\$104,475,606
/ Lifetime MMBtu Savings		0		0		0		3,966		3,966
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	1,077	182,808,538	655	99,493,754	13,958	1,256,568,995	1,161	138,484,537	16,851	1,677,355,823
B/C Ratio ¹ / Planned Budget	3.42	\$5,137,022	2.83	\$3,460,442	2.38	\$54,134,302	1.71	\$6,942,273	2.41	\$69,674,039
/ Lifetime MMBtu Savings		0		0		0		1,653		1,653
Municipal										
Number of Participants / Lifetime kWh Savings	279	12,882,139	44	5,143,365	293	84,801,019	33	17,596,270	650	120,422,793
B/C Ratio ¹ / Planned Budget	1.95	\$532,752	1.64	\$489,954	2.90	\$4,221,259	5.16	\$613,200	2.94	\$5,857,165
/ Lifetime MMBtu Savings		3,311		9,511		184,011		10,875		207,708
Educational Programs										
Number of Participants / Planned Budget	0	\$285,920	0	\$236,704	0	\$1,604,944	0	\$306,100	0	\$2,433,668
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	30,930	3,863	0	0	7,832	0	23,332	6,952	62,093	10,815
/ Planned Budget		\$2,053,473		\$40,600		\$5,630,432		\$1,508,938		\$9,233,443
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$15,840	0	\$97,665	0	\$0	0	\$113,505
Utility Performance Incentive										
Planned Budget		\$1,358,937		\$1,159,252		\$14,194,578		\$1,788,467		\$18,501,234
TOTAL PLANNED BUDGET		\$26,066,892		\$22,252,403		\$272,375,473		\$34,306,049		\$355,000,816

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS
SBC¹ and RGGI Funding Allocation
2021-2023 Budget

Program Allocation Summary

Program	RGGI	SBC ¹	TOTAL
HEA²			
Liberty	2.43323%	97.56677%	100.00000%
NHEC	2.41109%	97.58891%	100.00000%
Eversource	2.04766%	97.95234%	100.00000%
Unitil	2.52299%	97.47701%	100.00000%
Municipal			
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 ³	SBC HEA ⁴
Liberty	\$ 4,957,427	\$ 120,625	\$4,836,802
NHEC	\$ 4,255,950	\$ 102,615	\$4,153,335
Eversource	\$ 50,345,346	\$ 1,030,902	\$49,314,444
Unitil	\$ 6,138,372	\$ 154,871	\$5,983,502
Total	\$ 65,697,095	\$1,409,013	\$64,288,083

Notes:

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

² HEA Allocation

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

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

³ 17.0% of Total RGGI Funds including SB 268 funding less RGGI HEA Performance Incentive

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

NHSAVES ELECTRIC PROGRAMS - 2021-2023 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	996	20,810,868	287	6,012,577	5,171	91,603,175	470	8,039,088	6,923	126,465,707
B/C Ratio ¹ / Planned Budget	2.56	\$4,836,802	1.40	\$4,153,335	2.07	\$49,314,444	2.03	\$5,983,502	2.06	\$64,288,083
/ Lifetime MMBtu Savings		138,142		144,810		2,396,971		261,332		2,941,255
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	207	4,985,253	523	10,433,061	8,471	43,955,440	220	4,273,461	9,421	63,647,216
B/C Ratio ¹ / Planned Budget	2.02	\$1,820,881	2.63	\$3,788,415	3.48	\$21,367,907	1.99	\$1,897,420	3.18	\$28,874,623
/ Lifetime MMBtu Savings		110,683		322,331		2,491,406		104,465		3,028,885
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	210	9,178,678	301	23,388,971	1,711	88,136,931	176	4,995,606	2,398	125,700,186
B/C Ratio ¹ / Planned Budget	6.81	\$923,976	7.00	\$2,035,965	4.89	\$6,583,278	3.03	\$1,252,804	5.24	\$10,796,022
/ Lifetime MMBtu Savings		164,678		363,292		751,753		98,750		1,378,473
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	65,807	37,978,063	89,148	43,821,539	521,532	376,930,050	122,473	59,868,509	798,959	518,598,160
B/C Ratio ¹ / Planned Budget	1.77	\$2,650,432	1.75	\$3,629,929	1.80	\$28,741,889	2.82	\$4,322,166	1.90	\$39,344,417
/ Lifetime MMBtu Savings		2,774		10,224		126,285		134,395		273,679
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	788	200,445,820	93	106,449,325	4,238	2,385,686,591	524	266,440,063	5,643	2,959,021,798
B/C Ratio ¹ / Planned Budget	2.92	\$6,346,071	1.65	\$3,139,353	3.11	\$85,453,873	1.68	\$9,536,309	2.92	\$104,475,606
/ Lifetime MMBtu Savings		0		0		0		3,966		3,966
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	1,077	182,808,538	655	99,493,754	13,958	1,256,568,995	1,161	138,484,537	16,851	1,677,355,823
B/C Ratio ¹ / Planned Budget	3.42	\$5,137,022	2.83	\$3,460,442	2.38	\$54,134,302	1.71	\$6,942,273	2.41	\$69,674,039
/ Lifetime MMBtu Savings		0		0		0		1,653		1,653
Municipal										
Number of Participants / Lifetime kWh Savings	0	0	0	0	0	0	0	0	0	0
B/C Ratio ¹ / Planned Budget	1.95	\$0	1.64	\$0	2.90	\$0	5.16	\$0	0.00	\$0
/ Lifetime MMBtu Savings		0		0		0		0		0
Educational Programs										
Number of Participants / Planned Budget	0	\$285,920	0	\$236,704	0	\$1,604,944	0	\$306,100	0	\$2,433,668
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	30,930	3,863	0	0	7,832	0	23,332	6,952	62,093	10,815
/ Planned Budget		\$2,053,473		\$40,600		\$5,630,432		\$1,508,938		\$9,233,443
/ Lifetime MMBtu Savings		0		0		0		0		0
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	0	\$0	0	\$15,840	0	\$97,665	0	\$0	0	\$113,505
Utility Performance Incentive										
Planned Budget		\$1,323,002		\$1,126,661		\$13,905,709		\$1,746,223		\$18,101,594
TOTAL PLANNED BUDGET		\$25,377,579		\$21,627,243		\$266,834,443		\$33,495,734		\$347,334,999

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES ELECTRIC PROGRAMS - 2021-2023 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	
Home Energy Assistance										
Number of Units / Lifetime kWh Savings	25	518,580	7	148,118	108	1,916,077	12	212,751	152	2,795,527
B/C Ratio ¹ / Planned Budget	2.56	\$120,625	1.40	\$102,615	2.07	\$1,030,902	2.03	\$154,871	2.06	\$1,409,013
/ Lifetime MMBtu Savings		3,443		3,570		50,166		6,711		63,890
Home Performance w/ENERGY STAR										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Homes										
Number of Homes / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
ENERGY STAR Products										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Large Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Small Business Energy Solutions										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
B/C Ratio ¹ / Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Municipal										
Number of Participants / Lifetime kWh Savings	279	12,882,139	44	5,143,365	293	84,801,019	33	17,596,270	650	120,422,793
B/C Ratio ¹ / Planned Budget	1.95	\$532,752	1.64	\$489,954	2.90	\$4,221,259	5.16	\$613,200	2.94	\$5,857,165
/ Lifetime MMBtu Savings		3,311		9,511		184,011		10,875		207,708
Educational Programs										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Company Specific Programs / FCM Expenses										
Number of Participants / Lifetime kWh Savings	-	-	-	-	-	-	-	-	-	-
/ Planned Budget	-	-	-	-	-	-	-	-	-	-
/ Lifetime MMBtu Savings	-	-	-	-	-	-	-	-	-	-
Smart Start (Eversource/NHEC)										
Number of Participants / Planned Budget	-	-	-	-	-	-	-	-	-	-
Utility Performance Incentive										
Planned Budget		\$35,936		\$32,591		\$288,869		\$42,244		\$399,640
TOTAL PLANNED BUDGET		\$689,313		\$625,160		\$5,541,030		\$810,315		\$7,665,818

Note: (1) B/C Ratios based on Utility Costs set to 2021 dollars

NHSAVES GAS PROGRAMS - 2021-2023 UTILITY GOALS BY PROGRAM
Total Customers Served, Program Budgets and Lifetime MMBtu Savings

	Liberty		Unitil		Total	
Home Energy Assistance						
Number of Units / Lifetime MMBtu Savings	1,165	489,434	319	200,434	1,483	689,868
B/C Ratio ¹ / Planned Budget	1.94	\$4,945,220	1.67	\$2,190,919	1.86	\$7,136,139
Home Performance w/ENERGY STAR						
Number of Participants / Lifetime MMBtu Savings	2,412	658,065	264	97,506	2,676	755,571
B/C Ratio ¹ / Planned Budget	1.81	\$3,977,675	1.27	\$862,788	1.72	\$4,840,463
ENERGY STAR Homes						
Number of Homes / Lifetime MMBtu Savings	340	437,141	420	292,016	760	729,157
B/C Ratio ¹ / Planned Budget	1.33	\$3,483,104	2.44	\$1,278,967	1.63	\$4,762,071
ENERGY STAR Products						
Number of Participants / Lifetime MMBtu Savings	5,144	669,456	32,232	421,865	37,377	1,091,321
B/C Ratio ¹ / Planned Budget	2.25	\$3,122,524	2.49	\$1,784,160	2.34	\$4,906,684
/ Lifetime kWh Savings		723,975		-259,692		464,283
Large Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	668	2,596,067	451	1,188,906	1,119	3,784,972
B/C Ratio ¹ / Planned Budget	4.19	\$6,022,356	2.80	\$4,138,351	3.63	\$10,160,707
Small Business Energy Solutions						
Number of Participants / Lifetime MMBtu Savings	1,572	1,403,577	480	420,919	2,052	1,824,496
B/C Ratio ¹ / Planned Budget	2.45	\$5,556,521	1.86	\$2,254,001	2.28	\$7,810,522
Education						
/ Planned Budget		\$406,327		\$162,450		\$568,777
Company Specific Programs						
Number of Participants / Lifetime MMBtu Savings	189,000	119,305	9,100	13,899	198,100	133,204
/ Planned Budget		\$1,575,750		\$121,150		\$1,696,900
Utility Performance Incentive						
Planned Budget		\$1,599,921		\$703,603		\$2,303,524
Total Program Expenses		\$30,689,398		\$13,496,390		\$44,185,788

Program Cost-Effectiveness - 2021 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.91	0.19	1.98	26,368.2	2,602.2	27,353.0	13,786.4	-	1,876.6	25,328.9	341.7	264.1	1,433	32,031.1	664,422.6
A1 - Energy Star Homes	4.55	0.81	4.66	9,055.9	1,616.7	12,074.5	1,991.6	599.6	1,138.1	26,413.6	294.6	15.4	517	9,089.8	227,118.9
A2 - Home Performance with Energy Star	3.54	0.27	3.58	23,029.4	1,727.7	28,984.0	6,498.3	1,590.5	1,260.7	14,077.6	281.2	196.3	2,824	42,277.2	830,445.3
A3 - Energy Star Products	1.49	1.32	2.38	14,499.3	12,922.9	22,826.0	9,760.7	(154.2)	16,110.9	112,634.6	3,656.5	2,499.6	301,201	2,490.2	34,083.4
A5 - Residential Active Demand Response	2.33	2.33	2.32	240.8	240.8	240.6	103.6	-	-	-	-	-	1,560	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	47.3	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	155.1	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	347.8	-	-	-	-	-	-	-	-
Sub-Total Residential	2.24	0.58	2.63	73,193.6	19,110.4	91,478.1	32,690.9	2,035.9	20,386.3	178,454.8	4,574.0	2,975.3	307,535	85,888.3	1,756,070.2
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	3.17	3.17	1.91	65,729.7	65,729.7	99,493.3	20,766.9	31,439.0	50,775.8	634,763.5	4,507.2	6,076.6	1,355	-	-
C2 - Small Business Energy Solutions	2.57	2.57	2.32	38,027.7	38,022.1	58,471.5	14,798.4	10,427.3	33,040.1	385,359.3	2,964.0	3,578.9	5,124	-	-
C3 - Municipal Energy Solutions	2.84	1.93	1.26	3,989.3	2,711.8	5,675.5	1,406.9	3,113.2	2,666.8	29,962.7	262.1	200.3	104	2,893.2	61,336.8
C5 - C&I Active Demand Response	2.95	2.95	2.95	1,917.9	1,917.9	1,917.5	651.0	-	-	-	-	-	89	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	99.9	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	230.5	-	-	-	-	-	-	-	-
C6d - C&I Customer Partnerships	-	-	-	-	-	-	21.8	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.89	2.85	2.00	109,664.6	108,381.4	165,557.9	37,975.4	44,979.5	86,482.6	1,050,085.5	7,733.3	9,855.8	6,672	2,893.2	61,336.8
C6e - Smart Start	-	-	-	-	-	-	33.1	-	-	-	-	-	-	-	-
Total	2.59	1.80	2.18	182,858.2	127,491.8	257,036.0	70,699.3	47,015.4	106,868.9	1,228,540.3	12,307.3	12,831.2	314,207	88,781.5	1,817,407.0

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

		Annual kWh Savings	106,868,888	80.4%	kWh > 55%	Lifetime kWh Savings	1,228,540,329	69.8%	kWh > 55%
		Annual MMBTU Savings (in kWh)	26,019,299	19.6%		Lifetime MMBTU Savings (in kWh)	532,629,437	30.2%	
			132,888,187	100.0%			1,761,169,766	100.0%	
Annual Savings as a % of 2019 Sales					1.39%	Spending per Customer			
						Low-Income	\$	580.09	
						Residential	\$	45.19	
						C&I	\$	487.88	

Present Value Benefits - 2021 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				Electric					Non-Electric		Total Resource Benefits										
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak		Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits		Total Non-Resource Benefits
Residential Programs																					
B1 - Home Energy Assistance	\$ 26,368	\$ 2,602	\$ 27,353	\$ 308	\$ -	\$ 322	\$ 279	\$ -	\$ 554	\$ 608	\$ 239	\$ 199	\$ 92	\$ 2,602	\$ 15,555	\$ 119	\$ 18,276	\$ 1,162	\$ 6,930	\$ 8,092	\$ 985
A1 - Energy Star Homes	\$ 9,056	\$ 1,617	\$ 12,074	\$ 8	\$ -	\$ 10	\$ 8	\$ -	\$ 700	\$ 814	\$ 8	\$ 7	\$ 62	\$ 1,617	\$ 7,027	\$ 26	\$ 8,669	\$ 387	\$ 2,161	\$ 2,548	\$ 858
A2 - Home Performance with Energy Star	\$ 23,029	\$ 1,728	\$ 28,984	\$ 254	\$ -	\$ 260	\$ 225	\$ -	\$ 292	\$ 320	\$ 183	\$ 139	\$ 54	\$ 1,728	\$ 19,819	\$ 69	\$ 21,615	\$ 1,414	\$ 5,387	\$ 6,801	\$ 568
A3 - Energy Star Products	\$ 14,499	\$ 12,923	\$ 22,826	\$ 1,479	\$ -	\$ 1,730	\$ 1,499	\$ -	\$ 2,991	\$ 2,984	\$ 940	\$ 689	\$ 611	\$ 12,923	\$ 689	\$ 842	\$ 14,454	\$ 46	\$ 3,403	\$ 3,449	\$ 4,924
A5 - Residential Active Demand Response	\$ 241	\$ 241	\$ 241	\$ 24	\$ -	\$ 89	\$ 77	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 51	\$ 241	\$ -	\$ -	\$ 241	\$ -	\$ -	\$ -	\$ (0)
A6a - Res Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 73,194	\$ 19,110	\$ 91,478	\$ 2,073	\$ -	\$ 2,411	\$ 2,089	\$ -	\$ 4,538	\$ 4,725	\$ 1,370	\$ 1,033	\$ 871	\$ 19,110	\$ 43,090	\$ 1,055	\$ 63,255	\$ 3,008	\$ 17,881	\$ 20,889	\$ 7,334
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 65,730	\$ 65,730	\$ 99,493	\$ 6,625	\$ -	\$ 7,317	\$ 6,339	\$ -	\$ 21,069	\$ 7,323	\$ 9,622	\$ 4,319	\$ 3,115	\$ 65,730	\$ -	\$ -	\$ 65,730	\$ -	\$ 6,573	\$ 6,573	\$ 27,191
C2 - Small Business Energy Solutions	\$ 38,028	\$ 38,022	\$ 58,472	\$ 3,531	\$ -	\$ 3,973	\$ 3,442	\$ -	\$ 10,019	\$ 4,763	\$ 6,946	\$ 3,396	\$ 1,951	\$ 38,022	\$ -	\$ 6	\$ 38,028	\$ -	\$ 3,802	\$ 3,802	\$ 16,642
C3 - Municipal Energy Solutions	\$ 3,989	\$ 2,712	\$ 5,676	\$ 186	\$ -	\$ 211	\$ 183	\$ -	\$ 806	\$ 419	\$ 486	\$ 263	\$ 158	\$ 2,712	\$ 1,166	\$ -	\$ 3,878	\$ 111	\$ 388	\$ 499	\$ 1,298
C5 - C&I Active Demand Response	\$ 1,918	\$ 1,918	\$ 1,918	\$ 118	\$ -	\$ 829	\$ 718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 252	\$ 1,917	\$ -	\$ -	\$ 1,918	\$ -	\$ -	\$ -	\$ (0)
C6a - C&I Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6d - C&I Customer Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 109,665	\$ 108,381	\$ 165,558	\$ 10,460	\$ -	\$ 12,331	\$ 10,682	\$ -	\$ 31,894	\$ 12,505	\$ 17,054	\$ 7,979	\$ 5,477	\$ 108,381	\$ 1,166	\$ 6	\$ 109,554	\$ 111	\$ 10,763	\$ 10,874	\$ 45,130
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 182,858	\$ 127,492	\$ 257,036	\$ 12,533	\$ -	\$ 14,742	\$ 12,771	\$ -	\$ 36,432	\$ 17,230	\$ 18,424	\$ 9,012	\$ 6,348	\$ 127,491	\$ 44,256	\$ 1,060	\$ 172,808	\$ 3,119	\$ 28,644	\$ 31,763	\$ 52,464

Portfolio Planned Versus Actual Performance - 2021										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	1,228,540,329	798,551,214		-	1.925%	-	\$ 1,360,325	\$ 1,700,407	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	106,868,888	69,464,777		-	0.550%	-	\$ 388,664	\$ 485,830	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	12,831	8,340		-	0.495%	-	\$ 349,798	\$ 437,247	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	12,307	8,000		-	0.330%	-	\$ 233,199	\$ 291,498	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	9,312	6,053		-	0.275%	-	\$ 194,332	\$ 242,915	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 172,808,258			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 70,666,252			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 102,142,006	\$ 66,392,304	\$ -	-	1.925%	-	\$ 1,360,325	\$ 1,700,407	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 3,886,644	\$ 4,858,305	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 182,858,172		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 3,886,644	\$ -	from row 9 above
12 Total Utility Costs	\$ 70,666,252	\$ -	from row 7 above
13 Portfolio GST BCR	2.45	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

Program Cost-Effectiveness - 2022 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.12	0.21	2.20	34,272.6	3,362.7	35,523.2	16,137.5	-	2,362.2	31,873.9	429.8	332.7	1,806	40,350.2	836,986.4
A1 - Energy Star Homes	4.85	0.86	4.96	10,297.1	1,826.0	13,700.8	2,121.4	638.8	1,251.9	29,055.0	324.1	16.9	569	9,998.8	249,830.8
A2 - Home Performance with Energy Star	3.48	0.27	3.51	23,975.3	1,843.4	30,165.3	6,882.8	1,722.1	1,308.2	14,651.8	285.5	205.8	2,824	42,279.3	830,468.7
A3 - Energy Star Products	1.81	1.60	2.59	16,161.9	14,286.0	25,185.3	8,952.8	760.2	11,508.7	121,448.1	2,841.3	1,910.4	162,468	3,030.7	42,095.0
A5 - Residential Active Demand Response	2.45	2.45	2.44	369.7	369.7	369.4	151.1	-	-	-	-	-	2,340	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	84.2	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	204.4	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	419.7	-	-	-	-	-	-	-	-
Sub-Total Residential	2.43	0.62	2.76	85,076.6	21,687.7	104,943.9	34,954.0	3,121.1	16,431.0	197,028.8	3,880.8	2,465.7	170,006	95,659.0	1,959,380.9
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	3.10	3.10	1.90	83,711.9	83,711.9	126,072.4	26,974.5	39,483.8	62,861.8	786,069.4	5,453.0	7,594.9	1,425	-	-
C2 - Small Business Energy Solutions	2.29	2.29	2.18	41,188.1	41,180.9	63,556.0	17,985.3	11,119.5	36,238.0	417,671.3	2,939.9	3,577.7	4,767	-	-
C3 - Municipal Energy Solutions	2.89	1.92	1.30	3,942.7	2,613.6	5,558.9	1,362.3	2,919.9	2,493.2	28,238.9	245.3	188.5	98	2,893.2	61,336.8
C5 - C&I Active Demand Response	3.13	3.13	3.13	2,934.7	2,934.7	2,934.2	936.4	-	-	-	-	-	134	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	175.2	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	299.4	-	-	-	-	-	-	-	-
C6d - C&I Customer Partnerships	-	-	-	-	-	-	37.9	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.76	2.73	1.96	131,777.4	130,441.1	198,121.4	47,771.0	53,523.2	101,593.0	1,231,979.5	8,638.3	11,361.1	6,423	2,893.2	61,336.8
C6e - Smart Start	-	-	-	-	-	-	31.6	-	-	-	-	-	-	-	-
Total	2.62	1.84	2.17	216,853.9	152,128.9	303,065.3	82,756.5	56,644.3	118,023.9	1,429,008.3	12,519.0	13,826.8	176,429	98,552.2	2,020,717.7

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

Only the customer data expressed in 2019 format.										
		Annual kWh Savings	118,023,912	80.3%	kWh > 55%	Lifetime kWh Savings		1,429,008,345	70.7%	kWh > 55%
		Annual MMBTU Savings (in kWh)	28,882,808	19.7%		Lifetime MMBTU Savings (in kWh)		592,213,923	29.3%	
			146,906,720	100.0%				2,021,222,269	100.0%	
Annual Savings as a % of 2019 Sales		1.54%								

Present Value Benefits - 2022 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				Electric					Non-Electric												
	Granite State Test	Utility Cost Test	Secondary Granite State Test	CAPACITY			ENERGY				Electric DRIPE	Total Electric Benefit	Non-Electric		Total Resource Benefits	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits			
Summer Generation				Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak			Summer Off Peak	Other Fuels					Water Benefit		
Residential Programs																					
B1 - Home Energy Assistance	\$ 34,273	\$ 3,363	\$ 35,523	\$ 408	\$ -	\$ 413	\$ 358	\$ -	\$ 716	\$ 780	\$ 312	\$ 259	\$ 118	\$ 3,363	\$ 20,284	\$ 152	\$ 23,799	\$ 1,585	\$ 8,889	\$ 10,474	\$ 1,251
A1 - Energy Star Homes	\$ 10,297	\$ 1,826	\$ 13,701	\$ 9	\$ -	\$ 11	\$ 9	\$ -	\$ 794	\$ 917	\$ 9	\$ 7	\$ 69	\$ 1,826	\$ 7,982	\$ 29	\$ 9,836	\$ 461	\$ 2,452	\$ 2,913	\$ 952
A2 - Home Performance with Energy Star	\$ 23,975	\$ 1,843	\$ 30,165	\$ 275	\$ -	\$ 275	\$ 238	\$ -	\$ 311	\$ 337	\$ 198	\$ 151	\$ 58	\$ 1,843	\$ 20,524	\$ 76	\$ 22,443	\$ 1,532	\$ 5,592	\$ 7,124	\$ 598
A3 - Energy Star Products	\$ 16,162	\$ 14,286	\$ 25,185	\$ 1,781	\$ -	\$ 1,921	\$ 1,664	\$ -	\$ 3,336	\$ 3,529	\$ 842	\$ 645	\$ 568	\$ 14,286	\$ 889	\$ 926	\$ 16,100	\$ 62	\$ 3,794	\$ 3,855	\$ 5,230
A5 - Residential Active Demand Response	\$ 370	\$ 370	\$ 369	\$ 37	\$ -	\$ 135	\$ 117	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 79	\$ 369	\$ -	\$ -	\$ 370	\$ -	\$ -	\$ -	\$ (0)
A6a - Res Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 85,077	\$ 21,688	\$ 104,944	\$ 2,511	\$ -	\$ 2,756	\$ 2,387	\$ -	\$ 5,156	\$ 5,562	\$ 1,361	\$ 1,062	\$ 893	\$ 21,688	\$ 49,678	\$ 1,183	\$ 72,548	\$ 3,639	\$ 20,726	\$ 24,366	\$ 8,030
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 83,712	\$ 83,712	\$ 126,072	\$ 8,771	\$ -	\$ 9,340	\$ 8,092	\$ -	\$ 26,965	\$ 9,043	\$ 12,224	\$ 5,349	\$ 3,927	\$ 83,712	\$ -	\$ -	\$ 83,712	\$ -	\$ 8,371	\$ 8,371	\$ 33,989
C2 - Small Business Energy Solutions	\$ 41,188	\$ 41,181	\$ 63,556	\$ 3,715	\$ -	\$ 4,028	\$ 3,490	\$ -	\$ 11,090	\$ 5,269	\$ 7,647	\$ 3,759	\$ 2,183	\$ 41,181	\$ -	\$ 7	\$ 41,188	\$ -	\$ 4,118	\$ 4,118	\$ 18,250
C3 - Municipal Energy Solutions	\$ 3,943	\$ 2,614	\$ 5,559	\$ 187	\$ -	\$ 204	\$ 177	\$ -	\$ 786	\$ 401	\$ 459	\$ 248	\$ 151	\$ 2,614	\$ 1,209	\$ -	\$ 3,822	\$ 120	\$ 382	\$ 503	\$ 1,234
C5 - C&I Active Demand Response	\$ 2,935	\$ 2,935	\$ 2,934	\$ 180	\$ -	\$ 1,271	\$ 1,101	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 383	\$ 2,934	\$ -	\$ -	\$ 2,935	\$ -	\$ -	\$ -	\$ (1)
C6a - C&I Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6d - C&I Customer Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 131,777	\$ 130,441	\$ 198,121	\$ 12,854	\$ -	\$ 14,843	\$ 12,859	\$ -	\$ 38,842	\$ 14,713	\$ 20,330	\$ 9,355	\$ 6,644	\$ 130,441	\$ 1,209	\$ 7	\$ 131,657	\$ 120	\$ 12,872	\$ 12,992	\$ 53,473
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 216,854	\$ 152,129	\$ 303,065	\$ 15,365	\$ -	\$ 17,599	\$ 15,246	\$ -	\$ 43,998	\$ 20,276	\$ 21,691	\$ 10,417	\$ 7,537	\$ 152,128	\$ 50,887	\$ 1,190	\$ 204,205	\$ 3,760	\$ 33,598	\$ 37,357	\$ 61,502

Portfolio Planned Versus Actual Performance - 2022										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	1,429,008,345	928,855,424		-	1.925%	-	\$ 1,592,456	\$ 1,990,570	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	118,023,912	76,715,543		-	0.550%	-	\$ 454,987	\$ 568,734	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	13,827	8,987		-	0.495%	-	\$ 409,489	\$ 511,861	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	12,519	8,137		-	0.330%	-	\$ 272,992	\$ 341,241	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	14,018	9,112		-	0.275%	-	\$ 227,494	\$ 284,367	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 204,205,423			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 82,724,996			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 121,480,428	\$ 78,962,278	\$ -	-	1.925%	-	\$ 1,592,456	\$ 1,990,570	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 4,549,875	\$ 5,687,343	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 216,853,929		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 4,549,875	\$ -	from row 9 above
12 Total Utility Costs	\$ 82,724,996	\$ -	from row 7 above
13 Portfolio GST BCR	2.48	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2022\$) is \$4,697,745.69.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

Program Cost-Effectiveness - 2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.14	0.21	2.22	39,928.2	3,938.8	41,366.3	18,664.1	-	2,685.8	36,316.5	491.0	375.9	2,040	45,592.5	945,727.7
A1 - Energy Star Homes	5.23	0.96	5.34	11,784.0	2,167.8	15,669.8	2,252.5	680.2	1,411.9	32,668.3	362.0	27.9	626	10,997.7	274,802.9
A2 - Home Performance with Energy Star	3.42	0.27	3.43	24,899.7	1,974.3	31,317.7	7,282.1	1,858.2	1,355.8	15,226.0	289.9	215.3	2,824	42,281.4	830,492.1
A3 - Energy Star Products	2.13	1.89	2.75	19,413.2	17,223.6	30,126.0	9,134.1	1,823.4	10,657.4	142,847.3	2,824.2	1,834.7	57,862	3,571.1	50,106.5
A5 - Residential Active Demand Response	2.57	2.57	2.57	565.3	565.3	564.8	220.2	-	-	-	-	-	3,510	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	126.1	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	268.0	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	338.9	-	-	-	-	-	-	-	-
Sub-Total Residential	2.52	0.68	2.79	96,590.5	25,869.9	119,044.6	38,285.9	4,361.8	16,110.8	227,058.0	3,967.0	2,453.9	66,862	102,442.8	2,101,129.3
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	3.07	3.07	1.93	106,213.3	106,213.3	158,888.3	34,553.2	47,734.4	76,938.9	964,853.6	6,535.2	9,409.0	1,458	-	-
C2 - Small Business Energy Solutions	2.31	2.31	2.20	45,078.2	45,069.5	69,611.8	19,479.3	12,199.3	39,680.4	453,538.5	2,907.3	3,611.6	4,067	-	-
C3 - Municipal Energy Solutions	2.96	1.92	1.35	3,908.5	2,530.2	5,457.6	1,320.5	2,735.2	2,328.2	26,599.5	229.4	177.3	91	2,893.2	61,336.8
C5 - C&I Active Demand Response	3.34	3.34	3.34	4,474.2	4,474.2	4,473.4	1,341.2	-	-	-	-	-	200	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	259.2	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	387.8	-	-	-	-	-	-	-	-
C6d - C&I Customer Partnerships	-	-	-	-	-	-	55.6	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.78	2.76	1.99	159,674.2	158,287.1	238,431.0	57,397.1	62,669.0	118,947.5	1,444,991.6	9,671.9	13,197.8	5,816	2,893.2	61,336.8
C6e - Smart Start	-	-	-	-	-	-	30.0	-	-	-	-	-	-	-	-
Total	2.68	1.92	2.20	256,264.6	184,157.0	357,475.6	95,713.0	67,030.8	135,058.3	1,672,049.6	13,639.0	15,651.7	72,678	105,336.0	2,162,466.1

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

		Annual kWh Savings	135,058,287	81.4%	kWh > 55%	Lifetime kWh Savings	1,672,049,602	72.5%	kWh > 55%
		Annual MMBTU Savings (in kWh)	30,870,939	18.6%		Lifetime MMBTU Savings (in kWh)	633,756,277	27.5%	
			165,929,227	100.0%			2,305,805,879	100.0%	
Annual Savings as a % of 2019 Sales		1.76%							

Present Value Benefits - 2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					ELECTRIC				ENERGY								Non-Electric
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits		
Residential Programs																					
B1 - Home Energy Assistance	\$ 39,928	\$ 3,939	\$ 41,366	\$ 485	\$ -	\$ 475	\$ 412	\$ -	\$ 844	\$ 917	\$ 366	\$ 304	\$ 137	\$ 3,939	\$ 23,649	\$ 175	\$ 27,763	\$ 1,939	\$ 10,226	\$ 12,165	\$ 1,438
A1 - Energy Star Homes	\$ 11,784	\$ 2,168	\$ 15,670	\$ 28	\$ -	\$ 29	\$ 25	\$ -	\$ 917	\$ 1,050	\$ 22	\$ 17	\$ 80	\$ 2,168	\$ 9,039	\$ 29	\$ 11,236	\$ 548	\$ 2,802	\$ 3,350	\$ 1,084
A2 - Home Performance with Energy Star	\$ 24,900	\$ 1,974	\$ 31,318	\$ 299	\$ -	\$ 290	\$ 251	\$ -	\$ 333	\$ 358	\$ 214	\$ 166	\$ 62	\$ 1,974	\$ 21,182	\$ 84	\$ 23,240	\$ 1,660	\$ 5,789	\$ 7,449	\$ 629
A3 - Energy Star Products	\$ 19,413	\$ 17,224	\$ 30,126	\$ 2,245	\$ -	\$ 2,281	\$ 1,976	\$ -	\$ 4,070	\$ 4,403	\$ 910	\$ 714	\$ 624	\$ 17,224	\$ 1,097	\$ 1,012	\$ 19,333	\$ 80	\$ 4,580	\$ 4,660	\$ 6,132
A5 - Residential Active Demand Response	\$ 565	\$ 565	\$ 565	\$ 58	\$ -	\$ 207	\$ 179	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 122	\$ 565	\$ -	\$ -	\$ 565	\$ -	\$ -	\$ -	\$ (0)
A6a - Res Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 96,590	\$ 25,870	\$ 119,045	\$ 3,115	\$ -	\$ 3,283	\$ 2,844	\$ -	\$ 6,163	\$ 6,728	\$ 1,512	\$ 1,200	\$ 1,024	\$ 25,870	\$ 54,967	\$ 1,301	\$ 82,138	\$ 4,227	\$ 23,397	\$ 27,624	\$ 9,283
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 106,213	\$ 106,213	\$ 158,888	\$ 11,604	\$ -	\$ 11,865	\$ 10,278	\$ -	\$ 34,199	\$ 11,149	\$ 15,564	\$ 6,674	\$ 4,880	\$ 106,213	\$ -	\$ -	\$ 106,213	\$ -	\$ 10,621	\$ 10,621	\$ 42,054
C2 - Small Business Energy Solutions	\$ 45,078	\$ 45,069	\$ 69,612	\$ 3,984	\$ -	\$ 4,139	\$ 3,586	\$ -	\$ 12,420	\$ 5,845	\$ 8,467	\$ 4,191	\$ 2,437	\$ 45,069	\$ -	\$ 9	\$ 45,078	\$ -	\$ 4,507	\$ 4,507	\$ 20,027
C3 - Municipal Energy Solutions	\$ 3,908	\$ 2,530	\$ 5,458	\$ 189	\$ -	\$ 197	\$ 171	\$ -	\$ 770	\$ 386	\$ 438	\$ 236	\$ 144	\$ 2,530	\$ 1,248	\$ -	\$ 3,778	\$ 130	\$ 378	\$ 508	\$ 1,171
C5 - C&I Active Demand Response	\$ 4,474	\$ 4,474	\$ 4,473	\$ 277	\$ -	\$ 1,935	\$ 1,677	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 585	\$ 4,474	\$ -	\$ -	\$ 4,474	\$ -	\$ -	\$ -	\$ (1)
C6a - C&I Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6d - C&I Customer Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 159,674	\$ 158,287	\$ 238,431	\$ 16,054	\$ -	\$ 18,136	\$ 15,711	\$ -	\$ 47,389	\$ 17,380	\$ 24,469	\$ 11,101	\$ 8,046	\$ 158,287	\$ 1,248	\$ 9	\$ 159,544	\$ 130	\$ 15,506	\$ 15,636	\$ 63,251
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 256,265	\$ 184,157	\$ 357,476	\$ 19,170	\$ -	\$ 21,419	\$ 18,555	\$ -	\$ 53,552	\$ 24,107	\$ 25,982	\$ 12,302	\$ 9,070	\$ 184,156	\$ 56,215	\$ 1,309	\$ 241,682	\$ 4,357	\$ 38,903	\$ 43,260	\$ 72,534

Portfolio Planned Versus Actual Performance - 2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	1,672,049,602	1,086,832,241		-	1.925%	-	\$ 1,841,897	\$ 2,302,371	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	135,058,287	87,787,887		-	0.550%	-	\$ 526,256	\$ 657,820	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	15,652	10,174		-	0.495%	-	\$ 473,631	\$ 592,038	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	13,639	8,865		-	0.330%	-	\$ 315,754	\$ 394,692	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	20,978	13,635		-	0.275%	-	\$ 263,128	\$ 328,910	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 241,681,743			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 95,682,962			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 145,998,781	\$ 94,899,207	\$ -	-	1.925%	-	\$ 1,841,897	\$ 2,302,371	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 5,262,563	\$ 6,578,204	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 256,264,643		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 5,262,563	\$ -	from row 9 above
12 Total Utility Costs	\$ 95,682,962	\$ -	from row 7 above
13 Portfolio GST BCR	2.54	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2023\$) is \$5,610,188.11.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

Program Cost-Effectiveness - 2021-2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.07	0.20	2.15	100,569.1	9,903.7	104,242.4	48,588.0	-	6,924.6	93,519.3	1,262.5	972.6	5,279	117,973.9	2,447,136.6
A1 - Energy Star Homes	4.89	0.88	5.00	31,137.0	5,610.5	41,445.0	6,365.5	1,918.6	3,801.8	88,136.9	980.8	60.2	1,711	30,086.3	751,752.6
A2 - Home Performance with Energy Star	3.48	0.27	3.50	71,904.4	5,545.4	90,467.0	20,663.2	5,170.8	3,924.7	43,955.4	856.6	617.5	8,471	126,837.9	2,491,406.1
A3 - Energy Star Products	1.80	1.60	2.58	50,074.4	44,432.5	78,137.3	27,847.6	2,429.4	38,277.0	376,930.0	9,321.9	6,244.7	521,532	9,092.0	126,284.9
A5 - Residential Active Demand Response	2.48	2.48	2.47	1,175.8	1,175.8	1,174.9	474.9	-	-	-	-	-	7,410	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	257.6	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	627.5	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	1,106.4	-	-	-	-	-	-	-	-
Sub-Total Residential	2.41	0.63	2.73	254,860.6	66,668.0	315,466.6	105,930.7	9,518.8	52,928.0	602,541.7	12,421.8	7,895.0	544,403	283,990.0	5,816,580.3
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	3.11	3.11	1.91	255,654.8	255,654.8	384,454.0	82,294.7	118,657.2	190,576.5	2,385,686.6	16,495.3	23,080.5	4,238	-	-
C2 - Small Business Energy Solutions	2.38	2.38	2.23	124,294.0	124,272.5	191,639.3	52,263.0	33,746.1	108,958.4	1,256,569.0	8,811.3	10,768.2	13,958	-	-
C3 - Municipal Energy Solutions	2.90	1.92	1.30	11,840.5	7,855.5	16,692.1	4,089.8	8,768.3	7,488.1	84,801.0	736.9	566.0	293	8,679.7	184,010.5
C5 - C&I Active Demand Response	3.18	3.18	3.18	9,326.8	9,326.8	9,325.0	2,928.6	-	-	-	-	-	422	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	534.3	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	917.7	-	-	-	-	-	-	-	-
C6d - C&I Customer Partnerships	-	-	-	-	-	-	115.3	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.80	2.77	1.98	401,116.1	397,109.6	602,110.4	143,143.6	161,171.6	307,023.1	3,727,056.6	26,043.4	34,414.7	18,911	8,679.7	184,010.5
C6e - Smart Start	-	-	-	-	-	-	94.7	-	-	-	-	-	-	-	-
Total	2.63	1.86	2.19	655,976.7	463,777.6	917,577.0	249,168.9	170,690.5	359,951.1	4,329,598.3	38,465.2	42,309.7	563,315	292,669.8	6,000,590.8

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

		Annual kWh Savings	359,951,088	80.8%	kWh > 55%	Lifetime kWh Savings	4,329,598,276	71.1%	kWh > 55%
		Annual MMBTU Savings (in kWh)	85,773,046	19.2%		Lifetime MMBTU Savings (in kWh)	1,758,599,637	28.9%	
			445,724,134	100.0%			6,088,197,913	100.0%	
Cumulative Savings as a % of 2019 Sales		4.68%							
				Spending per Customer					
				Low-Income		\$	2,044.43		
				Residential		\$	137.09		
				C&I		\$	1,839.02		

Present Value Benefits - 2021-2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)			Environmental Benefits (\$000)
				Electric					Non-Electric				Total Resource Benefits								
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits		
Residential Programs																					
B1 - Home Energy Assistance	\$ 100,569	\$ 9,904	\$ 104,242	\$ 1,200	\$ -	\$ 1,211	\$ 1,049	\$ -	\$ 2,114	\$ 2,304	\$ 917	\$ 761	\$ 347	\$ 9,904	\$ 59,488	\$ 447	\$ 69,838	\$ 4,686	\$ 26,045	\$ 30,731	\$ 3,673
A1 - Energy Star Homes	\$ 31,137	\$ 5,610	\$ 41,445	\$ 45	\$ -	\$ 49	\$ 43	\$ -	\$ 2,411	\$ 2,780	\$ 39	\$ 31	\$ 211	\$ 5,610	\$ 24,047	\$ 83	\$ 29,741	\$ 1,396	\$ 7,414	\$ 8,810	\$ 2,894
A2 - Home Performance with Energy Star	\$ 71,904	\$ 5,545	\$ 90,467	\$ 829	\$ -	\$ 826	\$ 715	\$ -	\$ 936	\$ 1,015	\$ 595	\$ 456	\$ 174	\$ 5,545	\$ 61,524	\$ 229	\$ 67,299	\$ 4,606	\$ 16,767	\$ 21,373	\$ 1,795
A3 - Energy Star Products	\$ 50,074	\$ 44,433	\$ 78,137	\$ 5,505	\$ -	\$ 5,933	\$ 5,140	\$ -	\$ 10,397	\$ 10,916	\$ 2,692	\$ 2,047	\$ 1,802	\$ 44,433	\$ 2,676	\$ 2,779	\$ 49,887	\$ 187	\$ 11,777	\$ 11,964	\$ 16,286
A5 - Residential Active Demand Response	\$ 1,176	\$ 1,176	\$ 1,175	\$ 119	\$ -	\$ 431	\$ 373	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 252	\$ 1,175	\$ -	\$ -	\$ 1,176	\$ -	\$ -	\$ -	\$ (1)
A6a - Res Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 254,861	\$ 66,668	\$ 315,467	\$ 7,699	\$ -	\$ 8,449	\$ 7,320	\$ -	\$ 15,858	\$ 17,016	\$ 4,243	\$ 3,295	\$ 2,787	\$ 66,667	\$ 147,735	\$ 3,538	\$ 217,941	\$ 10,875	\$ 62,004	\$ 72,879	\$ 24,647
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 255,655	\$ 255,655	\$ 384,454	\$ 27,000	\$ -	\$ 28,522	\$ 24,709	\$ -	\$ 82,233	\$ 27,515	\$ 37,411	\$ 16,342	\$ 11,922	\$ 255,655	\$ -	\$ -	\$ 255,655	\$ -	\$ 25,565	\$ 25,565	\$ 103,234
C2 - Small Business Energy Solutions	\$ 124,294	\$ 124,272	\$ 191,639	\$ 11,231	\$ -	\$ 12,141	\$ 10,518	\$ -	\$ 33,529	\$ 15,876	\$ 23,060	\$ 11,347	\$ 6,571	\$ 124,272	\$ -	\$ 21	\$ 124,294	\$ -	\$ 12,427	\$ 12,427	\$ 54,918
C3 - Municipal Energy Solutions	\$ 11,841	\$ 7,856	\$ 16,692	\$ 563	\$ -	\$ 612	\$ 530	\$ -	\$ 2,362	\$ 1,206	\$ 1,383	\$ 746	\$ 453	\$ 7,856	\$ 3,623	\$ -	\$ 11,479	\$ 362	\$ 1,148	\$ 1,510	\$ 3,704
C5 - C&I Active Demand Response	\$ 9,327	\$ 9,327	\$ 9,325	\$ 575	\$ -	\$ 4,035	\$ 3,495	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,220	\$ 9,325	\$ -	\$ -	\$ 9,327	\$ -	\$ -	\$ -	\$ (2)
C6a - C&I Customer Engagement Platform	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6d - C&I Customer Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 401,116	\$ 397,110	\$ 602,110	\$ 39,368	\$ -	\$ 45,310	\$ 39,252	\$ -	\$ 118,124	\$ 44,598	\$ 61,854	\$ 28,435	\$ 20,167	\$ 397,108	\$ 3,623	\$ 21	\$ 400,754	\$ 362	\$ 39,141	\$ 39,502	\$ 161,854
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 655,977	\$ 463,778	\$ 917,577	\$ 47,067	\$ -	\$ 53,759	\$ 46,572	\$ -	\$ 133,982	\$ 61,614	\$ 66,096	\$ 31,730	\$ 22,954	\$ 463,775	\$ 151,358	\$ 3,560	\$ 618,695	\$ 11,237	\$ 101,144	\$ 112,381	\$ 186,501

Portfolio Planned Versus Actual Performance - 2021-2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	4,329,598,276	2,814,238,880		-	1.925%	-	\$ 4,794,679	\$ 5,993,348	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	359,951,088	233,968,207		-	0.550%	-	\$ 1,369,908	\$ 1,712,385	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	42,310	27,501		-	0.495%	-	\$ 1,232,917	\$ 1,541,147	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	38,465	25,002		-	0.330%	-	\$ 821,945	\$ 1,027,431	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	44,308	28,800		-	0.275%	-	\$ 684,954	\$ 856,193	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 618,695,424			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 249,074,210			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 369,621,214	\$ 240,253,789	\$ -	-	1.925%	-	\$ 4,794,679	\$ 5,993,348	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 13,699,082	\$ 17,123,852	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 655,976,745		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 13,699,082	\$ -	from row 9 above
12 Total Utility Costs	\$ 249,074,210	\$ -	from row 7 above
13 Portfolio GST BCR	2.50	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Three-year nominal PI is \$14,194,577.66.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

ADR Program Cost-Effectiveness

2021									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	2.32	240.8	103.9	-	(4.0)	(4.0)	-	900.0	1,560
Sub-Total Residential	2.32	240.8	103.9	-	(4.0)	(4.0)	-	900.0	1,560
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	2.95	1,917.9	649.8	-	(7.9)	(7.9)	-	8,412.2	89
Sub-Total Commercial & Industrial	2.95	1,917.9	649.8	-	(7.9)	(7.9)	-	8,412.2	89
Total	2.86	2,158.7	753.7	-	(11.9)	(11.9)	-	9,312.2	1,649

(1) Utility and Customer Costs in 2021 Dollars

2022									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	2.42	369.7	152.5	-	(6.0)	(6.0)	-	1,350.0	2,340
Sub-Total Residential	2.42	369.7	152.5	-	(6.0)	(6.0)	-	1,350.0	2,340
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	3.13	2,934.7	936.3	-	(10.9)	(10.9)	-	12,668.3	134
Sub-Total Commercial & Industrial	3.13	2,934.7	936.3	-	(10.9)	(10.9)	-	12,668.3	134
Total	3.03	3,304.4	1,088.8	-	(16.9)	(16.9)	-	14,018.3	2,474

(1) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs tab.

2023									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	2.53	565.3	223.2	-	(8.9)	(8.9)	-	2,025.0	3,510
Sub-Total Residential	2.53	565.3	223.2	-	(8.9)	(8.9)	-	2,025.0	3,510
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	3.33	4,474.2	1,342.3	-	(16.2)	(16.2)	-	18,952.5	200
Sub-Total Commercial & Industrial	3.33	4,474.2	1,342.3	-	(16.2)	(16.2)	-	18,952.5	200
Total	3.22	5,039.5	1,565.5	-	(25.2)	(25.2)	-	20,977.5	3,710

(1) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs tab.

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
B1b - HEA (HVAC Systems)	Wifi Thermostat, Gas	E21B1b016	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Kerosene	E21B1b017	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Oil	E21B1b018	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Propane	E21B1b019	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Wood Pellets	E21B1b020	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Mini Split HP (cooling)	E21B1b021	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Mini Split HP (heating)	E21B1b022	40	50	60	191.2	239.1	286.9	3,442.4	4,303.0	5,163.6	60.7	75.9	91.1	-	-	-	-	-	-	-	-	-
Home Energy Assistance Subtotal						1,876.6	2,362.2	2,685.8	25,328.9	31,873.9	36,316.5	341.7	429.8	491.0	264.1	332.7	375.9	32,031.1	40,350.2	45,592.5	664,422.6	836,986.4	945,727.7

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A1a - ES Homes	Cooling, Electric, SF	E21A1a001	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Electric, SF	E21A1a002	32	35	39	524.1	576.5	634.1	13,101.5	14,411.7	15,852.8	166.4	183.0	201.3	-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, SF	E21A1a003	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Oil, SF	E21A1a004	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Propane, SF	E21A1a005	226	249	273	127.8	140.6	154.6	3,195.0	3,514.5	3,866.0	-	-	-	-	-	-	8,812.0	9,693.2	10,662.5	220,299.4	242,329.4	266,562.3
A1a - ES Homes	Heating, Wood Pellets, SF	E21A1a006	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Electric, SF	E21A1a007	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Gas, SF	E21A1a008	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Oil, SF	E21A1a009	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Propane, SF	E21A1a010	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Wood Pellets, SF	E21A1a011	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Cooling, Electric, MF	E21A1a012	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Electric, MF	E21A1a013	235	259	284	339.2	373.1	410.4	8,479.6	9,327.6	10,260.3	107.7	118.5	130.3	-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, MF	E21A1a014	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Oil, MF	E21A1a015	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Propane, MF	E21A1a016	24	26	29	35.0	38.6	42.4	876.2	963.8	1,060.2	-	-	-	-	-	-	268.8	295.7	325.2	6,720.0	7,392.0	8,131.2
A1a - ES Homes	Heating, Wood Pellets, MF	E21A1a017	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Electric, MF	E21A1a018	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Gas, MF	E21A1a019	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Oil, MF	E21A1a020	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Propane, MF	E21A1a021	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Wood Pellets, MF	E21A1a022	-	-	-													-	-	-	-	-	-
A1a - ES Homes	LED Bulb	E21A1a023	7,183	7,902	8,692	45.8	50.3	55.4	137.3	151.0	166.1	9.9	10.9	12.0	6.4	7.0	7.7	-	-	-	-	-	-
A1a - ES Homes	LED Fixture	E21A1a024	3,208	3,529	3,882	17.6	19.4	21.3	52.9	58.2	64.0	3.8	4.2	4.6	2.5	2.7	3.0	-	-	-	-	-	-
A1a - ES Homes	Refrigerator	E21A1a025	414	455	501	18.3	20.1	22.1	219.5	241.4	265.6	2.1	2.3	2.5	2.6	2.8	3.1	-	-	-	-	-	-
A1a - ES Homes	Clothes Washer	E21A1a026	129	142	142	11.6	12.8	12.8	127.8	140.5	140.5	1.6	1.8	1.8	1.5	1.7	1.7	9.0	9.9	9.9	99.5	109.4	109.4
A1a - ES Homes	Clothes Dryer	E21A1a027	116	128	141	18.7	20.5	22.6	223.9	246.2	270.9	3.2	3.5	3.8	2.4	2.7	3.0	-	-	-	-	-	-
A1a - ES Homes	HERS - Lighting and Appliances	E21A1a028	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Residential New Construction Code Compliance	E21A1a029	1	1	1	-	-	36.1	-	-	721.8	-	-	5.7	-	-	9.5	-	-	-	-	-	-
ES Homes Subtotal						1,138.1	1,251.9	1,411.9	26,413.6	29,055.0	32,668.3	294.6	324.1	362.0	15.4	16.9	27.9	9,089.8	9,998.8	10,997.7	227,118.9	249,830.8	274,802.9

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A2a - HPwES (Weatheriza)	Air Sealing, Cord Wood	E21A2a001	20	20	20	7.1	7.1	7.1	107.1	107.1	107.1	-	-	-	3.9	3.9	3.9	309.0	309.0	309.0	4,635.0	4,635.0	4,635.0
A2a - HPwES (Weatheriza)	Air Sealing, Electric	E21A2a002	44	44	44	74.3	74.3	74.3	1,114.3	1,114.3	1,114.3	23.6	23.6	23.6	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Air Sealing, Gas	E21A2a003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Air Sealing, Kerosene	E21A2a004	5	5	5	0.5	0.5	0.5	7.0	7.0	7.0	-	-	-	0.3	0.3	0.3	36.0	36.0	36.0	540.7	540.7	540.7
A2a - HPwES (Weatheriza)	Air Sealing, Oil	E21A2a005	786	786	786	61.5	61.5	61.5	922.0	922.0	922.0	-	-	-	33.9	33.9	33.9	8,504.3	8,504.3	8,504.3	127,565.0	127,565.0	127,565.0
A2a - HPwES (Weatheriza)	Air Sealing, Propane	E21A2a006	125	125	125	12.6	12.6	12.6	189.6	189.6	189.6	-	-	-	7.0	7.0	7.0	1,263.1	1,263.1	1,263.1	18,947.2	18,947.2	18,947.2
A2a - HPwES (Weatheriza)	Air Sealing, Wood Pellets	E21A2a007	20	20	20	7.1	7.1	7.1	107.1	107.1	107.1	-	-	-	3.9	3.9	3.9	309.0	309.0	309.0	4,635.0	4,635.0	4,635.0
A2a - HPwES (Weatheriza)	Faucet Aerator, Electric	E21A2a009	32	32	32	1.5	1.5	1.5	10.2	10.2	10.2	0.3	0.3	0.3	0.1	0.1	0.1	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Faucet Aerator, Gas	E21A2a010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Faucet Aerator, Kerosene	E21A2a011	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5	3.6	3.6	3.6
A2a - HPwES (Weatheriza)	Faucet Aerator, Oil	E21A2a012	563	563	563	-	-	-	-	-	-	-	-	-	-	-	-	87.0	87.0	87.0	608.8	608.8	608.8
A2a - HPwES (Weatheriza)	Faucet Aerator, Propane	E21A2a013	89	89	89	-	-	-	-	-	-	-	-	-	-	-	-	13.8	13.8	13.8	96.6	96.6	96.6
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Electric	E21A2a016	1	1	1	0.2	0.2	0.2	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Gas	E21A2a017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Kerosene	E21A2a018	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	1.1	1.1	1.1
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Oil	E21A2a019	20	20	20	-	-	-	-	-	-	-	-	-	-	-	-	12.3	12.3	12.3	184.7	184.7	184.7
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Propane	E21A2a020	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	2.0	2.0	2.0	29.3	29.3	29.3
A2a - HPwES (Weatheriza)	Insulation, Cord Wood	E21A2a022	20	20	20	16.2	16.2	16.2	405.1	405.1	405.1	-	-	-	8.9	8.9	8.9	480.6	480.6	480.6	12,014.7	12,014.7	12,014.7
A2a - HPwES (Weatheriza)	Insulation, Electric	E21A2a023	45	45	45	189.0	189.0	189.0	4,723.8	4,723.8	4,723.8	60.0	60.0	60.0	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Insulation, Gas	E21A2a024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Insulation, Kerosene	E21A2a025	5	5	5	0.7	0.7	0.7	17.7	17.7	17.7	-	-	-	0.4	0.4	0.4	83.2	83.2	83.2	2,079.9	2,079.9	2,079.9
A2a - HPwES (Weatheriza)	Insulation, Oil	E21A2a026	806	806	806	98.1	98.1	98.1	2,453.2	2,453.2	2,453.2	-	-	-	54.1	54.1	54.1	17,569.5	17,569.5	17,569.5	439,236.5	439,236.5	439,236.5
A2a - HPwES (Weatheriza)	Insulation, Propane	E21A2a027	128	128	128	19.3	19.3	19.3	481.9	481.9	481.9	-	-	-	10.6	10.6	10.6	2,327.5	2,327.5	2,327.5	58,186.7	58,186.7	58,186.7
A2a - HPwES (Weatheriza)	Insulation, Wood Pellets	E21A2a028	20	20	20	16.2	16.2	16.2	405.1	405.1	405.1	-	-	-	8.9	8.9	8.9	480.6	480.6	480.6	12,014.7	12,014.7	12,014.7
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Electric	E21A2a030	12	12	12	1.7	1.7	1.7	24.9	24.9	24.9	0.3	0.3	0.3	0.1	0.1	0.1	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Gas	E21A2a031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Kerosene	E21A2a032	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	0.8	0.8	0.8	11.3	11.3	11.3
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Oil	E21A2a033	206	206	206	-	-	-	-	-	-	-	-	-	-	-	-	129.3	129.3	129.3	1,939.3	1,939.3	1,939.3
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Propane	E21A2a034	33	33	33	-	-	-	-	-	-	-	-	-	-	-	-	20.5	20.5	20.5	307.8	307.8	307.8
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Electric	E21A2a037	2	2	2	0.1	0.1	0.1	2.1	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Gas	E21A2a038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Kerosene	E21A2a039	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	1.4	1.4	1.4
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Oil	E21A2a040	39	39	39	-	-	-	-	-	-	-	-	-	-	-	-	15.6	15.6	15.6	233.4	233.4	233.4
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Propane	E21A2a041	6	6	6	-	-	-	-	-	-	-	-	-	-	-	-	2.5	2.5	2.5	37.0	37.0	37.0
A2a - HPwES (Weatheriza)	DHW Heat Pump Water Heater	E21A2a043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	LED Bulb, General Service Lamps	E21A2a044	10,748	10,748	10,748	375.6	375.6	375.6	751.3	751.3	751.3	81.1	81.1	81.1	52.3	52.3	52.3	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	LED Bulb, Linear	E21A2a045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	LED Bulb, Other Specialty	E21A2a046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	LED Bulb, Reflector	E21A2a047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	LED Fixture	E21A2a048	430	430	430	15.9	15.9	15.9	31.8	31.8	31.8	3.4	3.4	3.4	2.2	2.2	2.2	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Refrigerator	E21A2a049	41	82	123	32.6	65.2	97.8	391.1	782.2	1,173.3	3.7	7.4	11.2	4.6	9.1	13.7	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Freezer	E21A2a053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Clothes Washer	E21A2a054	31	61	92	2.7	5.5	8.2	30.1	60.1	90.2	0.4	0.8	1.2	0.4	0.7	1.1	2.1	4.3	6.4	23.4	46.8	70.2
A2a - HPwES (Weatheriza)	Clothes Dryer	E21A2a055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Dehumidifier	E21A2a056	13	27	40	5.4	10.7	16.1	91.2	182.4	273.5	0.2	0.4	0.6	1.0	2.1	3.1	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Room Air Conditioner	E21A2a057	61	123	184	6.9	13.7	20.6	61.8	123.7	185.5	-	-	-	3.6	7.1	10.7	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Triple Pane Window	E21A2a058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Visual Audit Oil Savings	E21A2a050	540	540	540	-	-	-	-	-	-	-	-										

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A2b - HPwES (HVAC Syst	Wifi Thermostat, Kerosene	E21A2b017	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0.7	0.7	0.7	10.6	10.6	10.6
A2b - HPwES (HVAC Syst	Wifi Thermostat, Oil	E21A2b018	21	21	21	-	-	-	-	-	-	-	-	-	-	-	-	124.4	124.4	124.4	1,865.9	1,865.9	1,865.9
A2b - HPwES (HVAC Syst	Wifi Thermostat, Propane	E21A2b019	6	6	6	-	-	-	-	-	-	-	-	-	-	-	-	35.8	35.8	35.8	537.1	537.1	537.1
A2b - HPwES (HVAC Syst	Wifi Thermostat, Wood Pellets	E21A2b020	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0	3.0	45.4	45.4	45.4
Home Performance with Energy Star Subtotal						1,260.7	1,308.2	1,355.8	14,077.6	14,651.8	15,226.0	281.2	285.5	289.9	196.3	205.8	215.3	42,277.2	42,279.3	42,281.4	830,445.3	830,468.7	830,492.1

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A3a - ES Lighting	LED Bulb, General Service Lamps	E21A3a001	580,944	290,472	-	5,238.1	1,825.4		15,714.4	5,476.2		1,130.8	394.1		729.4	254.2		-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Linear	E21A3a002	94,058	44,954	7,377	296.6	98.8	9.2	2,965.8	987.9	82.5	64.0	21.3	2.0	41.3	13.8	1.3	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Other Specialty	E21A3a003	165,984	110,656	73,771	1,335.8	620.7	233.9	4,007.5	1,862.1	467.8	288.4	134.0	50.5	186.0	86.4	32.6	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Reflector	E21A3a004	193,648	48,412	-	1,919.0	334.4		3,838.1	668.8		414.3	72.2		267.2	46.6		-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, General Service Lamps (Hard to Reach)	E21A3a005	30,576	20,384	13,589	442.8	239.5	122.5	1,328.3	718.5	245.1	95.6	51.7	26.5	61.7	33.3	17.1	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Linear (Hard to Reach)	E21A3a006	5,460	3,640	2,427	27.7	15.0	7.7	276.5	149.6	68.9	6.0	3.2	1.7	3.9	2.1	1.1	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Other Specialty (Hard to Reach)	E21A3a007	8,736	5,824	3,883	112.9	61.1	31.2	338.8	183.2	62.5	24.4	13.2	6.7	15.7	8.5	4.4	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Reflector (Hard to Reach)	E21A3a008	15,288	10,192	6,795	243.3	131.6	67.3	486.6	263.2	67.3	52.5	28.4	14.5	33.9	18.3	9.4	-	-	-	-	-	-
A3a - ES Lighting	LED Fixture	E21A3a009	41,325	27,550	18,367	327.6	152.2	57.4	982.9	456.7	114.7	70.7	32.9	12.4	45.6	21.2	8.0	-	-	-	-	-	-
A3a - ES Lighting	LED Fixture (Hard to Reach)	E21A3a010	2,175	1,450	967	27.7	15.0	7.7	83.1	44.9	15.3	6.0	3.2	1.7	3.9	2.1	1.1	-	-	-	-	-	-
A3b - ES Appliances	Advanced Power Strip, Tier I	E21A3b001	500	625	750	46.3	57.9	69.4	231.4	289.3	347.1	3.8	4.7	5.6	2.5	3.2	3.8	-	-	-	-	-	-
A3b - ES Appliances	Advanced Power Strip, Tier II	E21A3b002	500	625	750	60.0	75.0	90.0	300.2	375.2	450.2	5.4	6.7	8.0	3.6	4.5	5.4	-	-	-	-	-	-
A3c - ES HVAC Systems	Air Source Heat Pump - Lost Opportunity (cooling)	E21A3b003	47	62	79	10.3	13.7	17.3	186.1	246.1	311.0	-	-	-	5.7	7.5	9.5	-	-	-	-	-	-
A3c - ES HVAC Systems	Air Source Heat Pump - Lost Opportunity (heating)	E21A3b004	47	62	79	98.1	129.7	163.9	1,765.6	2,335.0	2,950.1	44.6	59.0	74.5	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	Mini Split HP - Lost Opportunity (cooling)	E21A3b005	1,700	2,587	3,524	175.0	266.3	362.7	3,149.6	4,792.6	6,529.4	-	-	-	80.9	123.1	167.7	-	-	-	-	-	-
A3c - ES HVAC Systems	Mini Split HP - Lost Opportunity (heating)	E21A3b006	1,700	2,587	3,524	558.1	849.3	1,157.0	10,046.0	15,286.6	20,826.2	253.7	386.1	526.0	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 50 gal - Downstream	E21A3b007	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 80 gal - Downstream	E21A3b008	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Heat Pump Swimming Pool Heater	E21A3b009	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	ES Clothes Dryers	E21A3b010	1,900	1,978	2,056	304.8	317.3	329.8	3,657.1	3,807.3	3,957.4	51.9	54.1	56.2	40.0	41.6	43.3	-	-	-	-	-	-
A3b - ES Appliances	Dryer Heat Pump	E21A3b011	45	45	45	18.9	18.9	18.9	227.4	227.4	227.4	3.2	3.2	3.2	2.5	2.5	2.5	-	-	-	-	-	-
A3b - ES Appliances	Dryer Hybrid	E21A3b012	45	45	45	9.6	9.6	9.6	115.2	115.2	115.2	1.6	1.6	1.6	1.3	1.3	1.3	-	-	-	-	-	-
A3c - ES HVAC Systems	ECM Motor for FWH Circulating Pump - Midstream	E21A3b013	1,300	3,000	4,200	61.0	140.8	197.1	914.9	2,111.4	2,956.0	21.5	49.7	69.6	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	ES AC (central) 3 ton	E21A3b015	149	173	197	15.3	17.7	20.2	274.7	318.9	363.1	-	-	-	8.4	9.8	11.1	-	-	-	-	-	-
A3c - ES HVAC Systems	Room Air Conditioner	E21A3b016	900	1,073	1,246	29.7	35.4	41.1	267.3	318.7	370.1	-	-	-	15.4	18.3	21.3	-	-	-	-	-	-
A3b - ES Appliances	ES Clothes Washers	E21A3b017	1,700	2,041	2,382	152.8	183.5	214.1	1,681.1	2,018.3	2,355.6	21.5	25.8	30.1	20.3	24.3	28.4	119.0	142.9	166.7	1,309.0	1,571.6	1,834.1
A3b - ES Appliances	Washer Tier CEE Tier 2+	E21A3b018	1,455	1,455	1,455	202.1	202.1	202.1	2,223.1	2,223.1	2,223.1	28.4	28.4	28.4	26.8	26.8	26.8	698.4	698.4	698.4	7,682.4	7,682.4	7,682.4
A3b - ES Appliances	ES Dehumidifier	E21A3b019	1,996	2,292	2,588	164.3	188.6	213.0	2,792.6	3,206.7	3,620.9	6.6	7.6	8.6	31.5	36.2	40.8	-	-	-	-	-	-
A3b - ES Appliances	ES Dishwasher	E21A3b020	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	ES Freezers	E21A3b021	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	Refrigerator	E21A3b022	1,800	2,200	2,600	79.6	97.2	114.9	954.7	1,166.9	1,379.0	9.1	11.1	13.1	11.1	13.6	16.1	-	-	-	-	-	-
A3b - ES Appliances	Refrigerator CEE Tier 2+	E21A3b023	250	449	648	24.1	43.3	62.5	289.2	519.4	749.6	2.8	4.9	7.1	3.4	6.1	8.8	-	-	-	-	-	-
A3b - ES Appliances	ES Pool Pumps (Variable Speed)	E21A3b024	348	396	444	446.8	508.5	570.1	4,468.3	5,084.6	5,701.0	-	-	-	258.3	293.9	329.5	-	-	-	-	-	-
A3b - ES Appliances	Room Air Purifier	E21A3b025	900	1,098	1,296	340.9	415.9	490.9	3,068.2	3,743.2	4,418.1	38.9	47.5	56.0	38.9	47.5	56.0	-	-	-	-	-	-
A3c - ES HVAC Systems	Wifi Thermostat (Heating & Cooling)	E21A3b026	340	445	550	15.6	20.5	25.3	234.6	307.1	379.5	-	-	-	-	-	-	1,672.8	2,189.4	2,706.0	25,092.0	32,841.0	40,590.0
A3b - ES Appliances	Primary Refrigerator Recycling	E21A3b027	350	350	350	359.5	359.5	359.5	1,797.3	1,797.3	1,797.3	41.1	41.1	41.1	50.4	50.4	50.4	-	-	-	-	-	-
A3b - ES Appliances	Secondary Refrigerator Recycling	E21A3b028	350	478	606	359.5	490.9	622.4	1,797.3	2,454.5	3,111.8	33.7	46.0	58.3	56.2	76.7	97.2	-	-	-	-	-	-
A3b - ES Appliances	Secondary Freezer Recycling	E21A3b029	78	168	258	60.0	129.2	198.4	239.9	516.8	793.6	5.9	12.6	19.4	7.9	17.0	26.2	-	-	-	-	-	-
A3b - ES Appliances	Room Air Conditioner Recycling	E21A3b030	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Ductless Mini-split Heat Pump - Retrofit Resistance	E21A3b031	350	500	650	1,763.7	2,519.5	3,275.4	31,745.7	45,351.0	58,956.3	801.7	1,145.3	1,488.9	375.0	535.7	696.4	-	-	-	-	-	-
A3c - ES HVAC Systems	Ductless Mini-split Heat Pump - Retrofit HP	E21A3b032	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Air-source Heat Pump - Retrofit HP	E21A3b033	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Air-source Heat Pump – Retrofit Resistance	E21A3b034	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 50 gal - Midstream	E21A3b035	1,000	1,250	1,750	740.0	925.0	1,294.9	9,619.6	12,024.5	16,834.3	121.4	151.8	212.5	67.1	83.9	117.5	-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 80 gal - Midstream	E21A3b036	100	-	-	43.5			565.6			7.1			3.9			-	-	-	-	-	-
ES Products Subtotal						16,110.9	11,508.7	10,657.4	112,634.6	121,448.1	142,847.3	3,656.5	2,841.3	2,824.2	2,499.6	1,910.4	1,834.7	2,490.2	3,030.7	3,571.1	34,083.4	42,095.0	50,106.5

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1a - LCI Retrofit	Custom Large Compressed Air Retro	E21C1a001	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Hot Water Retro	E21C1a002	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large HVAC Retro	E21C1a003	1	1	1	2,070.0	2,880.0	3,690.0	26,496.0	36,864.0	47,232.0	195.5	272.0	348.5	161.0	224.0	287.0	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Lighting Retro - Interior	E21C1a004	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Lighting Retro - Exterior	E21C1a047	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Lighting Retro - Controls	E21C1a048	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Motors Retro	E21C1a005	1	1	1	46.3	503.3	996.3	648.3	7,046.1	13,947.9	4.6	50.3	99.6	4.7	51.4	101.8	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Process Retro	E21C1a006	1	1	1	5,400.0	8,100.0	10,800.0	63,720.0	95,580.0	127,440.0	540.0	810.0	1,080.0	570.0	855.0	1,140.0	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Refrigeration Retro	E21C1a007	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Other Retro	E21C1a008	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Daylight Dimming	E21C1a009	6	8	9	51.4	62.9	72.8	462.8	566.1	655.3	0.7	0.8	1.0	0.7	0.9	1.0	-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C1a010	19	23	26	525.0	600.5	663.3	5,249.9	6,005.1	6,633.4	105.1	120.2	132.8	-	-	-	-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C1a011	105	128	150	2,122.4	2,444.4	2,718.9	21,223.9	24,443.6	27,188.8	424.9	489.4	544.3	-	-	-	-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C1a012	23	28	33	975.0	1,115.2	1,231.9	9,749.8	11,152.4	12,319.2	75.9	86.9	95.9	98.4	112.5	124.3	-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C1a013	420	510	600	16,529.5	19,028.6	21,146.8	165,295.2	190,286.4	211,468.3	1,287.3	1,481.9	1,646.9	1,667.8	1,920.0	2,133.7	-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Occupancy Sensors	E21C1a014	30	38	48	101.5	124.1	146.7	913.1	1,117.1	1,320.3	1.4	1.7	2.0	1.4	1.7	2.0	-	-	-	-	-	-
C1a - LCI Retrofit	Boiler Reset Controls, Electric	E21C1a015	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Case Motor Replacement	E21C1a016	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Cooler Night Cover	E21C1a017	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Demand Control Ventilation	E21C1a018	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Door Heater Controls	E21C1a019	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C1a020	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Duct Sealing, Electric	E21C1a021	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Ductless Mini Split Heat Pump	E21C1a022	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freeze	E21C1a023	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Electronic Defrost Control	E21C1a024	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Energy Management System, Electric	E21C1a025	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C1a026	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Evaporator Fan Control	E21C1a027	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Faucet Aerator, Electric	E21C1a028	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Hotel Occupancy Sensor	E21C1a031	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Low Pressure Drop Filter	E21C1a032	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electr	E21C1a033	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Low-Flow Showerhead, Electric	E21C1a034	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Motors, Open Drip	E21C1a035	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C1a036	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Novelty Cooler Shutoff	E21C1a037	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Pipe Wrap - Heating, Electric	E21C1a038	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C1a039	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Pre Rinse Spray Valve, Electric	E21C1a040	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Programmable Thermostat, Electric	E21C1a041	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Steam Trap, Electric	E21C1a042	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Variable Frequency Drive	E21C1a043	7	10	13	448.1	640.1	832.2	6,721.5	9,602.2	12,482.9	17.6	25.1	32.6	17.6	25.1	32.6	-	-	-	-	-	-
C1a - LCI Retrofit	Variable Frequency Drive with Motor	E21C1a044	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Vending Miser	E21C1a045	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Zero Loss Condensate Drain	E21C1a046	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Large Retrocommissioning	E21C1a049	1	1	1	151.0	453.1	1,208.2	453.1	1,359.2	3,624.5	7.9	23.6	62.9	6.8	20.4	54.4	-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Compressed Air New	E21C1b001	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Hot Water New	E21C1b002	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large HVAC New	E21C1b003	1	1	1	6,925.9	9,234.6	11,445.4	100,426.0	133,901.4	165,958.0	459.4	612.5	759.2	1,191.9	1,589.2	1,969.6	-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Lighting New - Interior	E21C1b004	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Lighting New - Exterior	E21C1b054	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Lighting New - Controls	E21C1b055	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Motors New	E21C1b005	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Process New	E21C1b006	1	1	1	7,516.3	10,742.3	15,495.0	105,979.7	151,466.5	218,479.5	547.7	782.8	1,129.1	1,156.3	1,652.5	2,383.7	-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Refrigeration New	E21C1b007	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Other New	E21C1b008	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Comprehensive Design	E21C1b056	1	1	1	2,700.0	2,160.0	1,728.0	45,900.0	36,720.0	29,376.0	356.6	285.3	228.2	356.6	285.3	228.2	-	-	-	-	-	-
C1b - LCI New Equipment	Daylight Dimming	E21C1b009	3	4	5	15.8	19.9	23.5	157.7	199.1	234.9	0.2	0.3	0.3	0.2	0.3	0.3	-	-	-	-	-	-
C1b - LCI New Equipment	Performance Lighting - Exterior w/ Controls	E21C1b010	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Performance Lighting - Exterior w/o Controls	E21C1b011	50	60	72	469.5	533.5	604.2	7,043.0	8,002.0	9,062.9	94.0	106.8	121.0	-	-	-	-	-	-	-	-	-
C1b - LCI New Equipment	Performance Lighting - Interior w/ Controls	E21C1b012	6	5	5	119.4	107.0	95.2	1,790.5	1,604.3	1,428.4	9.3	8.3	7.4	12.0	10.8	9.6	-	-	-	-	-	-
C1b - LCI New Equipment	Performance Lighting - Interior w/o Controls	E21C1b013	75	45	27	1,408.6	800.2	453.1	21,128.9	12,003.0	6,797.2	109.7	62.3	35.3	142.1	80.7	45.7	-	-	-	-	-	-
C1b - LCI New Equipment	Lighting Occupancy Sensors	E21C1b014	5	6	7	5.7	6.5	7.2	57.2	65.0	71.6	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-
C1b - LCI New Equipment	Advanced Power Strip	E21C1b015	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Air Compressor	E21C1b016	25	33	43	48.5	64.0	83.2	727.7	960.6	1,248.7	11.4	15.1	19.6	13.7	18.0	23.4	-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1b - LCI New Equipment	Air Nozzle	E21C1b017	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Circulator Pump	E21C1b018	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Combination Oven, Electric	E21C1b019	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Compressor Storage	E21C1b020	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Convection Oven, Electric	E21C1b021	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Door Type	E21C1b022	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C1b023	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C1b024	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C1b025	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Under Counter	E21C1b026	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Door Type	E21C1b027	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C1b028	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C1b029	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Under Counter	E21C1b030	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Faucet Aerator, Electric	E21C1b031	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Fryer Large Vat, Electric	E21C1b032	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Fryer Standard Vat, Electric	E21C1b033	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Griddle, Electric	E21C1b034	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ground Source Heat Pump	E21C1b035	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C1b036	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Hot Food Holding Cabinet Full Size	E21C1b037	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Hot Food Holding Cabinet Half Size	E21C1b038	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Ice Making Head	E21C1b039	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C1b040	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C1b041	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Self Contained	E21C1b042	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Low Pressure Drop Filter	E21C1b043	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C1b044	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Low-Flow Showerhead, Electric	E21C1b045	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Pre Rinse Spray Valve, Electric	E21C1b046	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Refrigerated Air Dryer	E21C1b047	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Steam Cooker, Electric	E21C1b048	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Unitary Air Conditioner	E21C1b049	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Water Source Heat Pump	E21C1b050	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Zero Loss Condensate Drain	E21C1b051	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	High Efficiency Chiller - FL	E21C1b052	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	High Efficiency Chiller - IPLV	E21C1b053	12	16	21	1,303.2	1,737.6	2,280.6	29,974.0	39,965.3	52,454.4	48.1	64.1	84.1	392.6	523.5	687.1	-	-	-	-	-	-
C1b - LCI New Equipment	C&I Large New Construction Code Compliance	E21C1b057	1	1	1	-	-	131.7	-	-	2,634.5	-	-	20.7	-	-	34.7	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Circulator Pump	E21C1c001	35	42	50	13.9	16.6	20.0	277.1	332.6	399.1	0.1	0.2	0.2	2.3	2.7	3.3	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Demand Control Ventilation	E21C1c002	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream DMSHP Systems	E21C1c003	10	12	15	10.2	12.2	14.7	122.3	146.8	176.2	-	-	-	2.1	2.5	3.0	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dual Enthalpy Economizer Controls	E21C1c004	8	10	12	26.0	31.2	37.5	260.4	312.5	375.0	-	-	-	8.9	10.7	12.8	-	-	-	-	-	-
C1c - LCI Midstream	Midstream ECM Fan Motors	E21C1c005	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Systems	E21C1c006	0	0	0	0.1	0.1	0.1	0.7	0.8	1.0	-	-	-	0.0	0.0	0.0	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Unitary Air Conditioners	E21C1c007	40	48	57	131.3	157.6	189.1	1,576.1	1,891.3	2,269.6	-	-	-	9.0	10.8	12.9	-	-	-	-	-	-
C1c - LCI Midstream	Midstream VRF	E21C1c008	19	23	27	142.8	171.3	205.6	1,713.2	2,055.8	2,466.9	-	-	-	9.8	11.7	14.1	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Water Source Heat Pump Systems	E21C1c009	32	38	46	18.0	21.6	26.0	450.7	540.9	649.1	-	-	-	3.7	4.4	5.3	-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Downlight	E21C1c010	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Exterior	E21C1c011	298	238	143	85.7	62.8	34.3	834.3	611.8	333.7	17.3	12.7	6.9	-	-	-	-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED High Bay/Low Bay	E21C1c012	1,322	1,058	635	666.8	489.0	266.7	8,375.0	6,141.6	3,350.0	116.0	85.1	46.4	148.2	108.7	59.3	-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Linear Fixture	E21C1c013	2,660	2,128	1,277	274.7	201.4	109.9	3,018.7	2,213.7	1,207.5	31.5	23.1	12.6	40.2	29.5	16.1	-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Linear Fixture with Controls	E21C1c014	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Linear Lamp	E21C1c015	5,447	4,358	2,615	305.3	223.9	122.1	3,215.2	2,357.8	1,286.1	35.0	25.6	14.0	44.7	32.7	17.9	-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Screw In	E21C1c016	1,530	1,224	734	165.3	114.1	57.6	775.4	535.3	270.2	9.5	6.5	3.3	13.5	9.3	4.7	-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Stairwell Kit	E21C1c017	15	12	7	2.6	1.9	1.0	26.2	19.2	10.5	0.4	0.3	0.2	0.4	0.3	0.2	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Combination Oven, Electric	E21C1c018	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Convection Oven, Electric	E21C1c019	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Door Type	E21C1c020	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Multi Tank Conveyor	E21C1c021	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Pot, Pan, Utensil	E21C1c022	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Single Tank Conveyor	E21C1c023	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Under Counter	E21C1c024	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Door Type	E21C1c025	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Multi Tank Conveyor	E21C1c026	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Single Tank Conveyor	E21C1c027	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Under Counter	E21C1c028	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1c - LCI Midstream	Midstream Freezer - Solid Door	E21C1c029	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Freezer -Glass Door	E21C1c030	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Fryer Large Vat, Electric	E21C1c031	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Fryer Standard Vat, Electric	E21C1c032	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Griddle, Electric	E21C1c033	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Hot Food Holding Cabinet 3/4 Size	E21C1c034	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Hot Food Holding Cabinet Full Size	E21C1c035	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Hot Food Holding Cabinet Half Size	E21C1c036	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Ice Making Head	E21C1c037	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Batch	E21C1c038	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Contine	E21C1c039	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Self Contained	E21C1c040	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Refrigerator - Glass Door	E21C1c041	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Refrigerator - Solid Door	E21C1c042	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Steam Cooker, Electric	E21C1c043	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Water Heater, 120 gallons	E21C1c044	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Water Heater, 50 gallons	E21C1c045	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Water Heater, 80 gallons	E21C1c046	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Compressed Air Direct Install	E21C1d001	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Hot Water Direct Install	E21C1d002	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large HVAC Direct Install	E21C1d003	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Lighting Direct Install - Interior	E21C1d004	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Lighting Direct Install - Exterior	E21C1d005	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Lighting Direct Install - Controls	E21C1d006	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Motors Direct Install	E21C1d007	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Process Direct Install	E21C1d008	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Refrigeration Direct Install	E21C1d009	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Other Direct Install	E21C1d010	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Daylight Dimming	E21C1d011	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Exterior w/ Controls	E21C1d012	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Exterior w/o Controls	E21C1d013	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Interior w/ Controls	E21C1d014	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Interior w/o Controls	E21C1d015	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Occupancy Sensors	E21C1d016	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Boiler Reset Controls, Electric	E21C1d017	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Case Motor Replacement	E21C1d018	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Cooler Night Cover	E21C1d019	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Demand Control Ventilation	E21C1d020	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Door Heater Controls	E21C1d021	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C1d022	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Duct Sealing, Electric	E21C1d023	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Ductless Mini Split Heat Pump	E21C1d024	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freeze	E21C1d025	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Electronic Defrost Control	E21C1d026	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Energy Management System, Electric	E21C1d027	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C1d028	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Evaporator Fan Control	E21C1d029	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Faucet Aerator, Electric	E21C1d030	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Hotel Occupancy Sensor	E21C1d031	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Low Pressure Drop Filter	E21C1d032	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electr	E21C1d033	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Low-Flow Showerhead, Electric	E21C1d034	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Motors, Open Drip	E21C1d035	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C1d036	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Novelty Cooler Shutoff	E21C1d037	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Pipe Wrap - Heating, Electric	E21C1d038	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C1d039	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Pre Rinse Spray Valve, Electric	E21C1d040	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Programmable Thermostat, Electric	E21C1d041	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Steam Trap, Electric	E21C1d042	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Variable Frequency Drive	E21C1d043	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Variable Frequency Drive with Motor	E21C1d044	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Vending Miser	E21C1d045	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Zero Loss Condensate Drain	E21C1d046	-	-	-													-	-	-	-	-	-
Large Business Energy Solutions Subtotal						50,775.8	62,861.8	76,938.9	634,763.5	786,069.4	964,853.6	4,507.2	5,453.0	6,535.2	6,076.6	7,594.9	9,409.0	-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2a - SCI Retrofit	Custom Small Compressed Air Retro	E21C2a001	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Hot Water Retro	E21C2a002	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small HVAC Retro	E21C2a003	1	1	1	135.0	270.0	495.0	1,755.0	3,510.0	6,435.0	12.8	25.5	46.8	10.5	21.0	38.5	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Interior	E21C2a004	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Exterior	E21C2a047	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Controls	E21C2a048	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Motors Retro	E21C2a005	1	1	1	9.0	13.5	18.0	117.0	175.5	234.0	0.9	1.4	1.8	0.9	1.4	1.8	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Process Retro	E21C2a006	1	1	1	300.0	450.0	600.0	3,900.0	5,850.0	7,800.0	30.0	45.0	60.0	31.7	47.5	63.3	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Refrigeration Retro	E21C2a007	1	1	1	117.0	175.5	263.3	1,521.0	2,281.5	3,422.3	12.9	19.3	29.0	11.7	17.6	26.3	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Other Retro	E21C2a008	1	1	1	180.0	270.0	360.0	2,340.0	3,510.0	4,680.0	10.4	15.6	20.8	9.0	13.5	18.0	-	-	-	-	-	-
C2a - SCI Retrofit	Daylight Dimming	E21C2a009	1	1	1	252.7	296.7	358.4	2,274.0	2,670.0	3,225.6	3.3	3.9	4.7	4.3	5.0	6.1	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C2a010	1	1	1	135.2	191.9	241.6	1,351.5	1,919.5	2,415.5	26.3	37.4	47.0	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C2a011	1	1	1	540.6	767.8	966.2	5,406.1	7,677.9	9,662.0	105.3	149.5	188.2	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C2a012	1	1	1	808.0	948.7	1,146.2	8,080.5	9,487.4	11,461.6	59.0	69.2	83.7	76.4	89.7	108.4	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C2a013	1	1	1	7,272.4	8,538.7	10,315.5	72,724.1	85,386.6	103,154.7	530.8	623.2	752.9	687.7	807.4	975.4	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Occupancy Sensors	E21C2a014	1	1	1	505.3	593.3	716.8	4,548.1	5,340.0	6,451.2	6.6	7.7	9.3	9.1	10.7	12.9	-	-	-	-	-	-
C2a - SCI Retrofit	Boiler Reset Controls, Electric	E21C2a015	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Case Motor Replacement	E21C2a016	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Cooler Night Cover	E21C2a017	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Demand Control Ventilation	E21C2a018	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Door Heater Controls	E21C2a019	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C2a020	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Duct Sealing, Electric	E21C2a021	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Ductless Mini Split Heat Pump	E21C2a022	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freeze	E21C2a023	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Electronic Defrost Control	E21C2a024	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Energy Management System, Electric	E21C2a025	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C2a026	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Evaporator Fan Control	E21C2a027	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Faucet Aerator, Electric	E21C2a028	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Hotel Occupancy Sensor	E21C2a031	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low Pressure Drop Filter	E21C2a032	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electr	E21C2a033	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low-Flow Showerhead, Electric	E21C2a034	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Motors, Open Drip	E21C2a035	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C2a036	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Novelty Cooler Shutoff	E21C2a037	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Wrap - Heating, Electric	E21C2a038	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C2a039	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pre Rinse Spray Valve, Electric	E21C2a040	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Programmable Thermostat, Electric	E21C2a041	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Steam Trap, Electric	E21C2a042	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Variable Frequency Drive	E21C2a043	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Variable Frequency Drive with Motor	E21C2a044	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Vending Miser	E21C2a045	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Zero Loss Condensate Drain	E21C2a046	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Small Retrocommissioning	E21C2a049	1	1	1	19.9	59.6	159.0	59.6	178.9	477.0	1.0	3.1	8.3	0.9	2.7	7.2	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Compressed Air New	E21C2b001	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Hot Water New	E21C2b002	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small HVAC New	E21C2b003	1	1	1	900.0	1,350.0	1,800.0	13,500.0	20,250.0	27,000.0	59.7	89.5	119.4	154.9	232.3	309.8	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Interior	E21C2b004	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Exterior	E21C2b054	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Controls	E21C2b055	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Motors New	E21C2b005	1	1	1	90.0	180.0	270.0	1,350.0	2,700.0	4,050.0	11.8	23.6	35.4	14.0	28.0	42.0	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Process New	E21C2b006	1	1	1	648.0	972.0	1,458.0	9,720.0	14,580.0	21,870.0	47.2	70.8	106.2	99.7	149.5	224.3	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Refrigeration New	E21C2b007	1	1	1	13.5	45.0	76.5	202.5	675.0	1,147.5	1.4	4.6	7.8	1.4	4.6	7.8	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Other New	E21C2b008	1	1	1	180.0	180.0	180.0	2,700.0	2,700.0	2,700.0	25.9	25.9	25.9	28.8	28.8	28.8	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Comprehensive Design	E21C2b056	1	1	1	2,025.0	1,620.0	1,296.0	34,425.0	27,540.0	22,032.0	267.4	214.0	171.2	267.4	214.0	171.2	-	-	-	-	-	-
C2b - SCI New Equipment	Daylight Dimming	E21C2b009	1	1	1	97.1	83.1	70.0	971.3	830.7	700.0	1.3	1.1	0.9	1.7	1.4	1.2	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Exterior w/ Controls	E21C2b010	1	1	1	80.4	91.4	86.3	1,206.7	1,371.0	1,294.0	15.7	17.8	16.8	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Exterior w/o Controls	E21C2b011	1	1	1	321.8	365.6	345.1	4,826.9	5,484.2	5,176.1	62.7	71.2	67.2	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Interior w/ Controls	E21C2b012	1	1	1	310.6	265.6	223.9	4,659.5	3,984.7	3,357.9	22.7	19.4	16.3	29.4	25.1	21.2	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Interior w/o Controls	E21C2b013	1	1	1	2,795.7	2,390.8	2,014.7	41,935.4	35,862.4	30,221.1	204.0	174.5	147.0	264.4	226.1	190.5	-	-	-	-	-	-
C2b - SCI New Equipment	Lighting Occupancy Sensors	E21C2b014	1	1	1	194.3	166.1	140.0	1,942.7	1,661.3	1,400.0	2.5	2.2	1.8	3.5	3.0	2.5	-	-	-	-	-	-
C2b - SCI New Equipment	Advanced Power Strip	E21C2b015	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Air Compressor	E21C2b016	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2b - SCI New Equipment	Air Nozzle	E21C2b017	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Circulator Pump	E21C2b018	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Combination Oven, Electric	E21C2b019	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Compressor Storage	E21C2b020	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Convection Oven, Electric	E21C2b021	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Door Type	E21C2b022	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C2b023	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C2b024	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C2b025	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Under Counter	E21C2b026	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Door Type	E21C2b027	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C2b028	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C2b029	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Under Counter	E21C2b030	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Faucet Aerator, Electric	E21C2b031	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Fryer Large Vat, Electric	E21C2b032	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Fryer Standard Vat, Electric	E21C2b033	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Griddle, Electric	E21C2b034	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ground Source Heat Pump	E21C2b035	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C2b036	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet Full Size	E21C2b037	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet Half Size	E21C2b038	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Ice Making Head	E21C2b039	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C2b040	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C2b041	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Self Contained	E21C2b042	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Low Pressure Drop Filter	E21C2b043	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C2b044	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Low-Flow Showerhead, Electric	E21C2b045	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Pre Rinse Spray Valve, Electric	E21C2b046	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Refrigerated Air Dryer	E21C2b047	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Steam Cooker, Electric	E21C2b048	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Unitary Air Conditioner	E21C2b049	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Water Source Heat Pump	E21C2b050	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Zero Loss Condensate Drain	E21C2b051	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	High Efficiency Chiller - FL	E21C2b052	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	High Efficiency Chiller - IPLV	E21C2b053	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	C&I Small New Construction Code Compliance	E21C2b057	1	1	1	-	-	43.9	-	-	878.2	-	-	6.9	-	-	11.6	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Circulator Pump	E21C2c001	198	238	286	78.5	94.2	113.0	1,569.5	1,883.4	2,260.1	0.8	0.9	1.1	12.9	15.4	18.5	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Demand Control Ventilation	E21C2c002	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream DMSHP Systems	E21C2c003	58	70	84	57.7	69.3	83.1	692.8	831.3	997.6	-	-	-	11.8	14.2	17.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dual Enthalpy Economizer Controls	E21C2c004	47	56	67	147.5	177.0	212.4	1,474.7	1,769.7	2,123.6	-	-	-	50.4	60.5	72.6	-	-	-	-	-	-
C2c - SCI Midstream	Midstream ECM Fan Motors	E21C2c005	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Systems	E21C2c006	0	1	1	0.3	0.4	0.5	3.9	4.7	5.6	-	-	-	0.1	0.1	0.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Unitary Air Conditioners	E21C2c007	225	270	324	743.8	892.6	1,071.1	8,925.8	10,711.0	12,853.2	-	-	-	50.9	61.1	73.3	-	-	-	-	-	-
C2c - SCI Midstream	Midstream VRF	E21C2c008	107	128	154	808.5	970.2	1,164.3	9,702.1	11,642.5	13,971.1	-	-	-	55.3	66.4	79.6	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Water Source Heat Pump Systems	E21C2c009	179	215	258	102.1	122.5	147.0	2,552.7	3,063.2	3,675.8	-	-	-	21.0	25.1	30.2	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Downlight	E21C2c010	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Exterior	E21C2c011	1,687	1,349	810	485.1	355.7	194.0	4,724.8	3,464.8	1,889.9	98.1	71.9	39.2	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED High Bay/Low Bay	E21C2c012	7,488	5,991	3,594	3,776.3	2,769.3	1,510.5	47,430.1	34,782.1	18,972.0	657.2	481.9	262.9	839.2	615.4	335.7	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Fixture	E21C2c013	15,065	12,052	7,231	1,555.6	1,140.8	622.2	17,095.9	12,537.0	6,838.4	178.2	130.7	71.3	227.5	166.8	91.0	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Fixture with Controls	E21C2c014	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Lamp	E21C2c015	30,850	24,680	14,808	1,729.2	1,268.1	691.7	18,208.6	13,353.0	7,283.4	198.1	145.2	79.2	252.9	185.5	101.2	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Screw In	E21C2c016	8,663	6,931	4,158	936.3	646.4	326.3	4,391.1	3,031.7	1,530.3	53.6	37.0	18.7	76.6	52.9	26.7	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Stairwell Kit	E21C2c017	86	69	41	14.9	10.9	5.9	148.6	109.0	59.5	2.5	1.8	1.0	2.5	1.8	1.0	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Combination Oven, Electric	E21C2c018	1	2	2	19.2	24.0	28.8	230.5	288.1	345.7	4.0	5.0	6.0	4.0	5.0	6.0	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Convection Oven, Electric	E21C2c019	2	3	4	5.7	7.1	8.5	68.1	85.1	102.1	1.3	1.6	1.9	1.3	1.6	1.9	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Door Type	E21C2c020	0	0	0	1.1	1.3	1.6	15.8	19.8	23.8	0.2	0.2	0.3	0.2	0.2	0.3	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Multi Tank Conveyor	E21C2c021	0	0	0	0.8	1.0	1.2	16.3	20.4	24.5	0.1	0.2	0.2	0.1	0.2	0.2	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Pot, Pan, Utensil	E21C2c022	0	0	0	0.2	0.2	0.3	1.8	2.2	2.6	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Single Tank Conveyor	E21C2c023	0	0	0	0.4	0.4	0.5	7.2	9.0	10.8	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Under Counter	E21C2c024	2	3	4	3.6	4.6	5.5	36.5	45.6	54.7	0.6	0.7	0.9	0.6	0.7	0.9	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Door Type	E21C2c025	0	0	0	1.2	1.5	1.8	17.6	22.0	26.4	0.2	0.2	0.3	0.2	0.2	0.3	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Multi Tank Conveyor	E21C2c026	0	0	0	1.4	1.7	2.1	27.4	34.2	41.1	0.2	0.3	0.3	0.2	0.3	0.3	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Single Tank Conveyor	E21C2c027	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Under Counter	E21C2c028	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2c - SCI Midstream	Midstream Freezer - Solid Door	E21C2c029	34	43	51	6.2	7.8	9.3	74.6	93.2	111.9	23.8	29.7	35.6	23.8	29.7	35.6	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Freezer -Glass Door	E21C2c030	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer Large Vat, Electric	E21C2c031	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer Standard Vat, Electric	E21C2c032	0	0	0	0.3	0.3	0.4	3.0	3.8	4.5	0.0	0.0	0.1	0.0	0.0	0.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Griddle, Electric	E21C2c033	0	0	0	0.3	0.4	0.5	4.0	5.0	6.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet 3/4 Size	E21C2c034	0	0	0	0.1	0.1	0.1	1.1	1.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet Full Size	E21C2c035	1	1	1	2.1	2.6	3.1	25.1	31.3	37.6	0.3	0.4	0.5	0.3	0.4	0.5	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet Half Size	E21C2c036	4	5	6	4.0	5.0	6.0	47.9	59.9	71.9	0.7	0.8	1.0	0.7	0.8	1.0	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Ice Making Head	E21C2c037	1	1	1	0.9	1.1	1.3	6.8	8.5	10.2	0.2	0.3	0.3	0.2	0.3	0.3	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Batch	E21C2c038	0	0	0	0.4	0.6	0.7	3.5	4.4	5.3	0.0	0.1	0.1	0.0	0.1	0.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Containe	E21C2c039	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Self Contained	E21C2c040	0	0	0	0.1	0.2	0.2	1.1	1.4	1.6	0.0	0.1	0.1	0.0	0.1	0.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Refrigerator - Glass Door	E21C2c041	3	4	5	0.7	0.9	1.1	8.5	10.6	12.7	1.8	2.3	2.7	1.8	2.3	2.7	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Refrigerator - Solid Door	E21C2c042	12	15	18	1.8	2.2	2.7	21.5	26.8	32.2	33.1	41.4	49.7	33.1	41.4	49.7	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Steam Cooker, Electric	E21C2c043	1	1	1	17.9	22.4	26.9	214.9	268.6	322.3	2.1	2.6	3.1	2.1	2.6	3.1	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 120 gallons	E21C2c044	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 50 gallons	E21C2c045	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 80 gallons	E21C2c046	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Compressed Air Direct Install	E21C2d001	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Hot Water Direct Install	E21C2d002	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small HVAC Direct Install	E21C2d003	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Interior	E21C2d004	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Exterior	E21C2d005	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Controls	E21C2d006	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Motors Direct Install	E21C2d007	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Process Direct Install	E21C2d008	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Refrigeration Direct Install	E21C2d009	1	1	1	135.0	297.0	472.5	1,755.0	3,861.0	6,142.5	14.9	-	-	13.5	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Other Direct Install	E21C2d010	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Daylight Dimming	E21C2d011	1	1	1	120.3	189.9	250.9	1,082.9	1,708.8	2,257.9	1.6	2.5	3.3	2.0	3.2	4.3	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Exterior w/ Controls	E21C2d012	1	1	1	52.1	82.3	108.7	521.3	822.6	1,087.0	5.1	8.0	10.6	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Exterior w/o Controls	E21C2d013	1	1	1	208.5	329.1	434.8	2,085.2	3,290.5	4,347.9	20.3	32.0	42.3	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Interior w/ Controls	E21C2d014	1	1	1	384.8	607.2	802.3	3,847.8	6,071.9	8,023.1	14.0	22.2	29.3	18.2	28.7	37.9	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Interior w/o Controls	E21C2d015	1	1	1	3,463.1	5,464.7	7,220.8	34,630.5	54,647.4	72,208.3	126.4	199.4	263.5	163.7	258.4	341.4	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Occupancy Sensors	E21C2d016	1	1	1	240.6	379.7	501.8	2,165.8	3,417.6	4,515.8	3.1	4.9	6.5	4.3	6.8	9.0	-	-	-	-	-	-
C2d - SCI Direct Install	Boiler Reset Controls, Electric	E21C2d017	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Case Motor Replacement	E21C2d018	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Cooler Night Cover	E21C2d019	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Demand Control Ventilation	E21C2d020	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Door Heater Controls	E21C2d021	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C2d022	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Duct Sealing, Electric	E21C2d023	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Ductless Mini Split Heat Pump	E21C2d024	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freeze	E21C2d025	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Electronic Defrost Control	E21C2d026	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Energy Management System, Electric	E21C2d027	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C2d028	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Evaporator Fan Control	E21C2d029	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Faucet Aerator, Electric	E21C2d030	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Hotel Occupancy Sensor	E21C2d031	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Low Pressure Drop Filter	E21C2d032	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electr	E21C2d033	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Low-Flow Showerhead, Electric	E21C2d034	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Motors, Open Drip	E21C2d035	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C2d036	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Novelty Cooler Shutoff	E21C2d037	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Pipe Wrap - Heating, Electric	E21C2d038	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C2d039	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Pre Rinse Spray Valve, Electric	E21C2d040	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Programmable Thermostat, Electric	E21C2d041	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Steam Trap, Electric	E21C2d042	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Variable Frequency Drive	E21C2d043	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Variable Frequency Drive with Motor	E21C2d044	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Vending Miser	E21C2d045	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Zero Loss Condensate Drain	E21C2d046	-	-	-													-	-	-	-	-	-
Small Business Energy Solutions Subtotal						33,040.1	36,238.0	39,680.4	385,359.3	417,671.3	453,538.5	2,964.0	2,939.9	2,907.3	3,578.9	3,577.7	3,611.6	-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3a - Muni Retrofit	Custom Muni Compressed Air Retro	E21C3a001	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Hot Water Retro	E21C3a002	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni HVAC Retro	E21C3a003	1	1	1	211.5	211.5	211.5	4,483.8	4,483.8	4,483.8	20.0	20.0	20.0	16.5	16.5	16.5	2,893.2	2,893.2	2,893.2	61,336.8	61,336.8	61,336.8
C3a - Muni Retrofit	Custom Muni Lighting Retro - Interior	E21C3a004	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Exterior	E21C3a091	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Controls	E21C3a092	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Motors Retro	E21C3a005	1	1	1	40.5	40.5	40.5	457.7	457.7	457.7	4.1	4.1	4.1	4.1	4.1	4.1	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Process Retro	E21C3a006	1	1	1	202.5	202.5	202.5	2,612.3	2,612.3	2,612.3	20.3	20.3	20.3	21.4	21.4	21.4	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Refrigeration Retro	E21C3a007	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Other Retro	E21C3a008	1	1	1	85.5	85.5	85.5	1,282.5	1,282.5	1,282.5	12.3	12.3	12.3	13.7	13.7	13.7	-	-	-	-	-	-
C3a - Muni Retrofit	Daylight Dimming	E21C3a009	1	1	1	47.0	43.2	39.5	423.0	388.5	355.7	0.6	0.6	0.5	0.8	0.7	0.7	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Exterior w/ Controls	E21C3a010	1	1	1	96.5	88.7	81.2	965.4	886.6	811.7	18.8	17.3	15.8	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Exterior w/o Controls	E21C3a011	1	1	1	386.2	354.6	324.7	3,861.5	3,546.4	3,246.8	75.2	69.1	63.2	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Interior w/ Controls	E21C3a012	1	1	1	150.3	138.0	126.4	1,503.1	1,380.4	1,263.8	11.0	10.1	9.2	14.2	13.1	12.0	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Interior w/o Controls	E21C3a013	1	1	1	1,352.8	1,242.4	1,137.4	13,527.5	12,423.8	11,374.0	98.7	90.7	83.0	127.9	117.5	107.6	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Occupancy Sensors	E21C3a014	1	1	1	94.0	86.3	79.0	846.0	777.0	711.3	1.2	1.1	1.0	1.7	1.6	1.4	-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Electric	E21C3a015	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Gas	E21C3a016	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Oil	E21C3a017	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Propane	E21C3a018	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Gas	E21C3a019	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Oil	E21C3a020	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Propane	E21C3a021	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Case Motor Replacement	E21C3a022	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Cooler Night Cover	E21C3a023	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Demand Control Ventilation	E21C3a024	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Door Heater Controls	E21C3a025	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C3a026	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Electric	E21C3a027	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Gas	E21C3a028	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Oil	E21C3a029	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Propane	E21C3a030	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Electric	E21C3a031	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Gas	E21C3a032	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Oil	E21C3a033	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Propane	E21C3a034	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Ductless Mini Split Heat Pump	E21C3a035	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freeze	E21C3a036	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Electronic Defrost Control	E21C3a037	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Management System, Electric	E21C3a038	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Electric	E21C3a039	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Gas	E21C3a040	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Oil	E21C3a041	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Propane	E21C3a042	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Evaporator Fan Control	E21C3a043	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Electric	E21C3a044	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Gas	E21C3a045	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Oil	E21C3a046	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Propane	E21C3a047	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Hotel Occupancy Sensor	E21C3a050	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Electric	E21C3a051	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Gas	E21C3a052	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Oil	E21C3a053	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Propane	E21C3a054	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low Pressure Drop Filter	E21C3a055	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electr	E21C3a056	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3a057	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Oil	E21C3a058	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3a059	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Electric	E21C3a060	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Gas	E21C3a061	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Oil	E21C3a062	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Propane	E21C3a063	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Motors, Open Drip	E21C3a064	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Motors, Totally Enclosed Fan Cooled	E21C3a065	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Novelty Cooler Shutoff	E21C3a066	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3a - Muni Retrofit	Pipe Wrap - Heating, Electric	E21C3a067	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Gas	E21C3a068	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Oil	E21C3a069	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Propane	E21C3a070	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Electric	E21C3a071	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Gas	E21C3a072	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Oil	E21C3a073	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Propane	E21C3a074	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Electric	E21C3a075	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Gas	E21C3a076	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Oil	E21C3a077	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Propane	E21C3a078	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Electric	E21C3a079	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Gas	E21C3a080	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Oil	E21C3a081	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Propane	E21C3a082	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Electric	E21C3a083	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Gas	E21C3a084	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Oil	E21C3a085	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Propane	E21C3a086	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Variable Frequency Drive	E21C3a087	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Variable Frequency Drive with Motor	E21C3a088	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Vending Miser	E21C3a089	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Zero Loss Condensate Drain	E21C3a090	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Compressed Air New	E21C3b001	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Hot Water New	E21C3b002	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni HVAC New	E21C3b003	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Interior	E21C3b004	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Exterior	E21C3b085	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Controls	E21C3b086	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Motors New	E21C3b005	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Process New	E21C3b006	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Refrigeration New	E21C3b007	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Other New	E21C3b008	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Comprehensive Design	E21C3b087	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Daylight Dimming	E21C3b009	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Exterior w/ Controls	E21C3b010	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Exterior w/o Controls	E21C3b011	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Interior w/ Controls	E21C3b012	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Interior w/o Controls	E21C3b013	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Lighting Occupancy Sensors	E21C3b014	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Advanced Power Strip	E21C3b015	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Air Compressor	E21C3b016	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Air Nozzle	E21C3b017	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1000 to 1700 MBH 90 AFUE, Oil	E21C3b018	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1000 to 1700 MBH 90 AFUE, Propane	E21C3b019	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1701 to 2000 MBH 85 AFUE, Oil	E21C3b020	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1701 to 2000 MBH 90 AFUE, Propane	E21C3b021	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 301 to 499 MBH 85 AFUE, Oil	E21C3b022	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 301 to 499 MBH 90 AFUE, Propane	E21C3b023	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 500 to 999 MBH 85 AFUE, Oil	E21C3b024	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 500 to 999 MBH 90 AFUE, Propane	E21C3b025	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 85 AFUE, Oil	E21C3b026	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 87 AFUE, Oil	E21C3b027	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 90 AFUE, Propane	E21C3b028	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 95 AFUE, Propane	E21C3b029	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Circulator Pump	E21C3b030	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Combination Oven, Electric	E21C3b031	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Compressor Storage	E21C3b032	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Condensing Unit Heater up to 300 MBH, Oil	E21C3b033	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Condensing Unit Heater up to 300 MBH, Propane	E21C3b034	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Convection Oven, Electric	E21C3b035	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Door Type	E21C3b036	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C3b037	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C3b038	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C3b039	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3b - Muni New Equipment	Dishwasher - High Temp Under Counter	E21C3b040	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Door Type	E21C3b041	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C3b042	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C3b043	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Under Counter	E21C3b044	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Electric	E21C3b045	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Gas	E21C3b046	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Oil	E21C3b047	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Propane	E21C3b048	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Fryer Large Vat, Electric	E21C3b049	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Fryer Standard Vat, Electric	E21C3b050	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 85 AFUE up to 150 MBH, Oil	E21C3b051	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 87 AFUE up to 150 MBH, Oil	E21C3b052	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 95 AFUE up to 150 MBH, Propane	E21C3b053	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 97 AFUE up to 150 MBH, Propane	E21C3b054	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Griddle, Electric	E21C3b055	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ground Source Heat Pump	E21C3b056	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C3b057	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet Full Size	E21C3b058	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet Half Size	E21C3b059	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Ice Making Head	E21C3b060	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C3b061	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C3b062	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Self Contained	E21C3b063	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Infrared Heater	E21C3b064	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low Pressure Drop Filter	E21C3b065	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electr	E21C3b066	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3b067	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Oil	E21C3b068	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3b069	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Electric	E21C3b070	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Gas	E21C3b071	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Oil	E21C3b072	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Propane	E21C3b073	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Electric	E21C3b074	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Gas	E21C3b075	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Oil	E21C3b076	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Propane	E21C3b077	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Refrigerated Air Dryer	E21C3b078	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Steam Cooker, Electric	E21C3b079	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Unitary Air Conditioner	E21C3b080	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Water Source Heat Pump	E21C3b081	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Zero Loss Condensate Drain	E21C3b082	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	High Efficiency Chiller - FL	E21C3b083	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	High Efficiency Chiller - IPLV	E21C3b084	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Compressed Air Direct Install	E21C3d001	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Hot Water Direct Install	E21C3d002	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni HVAC Direct Install	E21C3d003	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Interior	E21C3d004	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Exterior	E21C3d005	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Controls	E21C3d006	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Motors Direct Install	E21C3d007	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Process Direct Install	E21C3d008	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Refrigeration Direct Install	E21C3d009	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Other Direct Install	E21C3d010	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Daylight Dimming	E21C3d011	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Exterior w/ Controls	E21C3d012	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Exterior w/o Controls	E21C3d013	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Interior w/ Controls	E21C3d014	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Interior w/o Controls	E21C3d015	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Occupancy Sensors	E21C3d016	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Electric	E21C3d017	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Gas	E21C3d018	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Oil	E21C3d019	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Propane	E21C3d020	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Boiler Reset Controls, Gas	E21C3d021	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3d - Muni Direct Install	Boiler Reset Controls, Oil	E21C3d022	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Boiler Reset Controls, Propane	E21C3d023	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Case Motor Replacement	E21C3d024	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Cooler Night Cover	E21C3d025	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Demand Control Ventilation	E21C3d026	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Door Heater Controls	E21C3d027	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C3d028	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Electric	E21C3d029	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Gas	E21C3d030	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Oil	E21C3d031	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Propane	E21C3d032	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Electric	E21C3d033	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Gas	E21C3d034	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Oil	E21C3d035	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Propane	E21C3d036	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Ductless Mini Split Heat Pump	E21C3d037	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C3d038	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Electronic Defrost Control	E21C3d039	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Management System, Electric	E21C3d040	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Electric	E21C3d041	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Gas	E21C3d042	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Oil	E21C3d043	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Propane	E21C3d044	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Evaporator Fan Control	E21C3d045	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Electric	E21C3d046	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Gas	E21C3d047	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Oil	E21C3d048	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Propane	E21C3d049	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Hotel Occupancy Sensor	E21C3d050	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Electric	E21C3d051	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Gas	E21C3d052	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Oil	E21C3d053	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Propane	E21C3d054	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low Pressure Drop Filter	E21C3d055	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C3d056	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3d057	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Oil	E21C3d058	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3d059	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Electric	E21C3d060	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Gas	E21C3d061	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Oil	E21C3d062	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Propane	E21C3d063	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Motors, Open Drip	E21C3d064	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Motors, Totally Enclosed Fan Cooled	E21C3d065	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Novelty Cooler Shutoff	E21C3d066	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Electric	E21C3d067	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Gas	E21C3d068	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Oil	E21C3d069	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Propane	E21C3d070	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Electric	E21C3d071	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Gas	E21C3d072	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Oil	E21C3d073	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Propane	E21C3d074	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Electric	E21C3d075	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Gas	E21C3d076	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Oil	E21C3d077	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Propane	E21C3d078	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Electric	E21C3d079	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Gas	E21C3d080	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Oil	E21C3d081	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Propane	E21C3d082	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Electric	E21C3d083	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Gas	E21C3d084	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Oil	E21C3d085	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Propane	E21C3d086	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Variable Frequency Drive	E21C3d087	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3d - Muni Direct Install	Variable Frequency Drive with Motor	E21C3d088	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Vending Miser	E21C3d089	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Zero Loss Condensate Drain	E21C3d090	-	-	-													-	-	-	-	-	-
Municipal Energy Solutions Subtotal						2,666.8	2,493.2	2,328.2	29,962.7	28,238.9	26,599.5	262.1	245.3	229.4	200.3	188.5	177.3	2,893.2	2,893.2	2,893.2	61,336.8	61,336.8	61,336.8

PSNH d/b/a Eversource Energy
 2021-2023 System Benefits Charge ("SBC") Calculation
 (\$ in 000's)

Year	Customer Sector	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)	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	Col. N
2021	Residential	\$ 25,942	\$ 377	\$ 1,558	\$ -	\$ -	\$ 4	\$ 24,007	3,177,552	0.756	0.150	0.080	0.986
2021	C&I	\$ 48,644	\$ 1,532	\$ 3,635	\$ -	\$ -	\$ (7)	\$ 43,477	4,527,763	0.960	0.150	0.105	1.215
2021	Total	\$ 74,586	\$ 1,909	\$ 5,193	\$ -	\$ -	\$ (3)	\$ 67,484	7,705,315	0.876	0.150	0.094	1.120
2022	Residential	\$ 27,808	\$ 363	\$ 1,433	\$ -	\$ (4)	\$ 4	\$ 26,012	3,190,363	0.815	0.150	0.105	1.070
2022	C&I	\$ 62,336	\$ 1,532	\$ 3,344	\$ -	\$ 7	\$ (8)	\$ 57,460	4,480,182	1.283	0.150	0.154	1.587
2022	Total	\$ 90,144	\$ 1,894	\$ 4,777	\$ -	\$ 2	\$ (4)	\$ 83,472	7,670,545	1.088	0.150	0.134	1.372
2023	Residential	\$ 30,929	\$ 348	\$ 1,198	\$ -	\$ (9)	\$ 5	\$ 29,383	3,229,120	0.910	0.150	0.125	1.185
2023	C&I	\$ 76,716	\$ 1,532	\$ 2,796	\$ -	\$ 15	\$ (13)	\$ 72,389	4,420,775	1.637	0.150	0.207	1.994
2023	Total	\$ 107,645	\$ 1,879	\$ 3,994	\$ -	\$ 6	\$ (8)	\$ 101,772	7,649,896	1.330	0.150	0.173	1.653
2021 to 2023	Residential	\$ 84,679	\$ 1,088	\$ 4,189	\$ -	\$ (13)	\$ 13	\$ 79,402					
2021 to 2023	C&I	\$ 187,696	\$ 4,595	\$ 9,775	\$ -	\$ 22	\$ (28)	\$ 173,326					
2021 to 2023	Total	\$ 272,375	\$ 5,682	\$ 13,964	\$ -	\$ 9	\$ (15)	\$ 252,728					

Col. A: Effective year (January 1 - December 31)
 Col. B: Customer Sector
 Col. C: Company Forecast *Excludes Current Year Interest
 Col. D: Company Forecast
 Col. E: Company Forecast
 Col. F: Company Forecast
 Col. G: Pages 3, 4, 5, 6 Line 9 Col. N + Line 11 Col. O
 Col. H: Pages 3, 4, 5, 6, 7, 8, Line 11, Col. O
 Col. I: Col. C - Col. D - Col. E - Col. F
 Col. J: Company Forecast
 Col. K: (Col. I / Col. J) x 100
 Col. L: EAP Portion of SBC Rate
 Col. M: Page 9, Col. H
 Col. N: Col. K + Col. L + Col. M

PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation
January 1, 2020 to December 31, 2020
(\$ in 000's)

Line	Description	Carryover 12/31/2019	Actual Jan 2020	Actual Feb 2020	Actual Mar 2020	Actual Apr 2020	Actual May 2020	Actual Jun 2020	Actual Jul 2020	Forecast Aug 2020	Forecast Sep 2020	Forecast Oct 2020	Forecast Nov 2020	Forecast Dec 2020	2020 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		3,031	3,451	3,153	3,118	2,956	3,180	3,938	3,804	3,210	3,213	3,190	3,587	39,829
2	RGGI Revenues		-	-	-	-	462	599	(25)	-	173	-	-	173	1,382
3	FCM Revenues		436	454	449	448	443	446	520	528	528	528	528	528	5,834
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		3,468	3,905	3,602	3,565	3,861	4,226	4,432	4,331	3,911	3,741	3,718	4,287	47,045
6	Program Expenses		997	1,800	3,578	1,251	2,158	2,687	1,873	6,633	6,633	6,633	6,633	6,633	47,508
7	Total Program Expenses		997	1,800	3,578	1,251	2,158	2,687	1,873	6,633	6,633	6,633	6,633	6,633	47,508
8	Current Month (Over)/Under Recovery		(2,470)	(2,105)	(24)	(2,314)	(1,702)	(1,539)	(2,559)	2,302	2,722	2,892	2,915	2,346	
9	Cumulative (Over)/Under Recovery	(1,735)	(4,205)	(6,310)	(6,334)	(8,648)	(10,351)	(11,890)	(14,449)	(12,148)	(9,425)	(6,533)	(3,618)	(1,272)	
10	Interest @ Prime Rate		0.3958%	0.3958%	0.3150%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(12)	(21)	(20)	(20)	(26)	(30)	(36)	(36)	(29)	(22)	(14)	(7)	(271)
12	Monthly Sales (MWh)		690,301	653,598	596,912	590,377	562,797	601,793	745,552	720,362	608,001	608,508	604,191	679,307	7,661,698
13	EE SBC Rate		0.528	0.528	0.528	0.528	0.528	0.528	0.528	0.528	0.528	0.528	0.528	0.528	

Line 1: Actual = Company records, Forecast = (Line 12 x Line 13) / 100
 Line 2: Company Records
 Line 3: Company Records
 Line 4: Company Records
 Line 5: Sum of Lines 1 through Lines 4
 Line 6: Company Records
 Line 7: Sum of Line 6
 Line 8: Line 5 - Line 7
 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: Approved Rate in DE 17-136, 2020 Update

PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation (Residential)
January 1, 2021 to December 31, 2021
(\$ in 000's)

Line	Description	Carryover 12/31/2020	Forecast Jan 2021	Forecast Feb 2021	Forecast Mar 2021	Forecast Apr 2021	Forecast May 2021	Forecast June 2021	Forecast Jul 2021	Forecast Aug 2021	Forecast Sep 2021	Forecast Oct 2021	Forecast Nov 2021	Forecast Dec 2021	2021 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		2,526	2,023	2,041	1,754	1,627	1,842	2,367	2,256	1,725	1,666	1,834	2,345	24,007
2	RGGI Revenues		-	-	94	-	-	94	-	-	94	-	-	94	377
3	FCM Revenues		130	130	130	130	130	130	130	130	130	130	130	130	1,558
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		2,656	2,153	2,265	1,884	1,757	2,066	2,497	2,385	1,949	1,796	1,964	2,570	25,942
6	Program Expenses		2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	25,942
7	Total Program Expenses		2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	2,162	25,942
8	Current Month (Over)/Under Recovery		(494)	9	(103)	278	405	96	(335)	(224)	212	366	198	(408)	
9	Cumulative (Over)/Under Recovery	-	(494)	(485)	(588)	(310)	95	191	(145)	(368)	(156)	210	408	(0)	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(1)	(1)	(1)	(1)	(0)	0	0	(1)	(1)	0	1	1	(4)
12	Monthly Sales (MWh)		334,360	267,732	270,141	232,183	215,344	243,792	313,357	298,549	228,360	220,538	242,749	310,450	3,177,552
13	EE SBC Rate (Residential)		0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	

Line 1: (Line 12 x Line 13) / 100
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PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation (C&I)
January 1, 2021 to December 31, 2021
(\$ in 000's)

Line	Description	Carryover 12/31/2020	Forecast Jan 2021	Forecast Feb 2021	Forecast Mar 2021	Forecast Apr 2021	Forecast May 2021	Forecast June 2021	Forecast Jul 2021	Forecast Aug 2021	Forecast Sep 2021	Forecast Oct 2021	Forecast Nov 2021	Forecast Dec 2021	2021 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		3,586	3,355	3,625	3,356	3,600	3,802	4,025	4,008	3,613	3,618	3,399	3,490	43,477
2	RGGI Revenues		-	-	383	-	-	383	-	-	383	-	-	383	1,532
3	FCM Revenues		303	303	303	303	303	303	303	303	303	303	303	303	3,635
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		3,889	3,658	4,311	3,659	3,903	4,487	4,328	4,311	4,299	3,921	3,702	4,176	48,644
6	Program Expenses		4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	48,644
7	Total Program Expenses		4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	4,054	48,644
8	Current Month (Over)/Under Recovery		165	396	(257)	394	150	(434)	(275)	(258)	(245)	133	352	(122)	
9	Cumulative (Over)/Under Recovery	-	165	561	304	698	848	414	140	(118)	(363)	(230)	122	(0)	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		0	1	1	1	2	2	1	0	(1)	(1)	(0)	0	7
12	Monthly Sales (MWh)		373,417	349,368	377,530	349,541	374,957	395,911	419,204	417,437	376,237	376,790	353,943	363,427	4,527,763
13	EE SBC Rate (Residential)		0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	0.960	

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PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation (Residential)
January 1, 2022 to December 31, 2022
(\$ in 000's)

Line	Description	Carryover 12/31/2021	Forecast Jan 2022	Forecast Feb 2022	Forecast Mar 2022	Forecast Apr 2022	Forecast May 2022	Forecast June 2022	Forecast Jul 2022	Forecast Aug 2022	Forecast Sep 2022	Forecast Oct 2022	Forecast Nov 2022	Forecast Dec 2022	2022 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		2,729	2,184	2,205	1,896	1,756	1,992	2,565	2,447	1,875	1,814	1,997	2,553	26,012
2	RGGI Revenues		-	-	91	-	-	91	-	-	91	-	-	91	363
3	FCM Revenues		119	119	119	119	119	119	119	119	119	119	119	119	1,433
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		2,848	2,303	2,415	2,015	1,876	2,202	2,685	2,566	2,085	1,934	2,116	2,763	27,808
6	Program Expenses		2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	27,808
7	Total Program Expenses		2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	2,317	27,808
8	Current Month (Over)/Under Recovery		(531)	14	(98)	302	442	115	(368)	(249)	232	384	201	(445)	
9	Cumulative (Over)/Under Recovery	(4)	(535)	(521)	(619)	(317)	125	240	(127)	(376)	(144)	240	441	(4)	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(1)	(1)	(2)	(1)	(0)	0	0	(1)	(1)	0	1	1	(4)
12	Monthly Sales (MWh)		334,664	267,849	270,411	232,542	215,388	244,337	314,651	300,108	229,943	222,517	244,887	313,066	3,190,363
13	EE SBC Rate (Residential)		0.815	0.815	0.815	0.815	0.815	0.815	0.815	0.815	0.815	0.815	0.815	0.815	

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PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation (C&I)
January 1, 2022 to December 31, 2022
(\$ in 000's)

Line	Description	Carryover 12/31/2021	Forecast Jan 2022	Forecast Feb 2022	Forecast Mar 2022	Forecast Apr 2022	Forecast May 2022	Forecast June 2022	Forecast Jul 2022	Forecast Aug 2022	Forecast Sep 2022	Forecast Oct 2022	Forecast Nov 2022	Forecast Dec 2022	2022 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		4,707	4,414	4,773	4,535	4,777	5,001	5,303	5,277	4,777	4,781	4,500	4,615	57,460
2	RGGI Revenues		-	-	383	-	-	383	-	-	383	-	-	383	1,532
3	FCM Revenues		279	279	279	279	279	279	279	279	279	279	279	279	3,344
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		4,985	4,692	5,435	4,814	5,056	5,663	5,582	5,556	5,439	5,059	4,779	5,276	62,336
6	Program Expenses		5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	62,336
7	Total Program Expenses		5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	5,195	62,336
8	Current Month (Over)/Under Recovery		209	502	(240)	381	139	(468)	(387)	(361)	(244)	135	416	(82)	
9	Cumulative (Over)/Under Recovery	7	216	718	478	859	998	530	143	(218)	(463)	(327)	89	7	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		0	1	2	2	3	2	1	(0)	(1)	(1)	(0)	0	8
12	Monthly Sales (MWh)		366,976	344,140	372,167	353,613	372,470	389,948	413,462	411,476	372,492	372,738	350,877	359,824	4,480,182
13	EE SBC Rate (Residential)		1.283	1.283	1.283	1.283	1.283	1.283	1.283	1.283	1.283	1.283	1.283	1.283	

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PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation (Residential)
January 1, 2023 to December 31, 2023
(\$ in 000's)

Line	Description	Carryover 12/31/2022	Forecast Jan 2023	Forecast Feb 2023	Forecast Mar 2023	Forecast Apr 2023	Forecast May 2023	Forecast June 2023	Forecast Jul 2023	Forecast Aug 2023	Forecast Sep 2023	Forecast Oct 2023	Forecast Nov 2023	Forecast Dec 2023	2023 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		3,076	2,466	2,490	2,144	1,989	2,254	2,897	2,764	2,121	2,053	2,254	2,876	29,383
2	RGGI Revenues		-	-	87	-	-	87	-	-	87	-	-	87	348
3	FCM Revenues		100	100	100	100	100	100	100	100	100	100	100	100	1,198
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		3,176	2,566	2,677	2,244	2,089	2,441	2,997	2,863	2,308	2,152	2,354	3,063	30,929
6	Program Expenses		2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	30,929
7	Total Program Expenses		2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	30,929
8	Current Month (Over)/Under Recovery		(598)	11	(99)	334	489	137	(420)	(286)	270	425	223	(485)	
9	Cumulative (Over)/Under Recovery	(9)	(607)	(596)	(695)	(361)	127	264	(156)	(442)	(172)	253	476	(9)	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(1)	(2)	(2)	(1)	(0)	1	0	(1)	(1)	0	1	1	(5)
12	Monthly Sales (MWh)		338,049	271,022	273,618	235,598	218,586	247,710	318,408	303,703	233,090	225,571	247,718	316,047	3,229,120
13	EE SBC Rate (Residential)		0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	

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PSNH d/b/a Eversource Energy
Energy Efficiency Expense & SBC Revenue Reconciliation (C&I)
January 1, 2023 to December 31, 2023
(\$ in 000's)

Line	Description	Carryover 12/31/2022	Forecast Jan 2023	Forecast Feb 2023	Forecast Mar 2023	Forecast Apr 2023	Forecast May 2023	Forecast June 2023	Forecast Jul 2023	Forecast Aug 2023	Forecast Sep 2023	Forecast Oct 2023	Forecast Nov 2023	Forecast Dec 2023	2023 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		5,915	5,550	6,007	5,581	5,968	6,296	6,674	6,637	6,031	6,177	5,722	5,829	72,389
2	RGGI Revenues		-	-	383	-	-	383	-	-	383	-	-	383	1,532
3	FCM Revenues		233	233	233	233	233	233	233	233	233	233	233	233	2,796
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		6,148	5,783	6,623	5,814	6,201	6,912	6,907	6,870	6,647	6,410	5,955	6,445	76,716
6	Program Expenses		6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	76,716
7	Total Program Expenses		6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	6,393	76,716
8	Current Month (Over)/Under Recovery		245	610	(230)	579	192	(519)	(514)	(477)	(254)	(17)	438	(52)	
9	Cumulative (Over)/Under Recovery	15	260	870	640	1,219	1,411	892	377	(100)	(353)	(370)	67	15	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		0	2	2	3	4	3	2	0	(1)	(1)	(0)	0	13
12	Monthly Sales (MWh)		361,233	338,955	366,843	340,860	364,454	384,520	407,592	405,323	368,308	377,229	349,459	355,999	4,420,775
13	EE SBC Rate (Residential)		1.637	1.637	1.637	1.637	1.637	1.637	1.637	1.637	1.637	1.637	1.637	1.637	

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PSNH d/b/a Eversource Energy
2021-2023 System Benefits Charge Calculation (LBR Component)
(\$ in 000's)

Year	Customer Sector	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	Col. H
2021	Residential	\$ 2,716	\$ (178)	\$ (6)	\$ 2,533	3,177,552	0.080
2021	C&I	\$ 5,001	\$ (254)	\$ (9)	\$ 4,739	4,527,763	0.105
2021	Total	<u>\$ 7,718</u>	<u>\$ (431)</u>	<u>\$ (15)</u>	<u>\$ 7,272</u>	<u>7,705,315</u>	<u>0.094</u>
2022	Residential	\$ 3,374	\$ (9)	\$ (2)	\$ 3,363	3,190,363	0.105
2022	C&I	\$ 6,931	\$ (15)	\$ (5)	\$ 6,911	4,480,182	0.154
2022	Total	<u>\$ 10,306</u>	<u>\$ (24)</u>	<u>\$ (7)</u>	<u>\$ 10,274</u>	<u>7,670,545</u>	<u>0.134</u>
2023	Residential	\$ 4,035	\$ 13	\$ (2)	\$ 4,046	3,229,120	0.125
2023	C&I	\$ 9,154	\$ 12	\$ (5)	\$ 9,161	4,420,775	0.207
2023	Total	<u>\$ 13,190</u>	<u>\$ 25</u>	<u>\$ (7)</u>	<u>\$ 13,207</u>	<u>7,649,896</u>	<u>0.173</u>
2021 to 2023	Residential	\$ 10,126	\$ (174)	\$ (10)	\$ 9,942		
2021 to 2023	C&I	\$ 21,087	\$ (257)	\$ (19)	\$ 20,812		
2021 to 2023	Total	<u>\$ 31,213</u>	<u>\$ (431)</u>	<u>\$ (29)</u>	<u>\$ 30,753</u>		

Col. A: Effective year (January 1 - December 31)
 Col. B: Customer Sector
 Col. C: Pages 11, 12, 13, Lines 23, 24 Col. O / 1000
 Col. D: Pages 15, 16, 17, 18, 19, 20 Line 4, Col. B
 Col. E: Pages 15, 16, 17, 18, 19, 20, Line 6, Col. O
 Col. F: Col. C + Col. D + Col. E
 Col. G: Company Forecast
 Col. H: (Col. F * 100) / Col. G

PSNH d/b/a Eversource Energy
Monthly and Cumulative Savings and Lost Base Revenue
January 1, 2020 to December 31, 2020

Line	Description	Cumulative Annual kWh Savings / Monthly kW Savings														2020 Annual kWh and Monthly kW Savings	Cumulative Annual kWh Savings / Monthly kW Savings 12/31/2020
		Col. B 26,234,462	Col. C 2,699,389	Col. D 1,344,524	Col. E 1,945,177	Col. F 1,875,167	Col. G 2,545,990	Col. H 1,805,737	Col. I 2,908,955	Col. J 2,250,528	Col. K 2,250,528	Col. L 2,250,528	Col. M 2,250,528	Col. N 2,250,528	Col. O 26,377,578		
1	Residential Annual kWh Savings (2018, 2019, & 2020)	26,234,462	2,699,389	1,344,524	1,945,177	1,875,167	2,545,990	1,805,737	2,908,955	2,250,528	2,250,528	2,250,528	2,250,528	2,250,528	2,250,528	26,377,578	52,194,669
2	C&I Annual kWh Savings (2018)	38,157,478	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38,157,478
3	C&I Annual kWh Savings (2019 & 2020)	70,845,870	958,116	1,088,643	6,630,329	1,701,819	1,618,721	1,802,612	1,393,340	8,744,315	8,744,315	8,744,315	8,744,315	8,744,315	8,744,315	58,915,156	129,761,027
4	C&I Monthly Installed kW Savings	10,647	189	236	1,071	411	344	365	331	1,362	1,362	1,362	1,362	1,362	1,362	9,756	20,403
Total 2020 Lost Base Revenue																	
5	Monthly Residential Savings (2020)	224,949	112,044	162,098	156,264	212,166	150,478	242,413	187,544	187,544	187,544	187,544	187,544	187,544	187,544	187,544	
6	Retired Measures	-	3,351	-	-	-	-	4,624	6,174	8,323	889	11,420	-	-	-	-	
7	Cumulative Residential Savings	2,186,205	2,411,154	2,744,796	3,018,938	3,337,300	3,705,729	4,068,373	4,456,640	4,880,423	5,247,188	5,621,387	5,985,055	6,360,143	6,735,297	7,110,451	
8	Average Residential kWh Distribution Rate (\$/kWh)	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	
9	Total Lost Residential Revenue	\$ 106,099	\$ 120,781	\$ 132,844	\$ 146,853	\$ 163,065	\$ 179,023	\$ 196,108	\$ 214,756	\$ 230,894	\$ 247,361	\$ 263,363	\$ 279,868	\$ 296,875	\$ 313,882	\$ 330,889	2,281,013
10	Monthly C&I Savings (2018)	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	
11	Average C&I kWh Distribution Rate (\$/kWh)	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	
12	Lost C&I kWh Revenue	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	
13	Monthly C&I Savings (2019 & 2020)	79,843	90,720	552,527	141,818	134,893	150,218	116,112	728,693	728,693	728,693	728,693	728,693	728,693	728,693	728,693	7,899,778
14	Cumulative C&I Savings	5,903,823	5,983,665	6,154,229	6,797,476	7,491,822	7,768,534	8,053,645	8,319,974	9,164,779	10,622,165	12,079,551	13,536,936	14,994,322	16,451,708	17,909,094	8,046,632
15	Average C&I kWh Distribution Rate (\$/kWh)	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	146,855
16	Lost C&I kWh Revenue	\$ 67,084	\$ 68,996	\$ 76,208	\$ 83,992	\$ 87,094	\$ 90,291	\$ 93,276	\$ 102,748	\$ 119,087	\$ 135,426	\$ 151,765	\$ 168,104	\$ 184,443	\$ 200,782	\$ 217,121	1,466,855
17	Monthly C&I kW Savings (2019)	189	236	1,071	411	344	365	331	1,362	1,362	1,362	1,362	1,362	1,362	1,362	1,362	
18	Cumulative Monthly C&I kW Savings	10,647	10,837	11,262	12,568	14,050	14,805	15,513	16,209	17,902	20,626	23,349	26,073	28,797	31,521	34,245	
19	Average C&I Demand Rate (\$/kW)	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	
20	Lost C&I Demand Revenue	\$ 69,991	\$ 72,737	\$ 81,177	\$ 90,747	\$ 95,621	\$ 100,198	\$ 104,690	\$ 115,623	\$ 133,216	\$ 150,810	\$ 168,403	\$ 185,996	\$ 203,589	\$ 221,182	\$ 238,775	
21	Total Lost C&I kWh and Demand Revenue	\$ 226,048	\$ 230,706	\$ 246,357	\$ 263,711	\$ 271,688	\$ 279,462	\$ 286,940	\$ 307,344	\$ 341,276	\$ 375,208	\$ 409,141	\$ 443,073	\$ 476,906	\$ 510,739	\$ 544,572	3,680,954
22	Total Lost Revenue	\$ 332,147	\$ 351,487	\$ 379,201	\$ 410,564	\$ 434,753	\$ 458,484	\$ 483,048	\$ 522,099	\$ 572,170	\$ 622,569	\$ 672,504	\$ 722,941	\$ 772,878	\$ 822,815	\$ 872,752	5,961,967

Lines 1-4: Company Actuals and Forecast
Line 5: Line 1 / 12
Line 6: Company Actuals and Forecast
Line 7: Prior Month Line 7 + Current Month Line 5 + Previous Month Line 5 - Current Month Line 6
Line 8: Page 21, Column 8
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Line 21: Line 12 + Line 16 + Line 20
Line 22: Line 9 + Line 21

PSNH d/b/a Eversource Energy
Monthly and Cumulative Savings and Lost Base Revenue
January 1, 2021 to December 31, 2021

Line	Description	Annual kWh Savings / Monthly kW Savings 12/31/2020	Forecast												2021 Annual kWh and Monthly kW Savings	Cumulative Annual kWh Savings / Monthly kW Savings 12/31/2021
			Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	June 2021	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021		
	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 Annual kWh Savings (2018-2021)	52,194,669	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	1,698,855	20,386,259	70,853,376
2	C&I Annual kWh Savings (2018)	38,157,478	-	-	-	-	-	-	-	-	-	-	-	-	-	38,157,478
3	C&I Annual kWh Savings (2019-2021)	129,761,027	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	7,206,886	86,482,629	216,243,656
4	C&I Monthly Installed kW Savings	20,403	888	888	888	888	888	888	888	888	888	888	888	888	10,654	31,058
Total 2021 Lost Base Revenue																
5	Monthly Residential Savings (2021)		70,786	70,786	70,786	70,786	70,786	70,786	70,786	70,786	70,786	70,786	70,786	70,786		
6	Retired Measures		14,219	-	-	29,405	-	-	-	12,569	-	24,608	24,975	38,188		
7	Cumulative Residential Savings	4,349,556	4,406,123	4,547,694	4,689,265	4,801,432	4,943,003	5,084,574	5,226,145	5,355,148	5,496,719	5,613,683	5,730,279	5,833,662		
8	Average Residential kWh Distribution Rate		0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400		
9	Total Lost Residential Revenue		\$ 193,885	\$ 200,114	\$ 206,344	\$ 211,280	\$ 217,509	\$ 223,739	\$ 229,969	\$ 235,645	\$ 241,875	\$ 247,021	\$ 252,152	\$ 256,701	\$ 2,716,234	
10	Monthly C&I Savings (2018)	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790		
11	Average C&I kWh Distribution Rate		0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798		
12	Lost C&I kWh Revenue		\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973		
13	Monthly C&I Savings (2021)		300,287	300,287	300,287	300,287	300,287	300,287	300,287	300,287	300,287	300,287	300,287	300,287		
14	Cumulative C&I Savings	10,813,419	11,113,706	11,714,280	12,314,853	12,915,427	13,516,001	14,116,575	14,717,149	15,317,722	15,918,296	16,518,870	17,119,444	17,720,018		
15	Average C&I kWh Distribution Rate		0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121		
16	Lost C&I kWh Revenue		\$ 124,597	\$ 131,331	\$ 138,064	\$ 144,797	\$ 151,530	\$ 158,263	\$ 164,996	\$ 171,729	\$ 178,462	\$ 185,196	\$ 191,929	\$ 198,662		
17	Monthly C&I kW Savings (2021)		444	444	444	444	444	444	444	444	444	444	444	444		
18	Cumulative Monthly C&I kW Savings	20,403	20,847	21,735	22,623	23,511	24,399	25,287	26,174	27,062	27,950	28,838	29,726	30,614		
19	Average C&I Demand Rate		6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46		
20	Lost C&I Demand Revenue		\$ 134,648	\$ 140,383	\$ 146,117	\$ 151,852	\$ 157,586	\$ 163,321	\$ 169,055	\$ 174,790	\$ 180,524	\$ 186,259	\$ 191,993	\$ 197,728		
21	Total Lost C&I kWh and Demand Revenue		\$ 348,219	\$ 360,686	\$ 373,154	\$ 385,621	\$ 398,089	\$ 410,557	\$ 423,024	\$ 435,492	\$ 447,960	\$ 460,427	\$ 472,895	\$ 485,363	\$ 5,001,487	
22	Total Lost Revenue		\$ 542,103	\$ 560,800	\$ 579,498	\$ 596,901	\$ 615,598	\$ 634,296	\$ 652,993	\$ 671,137	\$ 689,834	\$ 707,449	\$ 725,047	\$ 742,064	\$ 7,717,721	
23	Total Lost Revenue - Res		\$ 193,885	\$ 200,114	\$ 206,344	\$ 211,280	\$ 217,509	\$ 223,739	\$ 229,969	\$ 235,645	\$ 241,875	\$ 247,021	\$ 252,152	\$ 256,701	\$ 2,716,234	
24	Total Lost Revenue - C&I		\$ 348,219	\$ 360,686	\$ 373,154	\$ 385,621	\$ 398,089	\$ 410,557	\$ 423,024	\$ 435,492	\$ 447,960	\$ 460,427	\$ 472,895	\$ 485,363	\$ 5,001,487	

Lines 1-4: Company Forecast
Line 5: Line 1 / 24
Line 6: Company Forecast
Line 7: Prior Month Line 7 + Current Month Line 5 + Previous Month Line 5 - Current Month Line 6
Line 8: Page 21, Column 8
Line 9: Line 7 x Line 8
Line 10: Line 1, Column B / 12
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Line 14: Prior Month Line 14 + Current Month Line 13
Line 15: Page 21, Column 7
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Line 17: Line 4 / 2
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Line 19: Page 21, Column 6
Line 20: Line 18 x Line 19
Line 21: Line 12 + Line 16 + Line 20

PSNH d/b/a Eversource Energy
Monthly and Cumulative Savings and Lost Base Revenue
January 1, 2020 to December 31, 2022

		Cumulative Annual kWh Savings / Monthly kW Savings 12/31/2021	Forecast Jan 2022	Forecast Feb 2022	Forecast Mar 2022	Forecast Apr 2022	Forecast May 2022	Forecast June 2022	Forecast Jul 2022	Forecast Aug 2022	Forecast Sep 2022	Forecast Oct 2022	Forecast Nov 2022	Forecast Dec 2022	2022 Annual kWh and Monthly kW Savings	Cumulative Annual kWh Savings / Monthly kW Savings 12/31/2022	
Line	Description	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 Annual kWh Savings (2018-2022)		70,853,376	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	1,369,246	16,430,956	83,646,258
2	C&I Annual kWh Savings (2018)		38,157,478	-	-	-	-	-	-	-	-	-	-	-	-	-	38,157,478
3	C&I Annual kWh Savings (2019-2022)		216,243,656	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	8,466,080	101,592,956	317,836,612
4	C&I Monthly Installed kW Savings		31,058	995	995	995	995	995	995	995	995	995	995	995	995	11,936	42,994
Total 2020 Lost Base Revenue																	
5	Monthly Residential Savings (2022)			57,052	57,052	57,052	57,052	57,052	57,052	57,052	57,052	57,052	57,052	57,052	57,052	-	
6	Retired Measures			27,546	27,913	34,891	41,502	40,768	35,259	28,280	26,077	28,648	12,288	-	-	-	
7	Cumulative Residential Savings		5,904,448	5,933,954	6,020,145	6,099,357	6,171,959	6,245,295	6,324,140	6,409,963	6,497,990	6,583,446	6,685,262	6,799,366	6,913,470	0.04400	
8	Average Residential kWh Distribution Rate			0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	
9	Total Lost Residential Revenue			\$ 261,115	\$ 264,907	\$ 268,393	\$ 271,588	\$ 274,815	\$ 278,284	\$ 282,061	\$ 285,934	\$ 289,694	\$ 294,175	\$ 299,196	\$ 304,217	\$	3,374,377
10	Monthly C&I Savings (2018)		3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	
11	Average C&I kWh Distribution Rate			0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	
12	Lost C&I kWh Revenue			\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$	
13	Monthly C&I Savings (2022)			352,753	352,753	352,753	352,753	352,753	352,753	352,753	352,753	352,753	352,753	352,753	352,753	352,753	
14	Cumulative C&I Savings		18,020,305	18,373,058	19,078,565	19,784,071	20,489,578	21,195,085	21,900,591	22,606,098	23,311,604	24,017,111	24,722,618	25,428,124	26,133,631	26,133,631	
15	Average C&I kWh Distribution Rate			0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	
16	Lost C&I kWh Revenue			\$ 205,983	\$ 213,893	\$ 221,802	\$ 229,712	\$ 237,621	\$ 245,531	\$ 253,440	\$ 261,350	\$ 269,259	\$ 277,169	\$ 285,079	\$ 292,988	\$	
17	Monthly C&I kW Savings (2022)			497	497	497	497	497	497	497	497	497	497	497	497	497	
18	Cumulative Monthly C&I kW Savings		31,058	31,555	32,550	33,544	34,539	35,534	36,528	37,523	38,518	39,513	40,507	41,502	42,497	42,497	
19	Average C&I Demand Rate			6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	
20	Lost C&I Demand Revenue			\$ 203,807	\$ 210,232	\$ 216,656	\$ 223,081	\$ 229,505	\$ 235,930	\$ 242,355	\$ 248,779	\$ 255,204	\$ 261,628	\$ 268,053	\$ 274,477	\$	
21	Total Lost C&I kWh and Demand Revenue			\$ 498,764	\$ 513,098	\$ 527,432	\$ 541,766	\$ 556,100	\$ 570,434	\$ 584,768	\$ 599,102	\$ 613,436	\$ 627,770	\$ 642,104	\$ 656,438	\$	6,931,210
22	Total Lost Revenue			\$ 759,878	\$ 778,005	\$ 795,824	\$ 813,353	\$ 830,914	\$ 848,718	\$ 866,828	\$ 885,036	\$ 903,130	\$ 921,945	\$ 941,300	\$ 960,655	\$	10,305,587
23	Total Lost Revenue - Res			\$ 261,115	\$ 264,907	\$ 268,393	\$ 271,588	\$ 274,815	\$ 278,284	\$ 282,061	\$ 285,934	\$ 289,694	\$ 294,175	\$ 299,196	\$ 304,217	\$	3,374,377
24	Total Lost Revenue - C&I			\$ 498,764	\$ 513,098	\$ 527,432	\$ 541,766	\$ 556,100	\$ 570,434	\$ 584,768	\$ 599,102	\$ 613,436	\$ 627,770	\$ 642,104	\$ 656,438	\$	6,931,210

*Numbers provided for illustrative purposes only and subject to change.
Lines 1-4: Company Forecast
Line 5: Line 1 / 24
Line 6: Company Forecast
Line 7: Prior Month Line 7 + Current Month Line 5 + Previous Month Line 5 - Current Month Line 6
Line 8: Page 21, Column 8
Line 9: Line 7 x Line 8
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Line 21: Line 12 + Line 16 + Line 20
Line 22: Line 9 + Line 21
Line 23: Line 9
Line 24: Line 21

PSNH d/b/a Eversource Energy
Monthly and Cumulative Savings and Lost Base Revenue
January 1, 2020 to December 31, 2023

Line	Description	Cumulative Annual kWh Savings / Monthly kW Savings 12/31/2022	Forecast Jan 2023	Forecast Feb 2023	Forecast Mar 2023	Forecast Apr 2023	Forecast May 2023	Forecast June 2023	Forecast Jul 2023	Forecast Aug 2023	Forecast Sep 2023	Forecast Oct 2023	Forecast Nov 2023	Forecast Dec 2023	2023 Annual kWh and Monthly kW Savings	Cumulative Annual kWh Savings / Monthly kW Savings 12/31/2023
	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 Annual kWh Savings (2018-2023)	83,646,258	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	1,342,567	16,110,807	99,757,065
2	C&I Annual kWh Savings (2018)	38,157,478	-	-	-	-	-	-	-	-	-	-	-	-	-	38,157,478
3	C&I Annual kWh Savings (2019-2023)	317,836,612	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	9,912,290	118,947,480	436,784,092
4	C&I Monthly Installed kW Savings	42,994	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	13,532	56,526
Total 2020 Lost Base Revenue																
5	Monthly Residential Savings (2023)		55,940	55,940	55,940	55,940	55,940	55,940	55,940	55,940	55,940	55,940	55,940	55,940		
6	Retired Measures		-	-	-	-	-	-	-	-	-	-	-	-		
7	Cumulative Residential Savings	6,970,521	7,026,462	7,138,342	7,250,223	7,362,104	7,473,984	7,585,865	7,697,745	7,809,626	7,921,507	8,033,387	8,145,268	8,257,148		
8	Average Residential kWh Distribution Rate		0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400	0.04400		
9	Total Lost Residential Revenue		\$ 309,189	\$ 314,112	\$ 319,035	\$ 323,958	\$ 328,881	\$ 333,804	\$ 338,727	\$ 343,651	\$ 348,574	\$ 353,497	\$ 358,420	\$ 363,343	\$ 4,035,191	
10	Monthly C&I Savings (2018)	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790	3,179,790		
11	Average C&I kWh Distribution Rate		0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798	0.02798		
12	Lost C&I kWh Revenue		\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973	\$ 88,973		
13	Monthly C&I Savings (2023)		413,012	413,012	413,012	413,012	413,012	413,012	413,012	413,012	413,012	413,012	413,012	413,012		
14	Cumulative C&I Savings	26,486,384	26,899,396	27,725,421	28,551,445	29,377,469	30,203,493	31,029,517	31,855,541	32,681,566	33,507,590	34,333,614	35,159,638	35,985,662		
15	Average C&I kWh Distribution Rate		0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121	0.01121		
16	Lost C&I kWh Revenue		\$ 301,573	\$ 310,834	\$ 320,095	\$ 329,355	\$ 338,616	\$ 347,877	\$ 357,137	\$ 366,398	\$ 375,659	\$ 384,919	\$ 394,180	\$ 403,441		
17	Monthly C&I kW Savings (2023)		564	564	564	564	564	564	564	564	564	564	564	564		
18	Cumulative Monthly C&I kW Savings	42,994	43,558	44,685	45,813	46,941	48,068	49,196	50,324	51,451	52,579	53,706	54,834	55,962		
19	Average C&I Demand Rate		6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46	6.46		
20	Lost C&I Demand Revenue		\$ 281,331	\$ 288,614	\$ 295,897	\$ 303,180	\$ 310,463	\$ 317,747	\$ 325,030	\$ 332,313	\$ 339,596	\$ 346,879	\$ 354,162	\$ 361,445		
21	Total Lost C&I kWh and Demand Revenue		\$ 671,877	\$ 688,421	\$ 704,965	\$ 721,509	\$ 738,052	\$ 754,596	\$ 771,140	\$ 787,684	\$ 804,228	\$ 820,771	\$ 837,315	\$ 853,859	\$ 9,154,417	
22	Total Lost Revenue		\$ 981,066	\$ 1,002,533	\$ 1,024,000	\$ 1,045,467	\$ 1,066,934	\$ 1,088,401	\$ 1,109,867	\$ 1,131,334	\$ 1,152,801	\$ 1,174,268	\$ 1,195,735	\$ 1,217,202	\$ 13,189,608	
23	Total Lost Revenue - Res		\$ 309,189	\$ 314,112	\$ 319,035	\$ 323,958	\$ 328,881	\$ 333,804	\$ 338,727	\$ 343,651	\$ 348,574	\$ 353,497	\$ 358,420	\$ 363,343	\$ 4,035,191	
24	Total Lost Revenue - C&I		\$ 671,877	\$ 688,421	\$ 704,965	\$ 721,509	\$ 738,052	\$ 754,596	\$ 771,140	\$ 787,684	\$ 804,228	\$ 820,771	\$ 837,315	\$ 853,859	\$ 9,154,417	

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Lines 1-4: Company Forecast
Line 5: Line 1 / 24
Line 6: Company Forecast
Line 7: Prior Month Line 7 + Current Month Line 5 + Previous Month Line 5 - Current Month Line 6
Line 8: Page 21, Column 8
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Line 17: Line 4 / 2
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Line 19: Page 21, Column 6
Line 20: Line 18 x Line 19
Line 21: Line 12 + Line 16 + Line 20
Line 22: Line 9 + Line 21
Line 23: Line 9
Line 24: Line 21

PSNH d/b/a Eversource Energy
Lost Base Revenue Reconciliation
January 1, 2020 to December 31, 2020
(\$ in 000's)

Line	Description	Actual Carryover 12/31/2019	Actual Jan 2020	Actual Feb 2020	Actual Mar 2020	Actual Apr 2020	Actual May 2020	Actual Jun 2020	Actual Jul 2020	Forecast Aug 2020	Forecast Sep 2020	Forecast Oct 2020	Forecast Nov 2020	Forecast Dec 2020	2020 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		449	425	388	384	366	391	485	468	395	396	393	442	4,980
2	Lost Revenues		<u>332</u>	<u>351</u>	<u>379</u>	<u>411</u>	<u>435</u>	<u>458</u>	<u>483</u>	<u>522</u>	<u>572</u>	<u>623</u>	<u>673</u>	<u>723</u>	<u>5,962</u>
3	Current Month (Over)/Under Recovery		(117)	(73)	(9)	27	69	67	(2)	54	177	227	280	281	982
4	Cumulative (Over)/Under Recovery	(1,367)	(1,484)	(1,557)	(1,566)	(1,539)	(1,470)	(1,403)	(1,404)	(1,350)	(1,173)	(946)	(667)	(385)	
5	Interest @ Prime Rate		0.3958%	0.3958%	0.3150%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
6	Interest on Deferral Balance		(6)	(6)	(5)	(4)	(4)	(4)	(4)	(4)	(3)	(3)	(2)	(1)	(46)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		<u>(1,489)</u>	<u>(1,569)</u>	<u>(1,582)</u>	<u>(1,560)</u>	<u>(1,495)</u>	<u>(1,431)</u>	<u>(1,437)</u>	<u>(1,387)</u>	<u>(1,213)</u>	<u>(989)</u>	<u>(711)</u>	<u>(431)</u>	
8	Monthly Sales (MWh)		690,301	653,598	596,912	590,377	562,797	601,793	745,552	720,362	608,001	608,508	604,191	679,307	7,661,698
9	SBC Rate (LBR Component)		0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	

Line 1: (Line 8 x Line 9) / 100
Line 2: Page 10, Line 22 / 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 Actuals and Forecast
Line 9: Approved Rates

PSNH d/b/a Eversource Energy
Lost Base Revenue Reconciliation - Residential
January 1, 2021 to December 31, 2021
(\$ in 000's)

Line	Description	Forecast Carryover 12/31/2020	Forecast Jan 2021	Forecast Feb 2021	Forecast Mar 2021	Forecast Apr 2021	Forecast May 2021	Forecast June 2021	Forecast Jul 2021	Forecast Aug 2021	Forecast Sep 2021	Forecast Oct 2021	Forecast Nov 2021	Forecast Dec 2021	2021 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		267	214	216	186	172	195	251	239	183	176	194	248	2,542
2	Lost Revenues		194	200	206	211	218	224	230	236	242	247	252	257	2,716
3	Current Month (Over)/Under Recovery		(74)	(14)	(10)	26	45	29	(21)	(3)	59	71	58	8	174
4	Cumulative (Over)/Under Recovery	(178)	(251)	(265)	(275)	(250)	(204)	(176)	(196)	(200)	(140)	(70)	(12)	(4)	
5	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
6	Interest on Deferral Balance		(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(0)	(0)	(0)	(0)	(6)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		(252)	(267)	(277)	(252)	(208)	(180)	(201)	(205)	(146)	(76)	(18)	(9)	
8	Monthly Sales (MWh)		334,360	267,732	270,141	232,183	215,344	243,792	313,357	298,549	228,360	220,538	242,749	310,450	3,177,552
9	SBC Rate (LBR Component)		0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	

Line 1: (Line 8 x Line 9) / 100
 Line 2: Page 11, Line 23 / 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

PSNH d/b/a Eversource Energy
 Lost Base Revenue Reconciliation - C&I
 January 1, 2021 to December 31, 2021
 (\$ in 000's)

Line	Description	Forecast Carryover 12/31/2020	Forecast Jan 2021	Forecast Feb 2021	Forecast Mar 2021	Forecast Apr 2021	Forecast May 2021	Forecast June 2021	Forecast Jul 2021	Forecast Aug 2021	Forecast Sep 2021	Forecast Oct 2021	Forecast Nov 2021	Forecast Dec 2021	2021 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		392	367	396	367	394	416	440	438	395	396	372	382	4,754
2	Lost Revenues		<u>348</u>	<u>361</u>	<u>373</u>	<u>386</u>	<u>398</u>	<u>411</u>	<u>423</u>	<u>435</u>	<u>448</u>	<u>460</u>	<u>473</u>	<u>485</u>	<u>5,001</u>
3	Current Month (Over)/Under Recovery		(44)	(6)	(23)	19	4	(5)	(17)	(3)	53	65	101	104	247
4	Cumulative (Over)/Under Recovery	(254)	(297)	(304)	(327)	(308)	(304)	(309)	(326)	(329)	(276)	(211)	(110)	(6)	
5	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
6	Interest on Deferral Balance		(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(0)	(0)	(9)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		<u>(298)</u>	<u>(305)</u>	<u>(329)</u>	<u>(312)</u>	<u>(308)</u>	<u>(314)</u>	<u>(332)</u>	<u>(336)</u>	<u>(284)</u>	<u>(219)</u>	<u>(119)</u>	<u>(15)</u>	
8	Monthly Sales (MWh)		373,417	349,368	377,530	349,541	374,957	395,911	419,204	417,437	376,237	376,790	353,943	363,427	4,527,763
9	SBC Rate (LBR Component)		0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	

Line 1: (Line 8 x Line 9) / 100
 Line 2: Page 12, Line 24 / 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

PSNH d/b/a Eversource Energy
Lost Base Revenue Reconciliation - Residential
January 1, 2022 to December 31, 2022
(\$ in 000's)

Line	Description	Forecast Carryover 12/31/2021	Forecast Jan 2022	Forecast Feb 2022	Forecast Mar 2022	Forecast Apr 2022	Forecast May 2022	Forecast June 2022	Forecast Jul 2022	Forecast Aug 2022	Forecast Sep 2022	Forecast Oct 2022	Forecast Nov 2022	Forecast Dec 2022	2022 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		351	281	284	244	226	257	330	315	241	234	257	329	3,350
2	Lost Revenues		<u>261</u>	<u>265</u>	<u>268</u>	<u>272</u>	<u>275</u>	<u>278</u>	<u>282</u>	<u>286</u>	<u>290</u>	<u>294</u>	<u>299</u>	<u>304</u>	<u>3,374</u>
3	Current Month (Over)/Under Recovery		(90)	(16)	(16)	27	49	22	(48)	(29)	48	61	42	(25)	24
4	Cumulative (Over)/Under Recovery	(9)	(100)	(116)	(132)	(104)	(55)	(34)	(82)	(111)	(63)	(2)	40	15	
5	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
6	Interest on Deferral Balance		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0	(2)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		<u>(100)</u>	<u>(116)</u>	<u>(132)</u>	<u>(105)</u>	<u>(57)</u>	<u>(35)</u>	<u>(84)</u>	<u>(113)</u>	<u>(65)</u>	<u>(5)</u>	<u>37</u>	<u>13</u>	
8	Monthly Sales (MWh)		334,664	267,849	270,411	232,542	215,388	244,337	314,651	300,108	229,943	222,517	244,887	313,066	3,190,363
9	SBC Rate (LBR Component)		0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	

Line 1: (Line 8 x Line 9) / 100
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 Line 7: Line 4 + Line 6
 Line 8: Company Forecast
 Line 9: Company Forecast

PSNH d/b/a Eversource Energy
 Lost Base Revenue Reconciliation - C&I
 January 1, 2022 to December 31, 2022
 (\$ in 000's)

Line	Description	Forecast Carryover 12/31/2021	Forecast Jan 2022	Forecast Feb 2022	Forecast Mar 2022	Forecast Apr 2022	Forecast May 2022	Forecast June 2022	Forecast Jul 2022	Forecast Aug 2022	Forecast Sep 2022	Forecast Oct 2022	Forecast Nov 2022	Forecast Dec 2022	2022 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		565	530	573	545	574	601	637	634	574	574	540	554	6,899
2	Lost Revenues		499	513	527	542	556	570	585	599	613	628	642	656	6,931
3	Current Month (Over)/Under Recovery		(66)	(17)	(46)	(3)	(18)	(30)	(52)	(35)	40	54	102	102	32
4	Cumulative (Over)/Under Recovery	(15)	(81)	(98)	(144)	(147)	(164)	(194)	(246)	(281)	(241)	(187)	(86)	17	
5	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
6	Interest on Deferral Balance		(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(0)	(0)	(5)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		(81)	(99)	(145)	(148)	(166)	(196)	(249)	(284)	(245)	(192)	(91)	12	
8	Monthly Sales (MWh)		366,976	344,140	372,167	353,613	372,470	389,948	413,462	411,476	372,492	372,738	350,877	359,824	4,480,182
9	SBC Rate (LBR Component)		0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.154	0.154	

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 Line 9: Company Forecast

PSNH d/b/a Eversource Energy
Lost Base Revenue Reconciliation - Residential
January 1, 2023 to December 31, 2023
(\$ in 000's)

Line	Description	Forecast Carryover 12/31/2022	Forecast Jan 2023	Forecast Feb 2023	Forecast Mar 2023	Forecast Apr 2023	Forecast May 2023	Forecast June 2023	Forecast Jul 2023	Forecast Aug 2023	Forecast Sep 2023	Forecast Oct 2023	Forecast Nov 2023	Forecast Dec 2023	2023 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		423	339	342	294	273	310	398	380	291	282	310	395	4,036
2	Lost Revenues		<u>309</u>	<u>314</u>	<u>319</u>	<u>324</u>	<u>329</u>	<u>334</u>	<u>339</u>	<u>344</u>	<u>349</u>	<u>353</u>	<u>358</u>	<u>363</u>	<u>4,035</u>
3	Current Month (Over)/Under Recovery		(113)	(25)	(23)	29	56	24	(59)	(36)	57	72	49	(32)	(1)
4	Cumulative (Over)/Under Recovery	13	(100)	(125)	(148)	(118)	(63)	(39)	(98)	(134)	(77)	(5)	44	12	
5	Interest @ Prime Rate		<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	<u>0.2708%</u>	
6	Interest on Deferral Balance		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0	(2)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		<u>(100)</u>	<u>(125)</u>	<u>(149)</u>	<u>(120)</u>	<u>(64)</u>	<u>(40)</u>	<u>(100)</u>	<u>(136)</u>	<u>(79)</u>	<u>(8)</u>	<u>41</u>	<u>10</u>	
8	Monthly Sales (MWh)		338,049	271,022	273,618	235,598	218,586	247,710	318,408	303,703	233,090	225,571	247,718	316,047	3,229,120
9	SBC Rate (LBR Component)		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	

Line 1: (Line 8 x Line 9) / 100
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 Line 9: Company Forecast

PSNH d/b/a Eversource Energy
Lost Base Revenue Reconciliation - C&I
January 1, 2023 to December 31, 2023
(\$ in 000's)

Line	Description	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	2023
		Carryover 12/31/2022	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	June 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023	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		748	702	759	706	754	796	844	839	762	781	723	737	9,151
2	Lost Revenues		<u>672</u>	<u>688</u>	<u>705</u>	<u>722</u>	<u>738</u>	<u>755</u>	<u>771</u>	<u>788</u>	<u>804</u>	<u>821</u>	<u>837</u>	<u>854</u>	<u>9,154</u>
3	Current Month (Over)/Under Recovery		(76)	(13)	(54)	16	(16)	(41)	(73)	(51)	42	40	114	117	3
4	Cumulative (Over)/Under Recovery	12	(64)	(77)	(132)	(116)	(132)	(174)	(246)	(298)	(256)	(216)	(102)	15	
5	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
6	Interest on Deferral Balance		(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(0)	(0)	(5)
7	Cumulative (Over)/Under Recovery Incl Carrying Charge		<u>(64)</u>	<u>(78)</u>	<u>(132)</u>	<u>(117)</u>	<u>(133)</u>	<u>(175)</u>	<u>(248)</u>	<u>(300)</u>	<u>(259)</u>	<u>(220)</u>	<u>(107)</u>	<u>10</u>	
8	Monthly Sales (MWh)		361,233	338,955	366,843	340,860	364,454	384,520	407,592	405,323	368,308	377,229	349,459	355,999	4,420,775
9	SBC Rate (LBR Component)		0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	

Line 1: (Line 8 x Line 9) / 100
Line 2: Page 13, Line 24 / 1000
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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 08/01/19 Through 07/31/20							
<u>Rate Class</u>	<u>Demand</u> <u>Charges</u>	<u>Revenue</u> <u>kWh</u> <u>Charges</u>	<u>Total Demand</u> <u>and kWh Charges</u>	<u>Delivery</u> <u>kW</u>	<u>Delivery</u> <u>kWh</u>	<u>Average</u> <u>Distribution Rate</u> <u>\$/kW</u>	<u>Average</u> <u>Distribution Rate</u> <u>\$/kWh^(a)</u>	<u>Average</u> <u>Distribution Rate</u> <u>\$/kWh^(b)</u>
Residential	\$ -	\$ 143,644,797	\$ 143,644,797	\$ -	3,264,397,495	N/A	N/A	\$ 0.04400
General Service Rate G	\$ 35,544,082	\$ 33,222,513	\$ 68,766,596	3,741,939	1,623,547,912	\$ 8.88	\$ 0.02046	\$ 0.04236
Primary General Service Rate GV	\$ 23,479,235	\$ 10,026,765	\$ 33,506,000	3,986,165	1,569,188,304	\$ 2.52	\$ 0.00639	\$ 0.02135
Large General Service Rate LG	\$ 14,237,367	\$ 5,728,400	\$ 19,965,767	3,614,672	1,175,920,781	\$ 1.58	\$ 0.00487	\$ 0.01698
Commercial and Industrial	\$ 73,260,685	\$ 48,977,678	\$ 122,238,363	11,342,776	4,368,656,997	\$ 6.46	\$ 0.01121	\$ 0.02798

* 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 and 2020 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

	Current Rates*	2021	2022	2023
Total System Benefits Charge (\$/kWh) - Residential	\$ 0.00743	\$ 0.00986	\$ 0.01070	\$ 0.01185
Total System Benefits Charge (\$/kWh) - C&I	\$ 0.00743	\$ 0.01215	\$ 0.01587	\$ 0.01994
<u>Bill per month, including PSNH default energy service</u>				
Residential Rate R (625 kWh/month)	\$115.76	\$ 117.28	\$ 117.81	\$ 118.52
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)	\$1,701.12	\$ 1,748.28	\$1,785.54	\$ 1,826.24
<u>Change from previous rate level - \$ per month</u>				
Residential Rate R (625 kWh/month)		\$ 1.52	\$ 0.53	\$ 0.72
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		\$ 47.17	\$ 37.26	\$ 40.70
<u>Change from previous rate level - %</u>				
Residential Rate R (625 kWh/month)		1.3%	0.5%	0.6%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		2.8%	2.1%	2.3%

* Stated at Eversource's rate levels effective August 1, 2020 - December 31, 2020

Eversource

**Calculation of Distribution Revenue at the Rate Levels in Effect August 2019 - July 2020
 Based on Billing Determinants for the Twelve Months Ending July 2020**

Residential Rate R				
Rate	Source	August 1, 2019 - July 31, 2020		
		Units	Rate/Charge	Revenue
Standard	Customer Charge	5,334,232	\$ 13.81	\$ 73,665,744
	All kWh	3,140,464,324	\$ 0.04508	\$ 141,572,132
Uncontrolled Water Heating	Customer Charge	494,086	\$ 4.87	\$ 2,406,199
	All kWh	90,414,551	\$ 0.02210	\$ 1,998,162
Controlled Water Heating	Customer Charge	2,794	\$ 8.58	\$ 23,973
	All kWh	496,217	\$ 0.00131	\$ 650.0
LCS - Radio-controlled & 8 Hour Switch	Customer Charge	40,086	\$ 9.92	\$ 397,653
	All kWh	31,986,382	\$ 0.00131	\$ 41,902
LCS - 8 Hour No Switch	Customer Charge	1,158	\$ 8.58	\$ 9,936
	All kWh	322,416	\$ 0.00131	\$ 422
LCS - 10,11 Hour Switch	Customer Charge	47	\$ 9.92	\$ 466
	All kWh	8,397	\$ 0.02665	\$ 224
LCS - 10,11 Hour No Switch	Customer Charge	1,011	\$ 8.58	\$ 8,674
	All kWh	241,324	\$ 0.02665	\$ 6,431
Time of Day	Customer Charge	500	\$ 32.08	\$ 16,040
	On Peak kWh	168,343	\$ 0.14407	\$ 24,253
	Off Peak kWh	295,541	\$ 0.00210	\$ 621
Total Residential	Customer/Meter	5,873,914		\$ 76,528,685
	Demand	-		-
	kWh	3,264,397,495		\$ 143,644,797
				<u>\$ 220,173,481</u>

General Service Rate G				
Rate	Source	August 1, 2019 - July 31, 2020		
		Units	Rate/Charge	Revenue
Standard	Single Phase Customer Charge	679,744	\$ 16.21	\$ 11,018,650
	Three Phase Customer Charge	241,642	\$ 32.39	\$ 7,826,784
	Demand Charge > 5 kW	3,733,095	\$ 9.49	\$ 35,427,067
	First 500 kWh Charge	270,805,121	\$ 0.07604	\$ 20,592,021
	Next 1,000 kWh Charge	281,867,544	\$ 0.01884	\$ 5,310,385
	All Additional kWh Charge	1,059,128,827	\$ 0.00666	\$ 7,053,798
Time of Day	Single Phase Customer Charge	189	\$ 41.98	\$ 7,934
	Three Phase Customer Charge	250	\$ 60.00	\$ 15,000
	Demand Charge	8,845	\$ 13.23	\$ 117,015
	On peak kWh	301,120	\$ 0.05335	\$ 16,065
	Off peak kWh	249,690	\$ 0.00836	\$ 2,087
Space Heating	Meter Charge	4,795	\$ 3.24	\$ 15,536
	All kWh	4,566,882	\$ 0.03729	\$ 170,299
Uncontrolled Water Heating	Customer Charge	14,567	\$ 4.87	\$ 70,941
	All kWh	3,278,380	\$ 0.02210	\$ 72,452
Controlled Water Heating	Customer Charge	1	\$ 8.58	\$ 9
	All kWh	4,151	\$ 0.00131	\$ 5
LCS - Radio-controlled & 8 Hour Switch	Customer Charge	1,825	\$ 9.92	\$ 18,104
	All kWh	3,242,216	\$ 0.00131	\$ 4,247
LCS - 8 Hour No Switch	Customer Charge	55	\$ 8.58	\$ 472
	All kWh	63,837	\$ 0.00131	\$ 84
LCS - 10,11 Hour Switch	Customer Charge	-	\$ 9.92	\$ -
	All kWh	-	\$ 0.00131	\$ -
LCS - 10,11 Hour No Switch	Customer Charge	14	\$ 8.58	\$ 120
	All kWh	40,144	\$ 0.02665	\$ 1,070
Total General Service	Customer/Meter	943,082		\$ 18,973,551
	Demand	3,741,939		\$ 35,544,082
	kWh	1,623,547,912		\$ 33,222,513
				\$ 87,740,146

Primary General Service Rate GV				
Rate	Source	August 1, 2019 - July 31, 2020		
		Units	Rate/Charge	Revenue
Standard	Customer Charge	16,528	\$ 211.21	\$ 3,490,879
	Minimum Charge	352	\$ 972.00	\$ 342,144
	First 100 kW Demand Charge	1,377,516	\$ 6.07	\$ 8,361,522
	All Additional kW Demand Charge	2,567,211	\$ 5.81	\$ 14,915,496
	First 200,000 kWh	1,255,754,797	\$ 0.00660	\$ 8,287,982
	All Additional kWh	311,021,859	\$ 0.00554	\$ 1,723,061
Rate B < 115 KV	Administrative Charge	136	\$ 372.10	\$ 50,606
	Translation Charge	644	\$ 62.42	\$ 40,198
	Demand Charge	41,438	\$ 4.88	\$ 202,217
	First 200,000 kWh	2,227,577	\$ 0.00660	\$ 14,702
	All Additional kWh	184,071	\$ 0.00554	\$ 1,020
Space Heating	Meter Charge	-		\$ -
	All kWh	-		\$ -
Total GV	Customer/Meter	16,664		\$ 3,923,827
	Demand	3,986,165		\$ 23,479,235
	kWh	1,569,188,304		\$ 10,026,765
				\$ 37,429,827

Large General Service Rate LG				
Rate	Source	August 1, 2019 - July 31, 2020		
		Units	Rate/Charge	Revenue
Standard	Customer Charge	1,279	\$ 660.15	\$ 844,332
	Demand Charge	2,510,681	\$ 5.17	\$ 12,980,221
	On peak kWh	480,866,381	\$ 0.00553	\$ 2,659,191
	Off Peak kWh	625,553,109	\$ 0.00467	\$ 2,921,333
Rate B < 115 KV	Administrative Charge	117	\$ 372.10	\$ 43,536
	Translation Charge	15	\$ 62.42	\$ 936
	Demand charge	257,612	\$ 4.88	\$ 1,257,147
	On peak kWh	10,768,634	\$ 0.00553	\$ 59,551
	Off Peak kWh	18,913,371	\$ 0.00467	\$ 88,325
Rate B >= 115 KV	Administrative Charge	58	\$ 372.10	\$ 21,582
	Translation Charge	-	\$ 62.42	\$ -
	Demand charge	846,379	\$ -	\$ -
	On peak kWh	12,230,986	\$ -	\$ -
	Off Peak kWh	27,588,300	\$ -	\$ -
Total LG	Customer/Meter	1,454		\$ 910,386
	Demand	3,614,672		\$ 14,237,367
	kWh	1,175,920,781		\$ 5,728,400
				\$ 20,876,153

Outdoor Lighting Rate OL				
Type	Fixture	August 1, 2019 - July 31, 2020		
		Units	Rate/Charge	Revenue
High Pressure Sodium	4,000 Lumens	42,804	\$ 17.23	\$ 737,521
	5,800 Lumens	7,247	\$ 17.23	\$ 124,874
	9,500 Lumens	11,157	\$ 22.91	\$ 255,611
	16,000 Lumens	9,977	\$ 32.41	\$ 323,364
	30,000 Lumens	15,683	\$ 33.21	\$ 520,843
	50,000 Lumens	23,191	\$ 33.58	\$ 778,753
	130,000 Lumens	4,534	\$ 53.89	\$ 244,334
	12,000 Lumens	97	\$ 23.70	\$ 2,292
	34,200 Lumens	62	\$ 30.34	\$ 1,882
Mercury	3,500 Lumens	57,205	\$ 15.20	\$ 869,512
	7,000 Lumens	11,171	\$ 18.29	\$ 204,324
	11,000 Lumens	721	\$ 22.61	\$ 16,291
	15,000 Lumens	36	\$ 25.86	\$ 931
	20,000 Lumens	4,873	\$ 27.92	\$ 136,047
	56,000 Lumens	1,675	\$ 44.38	\$ 74,349
Metal Halide	5,000 Lumens	2,735	\$ 17.97	\$ 49,144
	8,000 Lumens	1,543	\$ 24.60	\$ 37,958
	13,500 Lumens	1,532	\$ 33.76	\$ 51,728
	20,000 Lumens	3,550	\$ 34.47	\$ 122,353
	36,000 Lumens	5,305	\$ 34.79	\$ 184,553
Incandescent	100,000 Lumens	3,041	\$ 52.15	\$ 158,606
	600 Lumens	1,009	\$ 9.93	\$ 10,019
	1,000 Lumens	2,628	\$ 11.08	\$ 29,118
	2,500 Lumens	2	\$ 14.22	\$ 22
Fluorescent	20,000 Lumens	24	\$ 37.87	\$ 909
Total Rate OL	Fixtures	211,802		\$ 4,935,339
	Demand	-		
	kWh	16,878,003		
				<u>\$ 4,935,339</u>

Outdoor Lighting Rate EOL				
Type	Fixture	August 1, 2019 - July 31, 2020		
		Units	Rate/Charge	Revenue
High Pressure Sodium	4,000 Lumens	45,939	\$ 9.17	\$ 421,261
	5,800 Lumens	2,268	\$ 9.17	\$ 20,798
	9,500 Lumens	4,631	\$ 11.28	\$ 52,238
	16,000 Lumens	6,298	\$ 12.40	\$ 78,095
	30,000 Lumens	20,223	\$ 12.40	\$ 250,765
	50,000 Lumens	1,563	\$ 12.80	\$ 20,006
	130,000 Lumens	660	\$ 24.30	\$ 16,038
Metal Halide	5,000 Lumens	7,284	\$ 9.52	\$ 69,344
	8,000 Lumens	831	\$ 12.59	\$ 10,462
	13,000 Lumens	-	\$ 13.44	\$ -
	13,500 Lumens	1,036	\$ 14.15	\$ 14,659
	20,000 Lumens	768	\$ 14.39	\$ 11,052
	36,000 Lumens	467	\$ 14.79	\$ 6,907
	100,000 Lumens	1,236	\$ 26.35	\$ 32,569
LED's	Per Fixture	393,981	\$ 3.67	\$ 1,445,910
	Per Watt	5,687,940	\$ 0.0558	\$ 317,387
	Maintenance credit (contract)	9	(\$1.90)	\$ (17)
Total Rate EOL	Fixtures	487,185		\$ 2,767,473
	Demand	-		\$ -
	kWh	11,115,834		\$ -
				<u>\$ 2,767,473</u>

Total Retail			
Type	Source	August 1, 2019 - July 31, 2020	
		Units	Revenue
Total Retail	Customer/Meter	6,835,114	\$ 100,336,448
	Fixtures	698,987	\$ 7,702,813
	Demand	11,342,776	\$ 73,260,685
	kWh	7,661,048,329	\$ 192,622,475
			<u>\$ 373,922,420</u>

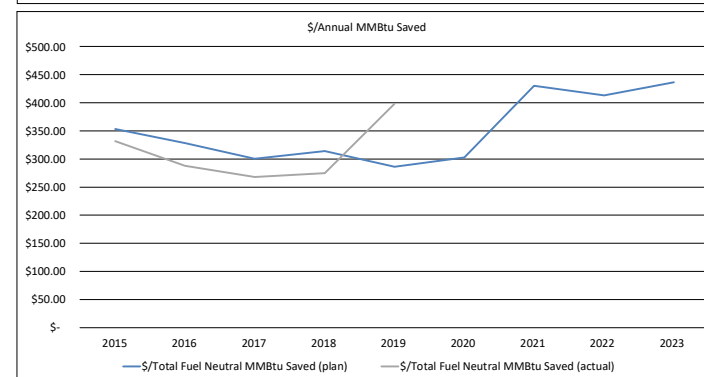
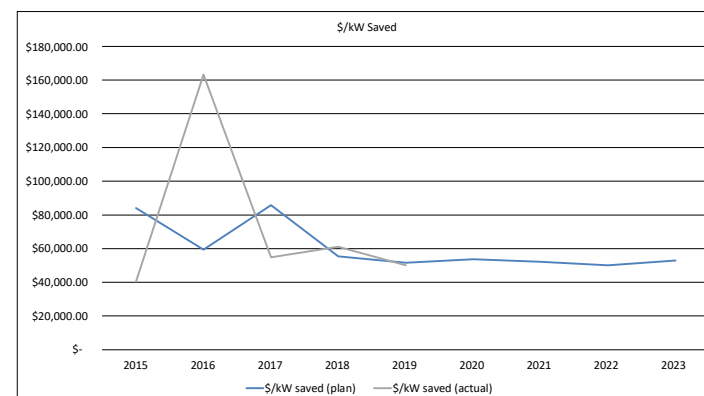
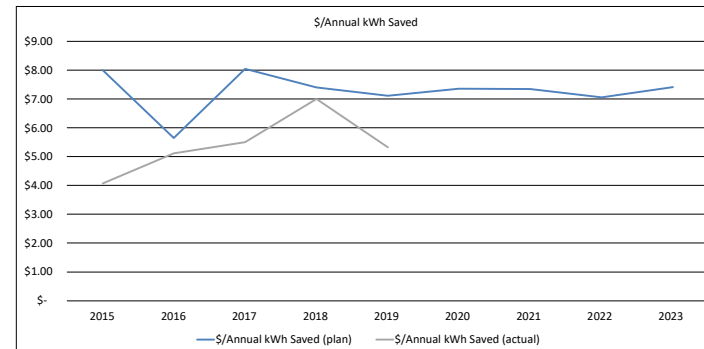
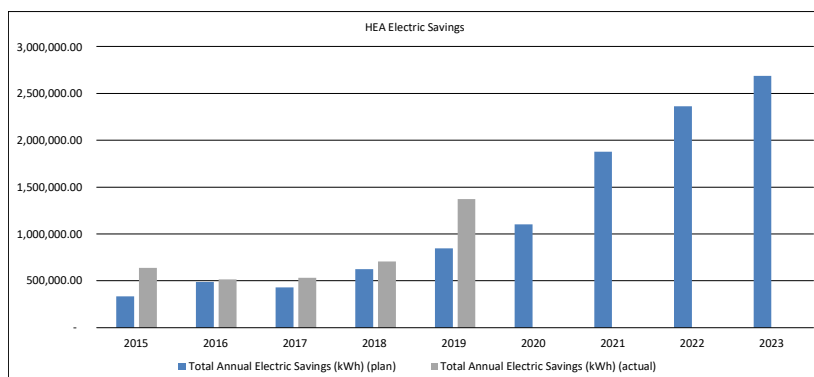
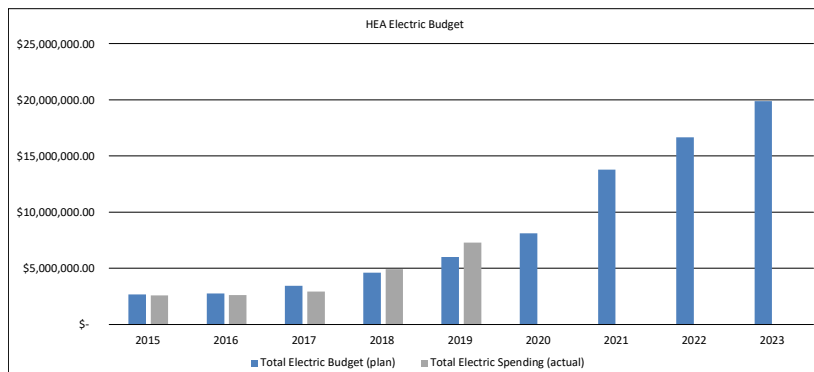
Lost Base Revenue			
Summary of Data Included in the Calculation of the Average Distribution Rates*			
Type	Source	August 1, 2019 - July 31, 2020	
		Units	Revenue
Total Residential	Demand kWh	-	\$ -
		3,264,397,495	\$ 143,644,797
			<u>\$ 143,644,797</u>
Total General Service	Demand kWh	3,741,939	\$ 35,544,082
		1,623,547,912	\$ 33,222,513
			<u>\$ 68,766,596</u>
Total GV	Demand kWh	3,986,165	\$ 23,479,235
		1,569,188,304	\$ 10,026,765
			<u>\$ 33,506,000</u>
Total LG	Demand kWh	2,768,293	\$ 14,237,367
		1,136,101,495	\$ 5,728,400
			<u>\$ 19,965,767</u>
Total	Demand kWh	10,496,397	\$ 73,260,685
		7,593,235,206	\$ 192,622,475
			<u>\$ 265,883,160</u>

* 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

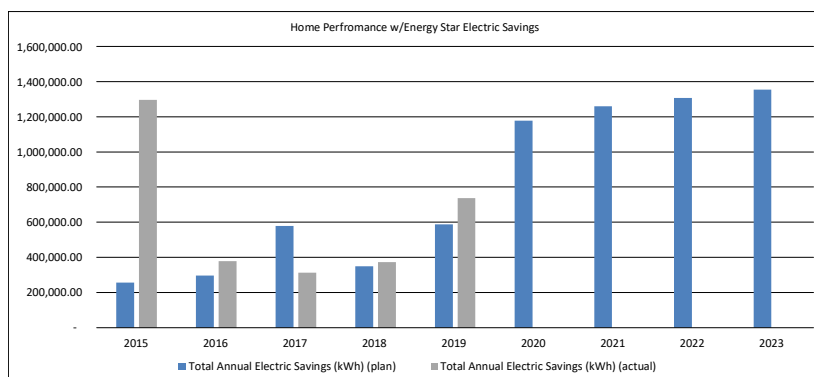
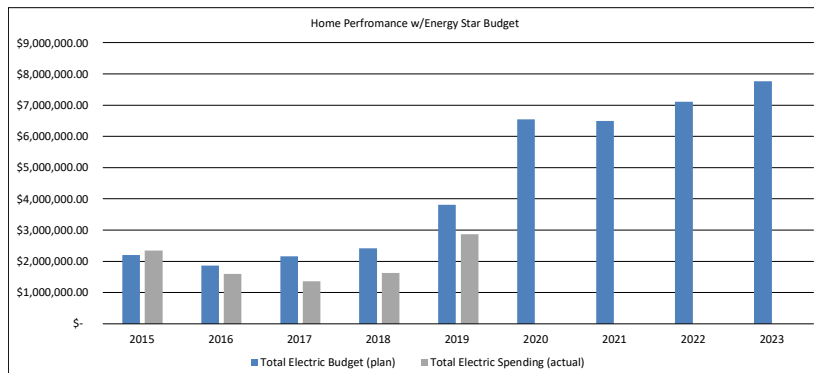
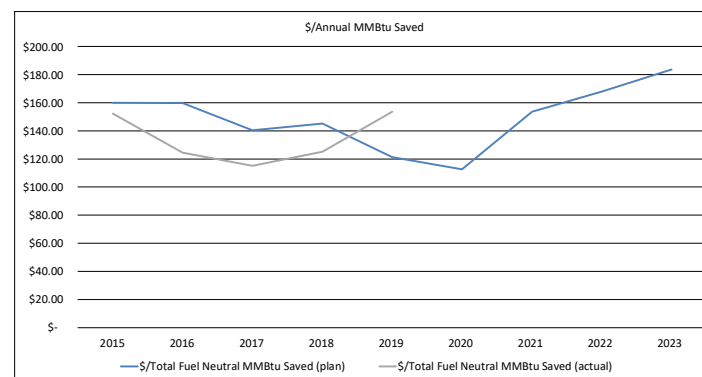
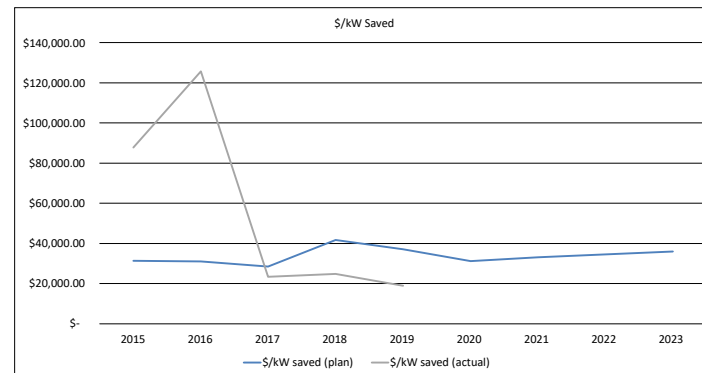
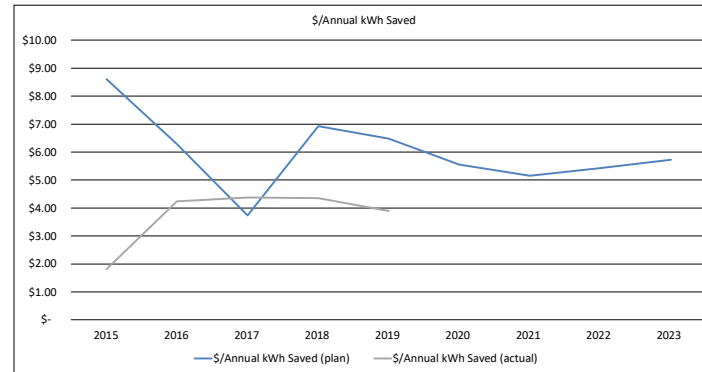
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 6,015,106.66	\$ 8,110,148.68	\$ 13,786,410.94	\$ 16,662,000.29	\$ 19,896,934.92
	Total Annual Electric Savings (kWh) (plan)	332,704.68	487,614.55	429,219.81	623,609.04	845,586.10	1,102,644.60	1,876,625.76	2,362,164.09	2,685,809.57
	\$/Annual kWh Saved (plan)	\$ 8.00	\$ 5.64	\$ 8.04	\$ 7.39	\$ 7.11	\$ 7.36	\$ 7.35	\$ 7.05	\$ 7.41
2)	Total Electric Budget	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 6,015,106.66	\$ 8,110,148.68	\$ 13,786,410.94	\$ 16,662,000.29	\$ 19,896,934.92
	Total kW saved	31.70	46.33	40.26	83.25	116.74	151.12	264.07	332.66	375.88
	\$/kW saved (plan)	\$ 83,961.98	\$ 59,383.90	\$ 85,705.87	\$ 55,388.90	\$ 51,526.89	\$ 53,666.52	\$ 52,206.51	\$ 50,087.18	\$ 52,934.39
3)	Total Electric Budget	\$ 2,661,464.00	\$ 2,751,286.00	\$ 3,450,394.00	\$ 4,611,266.00	\$ 6,015,106.66	\$ 8,110,148.68	\$ 13,786,410.94	\$ 16,662,000.29	\$ 19,896,934.92
	Total Fuel Neutral MMBtu Saved	7,527.20	8,371.96	11,489.26	14,683.27	21,015.45	26,820.91	32,031.11	40,350.22	45,592.53
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 353.58	\$ 328.63	\$ 300.31	\$ 314.05	\$ 286.22	\$ 302.38	\$ 430.41	\$ 412.93	\$ 436.41

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,930,672.42	\$ 4,934,976.47	\$ 7,295,395.97
	Total Annual Electric Savings (kWh) (actu)	638,554.22	514,041.71	532,325.13	704,706.70	1,371,330.52
	\$/Annual kWh Saved (actual)	\$ 4.08	\$ 5.12	\$ 5.51	\$ 7.00	\$ 5.32
2)	Total Electric Spending	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,930,672.42	\$ 4,934,976.47	\$ 7,295,395.97
	Total kW saved	64.34	16.12	53.36	80.75	145.71
	\$/kW saved (actual)	\$ 40,451.13	\$ 163,221.09	\$ 54,918.84	\$ 61,113.05	\$ 50,069.62
3)	Total Electric Spending	\$ 2,602,622.35	\$ 2,630,799.37	\$ 2,930,672.42	\$ 4,934,976.47	\$ 7,295,395.97
	Total Fuel Neutral MMBtu Saved	7,839.29	9,126.57	10,943.68	17,951.87	18,300.71
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 332.00	\$ 288.26	\$ 267.80	\$ 274.90	\$ 398.64



Home Performance w/Energy Star

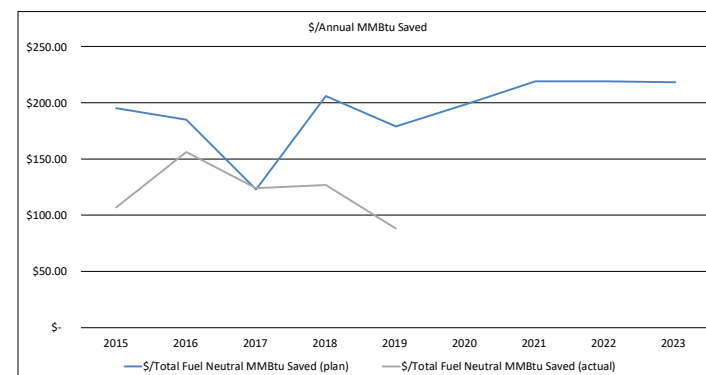
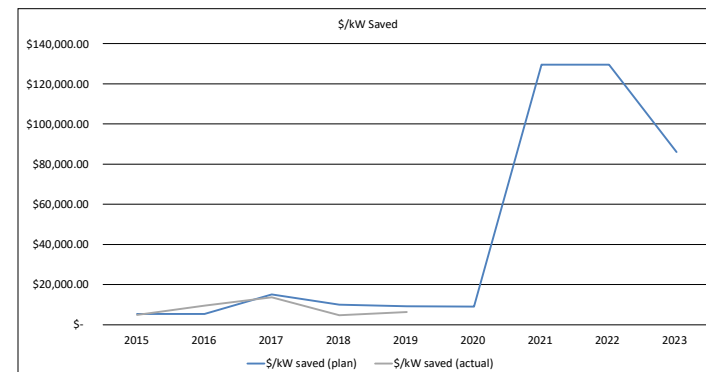
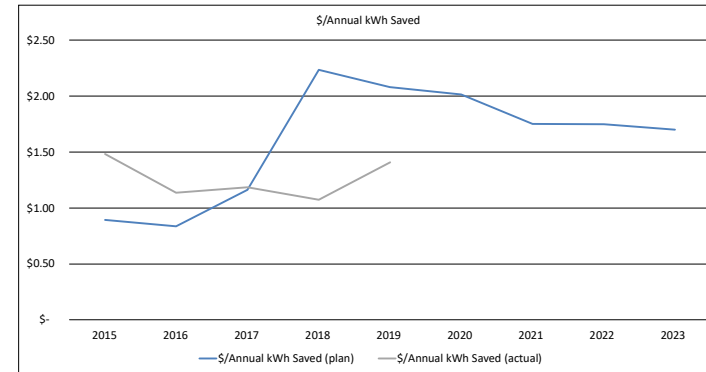
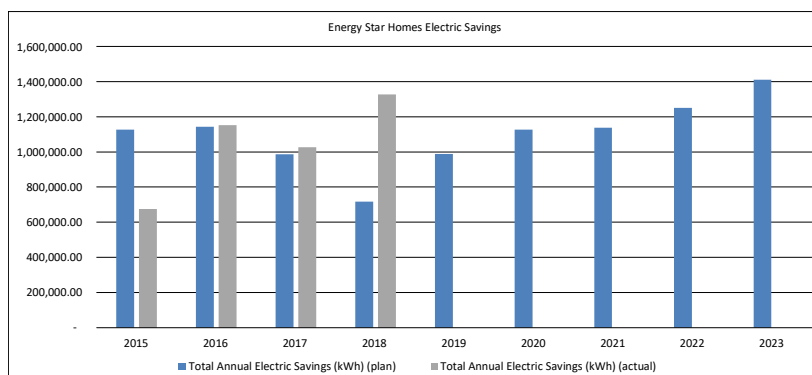
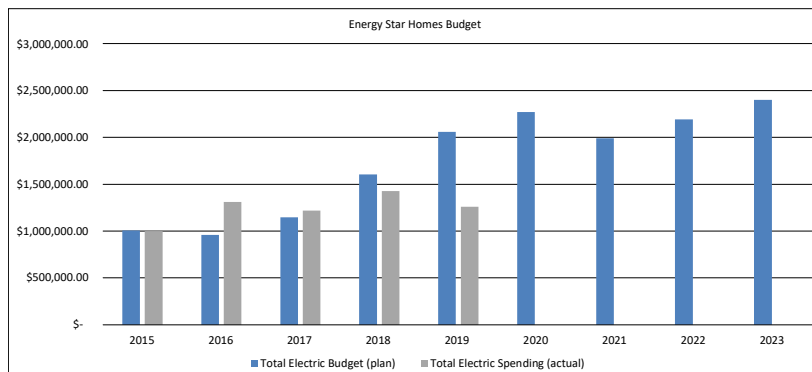
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,808,340.70	\$ 6,543,679.57	\$ 6,498,338.16	\$ 7,106,483.66	\$ 7,763,085.12
	Total Annual Electric Savings (kWh) (plan)	256,056.96	295,674.17	578,126.50	348,885.75	587,878.50	1,178,594.79	1,260,660.47	1,308,219.72	1,355,778.97
	\$/Annual kWh Saved (plan)	\$ 8.60	\$ 6.29	\$ 3.74	\$ 6.92	\$ 6.48	\$ 5.55	\$ 5.15	\$ 5.43	\$ 5.73
2)	Total Electric Budget	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,808,340.70	\$ 6,543,679.57	\$ 6,498,338.16	\$ 7,106,483.66	\$ 7,763,085.12
	Total kW saved	70.29	59.98	75.98	57.84	102.69	210.06	196.30	205.82	215.33
	\$/kW saved (plan)	\$ 31,344.04	\$ 31,015.03	\$ 28,442.09	\$ 41,764.27	\$ 37,085.52	\$ 31,151.48	\$ 33,104.01	\$ 34,528.10	\$ 36,051.33
3)	Total Electric Budget	\$ 2,203,268.95	\$ 1,860,400.33	\$ 2,161,078.61	\$ 2,415,741.54	\$ 3,808,340.70	\$ 6,543,679.57	\$ 6,498,338.16	\$ 7,106,483.66	\$ 7,763,085.12
	Total Fuel Neutral MMBtu Saved	13,764.71	11,649.95	15,376.05	16,650.12	31,408.42	58,069.10	42,277.16	42,279.28	42,281.41
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 160.07	\$ 159.69	\$ 140.55	\$ 145.09	\$ 121.25	\$ 112.69	\$ 153.71	\$ 168.08	\$ 183.61
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,365,080.05	\$ 1,623,435.97	\$ 2,869,834.58				
	Total Annual Electric Savings (kWh) (actu)	1,297,571.81	377,818.52	311,703.00	373,104.96	736,533.00				
	\$/Annual kWh Saved (actual)	\$ 1.81	\$ 4.23	\$ 4.38	\$ 4.35	\$ 3.90				
2)	Total Electric Spending	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,365,080.05	\$ 1,623,435.97	\$ 2,869,834.58				
	Total kW saved	26.75	12.71	58.41	65.33	151.43				
	\$/kW saved (actual)	\$ 87,835.36	\$ 125,789.42	\$ 23,371.81	\$ 24,850.64	\$ 18,951.97				
3)	Total Electric Spending	\$ 2,349,224.06	\$ 1,599,052.72	\$ 1,365,080.05	\$ 1,623,435.97	\$ 2,869,834.58				
	Total Fuel Neutral MMBtu Saved	15,422.74	12,836.50	11,843.32	12,974.04	18,665.69				
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 152.32	\$ 124.57	\$ 115.26	\$ 125.13	\$ 153.75				



Energy Star Homes

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,060,103.01	\$ 2,271,812.43	\$ 1,991,626.13	\$ 2,190,360.56	\$ 2,401,291.38
	Total Annual Electric Savings (kWh) (plan)	1,127,834.31	1,143,193.79	986,318.15	717,397.53	989,389.19	1,127,346.10	1,138,055.54	1,251,861.09	1,411,859.83
	\$/Annual kWh Saved (plan)	\$ 0.89	\$ 0.84	\$ 1.16	\$ 2.23	\$ 2.08	\$ 2.02	\$ 1.75	\$ 1.75	\$ 1.70
2)	Total Electric Budget	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,060,103.01	\$ 2,271,812.43	\$ 1,991,626.13	\$ 2,190,360.56	\$ 2,401,291.38
	Total kW saved	187.30	176.08	75.75	159.13	222.81	253.71	15.38	16.92	27.94
	\$/kW saved (plan)	\$ 5,374.24	\$ 5,436.52	\$ 15,143.81	\$ 10,075.13	\$ 9,245.91	\$ 8,954.39	\$ 129,506.93	\$ 129,481.61	\$ 85,956.61
3)	Total Electric Budget	\$ 1,006,618.95	\$ 957,269.48	\$ 1,147,210.86	\$ 1,603,217.35	\$ 2,060,103.01	\$ 2,271,812.43	\$ 1,991,626.13	\$ 2,190,360.56	\$ 2,401,291.38
	Total Fuel Neutral MMBtu Saved	5,158.61	5,177.38	9,335.70	7,781.99	11,505.24	11,436.23	9,089.82	9,998.80	10,997.69
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 195.13	\$ 184.89	\$ 122.88	\$ 206.02	\$ 179.06	\$ 198.65	\$ 219.11	\$ 219.06	\$ 218.35

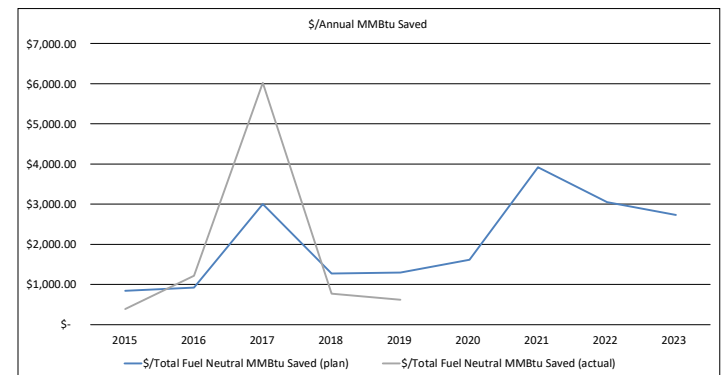
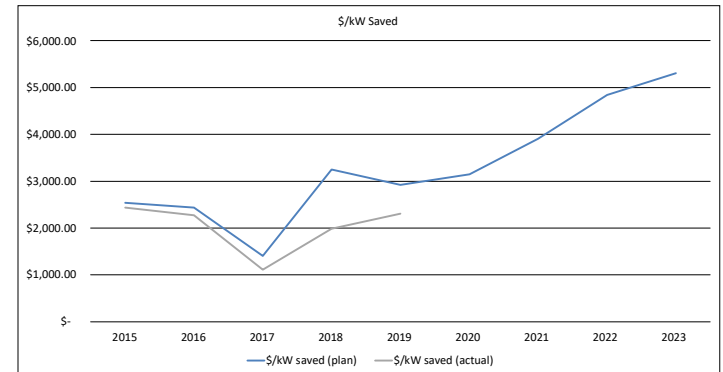
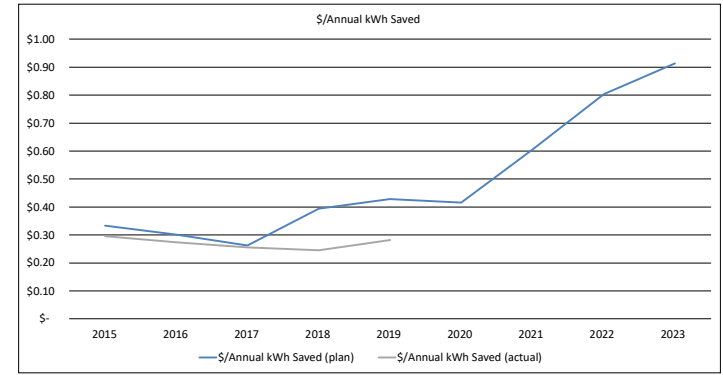
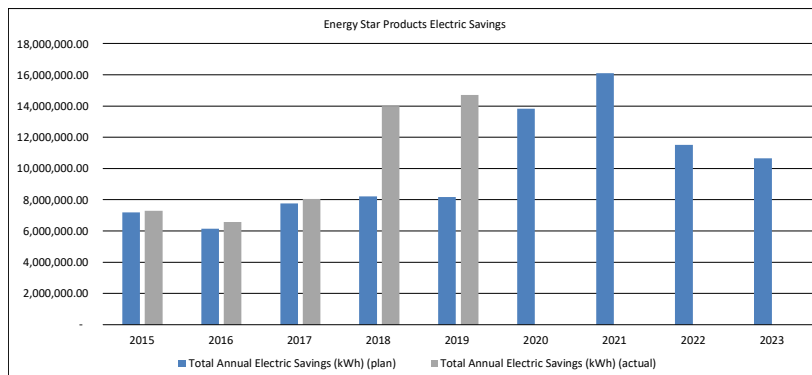
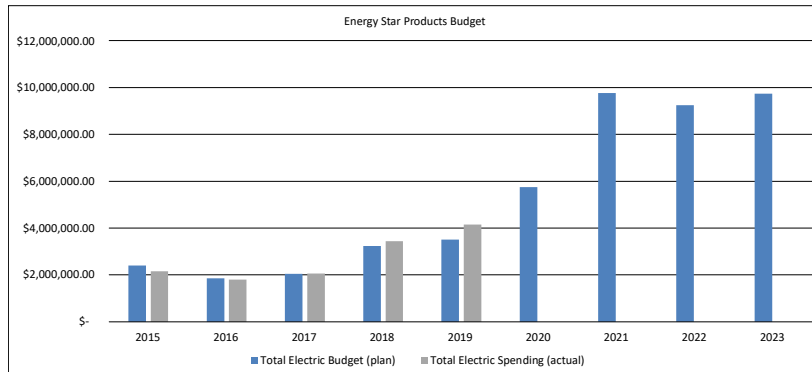
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,218,908.50	\$ 1,426,308.42	\$ 1,259,222.58
	Total Annual Electric Savings (kWh) (actu)	674,639.98	1,153,065.16	1,027,593.90	1,327,854.25	894,232.60
	\$/Annual kWh Saved (actual)	\$ 1.48	\$ 1.14	\$ 1.19	\$ 1.07	\$ 1.41
2)	Total Electric Spending	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,218,908.50	\$ 1,426,308.42	\$ 1,259,222.58
	Total kW saved	204.73	136.81	88.78	305.62	197.31
	\$/kW saved (actual)	\$ 4,887.75	\$ 9,572.72	\$ 13,729.43	\$ 4,666.98	\$ 6,382.11
3)	Total Electric Spending	\$ 1,000,669.85	\$ 1,309,689.49	\$ 1,218,908.50	\$ 1,426,308.42	\$ 1,259,222.58
	Total Fuel Neutral MMBtu Saved	9,364.77	8,379.13	9,833.29	11,250.73	14,295.72
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 106.85	\$ 156.30	\$ 123.96	\$ 126.77	\$ 88.08



Energy Star Products

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,502,801.21	\$ 5,745,856.20	\$ 9,760,674.34	\$ 9,243,798.12	\$ 9,737,416.84
	Total Annual Electric Savings (kWh) (plan)	7,197,903.64	6,137,671.04	7,773,228.53	8,217,144.12	8,177,720.12	13,830,606.84	16,110,917.64	11,508,710.97	10,657,358.67
	\$/Annual kWh Saved (plan)	\$ 0.33	\$ 0.30	\$ 0.26	\$ 0.39	\$ 0.43	\$ 0.42	\$ 0.61	\$ 0.80	\$ 0.91
2)	Total Electric Budget	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,502,801.21	\$ 5,745,856.20	\$ 9,760,674.34	\$ 9,243,798.12	\$ 9,737,416.84
	Total kW saved	944.51	761.13	1,452.08	996.25	1,198.26	1,826.44	2,499.58	1,910.36	1,834.74
	\$/kW saved (plan)	\$ 2,538.28	\$ 2,434.55	\$ 1,407.82	\$ 3,247.25	\$ 2,923.23	\$ 3,145.94	\$ 3,904.92	\$ 4,838.78	\$ 5,307.25
3)	Total Electric Budget	\$ 2,397,437.10	\$ 1,853,017.79	\$ 2,044,263.55	\$ 3,235,076.39	\$ 3,502,801.21	\$ 5,745,856.20	\$ 9,760,674.34	\$ 9,243,798.12	\$ 9,737,416.84
	Total Fuel Neutral MMBtu Saved	2,839.32	1,998.41	681.99	2,545.57	2,709.02	3,560.83	2,490.20	3,030.67	3,571.14
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 844.37	\$ 927.25	\$ 2,997.51	\$ 1,270.86	\$ 1,293.01	\$ 1,613.63	\$ 3,919.63	\$ 3,050.08	\$ 2,726.70

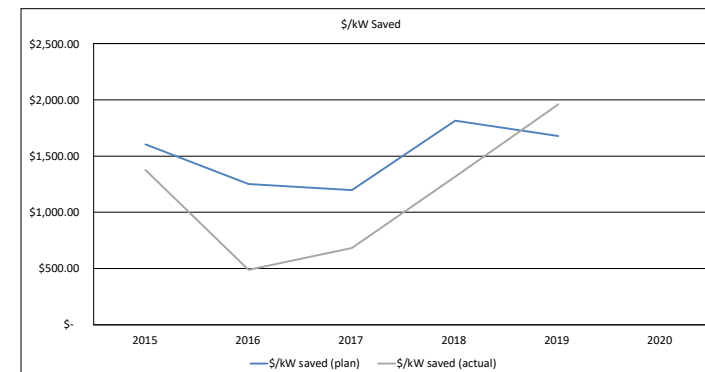
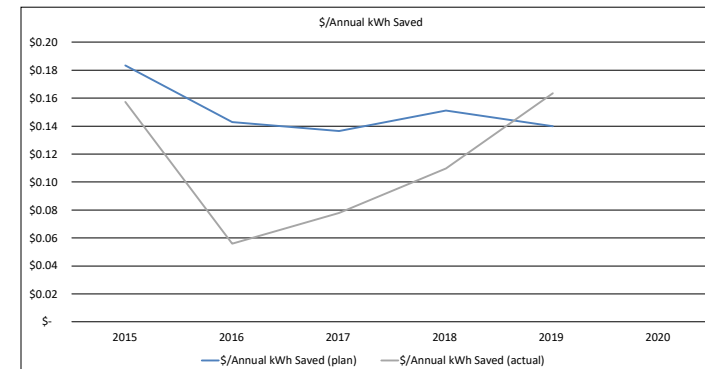
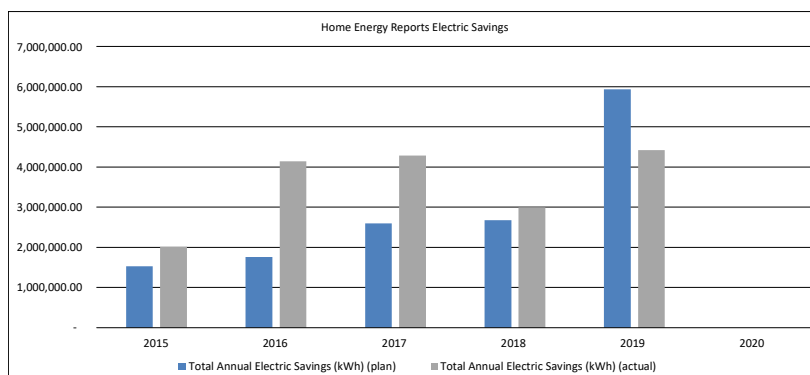
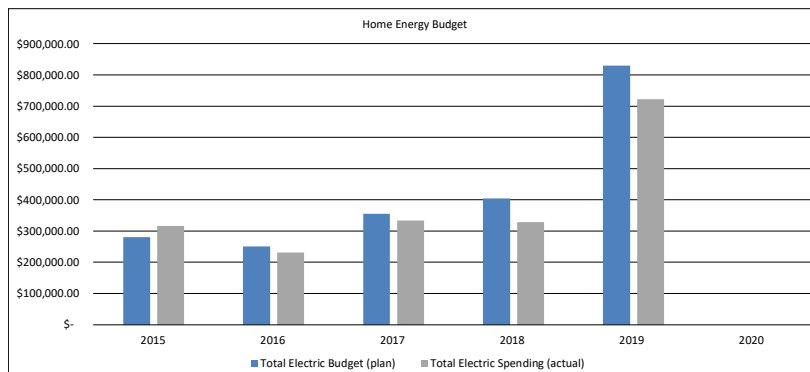
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 2,159,065.92	\$ 1,799,457.82	\$ 2,058,666.85	\$ 3,432,567.81	\$ 4,148,857.09
	Total Annual Electric Savings (kWh) (actu)	7,288,383.41	6,571,188.82	8,039,990.99	13,993,423.29	14,715,500.88
	\$/Annual kWh Saved (actual)	\$ 0.30	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.28
2)	Total Electric Spending	\$ 2,159,065.92	\$ 1,799,457.82	\$ 2,058,666.85	\$ 3,432,567.81	\$ 4,148,857.09
	Total kW saved	886.37	790.47	1,851.20	1,731.45	1,800.49
	\$/kW saved (actual)	\$ 2,435.84	\$ 2,276.43	\$ 1,112.07	\$ 1,982.48	\$ 2,304.29
3)	Total Electric Spending	\$ 2,159,065.92	\$ 1,799,457.82	\$ 2,058,666.85	\$ 3,432,567.81	\$ 4,148,857.09
	Total Fuel Neutral MMBtu Saved	5,526.86	1,478.74	341.59	4,447.45	6,681.88
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 390.65	\$ 1,216.89	\$ 6,026.76	\$ 771.81	\$ 620.91



Home Energy Reports

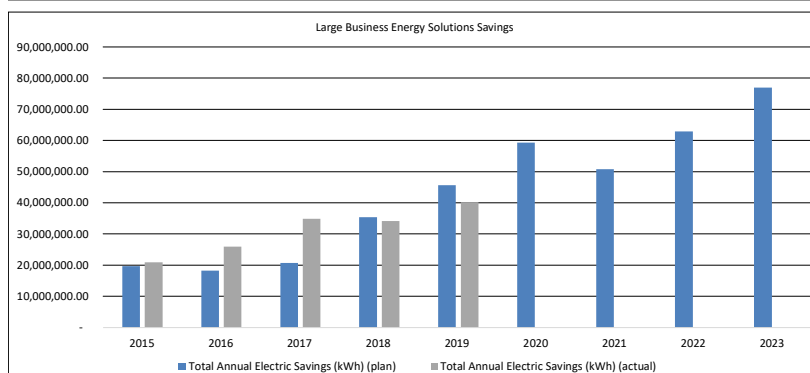
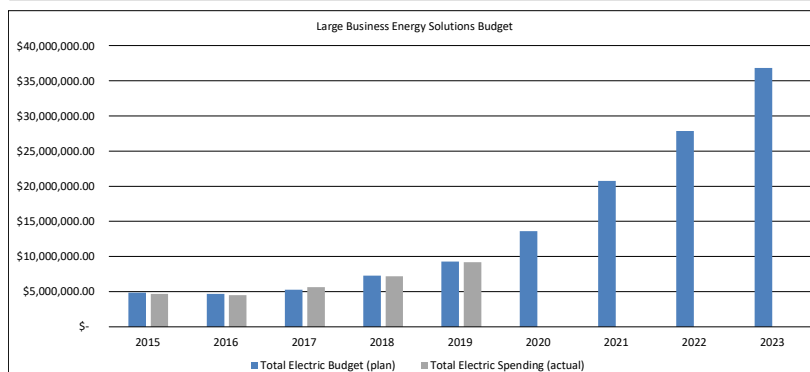
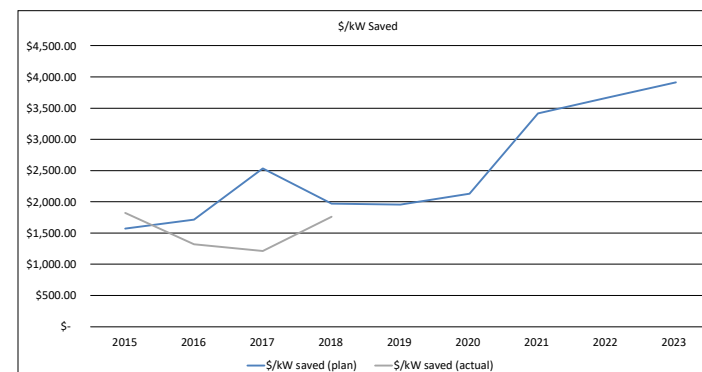
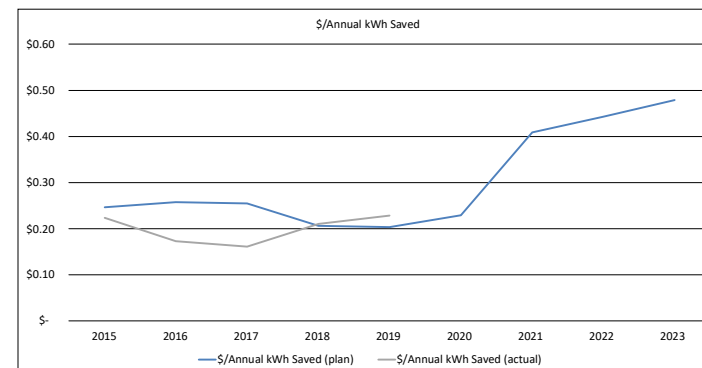
Planned		2015	2016	2017	2018	2019	2020
1)	Total Electric Budget (plan)	\$ 280,402.00	\$ 251,006.39	\$ 355,117.61	\$ 404,663.00	\$ 829,581.11	\$ -
	Total Annual Electric Savings (kWh) (plan)	1,529,834.00	1,755,680.67	2,600,000.00	2,675,775.15	5,933,600.00	-
	\$/Annual kWh Saved (plan)	\$ 0.18	\$ 0.14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

Actuals		2015	2016	2017	2018	2019	2020
1)	Total Electric Spending (actual)	\$ 316,754.26	\$ 231,662.02	\$ 333,867.14	\$ 328,178.45	\$ 722,318.03	-
	Total Annual Electric Savings (kWh) (actu)	2,013,872.00	4,142,136.00	4,283,639.00	2,990,649.57	4,420,562.20	-
	\$/Annual kWh Saved (actual)	\$ 0.16	\$ 0.06	\$ 0.08	\$ 0.11	\$ 0.16	-
2)	Total Electric Spending	\$ 316,754.26	\$ 231,662.02	\$ 333,867.14	\$ 328,178.45	\$ 722,318.03	-
	Total kW saved	229.89	472.85	489.00	249.22	368.38	-
	\$/kW saved (actual)	\$ 1,377.83	\$ 489.93	\$ 682.76	\$ 1,316.82	\$ 1,960.80	-
3)	Total Electric Spending	\$ 316,754.26	\$ 231,662.02	\$ 333,867.14	\$ 328,178.45	\$ 722,318.03	-
	Total Fuel Neutral MMBtu Saved						-
	\$/Total Fuel Neutral MMBtu Saved (actual)						-



Large Business Energy Solutions

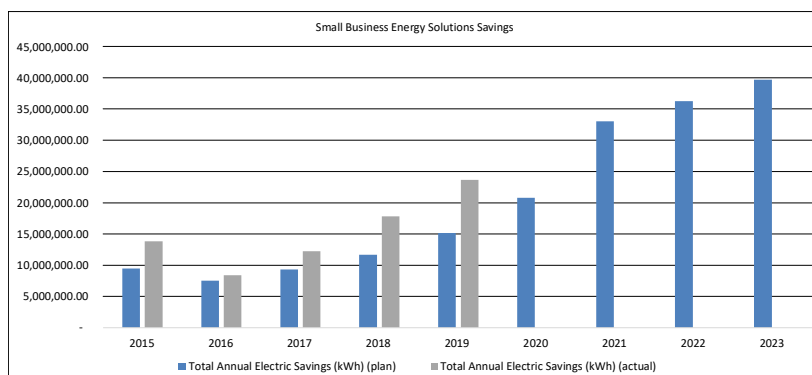
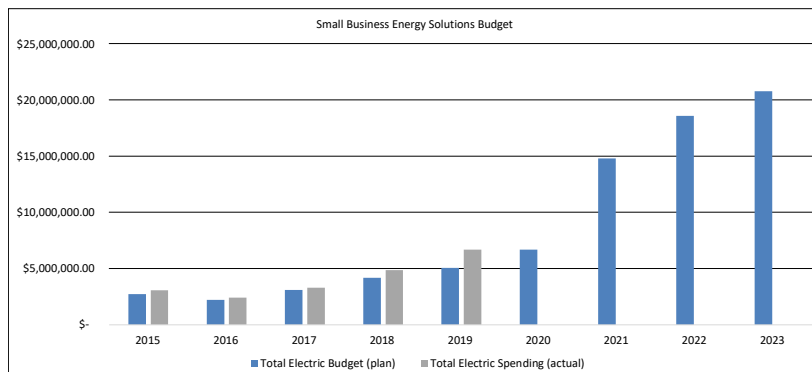
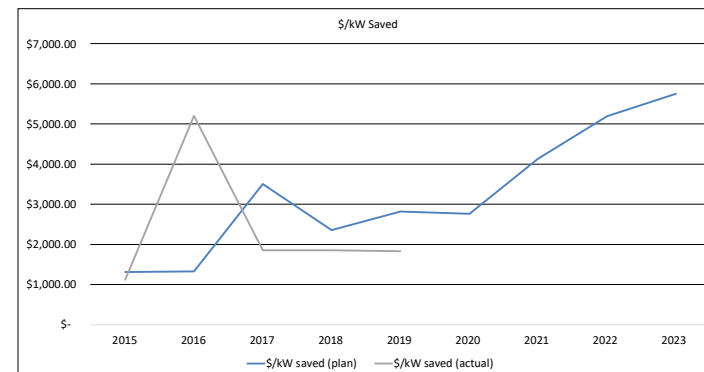
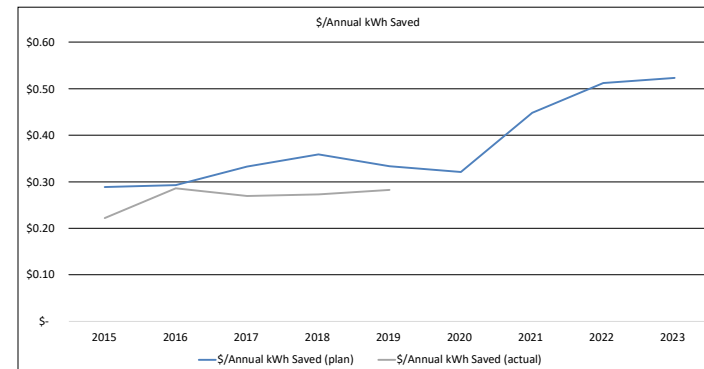
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,277,317.90	\$ 13,583,836.37	\$ 20,766,949.32	\$ 27,851,216.99	\$ 36,835,706.88
	Total Annual Electric Savings (kWh) (plan)	19,691,600.38	18,265,965.37	20,649,114.70	35,375,682.52	45,645,047.14	59,273,604.82	50,775,819.35	62,861,784.90	76,938,868.68
	\$/Annual kWh Saved (plan)	\$ 0.25	\$ 0.26	\$ 0.25	\$ 0.21	\$ 0.20	\$ 0.23	\$ 0.41	\$ 0.44	\$ 0.48
2)	Total Electric Budget	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,277,317.90	\$ 13,583,836.37	\$ 20,766,949.32	\$ 27,851,216.99	\$ 36,835,706.88
	Total kW saved	3,090.57	2,739.43	2,076.70	3,702.66	4,740.28	6,375.44	6,076.62	7,594.88	9,408.95
	\$/kW saved (plan)	\$ 1,572.00	\$ 1,717.44	\$ 2,531.75	\$ 1,969.39	\$ 1,957.13	\$ 2,130.65	\$ 3,417.52	\$ 3,667.10	\$ 3,914.96
3)	Total Electric Budget	\$ 4,858,386.57	\$ 4,704,790.31	\$ 5,257,680.00	\$ 7,291,994.08	\$ 9,277,317.90	\$ 13,583,836.37	\$ 20,766,949.32	\$ 27,851,216.99	\$ 36,835,706.88
	Total Fuel Neutral MMBtu Saved									
	\$/Total Fuel Neutral MMBtu Saved (plan)									
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)	\$ 4,674,280.43	\$ 4,476,682.34	\$ 5,610,438.18	\$ 7,168,041.24	\$ 9,179,261.33				
	Total Annual Electric Savings (kWh) (actu)	20,925,520.22	25,882,542.70	34,891,136.25	34,106,169.33	40,199,699.59				
	\$/Annual kWh Saved (actual)	\$ 0.22	\$ 0.17	\$ 0.16	\$ 0.21	\$ 0.23				
2)	Total Electric Spending	\$ 4,674,280.43	\$ 4,476,682.34	\$ 5,610,438.18	\$ 7,168,041.24	\$ 9,179,261.33				
	Total kW saved	2,564.23	3,392.39	4,628.74	4,073.47	4,495.05				
	\$/kW saved (actual)	\$ 1,822.88	\$ 1,319.62	\$ 1,212.09	\$ 1,759.69	\$ 2,042.08				
3)	Total Electric Spending	\$ 4,674,280.43	\$ 4,476,682.34	\$ 5,610,438.18	\$ 7,168,041.24	\$ 9,179,261.33				
	Total Fuel Neutral MMBtu Saved									
	\$/Total Fuel Neutral MMBtu Saved (actual)									



Small Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,056,170.81	\$ 6,678,372.17	\$ 14,798,356.26	\$ 18,569,866.90	\$ 20,766,078.46
	Total Annual Electric Savings (kWh) (plan)	9,447,957.26	7,535,748.40	9,330,764.44	11,667,553.31	15,162,512.29	20,790,420.72	33,040,059.68	36,237,954.55	39,680,431.31
	\$/Annual kWh Saved (plan)	\$ 0.29	\$ 0.29	\$ 0.33	\$ 0.36	\$ 0.33	\$ 0.32	\$ 0.45	\$ 0.51	\$ 0.52
2)	Total Electric Budget	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,056,170.81	\$ 6,678,372.17	\$ 14,798,356.26	\$ 18,569,866.90	\$ 20,766,078.46
	Total kW saved	2,082.66	1,659.37	885.51	1,774.87	1,791.78	2,414.33	3,578.92	3,577.72	3,611.58
	\$/kW saved (plan)	\$ 1,310.52	\$ 1,329.39	\$ 3,506.02	\$ 2,357.70	\$ 2,821.87	\$ 2,766.14	\$ 4,134.87	\$ 5,190.42	\$ 5,749.85
3)	Total Electric Budget	\$ 2,729,372.64	\$ 2,205,961.93	\$ 3,104,617.49	\$ 4,184,601.47	\$ 5,056,170.81	\$ 6,678,372.17	\$ 14,798,356.26	\$ 18,569,866.90	\$ 20,766,078.46
	Total Fuel Neutral MMBtu Saved							-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)							#DIV/0!	#DIV/0!	#DIV/0!

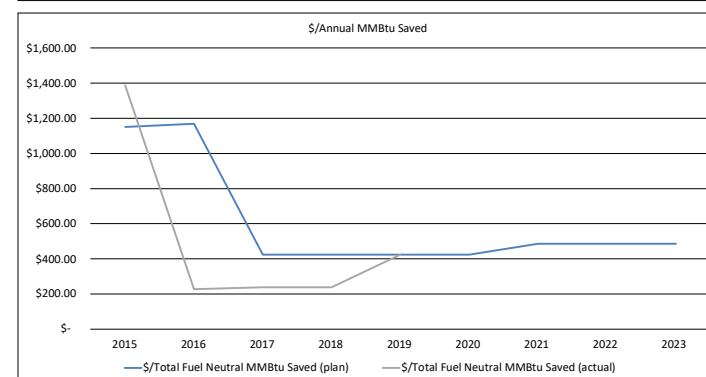
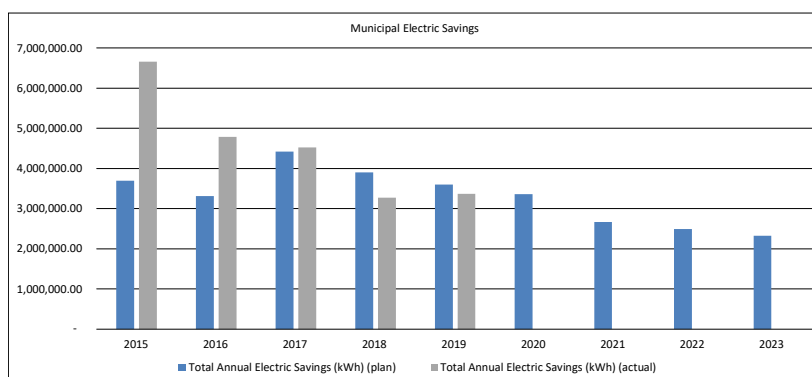
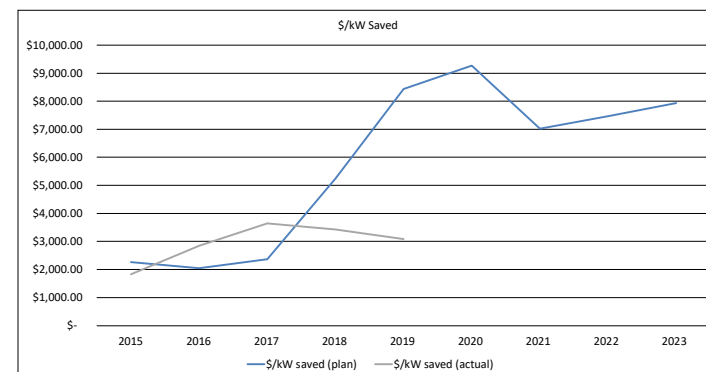
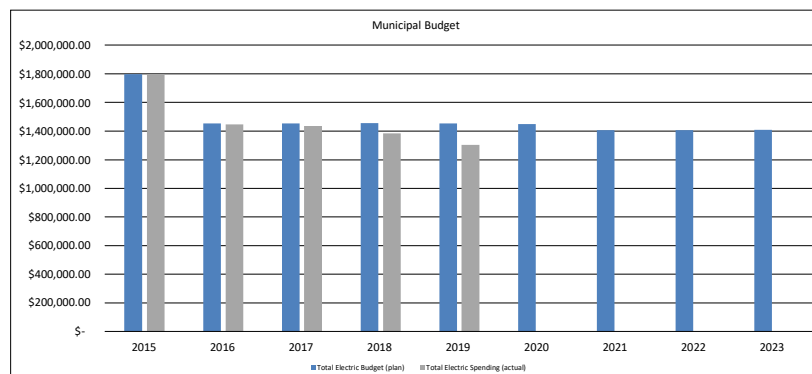
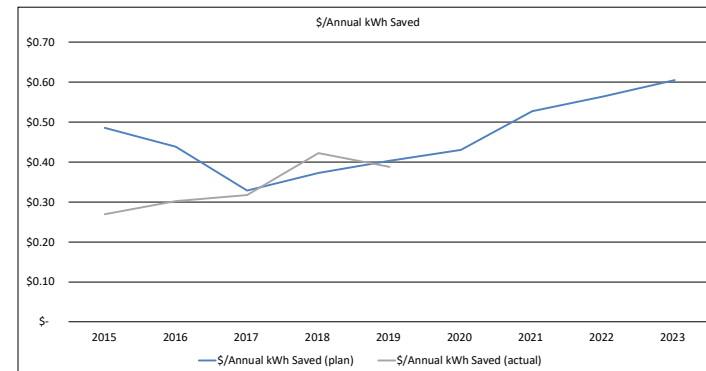
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 3,059,995.12	\$ 2,401,441.56	\$ 3,301,924.13	\$ 4,863,267.41	\$ 6,674,555.27
	Total Annual Electric Savings (kWh) (actu)	13,805,821.64	8,410,520.19	12,254,082.00	17,810,515.28	23,655,091.03
	\$/Annual kWh Saved (actual)	\$ 0.22	\$ 0.29	\$ 0.27	\$ 0.27	\$ 0.28
2)	Total Electric Spending	\$ 3,059,995.12	\$ 2,401,441.56	\$ 3,301,924.13	\$ 4,863,267.41	\$ 6,674,555.27
	Total kW saved	2,731.04	461.50	1,781.57	2,629.00	3,653.67
	\$/kW saved (actual)	\$ 1,120.45	\$ 5,203.55	\$ 1,853.38	\$ 1,849.86	\$ 1,826.81
3)	Total Electric Spending	\$ 3,059,995.12	\$ 2,401,441.56	\$ 3,301,924.13	\$ 4,863,267.41	\$ 6,674,555.27
	Total Fuel Neutral MMBtu Saved					
	\$/Total Fuel Neutral MMBtu Saved (actual)					



Municipal

Planned	2015	2016	2017	2018	2019	2020	2021	2022	2023
1) Total Electric Budget (plan)	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,453,178.57	\$ 1,447,984.57	\$ 1,406,949.68	\$ 1,406,532.58	\$ 1,407,777.18
Total Annual Electric Savings (kWh) (plan)	3,698,108.00	3,312,917.02	4,419,676.13	3,905,245.08	3,599,497.95	3,364,139.17	2,666,750.00	2,493,216.25	2,328,180.45
\$/Annual kWh Saved (plan)	\$ 0.49	\$ 0.44	\$ 0.33	\$ 0.37	\$ 0.40	\$ 0.43	\$ 0.53	\$ 0.56	\$ 0.60
2) Total Electric Budget	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,453,178.57	\$ 1,447,984.57	\$ 1,406,949.68	\$ 1,406,532.58	\$ 1,407,777.18
Total kW saved	791.05	709.12	614.36	277.96	172.13	156.23	200.28	188.48	177.25
\$/kW saved (plan)	\$ 2,272.16	\$ 2,049.67	\$ 2,364.18	\$ 5,240.16	\$ 8,442.44	\$ 9,268.28	\$ 7,025.00	\$ 7,462.61	\$ 7,942.11
3) Total Electric Budget	\$ 1,797,393.00	\$ 1,453,463.00	\$ 1,452,442.83	\$ 1,456,555.00	\$ 1,453,178.57	\$ 1,447,984.57	\$ 1,406,949.68	\$ 1,406,532.58	\$ 1,407,777.18
Total Fuel Neutral MMBtu Saved	1,561.73	1,242.64	3,433.10	3,442.82	3,434.84	3,422.56	2,893.25	2,893.25	2,893.25
\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 1,150.90	\$ 1,169.65	\$ 423.07	\$ 423.07	\$ 423.07	\$ 423.07	\$ 486.29	\$ 486.14	\$ 486.57

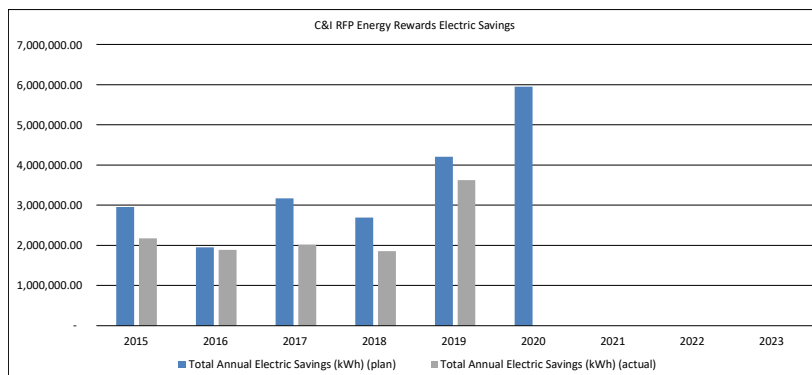
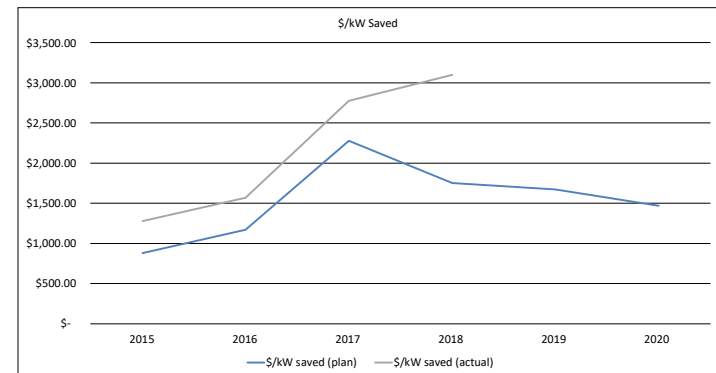
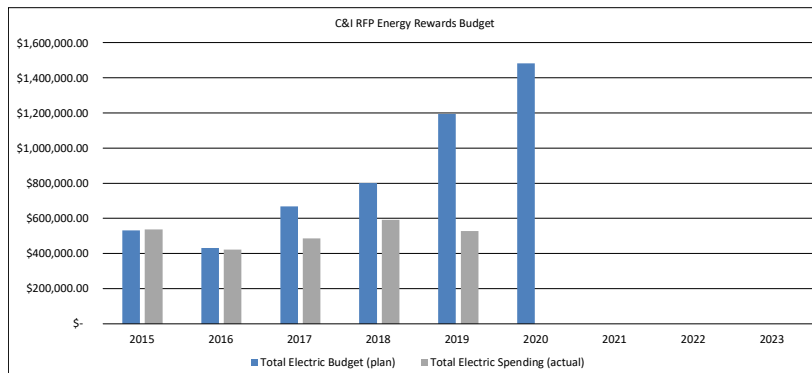
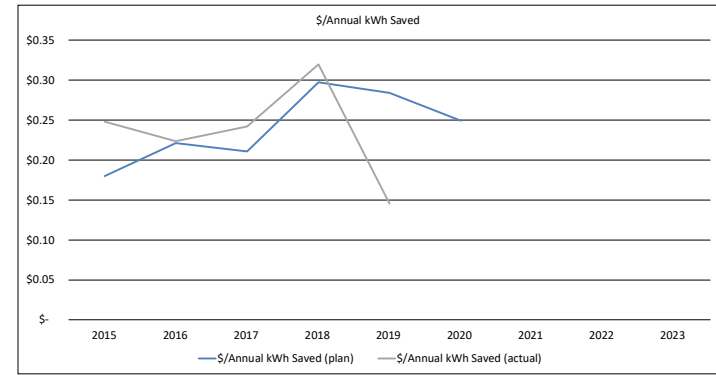
Actuals	2015	2016	2017	2018	2019
1) Total Electric Spending (actual)	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,436,276.77	\$ 1,384,622.44	\$ 1,304,495.23
Total Annual Electric Savings (kWh) (actu)	6,663,323.93	4,783,558.00	4,524,552.20	3,277,457.00	3,365,247.69
\$/Annual kWh Saved (actual)	\$ 0.27	\$ 0.30	\$ 0.32	\$ 0.42	\$ 0.39
2) Total Electric Spending	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,436,276.77	\$ 1,384,622.44	\$ 1,304,495.23
Total kW saved	983.31	508.31	393.39	403.01	421.89
\$/kW saved (actual)	\$ 1,828.66	\$ 2,846.84	\$ 3,651.03	\$ 3,435.72	\$ 3,092.01
3) Total Electric Spending	\$ 1,798,133.05	\$ 1,447,065.12	\$ 1,436,276.77	\$ 1,384,622.44	\$ 1,304,495.23
Total Fuel Neutral MMBtu Saved	1,296.50	6,349.80	6,050.72	5,803.47	3,083.40
\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 1,386.91	\$ 227.89	\$ 237.37	\$ 238.59	\$ 423.07



C&I RFP Energy Rewards Program

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 532,143.26	\$ 431,354.63	\$ 668,686.55	\$ 801,059.90	\$ 1,195,560.67	\$ 1,482,952.11			
	Total Annual Electric Savings (kWh) (plan)	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 (plan)	\$ 0.18	\$ 0.22	\$ 0.21	\$ 0.30	\$ 0.28	\$ 0.25			
2)	Total Electric Budget	\$ 532,143.26	\$ 431,354.63	\$ 668,686.55	\$ 801,059.90	\$ 1,195,560.67	\$ 1,482,952.11			
	Total kW saved	606.12	367.83	293.53	457.56	714.28	1,010.34			
	\$/kW saved (plan)	\$ 877.95	\$ 1,172.69	\$ 2,278.10	\$ 1,750.73	\$ 1,673.81	\$ 1,467.77			
3)	Total Electric Budget	\$ 532,143.26	\$ 431,354.63	\$ 668,686.55	\$ 801,059.90	\$ 1,195,560.67	\$ 1,482,952.11			
	Total Fuel Neutral MMBtu Saved									
	\$/Total Fuel Neutral MMBtu Saved (plan)									

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 537,929.38	\$ 422,586.60	\$ 486,616.60	\$ 592,467.61	\$ 528,249.27
	Total Annual Electric Savings (kWh) (actu)	2,169,714.00	1,888,877.00	2,011,970.00	1,854,063.00	3,625,832.00
	\$/Annual kWh Saved (actual)	\$ 0.25	\$ 0.22	\$ 0.24	\$ 0.32	\$ 0.15
2)	Total Electric Spending	\$ 537,929.38	\$ 422,586.60	\$ 486,616.60	\$ 592,467.61	\$ 528,249.27
	Total kW saved	420.48	269.00	175.38	191.18	349.39
	\$/kW saved (actual)	\$ 1,279.31	\$ 1,570.93	\$ 2,774.69	\$ 3,099.02	\$ 1,511.93
3)	Total Electric Spending	\$ 537,929.38	\$ 422,586.60	\$ 486,616.60	\$ 592,467.61	\$ 528,249.27
	Total Fuel Neutral MMBtu Saved					
	\$/Total Fuel Neutral MMBtu Saved (actual)					



Program Cost-Effectiveness - 2021 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.43	0.40	2.60	3,454.2	569.0	3,698.5	1,421.8	0.0	384.1	6,137.9	68.1	41.9	293	2,052.3	40,648.3
A1 - Energy Star Homes	6.19	0.50	7.05	1,672.9	134.1	2,141.1	270.4	33.2	112.2	2,598.5	24.4	1.6	60	1,882.6	47,051.3
A2 - Home Performance with Energy Star	1.80	0.31	1.96	824.7	142.6	1,067.6	457.2	86.3	77.0	1,206.4	20.3	14.7	50	1,349.4	26,912.7
A3 - Energy Star Products	1.53	1.41	2.42	1,449.1	1,340.3	2,327.0	948.1	12.1	1,736.2	12,185.5	332.1	255.5	28,290	84.0	923.5
A4 - Home Energy Reports	0.72	0.72	1.20	93.4	93.4	155.6	129.2	-	796.254	796.3	171.9	110.9	10,256	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	37.8	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	39.8	-	-	-	-	-	-	-	-
A6d - Res Energy Optimization	-	-	-	-	-	-	45.0	-	-	-	-	-	-	-	-
Sub-Total Residential	2.24	0.68	2.70	7,494.3	2,279.3	9,389.8	3,349.3	131.6	3,105.7	22,924.5	616.7	424.6	38,949	5,368.3	115,535.7
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	3.35	3.35	2.50	5,716.6	5,716.6	8,919.0	1,709.0	1,863.7	4,867.1	61,431.9	431.2	477.0	235	-	-
C2 - Small Business Energy Solutions	4.15	4.15	3.49	5,971.8	5,971.0	9,009.3	1,439.1	1,142.1	4,277.6	57,230.2	664.8	589.2	318	-	-
C3 - Municipal Energy Solutions	1.95	1.75	1.40	346.8	310.7	543.3	177.6	209.9	376.3	4,546.5	34.6	18.3	94	55.6	1,103.7
C5 - C&I Active Demand Response	2.67	2.67	2.94	726.2	726.2	798.8	271.6	-	-	-	-	-	34	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	50.2	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	33.0	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	3.47	3.46	2.79	12,761.3	12,724.5	19,270.4	3,680.4	3,215.7	9,521.1	123,208.5	1,130.6	1,084.6	681	55.6	1,103.7
Total	2.88	2.13	2.76	20,255.7	15,003.8	28,660.2	7,029.7	3,347.3	12,626.7	146,133.1	1,747.4	1,509.2	39,630	5,423.9	116,639.4

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

Annual kWh Savings		12,626,724	88.8%	kWh > 55%	Lifetime kWh Savings		146,133,056	81.0%	kWh > 55%												
Annual MMBTU Savings (in kWh)		<u>1,589,584</u>	<u>11.2%</u>		Lifetime MMBTU Savings (in kWh)		<u>34,183,637</u>	<u>19.0%</u>													
		14,216,308	100.0%				180,316,693	100.0%													
<table><tr><td>Annual Savings as a % of 2019 Sales</td><td>1.40%</td></tr></table>										Annual Savings as a % of 2019 Sales	1.40%										
Annual Savings as a % of 2019 Sales	1.40%																				
<table><tr><td>Spending per Customer</td><td>Low-Income</td><td>\$</td><td>1,156.86</td></tr><tr><td></td><td>Residential</td><td>\$</td><td>50.15</td></tr><tr><td></td><td>C&I</td><td>\$</td><td>441.40</td></tr></table>										Spending per Customer	Low-Income	\$	1,156.86		Residential	\$	50.15		C&I	\$	441.40
Spending per Customer	Low-Income	\$	1,156.86																		
	Residential	\$	50.15																		
	C&I	\$	441.40																		

Present Value Benefits - 2021 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits		
Residential Programs																					
B1 - Home Energy Assistance	\$ 3,454	\$ 569	\$ 3,698	\$ 48	\$ -	\$ 52	\$ 45	\$ -	\$ 154	\$ 168	\$ 42	\$ 37	\$ 22	\$ 569	\$ 1,075	\$ 12	\$ 1,657	\$ 67	\$ 1,730	\$ 1,798	\$ 244
A1 - Energy Star Homes	\$ 1,673	\$ 134	\$ 2,141	\$ 1	\$ -	\$ 1	\$ 1	\$ -	\$ 57	\$ 67	\$ 1	\$ 1	\$ 5	\$ 134	\$ 1,456	\$ 3	\$ 1,593	\$ 80	\$ 397	\$ 478	\$ 71
A2 - Home Performance with Energy Star	\$ 825	\$ 143	\$ 1,068	\$ 21	\$ -	\$ 21	\$ 18	\$ -	\$ 25	\$ 27	\$ 16	\$ 12	\$ 4	\$ 143	\$ 639	\$ 1	\$ 783	\$ 42	\$ 195	\$ 238	\$ 47
A3 - Energy Star Products	\$ 1,449	\$ 1,340	\$ 2,327	\$ 140	\$ -	\$ 168	\$ 146	\$ -	\$ 302	\$ 290	\$ 125	\$ 98	\$ 71	\$ 1,340	\$ 17	\$ 91	\$ 1,448	\$ 1	\$ 339	\$ 340	\$ 539
A4 - Home Energy Reports	\$ 93	\$ 93	\$ 156	\$ 7	\$ -	\$ 11	\$ 9	\$ -	\$ 22	\$ 18	\$ 10	\$ 7	\$ 8	\$ 93	\$ -	\$ -	\$ 93	\$ -	\$ 23	\$ 23	\$ 39
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6d - Res Energy Optimization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 7,494	\$ 2,279	\$ 9,390	\$ 217	\$ -	\$ 253	\$ 220	\$ -	\$ 561	\$ 569	\$ 194	\$ 156	\$ 110	\$ 2,279	\$ 3,187	\$ 107	\$ 5,573	\$ 191	\$ 2,686	\$ 2,877	\$ 940
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 5,717	\$ 5,717	\$ 8,919	\$ 474	\$ -	\$ 534	\$ 462	\$ -	\$ 1,456	\$ 781	\$ 1,148	\$ 573	\$ 288	\$ 5,717	\$ -	\$ -	\$ 5,717	\$ -	\$ 572	\$ 572	\$ 2,631
C2 - Small Business Energy Solutions	\$ 5,972	\$ 5,971	\$ 9,009	\$ 662	\$ -	\$ 731	\$ 633	\$ -	\$ 1,424	\$ 840	\$ 871	\$ 558	\$ 253	\$ 5,971	\$ -	\$ 1	\$ 5,972	\$ -	\$ 597	\$ 597	\$ 2,440
C3 - Municipal Energy Solutions	\$ 347	\$ 311	\$ 543	\$ 16	\$ -	\$ 19	\$ 16	\$ -	\$ 72	\$ 60	\$ 64	\$ 45	\$ 19	\$ 311	\$ 34	\$ -	\$ 345	\$ 2	\$ 35	\$ 36	\$ 162
C5 - C&I Active Demand Response	\$ 726	\$ 726	\$ 799	\$ 36	\$ -	\$ 329	\$ 285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 76	\$ 726	\$ -	\$ -	\$ 726	\$ -	\$ 72.62	\$ 73	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 12,761	\$ 12,724	\$ 19,270	\$ 1,188	\$ -	\$ 1,613	\$ 1,397	\$ -	\$ 2,953	\$ 1,680	\$ 2,083	\$ 1,175	\$ 636	\$ 12,724	\$ 34	\$ 1	\$ 12,760	\$ 2	\$ 1,276	\$ 1,278	\$ 5,233
Total	\$ 20,256	\$ 15,004	\$ 28,660	\$ 1,406	\$ -	\$ 1,866	\$ 1,617	\$ -	\$ 3,513	\$ 2,249	\$ 2,276	\$ 1,331	\$ 746	\$ 15,004	\$ 3,222	\$ 108	\$ 18,333	\$ 192	\$ 3,962	\$ 4,154	\$ 6,173

Portfolio Planned Versus Actual Performance - 2021										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	146,133,056	94,986,487		-	1.925%	-	\$ 135,322	\$ 169,152	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	12,626,724	8,207,371		-	0.550%	-	\$ 38,663	\$ 48,329	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	1,509	981		-	0.495%	-	\$ 34,797	\$ 43,496	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,747	1,136		-	0.330%	-	\$ 23,198	\$ 28,998	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	3,343	2,173		-	0.275%	-	\$ 19,332	\$ 24,165	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 18,332,892			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 7,029,699			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 11,303,192	\$ 7,347,075	\$ -	-	1.925%	-	\$ 135,322	\$ 169,152	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 386,633	\$ 483,292	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 20,255,681		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 386,633	\$ -	from row 9 above
12 Total Utility Costs	\$ 7,029,699	\$ -	from row 7 above
13 Portfolio GST BCR	2.73	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2022 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.50	0.41	2.67	3,971.5	657.4	4,249.3	1,589.8	0.0	432.8	6,916.9	76.7	47.2	331	2,341.5	46,350.9
A1 - Energy Star Homes	6.61	0.53	7.52	2,019.1	160.6	2,580.9	305.7	37.5	130.9	3,031.5	28.4	1.9	70	2,196.4	54,892.8
A2 - Home Performance with Energy Star	1.89	0.33	2.06	1,167.1	203.6	1,509.6	617.4	115.9	107.0	1,675.1	28.8	20.4	69	1,824.1	36,529.7
A3 - Energy Star Products	1.73	1.60	2.60	1,488.6	1,377.4	2,386.9	859.3	57.1	1,364.5	12,490.8	249.9	198.5	18,758	83.9	923.4
A4 - Home Energy Reports	1.05	1.05	1.77	133.0	133.0	223.2	126.1	-	1,153	1,152.7	248.8	160.5	10,256	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	38.7	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	45.4	-	-	-	-	-	-	-	-
A6d - Res Energy Optimization	-	-	-	-	-	-	43.6	-	-	-	-	-	-	-	-
Sub-Total Residential	2.42	0.70	2.85	8,779.3	2,531.9	10,949.9	3,626.0	210.5	3,187.8	25,267.0	632.7	428.4	29,484	6,445.9	138,696.7
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.82	2.82	2.15	5,769.0	5,769.0	8,942.6	2,047.9	2,111.6	5,384.4	66,684.6	445.9	505.7	276	-	-
C2 - Small Business Energy Solutions	3.20	3.20	2.77	5,223.7	5,222.6	7,966.3	1,630.0	1,240.9	4,593.1	61,094.7	596.9	483.1	380	-	-
C3 - Municipal Energy Solutions	1.94	1.72	1.45	333.9	296.5	520.0	172.0	187.2	354.4	4,283.2	32.5	17.0	93	55.6	1,103.7
C5 - C&I Active Demand Response	2.95	2.95	3.25	1,112.2	1,112.2	1,223.5	376.9	-	-	-	-	-	51	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	51.3	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	44.7	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.88	2.87	2.37	12,438.9	12,400.3	18,652.4	4,322.9	3,539.8	10,331.9	132,062.4	1,075.2	1,005.8	800	55.6	1,103.7
Total	2.67	1.88	2.53	21,218.2	14,932.2	29,602.3	7,948.9	3,750.2	13,519.7	157,329.5	1,707.9	1,434.2	30,284	6,501.5	139,800.4

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

17. Utility and customer costs expressed in 2012 dollars										
		Annual kWh Savings	13,519,720	87.6%	kWh > 55%	Lifetime kWh Savings		157,329,453	79.3%	kWh > 55%
		Annual MMBTU Savings (in kWh)	1,905,409	12.4%		Lifetime MMBTU Savings (in kWh)		40,971,469	20.7%	
			15,425,129	100.0%				198,300,922	100.0%	
Annual Savings as a % of 2019 Sales				1.50%						
					Spending per Customer		Low-Income	\$	1,293.55	
							Residential	\$	52.97	
							C&I	\$	518.46	

Present Value Benefits - 2022 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit		Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits		Total Non-Resource Benefits
Residential Programs																					
B1 - Home Energy Assistance	\$ 3,972	\$ 657	\$ 4,249	\$ 57	\$ -	\$ 60	\$ 52	\$ -	\$ 179	\$ 193	\$ 48	\$ 43	\$ 25	\$ 657	\$ 1,267	\$ 14	\$ 1,938	\$ 83	\$ 1,950	\$ 2,033	\$ 278
A1 - Energy Star Homes	\$ 2,019	\$ 161	\$ 2,581	\$ 1	\$ -	\$ 1	\$ 1	\$ -	\$ 69	\$ 80	\$ 1	\$ 1	\$ 6	\$ 161	\$ 1,754	\$ 4	\$ 1,918	\$ 101	\$ 479	\$ 580	\$ 83
A2 - Home Performance with Energy Star	\$ 1,167	\$ 204	\$ 1,510	\$ 30	\$ -	\$ 30	\$ 26	\$ -	\$ 35	\$ 38	\$ 23	\$ 17	\$ 5	\$ 204	\$ 901	\$ 1	\$ 1,105	\$ 62	\$ 276	\$ 338	\$ 66
A3 - Energy Star Products	\$ 1,489	\$ 1,377	\$ 2,387	\$ 149	\$ -	\$ 167	\$ 145	\$ -	\$ 318	\$ 308	\$ 123	\$ 100	\$ 67	\$ 1,377	\$ 17	\$ 93	\$ 1,487	\$ 1	\$ 349	\$ 350	\$ 550
A4 - Home Energy Reports	\$ 133	\$ 133	\$ 223	\$ 10	\$ -	\$ 16	\$ 14	\$ -	\$ 31	\$ 25	\$ 15	\$ 10	\$ 12	\$ 133	\$ -	\$ -	\$ 133	\$ -	\$ 33	\$ 33	\$ 57
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6d - Res Energy Optimization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 8,779	\$ 2,532	\$ 10,950	\$ 248	\$ -	\$ 274	\$ 238	\$ -	\$ 632	\$ 644	\$ 210	\$ 171	\$ 116	\$ 2,532	\$ 3,939	\$ 111	\$ 6,582	\$ 248	\$ 3,087	\$ 3,334	\$ 1,034
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 5,769	\$ 5,769	\$ 8,943	\$ 511	\$ -	\$ 559	\$ 484	\$ -	\$ 1,389	\$ 793	\$ 1,138	\$ 589	\$ 305	\$ 5,769	\$ -	\$ -	\$ 5,769	\$ -	\$ 577	\$ 577	\$ 2,597
C2 - Small Business Energy Solutions	\$ 5,224	\$ 5,223	\$ 7,966	\$ 550	\$ -	\$ 590	\$ 511	\$ -	\$ 1,027	\$ 778	\$ 930	\$ 596	\$ 241	\$ 5,223	\$ -	\$ 1	\$ 5,224	\$ -	\$ 522	\$ 522	\$ 2,220
C3 - Municipal Energy Solutions	\$ 334	\$ 296	\$ 520	\$ 16	\$ -	\$ 18	\$ 15	\$ -	\$ 69	\$ 57	\$ 61	\$ 43	\$ 18	\$ 296	\$ 36	\$ -	\$ 332	\$ 2	\$ 33	\$ 35	\$ 153
C5 - C&I Active Demand Response	\$ 1,112	\$ 1,112	\$ 1,223	\$ 56	\$ -	\$ 503	\$ 436	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 118	\$ 1,112	\$ -	\$ -	\$ 1,112	\$ -	\$ 111.22	\$ 111	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 12,439	\$ 12,400	\$ 18,652	\$ 1,133	\$ -	\$ 1,670	\$ 1,446	\$ -	\$ 2,485	\$ 1,627	\$ 2,129	\$ 1,228	\$ 682	\$ 12,400	\$ 36	\$ 1	\$ 12,437	\$ 2	\$ 1,244	\$ 1,245	\$ 4,970
Total	\$ 21,218	\$ 14,932	\$ 29,602	\$ 1,381	\$ -	\$ 1,944	\$ 1,684	\$ -	\$ 3,117	\$ 2,271	\$ 2,338	\$ 1,399	\$ 798	\$ 14,932	\$ 3,975	\$ 112	\$ 19,019	\$ 249	\$ 4,330	\$ 4,579	\$ 6,004

Portfolio Planned Versus Actual Performance - 2022										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	157,329,453	102,264,144		-	1.925%	-	\$ 153,016	\$ 191,270	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	13,519,720	8,787,818		-	0.550%	-	\$ 43,719	\$ 54,648	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	1,434	932		-	0.495%	-	\$ 39,347	\$ 49,184	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,708	1,110		-	0.330%	-	\$ 26,231	\$ 32,789	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	5,015	3,260		-	0.275%	-	\$ 21,859	\$ 27,324	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 19,018,922			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 7,948,863			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 11,070,059	\$ 7,195,538	\$ -	-	1.925%	-	\$ 153,016	\$ 191,270	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 437,187	\$ 546,484	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 21,218,206		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 437,187	\$ -	from row 9 above
12 Total Utility Costs	\$ 7,948,863	\$ -	from row 7 above
13 Portfolio GST BCR	2.53	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2022\$) is \$451,396.06.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.71	0.45	2.90	4,810.4	808.2	5,145.4	1,776.8	0.0	518.9	8,274.6	92.0	56.6	396	2,756.4	54,585.7
A1 - Energy Star Homes	7.55	0.63	8.53	2,393.7	200.9	3,059.1	317.1	41.5	154.2	3,548.7	33.2	3.3	80	2,510.2	62,734.5
A2 - Home Performance with Energy Star	2.29	0.39	2.43	1,556.9	263.9	2,008.1	681.2	143.6	136.6	2,103.7	37.2	26.0	88	2,370.8	47,240.7
A3 - Energy Star Products	2.10	1.95	2.76	1,606.3	1,491.5	2,567.6	764.6	164.8	1,174.6	13,301.8	207.0	170.5	18,758	84.3	927.3
A4 - Home Energy Reports	1.83	1.83	3.07	225.6	225.6	378.0	123.0	-	1,914.0	1,914.0	413.2	266.5	10,256	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	39.9	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	54.4	-	-	-	-	-	-	-	-
A6d - Res Energy Optimization	-	-	-	-	-	-	42.2	-	-	-	-	-	-	-	-
Sub-Total Residential	2.79	0.79	3.17	10,593.0	2,990.2	13,158.1	3,799.3	350.0	3,898.2	29,142.8	782.6	522.9	29,579	7,721.6	165,488.1
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.71	2.71	2.14	6,405.8	6,405.8	9,917.6	2,366.3	2,277.3	5,915.0	72,329.4	459.8	541.8	276	-	-
C2 - Small Business Energy Solutions	3.04	3.04	2.73	5,751.6	5,750.1	8,698.0	1,890.1	1,297.3	4,876.3	64,483.7	620.7	531.2	380	-	-
C3 - Municipal Energy Solutions	1.95	1.72	1.50	325.1	286.4	502.5	166.6	167.9	335.8	4,052.5	30.6	15.9	93	55.6	1,103.7
C5 - C&I Active Demand Response	3.09	3.09	3.39	1,699.8	1,699.8	1,869.8	550.8	-	-	-	-	-	77	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	52.9	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	58.2	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.79	2.78	2.38	14,182.3	14,142.1	20,987.8	5,084.9	3,742.5	11,127.1	140,865.5	1,111.1	1,088.9	825	55.6	1,103.7
Total	2.79	1.93	2.63	24,775.2	17,132.3	34,145.9	8,884.2	4,092.4	15,025.3	170,008.4	1,893.7	1,611.8	30,404	7,777.2	166,591.8

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

Annual kWh Savings		15,025,303	86.8%	kWh > 55%	Lifetime kWh Savings		170,008,374	77.7%	kWh > 55%
Annual MMBTU Savings (in kWh)		2,279,286	13.2%		Lifetime MMBTU Savings (in kWh)		48,823,250	22.3%	
		17,304,589	100.0%				218,831,624	100.0%	
Annual Savings as a % of 2019 Sales				1.67%	Spending per Customer				
					Low-Income	\$	1,445.76		
					Residential	\$	52.62		
					C&I	\$	609.85		

Present Value Benefits - 2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit		Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits		Total Non-Resource Benefits
Residential Programs																					
B1 - Home Energy Assistance	\$ 4,810	\$ 808	\$ 5,145	\$ 72	\$ -	\$ 73	\$ 63	\$ -	\$ 220	\$ 237	\$ 59	\$ 53	\$ 31	\$ 808	\$ 1,542	\$ 17	\$ 2,367	\$ 106	\$ 2,337	\$ 2,443	\$ 335
A1 - Energy Star Homes	\$ 2,394	\$ 201	\$ 3,059	\$ 3	\$ -	\$ 4	\$ 3	\$ -	\$ 83	\$ 95	\$ 3	\$ 2	\$ 8	\$ 201	\$ 2,064	\$ 4	\$ 2,269	\$ 125	\$ 566	\$ 691	\$ 99
A2 - Home Performance with Energy Star	\$ 1,557	\$ 264	\$ 2,008	\$ 40	\$ -	\$ 38	\$ 33	\$ -	\$ 45	\$ 49	\$ 30	\$ 23	\$ 6	\$ 264	\$ 1,205	\$ 1	\$ 1,470	\$ 87	\$ 367	\$ 454	\$ 84
A3 - Energy Star Products	\$ 1,606	\$ 1,492	\$ 2,568	\$ 169	\$ -	\$ 176	\$ 153	\$ -	\$ 346	\$ 341	\$ 131	\$ 108	\$ 68	\$ 1,492	\$ 18	\$ 95	\$ 1,605	\$ 1	\$ 377	\$ 379	\$ 584
A4 - Home Energy Reports	\$ 226	\$ 226	\$ 378	\$ 18	\$ -	\$ 27	\$ 24	\$ -	\$ 55	\$ 43	\$ 23	\$ 15	\$ 20	\$ 226	\$ -	\$ -	\$ 226	\$ -	\$ 56	\$ 56	\$ 96
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6d - Res Energy Optimization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 10,593	\$ 2,990	\$ 13,158	\$ 303	\$ -	\$ 318	\$ 276	\$ -	\$ 749	\$ 765	\$ 246	\$ 201	\$ 133	\$ 2,990	\$ 4,829	\$ 118	\$ 7,937	\$ 319	\$ 3,705	\$ 4,024	\$ 1,198
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 6,406	\$ 6,406	\$ 9,918	\$ 572	\$ -	\$ 599	\$ 519	\$ -	\$ 1,468	\$ 884	\$ 1,327	\$ 694	\$ 342	\$ 6,406	\$ -	\$ -	\$ 6,406	\$ -	\$ 641	\$ 641	\$ 2,871
C2 - Small Business Energy Solutions	\$ 5,752	\$ 5,750	\$ 8,698	\$ 636	\$ -	\$ 657	\$ 569	\$ -	\$ 1,122	\$ 830	\$ 1,029	\$ 647	\$ 261	\$ 5,750	\$ -	\$ 2	\$ 5,752	\$ -	\$ 575	\$ 575	\$ 2,371
C3 - Municipal Energy Solutions	\$ 325	\$ 286	\$ 502	\$ 16	\$ -	\$ 17	\$ 15	\$ -	\$ 66	\$ 55	\$ 59	\$ 42	\$ 17	\$ 286	\$ 37	\$ -	\$ 323	\$ 2	\$ 32	\$ 34	\$ 145
C5 - C&I Active Demand Response	\$ 1,700	\$ 1,700	\$ 1,870	\$ 86	\$ -	\$ 768	\$ 665	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 181	\$ 1,700	\$ -	\$ -	\$ 1,700	\$ -	\$ 169.98	\$ 170	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 14,182	\$ 14,142	\$ 20,988	\$ 1,309	\$ -	\$ 2,041	\$ 1,768	\$ -	\$ 2,656	\$ 1,769	\$ 2,414	\$ 1,383	\$ 801	\$ 14,142	\$ 37	\$ 2	\$ 14,180	\$ 2	\$ 1,418	\$ 1,420	\$ 5,388
Total	\$ 24,775	\$ 17,132	\$ 34,146	\$ 1,612	\$ -	\$ 2,359	\$ 2,044	\$ -	\$ 3,406	\$ 2,533	\$ 2,661	\$ 1,584	\$ 934	\$ 17,132	\$ 4,865	\$ 119	\$ 22,117	\$ 321	\$ 5,122	\$ 5,443	\$ 6,586

Portfolio Planned Versus Actual Performance - 2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	170,008,374	110,505,443		-	1.925%	-	\$ 171,021	\$ 213,776	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	15,025,303	9,766,447		-	0.550%	-	\$ 48,863	\$ 61,079	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	1,612	1,048		-	0.495%	-	\$ 43,977	\$ 54,971	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,894	1,231		-	0.330%	-	\$ 29,318	\$ 36,647	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	7,522	4,889		-	0.275%	-	\$ 24,432	\$ 30,539	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 22,116,837			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 8,884,197			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 13,232,640	\$ 8,601,216	\$ -	-	1.925%	-	\$ 171,021	\$ 213,776	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 488,631	\$ 610,789	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 24,775,231		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 488,631	\$ -	from row 9 above
12 Total Utility Costs	\$ 8,884,197	\$ -	from row 7 above
13 Portfolio GST BCR	2.64	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2023\$) is \$520,907.96.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2021-2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.56	0.42	2.73	12,236.2	2,034.6	13,093.2	4,788.4	0.1	1,335.8	21,329.4	236.8	145.7	1,020	7,150.2	141,584.8
A1 - Energy Star Homes	6.81	0.55	7.74	6,085.8	495.5	7,781.1	893.1	112.1	397.2	9,178.7	86.0	6.8	210	6,589.2	164,678.5
A2 - Home Performance with Energy Star	2.02	0.35	2.18	3,548.7	610.1	4,585.3	1,755.8	345.8	320.6	4,985.3	86.2	61.0	207	5,544.2	110,683.1
A3 - Energy Star Products	1.77	1.64	2.59	4,543.9	4,209.1	7,281.5	2,572.0	234.0	4,275.3	37,978.1	789.1	624.5	65,807	252.2	2,774.2
A4 - Home Energy Reports	1.19	1.19	2.00	452.0	452.0	756.8	378.3	-	3,862.9	3,862.9	833.9	537.9	30,768	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	116.5	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	139.7	-	-	-	-	-	-	-	-
A6d - Res Energy Optimization	-	-	-	-	-	-	130.8	-	-	-	-	-	-	-	-
Sub-Total Residential	2.49	0.72	2.92	26,866.6	7,801.3	33,497.9	10,774.6	692.1	10,191.7	77,334.4	2,032.0	1,375.9	98,012	19,535.9	419,720.6
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.92	2.92	2.24	17,891.4	17,891.4	27,779.2	6,123.2	6,252.5	16,166.6	200,445.8	1,336.9	1,524.5	788	-	-
C2 - Small Business Energy Solutions	3.42	3.42	2.97	16,947.1	16,943.7	25,673.6	4,959.2	3,680.4	13,747.0	182,808.5	1,882.4	1,603.6	1,077	-	-
C3 - Municipal Energy Solutions	1.95	1.73	1.45	1,005.8	893.6	1,565.7	516.2	565.1	1,066.5	12,882.1	97.6	51.2	279	166.8	3,311.1
C5 - C&I Active Demand Response	2.95	2.95	3.25	3,538.2	3,538.2	3,892.0	1,199.3	-	-	-	-	-	162	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	154.4	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	135.9	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	3.01	3.00	2.50	39,382.5	39,266.9	58,910.5	13,088.2	10,498.0	30,980.0	396,136.5	3,317.0	3,179.3	2,306	166.8	3,311.1
Total	2.78	1.97	2.64	66,249.1	47,068.2	92,408.4	23,862.8	11,190.0	41,171.7	473,470.9	5,349.0	4,555.2	100,318	19,702.7	423,031.7

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

Annual kWh Savings		41,171,747	87.7%	kWh > 55%	Lifetime kWh Savings		473,470,883	79.2%	kWh > 55%
Annual MMBTU Savings (in kWh)		5,774,279	12.3%		Lifetime MMBTU Savings (in kWh)		123,978,356	20.8%	
		46,946,026	100.0%				597,449,239	100.0%	
Cumulative Savings as a % of 2019 Sales				4.58%	Spending per Customer				
					Low-Income	\$	3,896.17		
					Residential	\$	155.74		
					C&I	\$	1,569.70		

Present Value Benefits - 2021-2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)			Environmental Benefits (\$000)
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Total Resource Benefits	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits	
Residential Programs																					
B1 - Home Energy Assistance	\$ 12,236	\$ 2,035	\$ 13,093	\$ 178	\$ -	\$ 185	\$ 160	\$ -	\$ 553	\$ 597	\$ 149	\$ 134	\$ 78	\$ 2,035	\$ 3,884	\$ 43	\$ 5,962	\$ 256	\$ 6,018	\$ 6,274	\$ 857
A1 - Energy Star Homes	\$ 6,086	\$ 496	\$ 7,781	\$ 5	\$ -	\$ 6	\$ 5	\$ -	\$ 210	\$ 241	\$ 5	\$ 4	\$ 20	\$ 496	\$ 5,273	\$ 11	\$ 5,779	\$ 307	\$ 1,442	\$ 1,749	\$ 253
A2 - Home Performance with Energy Star	\$ 3,549	\$ 610	\$ 4,585	\$ 90	\$ -	\$ 89	\$ 77	\$ -	\$ 104	\$ 113	\$ 68	\$ 52	\$ 15	\$ 610	\$ 2,745	\$ 3	\$ 3,358	\$ 191	\$ 839	\$ 1,030	\$ 198
A3 - Energy Star Products	\$ 4,544	\$ 4,209	\$ 7,281	\$ 458	\$ -	\$ 512	\$ 443	\$ -	\$ 966	\$ 939	\$ 379	\$ 307	\$ 206	\$ 4,209	\$ 52	\$ 279	\$ 4,540	\$ 4	\$ 1,065	\$ 1,069	\$ 1,672
A4 - Home Energy Reports	\$ 452	\$ 452	\$ 757	\$ 36	\$ -	\$ 54	\$ 47	\$ -	\$ 108	\$ 86	\$ 48	\$ 31	\$ 40	\$ 452	\$ -	\$ -	\$ 452	\$ -	\$ 113	\$ 113	\$ 192
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6d - Res Energy Optimization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 26,867	\$ 7,801	\$ 33,498	\$ 768	\$ -	\$ 846	\$ 733	\$ -	\$ 1,942	\$ 1,977	\$ 650	\$ 527	\$ 360	\$ 7,801	\$ 11,955	\$ 335	\$ 20,092	\$ 757	\$ 9,477	\$ 10,234	\$ 3,172
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 17,891	\$ 17,891	\$ 27,779	\$ 1,557	\$ -	\$ 1,692	\$ 1,466	\$ -	\$ 4,314	\$ 2,458	\$ 3,612	\$ 1,857	\$ 936	\$ 17,891	\$ -	\$ -	\$ 17,891	\$ -	\$ 1,789	\$ 1,789	\$ 8,099
C2 - Small Business Energy Solutions	\$ 16,947	\$ 16,944	\$ 25,674	\$ 1,848	\$ -	\$ 1,977	\$ 1,713	\$ -	\$ 3,573	\$ 2,447	\$ 2,830	\$ 1,801	\$ 755	\$ 16,944	\$ -	\$ 3	\$ 16,947	\$ -	\$ 1,694	\$ 1,694	\$ 7,032
C3 - Municipal Energy Solutions	\$ 1,006	\$ 894	\$ 1,566	\$ 49	\$ -	\$ 53	\$ 46	\$ -	\$ 208	\$ 171	\$ 184	\$ 129	\$ 53	\$ 894	\$ 107	\$ -	\$ 1,000	\$ 5	\$ 100	\$ 105	\$ 460
C5 - C&I Active Demand Response	\$ 3,538	\$ 3,538	\$ 3,892	\$ 177	\$ -	\$ 1,600	\$ 1,386	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 375	\$ 3,538	\$ -	\$ -	\$ 3,538	\$ -	\$ 354	\$ 354	\$ -
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 39,382	\$ 39,267	\$ 58,911	\$ 3,631	\$ -	\$ 5,323	\$ 4,611	\$ -	\$ 8,094	\$ 5,076	\$ 6,626	\$ 3,787	\$ 2,119	\$ 39,267	\$ 107	\$ 3	\$ 39,377	\$ 5	\$ 3,937	\$ 3,943	\$ 15,591
Total	\$ 66,249	\$ 47,068	\$ 92,408	\$ 4,399	\$ -	\$ 6,169	\$ 5,344	\$ -	\$ 10,036	\$ 7,053	\$ 7,276	\$ 4,314	\$ 2,478	\$ 47,068	\$ 12,062	\$ 339	\$ 59,469	\$ 763	\$ 13,414	\$ 14,177	\$ 18,763

Portfolio Planned Versus Actual Performance - 2021-2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	125% of Planned PI		Actual PI	Source
1 Lifetime kWh Savings	473,470,883	307,756,074		-	1.925%	-	\$ 459,358	\$ 574,198	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	41,171,747	26,761,636		-	0.550%	-	\$ 131,245	\$ 164,056	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	4,555	2,961		-	0.495%	-	\$ 118,121	\$ 147,651	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	5,349	3,477		-	0.330%	-	\$ 78,747	\$ 98,434	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	15,880	10,322		-	0.275%	-	\$ 65,623	\$ 82,028	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 59,468,651			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 23,862,759			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 35,605,891	\$ 23,143,829	\$ -	-	1.925%	-	\$ 459,358	\$ 574,198	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 1,312,452	\$ 1,640,565	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 66,249,118		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 1,312,452	\$ -	from row 9 above
12 Total Utility Costs	\$ 23,862,759	\$ -	from row 7 above
13 Portfolio GST BCR	2.63	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Three-year nominal PI is \$1,358,937.48.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

ADR Program Cost-Effectiveness

2021									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	0.00	-	-	-	-	-	-	-	-
Sub-Total Residential	0.00	-	-	-	-	-	-	-	-
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	2.67	726.2	271.6	-	-	-	-	3,343.2	-
Sub-Total Commercial & Industrial	2.67	726.2	271.6	-	-	-	-	3,343.2	-
Total	2.67	726.2	271.6	-	-	-	-	3,343.2	-

(1) Utility and Customer Costs in 2021 Dollars

2022									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	0.00	-	-	-	-	-	-	-	-
Sub-Total Residential	0.00	-	-	-	-	-	-	-	-
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	2.95	1,112.2	376.9	-	-	-	-	5,014.8	-
Sub-Total Commercial & Industrial	2.95	1,112.2	376.9	-	-	-	-	5,014.8	-
Total	2.95	1,112.2	376.9	-	-	-	-	5,014.8	-

(1) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs tab.

2023									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	0.00	-	-	-	-	-	-	-	-
Sub-Total Residential	0.00	-	-	-	-	-	-	-	-
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	3.09	1,699.8	550.8	-	-	-	-	7,522.2	-
Sub-Total Commercial & Industrial	3.09	1,699.8	550.8	-	-	-	-	7,522.2	-
Total	3.09	1,699.8	550.8	-	-	-	-	7,522.2	-

(1) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs tab.

NHPUC Docket No. 20-092

		Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU			
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023			
B1b - HEA (HVAC System)	Wifi Thermostat, Oil	E21B1b018	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%																		
B1b - HEA (HVAC System)	Wifi Thermostat, Propane	E21B1b019	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%																		
B1b - HEA (HVAC System)	Wifi Thermostat, Wood Pellets	E21B1b020	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%																		
B1b - HEA (HVAC System)	Mini Split HP (cooling)	E21B1b021	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	91%	91%	91%																		
B1b - HEA (HVAC System)	Mini Split HP (heating)	E21B1b022	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	91%	91%	91%																		
Home Energy Assistance Subtotal																		384.1	432.8	518.9	6,137.9	6,916.9	8,274.6	68.1	76.7	92.0	41.9	47.2	56.6	2,052.3	2,341.5	2,756.4	40,648.3	46,350.9	54,585.7

			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A1a - ES Homes	Cooling, Electric, SF	E21A1a001	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Electric, SF	E21A1a002	-	4	5	6	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	70.2	81.9	93.6	1,754.7	2,047.2	2,339.6	22.3	26.0	29.7	-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, SF	E21A1a003	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Oil, SF	E21A1a004	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Propane, SF	E21A1a005	56	65	74	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	30.4	35.5	40.5	760.1	886.8	1,013.4	-	-	-	-	-	-	1,881.6	2,195.2	2,508.8	47,039.7	54,879.3	62,719.1
A1a - ES Homes	Heating, Wood Pellets, SF	E21A1a006	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Electric, SF	E21A1a007	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Gas, SF	E21A1a008	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Oil, SF	E21A1a009	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Propane, SF	E21A1a010	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Wood Pellets, SF	E21A1a011	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Cooling, Electric, MF	E21A1a012	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Electric, MF	E21A1a013	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Gas, MF	E21A1a014	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Oil, MF	E21A1a015	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Propane, MF	E21A1a016	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Heating, Wood Pellets, MF	E21A1a017	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Electric, MF	E21A1a018	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Gas, MF	E21A1a019	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Oil, MF	E21A1a020	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Propane, MF	E21A1a021	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Hot Water, Wood Pellets, MF	E21A1a022	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	LED Bulb	E21A1a023	617	720	823	3	3	2	100%	100%	100%	98%	98%	98%	100%	100%	100%	3.9	4.6	5.2	11.8	13.8	10.5	0.8	1.0	1.1	0.5	0.6	0.7	-	-	-	-	-	-
A1a - ES Homes	LED Fixture	E21A1a024	373	435	497	3	3	2	100%	100%	100%	100%	100%	100%	100%	100%	100%	2.0	2.4	2.7	6.1	7.2	5.5	0.4	0.5	0.6	0.3	0.3	0.4	-	-	-	-	-	-
A1a - ES Homes	Refrigerator	E21A1a025	48	56	64	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	2.1	2.5	2.8	25.5	29.7	33.9	0.2	0.3	0.3	0.3	0.3	0.4	-	-	-	-	-	-
A1a - ES Homes	Clothes Washer	E21A1a026	15	17	20	11	11	11	100%	100%	100%	100%	100%	100%	100%	100%	100%	1.3	1.6	1.8	14.8	17.3	19.8	0.2	0.2	0.3	0.2	0.2	0.2	1.1	1.2	1.4	11.6	13.5	15.4
A1a - ES Homes	Clothes Dryer	E21A1a027	13	15	18	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	2.1	2.5	2.8	25.4	29.6	33.9	0.4	0.4	0.5	0.3	0.3	0.4	-	-	-	-	-	-
A1a - ES Homes	HERS - Lighting and Appliances	E21A1a028	-	-	-	1	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%																		
A1a - ES Homes	Residential New Construction Code Compliance	E21A1a029	1	1	1	20	20	20	100%	100%	100%	100%	100%	100%	100%	35%	35%	35%	-	-	4.6	-	-	92.1	-	-	0.7	-	-	1.2	-	-	-	-	-
ES Homes Subtotal																		112.2	130.9	154.2	2,598.5	3,031.5	3,548.7	24.4	28.4	33.2	1.6	1.9	3.3	1,882.6	2,196.4	2,510.2	47,051.3	54,892.8	62,734.5

			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023			
A2a - HPwES (Weatheriza)	Air Sealing, Cord Wood	E21A2a001	3	5	6	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	4.1	6.2	7.8	62.1	92.4	117.7	-	-	-	2.3	3.4	4.3	22.7	33.8	43.1	340.9	507.0	646.0
A2a - HPwES (Weatheriza)	Air Sealing, Electric	E21A2a002	6	8	10	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	7.8	10.9	13.9	117.4	163.3	208.1	2.5	3.5	4.4	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Air Sealing, Gas	E21A2a003	-	-	-	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
A2a - HPwES (Weatheriza)	Air Sealing, Kerosene	E21A2a004	-	-	-	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
A2a - HPwES (Weatheriza)	Air Sealing, Oil	E21A2a005	18	24	31	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	2.8	3.7	4.8	41.6	56.1	71.5	-	-	-	1.5	2.1	2.6	228.3	308.3	392.8	3,425.2	4,624.8	5,891.9
A2a - HPwES (Weatheriza)	Air Sealing, Propane	E21A2a006	8	11	15	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	2.0	2.7	3.5	30.2	40.9	52.1	-	-	-	1.1	1.5	1.9	83.3	112.9	143.9	1,250.2	1,694.0	2,158.1
A2a - HPwES (Weatheriza)	Air Sealing, Wood Pellets	E21A2a007	-	-	-	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Cord Wood	E21A2a008	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Electric	E21A2a009	2	2	3	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	0.5	0.6	0.8	4.9	6.2	7.9	0.1	0.1	0.2	0.0	0.0	0.1	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Gas	E21A2a010	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Kerosene	E21A2a011	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Oil	E21A2a012	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Propane	E21A2a013	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Faucet Aerator, Wood Pellets	E21A2a014	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Cord Wood	E21A2a015	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Electric	E21A2a016	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Gas	E21A2a017	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Kerosene	E21A2a018	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Oil	E21A2a019	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Propane	E21A2a020	0	1	1	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	1.2	1.6	2.0	11.7	16.1	20.5
A2a - HPwES (Weatheriza)	Hand Held Showerhead, Wood Pellets	E21A2a021	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Insulation, Cord Wood	E21A2a022	3	5	6	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	0.9	1.2	1.5	21.8	30.0	38.2	-	-	-	0.5	0.7	0.8	49.7	68.5	87.3	1,243.6	1,712.8	2,182.1
A2a - HPwES (Weatheriza)	Insulation, Electric	E21A2a023	4	6	8	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	21.1	29.1	37.0	527.4	726.5	925.4	6.7	9.2	11.8	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza)	Insulation, Gas	E21A2a024	-	-	-	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Insulation, Kerosene	E21A2a025	-	-	-	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Insulation, Oil	E21A2a026	34	47	59	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	8.6	11.8	15.1	214.6	295.6	376.6	-	-	-	4.7	6.5	8.3	471.7	649.7	827.6	11,791.7	16,241.5	20,691.2
A2a - HPwES (Weatheriza)	Insulation, Propane	E21A2a027	8	11	15	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	2.1	2.9	3.7	52.9	72.8	92.8	-	-	-	1.2	1.6	2.0	143.4	197.6	251.7	3,586.0	4,939.2	6,292.3
A2a - HPwES (Weatheriza)	Insulation, Wood Pellets	E21A2a028	-	-	-	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Cord Wood	E21A2a029	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Electric	E21A2a030	3	4	5	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	0.4	0.6	0.7	4.2	5.8	7.4	0.1	0.1	0.1	0.0	0.0	0.1	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Gas	E21A2a031	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Kerosene	E21A2a032	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Oil	E21A2a033	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Propane	E21A2a034	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Low Flow Showerhead, Wood Pellets	E21A2a035	-	-	-	10	10	10	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Cord Wood	E21A2a036	-	-	-	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatheriza)	Pipe Insulation - Hot Water, Electric	E21A2a037	-	-	-	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-															

			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A4a - Home Energy Report	Home Energy Reports	E21A4a001	10,256	10,256	10,256	1	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	796.3	1,152.7	1,914.0	796.3	1,152.7	1,914.0	171.9	248.8	413.2	110.9	160.5	266.5	-	-	-	-	-	-
Residential Behavior Subtotal																		796.3	1,152.7	1,914.0	796.3	1,152.7	1,914.0	171.9	248.8	413.2	110.9	160.5	266.5	-	-	-	-	-	-

		Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023		
C1a - LCI Retrofit	Custom Large Compressed Air Retro	E21C1a001	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Custom Large Hot Water Retro	E21C1a002	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Custom Large HVAC Retro	E21C1a003	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Custom Large Lighting Retro - Interior	E21C1a004	8	9	10	13	13	13	94%	89%	84%	100%	100%	100%	100%	100%	100%	1,568.4	1,670.6	1,751.9	20,389.0	21,717.6	22,775.0	191.5	204.0	213.9	251.2	267.6	280.6	-	-	-		
C1a - LCI Retrofit	Custom Large Lighting Retro - Exterior	E21C1a047	20	24	28	13	13	13	94%	89%	84%	100%	100%	100%	100%	100%	100%	164.2	186.6	205.5	2,134.9	2,425.6	2,670.9	32.9	37.4	41.1	-	-	-	-	-	-		
C1a - LCI Retrofit	Custom Large Lighting Retro - Controls	E21C1a048	16	20	24	10	10	10	94%	89%	84%	100%	100%	100%	100%	100%	100%	128.9	152.6	172.8	1,289.3	1,525.9	1,728.2	1.7	2.0	2.2	1.9	2.3	2.6	-	-	-		
C1a - LCI Retrofit	Custom Large Motors Retro	E21C1a005	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Custom Large Process Retro	E21C1a006	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Custom Large Refrigeration Retro	E21C1a007	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Custom Large Other Retro	E21C1a008	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	90%	90%	90%																	
C1a - LCI Retrofit	Daylight Dimming	E21C1a009	-	-	-	9	9	9	94%	89%	84%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C1a010	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C1a011	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C1a012	125	175	225	10	10	10	94%	89%	84%	100%	100%	100%	100%	100%	100%	1,527.0	2,024.1	2,456.2	15,270.3	20,241.3	24,562.4	118.9	157.6	191.3	154.1	204.2	247.8	-	-	-		
C1a - LCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C1a013	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Lighting Occupancy Sensors	E21C1a014	-	-	-	9	9	9	94%	89%	84%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Boiler Reset Controls, Electric	E21C1a015	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Case Motor Replacement	E21C1a016	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Cooler Night Cover	E21C1a017	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Demand Control Ventilation	E21C1a018	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Door Heater Controls	E21C1a019	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C1a020	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Duct Sealing, Electric	E21C1a021	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Ductless Mini Split Heat Pump	E21C1a022	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C1a023	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Electronic Defrost Control	E21C1a024	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Energy Management System, Electric	E21C1a025	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C1a026	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Evaporator Fan Control	E21C1a027	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Faucet Aerator, Electric	E21C1a028	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Hotel Occupancy Sensor	E21C1a031	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Low Pressure Drop Filter	E21C1a032	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C1a033	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Low-Flow Showerhead, Electric	E21C1a034	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Motors, Open Drip	E21C1a035	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C1a036	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Novelty Cooler Shutoff	E21C1a037	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Pipe Wrap - Heating, Electric	E21C1a038	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C1a039	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Pre Rinse Spray Valve, Electric	E21C1a040	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Programmable Thermostat, Electric	E21C1a041	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%																	
C1a - LCI Retrofit	Steam Trap, Electric	E21C1a042	-	-	-	6	6	6	10																									

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			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023			
C1d - LCI Direct Install	Ductless Mini Split Heat Pump	E21C1d024	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C1d025	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Electronic Defrost Control	E21C1d026	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Energy Management System, Electric	E21C1d027	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C1d028	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Evaporator Fan Control	E21C1d029	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Faucet Aerator, Electric	E21C1d030	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Hotel Occupancy Sensor	E21C1d031	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Low Pressure Drop Filter	E21C1d032	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C1d033	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Low-Flow Showerhead, Electric	E21C1d034	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Motors, Open Drip	E21C1d035	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C1d036	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Novelty Cooler Shutoff	E21C1d037	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Pipe Wrap - Heating, Electric	E21C1d038	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C1d039	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Pre Rinse Spray Valve, Electric	E21C1d040	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Programmable Thermostat, Electric	E21C1d041	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Steam Trap, Electric	E21C1d042	-	-	-	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Variable Frequency Drive	E21C1d043	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Variable Frequency Drive with Motor	E21C1d044	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Vending Miser	E21C1d045	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C1d - LCI Direct Install	Zero Loss Condensate Drain	E21C1d046	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
Large Business Energy Solutions Subtotal																		4,867.1	5,384.4	5,915.0	61,431.9	66,684.6	72,329.4	431.2	445.9	459.8	477.0	505.7	541.8	-	-	-	-	-	

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			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2d - SCI Direct Install	Custom Small Compressed Air Direct Install	E21C2d001	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Hot Water Direct Install	E21C2d002	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small HVAC Direct Install	E21C2d003	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Interior	E21C2d004	-	-	-	13	13	13	94%	89%	84%	100%	100%	100%	107%	107%	107%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Exterior	E21C2d005	-	-	-	-	-	-	94%	89%	84%	100%	100%	100%	103%	103%	103%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Controls	E21C2d006	-	-	-	-	-	-	94%	89%	84%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Motors Direct Install	E21C2d007	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Process Direct Install	E21C2d008	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Refrigeration Direct Install	E21C2d009	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Custom Small Other Direct Install	E21C2d010	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	90%	90%	90%												-	-	-	-	-	-	
C2d - SCI Direct Install	Daylight Dimming	E21C2d011	-	-	-	9	9	9	94%	89%	84%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Lighting Fixture - Exterior w/ Controls	E21C2d012	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	103%	103%	103%												-	-	-	-	-	-	
C2d - SCI Direct Install	Lighting Fixture - Exterior w/o Controls	E21C2d013	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	103%	103%	103%												-	-	-	-	-	-	
C2d - SCI Direct Install	Lighting Fixture - Interior w/ Controls	E21C2d014	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	107%	107%	107%												-	-	-	-	-	-	
C2d - SCI Direct Install	Lighting Fixture - Interior w/o Controls	E21C2d015	-	-	-	10	10	10	94%	89%	84%	100%	100%	100%	107%	107%	107%												-	-	-	-	-	-	
C2d - SCI Direct Install	Lighting Occupancy Sensors	E21C2d016	-	-	-	9	9	9	94%	89%	84%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Boiler Reset Controls, Electric	E21C2d017	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Case Motor Replacement	E21C2d018	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Cooler Night Cover	E21C2d019	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Demand Control Ventilation	E21C2d020	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Door Heater Controls	E21C2d021	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C2d022	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Duct Sealing, Electric	E21C2d023	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Ductless Mini Split Heat Pump	E21C2d024	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C2d025	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Electronic Defrost Control	E21C2d026	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Energy Management System, Electric	E21C2d027	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C2d028	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Evaporator Fan Control	E21C2d029	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Faucet Aerator, Electric	E21C2d030	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Hotel Occupancy Sensor	E21C2d031	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Low Pressure Drop Filter	E21C2d032	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C2d033	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Low-Flow Showerhead, Electric	E21C2d034	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Motors, Open Drip	E21C2d035	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C2d036	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Novelty Cooler Shutoff	E21C2d037	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Pipe Wrap - Heating, Electric	E21C2d038	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C2d039	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Pre Rinse Spray Valve, Electric	E21C2d040	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Programmable Thermostat, Electric	E21C2d041	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Steam Trap, Electric	E21C2d042	-	-	-	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Variable Frequency Drive	E21C2d043	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Variable Frequency Drive with Motor	E21C2d044	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Vending Miser	E21C2d045	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
C2d - SCI Direct Install	Zero Loss Condensate Drain	E21C2d046	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-	-	
Small Business Energy Solutions Subtotal									100%	100%	100%	100%	100%	100%				4,277.6	4,593.1	4,876.3	57,230.2	61,094.7	64,483.7	664.8	596.9	620.7	589.2	483.1	531.2	-	-	-	-	-	-

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000466

		Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023		
C3b - Muni New Equipment	Unitary Air Conditioner	E21C3b080	1	1	1	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	2.3	2.3	2.3	35.0	35.0	35.0	-	-	-	-	-	-	-	-	-		
C3b - Muni New Equipment	Water Source Heat Pump	E21C3b081	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3b - Muni New Equipment	Zero Loss Condensate Drain	E21C3b082	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3b - Muni New Equipment	High Efficiency Chiller - FL	E21C3b083	-	-	-	23	23	23	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3b - Muni New Equipment	High Efficiency Chiller - IPLV	E21C3b084	-	-	-	23	23	23	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Compressed Air Direct Install	E21C3d001	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Hot Water Direct Install	E21C3d002	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni HVAC Direct Install	E21C3d003	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Interior	E21C3d004	-	-	-	-	-	-	94%	94%	94%	100%	100%	100%	100%	107%	107%	107%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Exterior	E21C3d005	-	-	-	-	-	-	94%	94%	94%	100%	100%	100%	100%	103%	103%	103%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Controls	E21C3d006	-	-	-	-	-	-	94%	94%	94%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Motors Direct Install	E21C3d007	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Process Direct Install	E21C3d008	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Refrigeration Direct Install	E21C3d009	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Custom Muni Other Direct Install	E21C3d010	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Daylight Dimming	E21C3d011	-	-	-	9	9	9	94%	94%	94%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Lighting Fixture - Exterior w/ Controls	E21C3d012	-	-	-	10	10	10	94%	94%	94%	100%	100%	100%	100%	103%	103%	103%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Lighting Fixture - Exterior w/o Controls	E21C3d013	-	-	-	10	10	10	94%	94%	94%	100%	100%	100%	100%	103%	103%	103%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Lighting Fixture - Interior w/ Controls	E21C3d014	-	-	-	10	10	10	94%	94%	94%	100%	100%	100%	100%	107%	107%	107%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Lighting Fixture - Interior w/o Controls	E21C3d015	-	-	-	10	10	10	94%	94%	94%	100%	100%	100%	100%	107%	107%	107%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Lighting Occupancy Sensors	E21C3d016	-	-	-	9	9	9	94%	94%	94%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Air Sealing, Electric	E21C3d017	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Air Sealing, Gas	E21C3d018	-	-	-	16	16	16	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Air Sealing, Oil	E21C3d019	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Air Sealing, Propane	E21C3d020	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Boiler Reset Controls, Gas	E21C3d021	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Boiler Reset Controls, Oil	E21C3d022	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Boiler Reset Controls, Propane	E21C3d023	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Case Motor Replacement	E21C3d024	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Cooler Night Cover	E21C3d025	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Demand Control Ventilation	E21C3d026	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Door Heater Controls	E21C3d027	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C3d028	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Insulation, Electric	E21C3d029	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Insulation, Gas	E21C3d030	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Insulation, Oil	E21C3d031	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Insulation, Propane	E21C3d032	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Sealing, Electric	E21C3d033	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Sealing, Gas	E21C3d034	-	-	-	21	21	21	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Sealing, Oil	E21C3d035	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Duct Sealing, Propane	E21C3d036	-	-	-	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	Ductless Mini Split Heat Pump	E21C3d037	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
C3d - Muni Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C3d038	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-					

			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023			
C3d - Muni Direct Install	Low-Flow Showerhead, Gas	E21C3d061	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Low-Flow Showerhead, Oil	E21C3d062	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Low-Flow Showerhead, Propane	E21C3d063	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Motors, Open Drip	E21C3d064	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Motors, Totally Enclosed Fan Cooled	E21C3d065	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Novelty Cooler Shutoff	E21C3d066	-	-	-	10	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Heating, Electric	E21C3d067	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Heating, Gas	E21C3d068	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Heating, Oil	E21C3d069	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Heating, Propane	E21C3d070	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Electric	E21C3d071	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Gas	E21C3d072	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Oil	E21C3d073	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Propane	E21C3d074	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pre Rinse Spray Valve, Electric	E21C3d075	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pre Rinse Spray Valve, Gas	E21C3d076	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pre Rinse Spray Valve, Oil	E21C3d077	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Pre Rinse Spray Valve, Propane	E21C3d078	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Programmable Thermostat, Electric	E21C3d079	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Programmable Thermostat, Gas	E21C3d080	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Programmable Thermostat, Oil	E21C3d081	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Programmable Thermostat, Propane	E21C3d082	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Steam Trap, Electric	E21C3d083	-	-	-	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Steam Trap, Gas	E21C3d084	-	-	-	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Steam Trap, Oil	E21C3d085	-	-	-	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Steam Trap, Propane	E21C3d086	-	-	-	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Variable Frequency Drive	E21C3d087	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Variable Frequency Drive with Motor	E21C3d088	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Vending Miser	E21C3d089	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
C3d - Muni Direct Install	Zero Loss Condensate Drain	E21C3d090	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-				
Municipal Energy Solutions Subtotal																		376.3	354.4	335.8	4,546.5	4,283.2	4,052.5	34.6	32.5	30.6	18.3	17.0	15.9	55.6	55.6	55.6	1,103.7	1,103.7	1,103.7

			Quantity			Measure Life			Net to Gross			In Service Rate			kWh Realization Rate			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023			
C4a - Energy Rewards RFP	Custom RFP Program Compressed Air	E21C4a001	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Hot Water	E21C4a002	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program HVAC	E21C4a003	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Lighting - Interior	E21C4a004	-	-	-	13	13	13	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Lighting - Exterior	E21C4a015	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Lighting - Controls	E21C4a016	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Motors	E21C4a005	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Process	E21C4a006	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Refrigeration	E21C4a007	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Custom RFP Program Other	E21C4a008	-	-	-	-			100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Daylight Dimming	E21C4a009	-	-	-	9	9	9	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Lighting Fixture - Exterior w/ Controls	E21C4a010	-	-	-	14	14	14	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Lighting Fixture - Exterior w/o Controls	E21C4a011	-	-	-	14	14	14	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Lighting Fixture - Interior w/ Controls	E21C4a012	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Lighting Fixture - Interior w/o Controls	E21C4a013	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
C4a - Energy Rewards RFP	Lighting Occupancy Sensors	E21C4a014	-	-	-	9	9	9	100%	100%	100%	100%	100%	100%	100%	100%	100%												-	-	-	-	-		
Energy Rewards RFP Subtotal																		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
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**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
 2021 System Benefits Charge ("SBC") Calculation**

Year	EE Total Budget	RGGI Revenues	FCM Revenues	Other Revenues	Carryforward with Interest	Current Year Interest	SBC Requirement	Forecasted Distribution (MWH)	SBC Rate EE Portion (cents/kWh)	SBC Rate EAP Portion (cents/kWh)	SBC Rate LBR Portion (cents/kWh)	2020 Total SBC Rate (cents/kWh)
Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	
2021	\$2,541,946	\$44,153	\$263,079	\$0	\$0	\$0	\$2,234,714	295,126	0.568	0.150	0.00072	0.719
2021	\$4,853,502	\$177,584	\$348,732	\$0	\$0	\$0	\$4,327,186	607,490	0.561	0.150	0.00072	0.712
	\$7,395,448	\$221,737	\$611,811	\$0	\$0	\$14,572,231	\$6,561,901	902,615				
2022	\$2,772,483	\$42,420	\$233,584	\$0	\$0	\$0	\$2,496,479	289,052	0.086	0.150	N/A	0.236
2022	\$5,886,113	\$177,584	\$309,634	\$0	\$0	\$0	\$5,398,895	640,666	0.084	0.150	N/A	0.234
	\$8,658,596	\$220,004	\$543,218	\$0	\$0	\$295,125,735	\$7,895,374	929,718				
2023	\$2,843,282	\$40,687	\$150,966	\$0	\$0	\$0	\$2,651,629	287,713	0.092	0.150	N/A	0.242
2023	\$7,148,680	\$177,584	\$200,117	\$0	\$0	\$0	\$6,770,979	637,874	0.106	0.150	N/A	0.256
	\$9,991,962	\$218,271	\$351,083	\$0	\$0	\$1	\$9,422,608	925,587				

Customer Type
 Effective year (January 1, 2020 - December 31, 2020)
 Company Forecast
 Company Forecast
 Company Forecast
 Company Forecast
 Page 2, Line 9 Col. N + Line 11 Col. O
 Page 3, Line 11, Col. O
 Col. B - Col. C - Col. D - Col. E - Col. F
 Company Forecast
 (Col. H / Col. I) x 100
 EAP Portion of SBC Rate
 Page 4 column Q plus Page 5 column s

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Energy Efficiency Expense & SBC Revenue Reconciliation Residential
January 1, 2021 to December 31, 2021

Line	Description	Carryover 2018-2020	Forecast Jan-21	Forecast Feb-21	Forecast Mar-21	Forecast Apr-21	Forecast May-21	Forecast Jun-21	Forecast Jul-21	Forecast Aug-21	Forecast Sep-21	Forecast Oct-21	Forecast Nov-21	Forecast Dec-21	2021 Total
	Col. A	Col. B	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O	Col. N
1	SBC Revenues		\$170	\$144	\$143	\$122	\$119	\$136	\$158	\$156	\$126	\$119	\$128	\$156	\$1,676
2	RGGI Revenues		\$0	\$0	\$11,038	\$0	\$0	\$11,038	\$0	\$0	\$11,038	\$0	\$0	\$11,038	\$44,153
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	Total Revenues		\$223	\$197	\$11,234	\$175	\$171	\$11,227	\$210	\$208	\$11,217	\$172	\$181	\$11,247	\$46,462
6	Program Expenses		\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$2,541,946
7	Total Program Expenses		\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$211,829	\$2,541,946
8	Current Month (Over)/Under Recovery		\$211,606	\$211,632	\$200,595	\$211,654	\$211,657	\$200,602	\$211,618	\$211,620	\$200,612	\$211,657	\$211,648	\$200,582	
9	Cumulative (Over)/Under Recovery	\$ -	\$211,606	\$423,238	\$623,833	\$835,487	\$1,047,145	\$1,247,747	\$1,459,365	\$1,670,985	\$1,871,597	\$2,083,254	\$2,294,902	\$2,495,484	
10	Interest @ Prime		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
11	Interest on Deferral Balance		\$3,439	\$10,316	\$17,015	\$23,714	\$30,593	\$37,292	\$43,991	\$50,868	\$57,567	\$64,266	\$71,145	\$77,844	\$488,049
12	Monthly Sales (MWh)		29,914	25,390	25,139	21,463	20,904	23,964	27,773	27,408	22,178	20,940	22,602	27,451	295,126
13	EE SBC Rate		0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	

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
Energy Efficiency Expense & SBC Revenue Reconciliation Commercial
January 1, 2021 to December 31, 2021

Line	Description	Carryover 2018-2020	Forecast Jan-21	Forecast Feb-21	Forecast Mar-21	Forecast Apr-21	Forecast May-21	Forecast Jun-21	Forecast Jul-21	Forecast Aug-21	Forecast Sep-21	Forecast Oct-21	Forecast Nov-21	Forecast Dec-21	2021 Total
	Col. A	Col. B	Col. D	Col. E	Col. F	Col. G	Col. H	Col. I	Col. J	Col. K	Col. L	Col. M	Col. N	Col. O	Col. N
1	SBC Revenues		\$276	\$251	\$275	\$262	\$279	\$296	\$327	\$326	\$286	\$288	\$266	\$276	\$3,408
2	RGGI Revenues		\$0	\$0	\$11,038	\$0	\$0	\$11,038	\$0	\$0	\$11,038	\$0	\$0	\$11,038	\$44,153
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	Total Revenues		\$329	\$304	\$11,366	\$314	\$332	\$11,387	\$380	\$379	\$11,377	\$340	\$318	\$11,367	\$48,194
6	Program Expenses		\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$4,853,502
7	Total Program Expenses		\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$404,459	\$4,853,502
8	Current Month (Over)/Under Recovery		\$404,130	\$404,154	\$393,093	\$404,144	\$404,127	\$393,071	\$404,079	\$404,080	\$393,081	\$404,118	\$404,140	\$393,092	
9	Cumulative (Over)/Under Recovery	\$ -	\$ 404,130	\$808,284	\$1,201,377	\$1,605,521	\$2,009,648	\$2,402,719	\$2,806,798	\$3,210,878	\$3,603,959	\$4,008,077	\$4,412,217	\$4,805,309	
10	Interest @ Prime		3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
11	Interest on Deferral Balance		\$6,567	\$19,702	\$32,657	\$45,612	\$58,746	\$71,701	\$84,655	\$97,787	\$110,741	\$123,696	\$136,830	\$149,785	\$938,478
12	Monthly Sales (MWh)		49,228	44,828	48,979	46,654	49,760	52,829	58,269	58,080	51,064	51,279	47,361	49,158	607,490
13	EE SBC Rate		0.561	0.561	0.561	0.561	0.561	0.561	0.561	0.561	0.561	0.561	0.561	0.561	

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
Lost Base Revenue Reconciliation
January 1, 2019 to December 31, 2020

Line	Description	Cumulative 2019 kWh Col. B	Cumulative 2020 kWh Col. C	Balance Carryover 12/31/2019 Col. D	Collections 2020 Col. E	Forecast Jan-21 Col. F	Forecast Feb-21 Col. G	Forecast Mar-21 Col. H	Forecast Apr-21 Col. I	Forecast May-21 Col. J	Forecast Jun-21 Col. K	Forecast Jul-21 Col. L	Forecast Aug-21 Col. M	Forecast Sep-21 Col. N	Forecast Oct-21 Col. O	Forecast Nov-21 Col. P	Forecast Dec-21 Col. Q	2021 Total
1	Revenue Recovery				(\$5,323)													\$0
2	Monthly Residential kWh	187,203	146,882			\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$17,816	\$213,786
3	Monthly Commercial kWh	581,493	903,036			\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$18,799	\$225,593
4	Monthly Commercial Kw	75	95			\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$1,471	\$17,648
5	Total					\$32,763	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$451,704
6	Monthly (Over)/Under Recovery					\$32,763	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$38,086	\$451,704
7	Cumulative (Over)/Under Recovery			\$180,238		\$213,001	\$251,086	\$289,172	\$327,257	\$365,343	\$403,428	\$441,514	\$479,600	\$517,685	\$555,771	\$593,856	\$631,942	
8	Interest @ Prime Rate					0.40%	0.65%	0.40%	0.27%	0.27%	0.27%	0.27%	0.27%	0.27%	0.27%	0.27%	0.27%	
9	Interest on Deferral Balance					\$778	\$1,499	\$1,069	\$835	\$938	\$1,041	\$1,144	\$1,247	\$1,350	\$1,454	\$1,557	\$1,660	\$14,572
10	Cummulative (Over)/Under Recovery Incl Carrying Charge					\$213,779	\$253,363	\$292,518	\$331,438	\$370,462	\$409,588	\$448,818	\$488,151	\$527,587	\$567,126	\$606,769	\$646,514	\$646,514
11	Monthly Sales Residential					29,914	25,390	25,139	21,463	20,904	23,964	27,773	27,408	22,178	20,940	22,602	27,451	295,126
12	Monthly Sales Commercial					49,228	44,828	48,979	46,654	49,760	52,829	58,269	58,080	51,064	51,279	47,361	49,158	607,490
13	SBC Rate (LBR Component) Residential																	\$0.00072
14	SBC Rate (LBR Component) Commercial																	\$0.00072

Line 1: Actual Revenues Jan-Jul. LBR rate was not approved for 2020, thus no LBR revenues forecasted Aug-Dec
 Line 2: Col B + Col C x pg 6 line 27
 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

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**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 2018***

	(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (1) + (4)	(7) = (2) / (5)	(8) = (3) / (5)
For the Period 01/01/20 Through 12/31/20								
<u>Rate Class</u>	<u>Demand</u> <u>Charges^(a)</u>	<u>Revenue</u> <u>kWh</u> <u>Charges</u>	<u>Total Demand</u> <u>and kWh Charges</u>	<u>Delivery</u> <u>kW</u>	<u>Delivery</u> <u>kWh</u>	<u>Average</u> <u>Distribution Rate</u> <u>\$/kW</u>	<u>Average</u> <u>Distribution Rate</u> <u>\$/kWh</u>	<u>Average</u> <u>Distribution Rate</u> <u>\$/kWh</u>
Rate D	\$ -	\$ 14,868,722	\$ 14,868,722	\$ -	278,824,882	N/A	N/A	\$ 0.05333
Rate D-10	\$ -	\$ 237,101	\$ 237,101	\$ -				
Rate T	\$ -	\$ 663,486	\$ 663,486	\$ -				
Total Residential	\$ -	\$ 15,769,308	\$ 15,769,308	\$ -				
Rate G-1	\$ 8,209,771	\$ 1,374,403	\$ 9,584,174	951,329	379,539,341	\$ 8.63	\$ 0.00362	\$ 0.02525
Rate G-2	\$ -	\$ 2,054,567	\$ 2,054,567	-	147,995,065	\$ -	\$ 0.01388	\$ 0.01388
Rate G-3	\$ -	\$ 4,354,581	\$ 4,354,581	-	88,095,304	\$ -	\$ 0.04943	\$ 0.04943
Rate V	\$ -	\$ 16,652	\$ 16,652	-	328,389	\$ -	\$ 0.05071	\$ 0.05071
Total Commercial and Industrial	\$ 8,209,771	\$ 7,800,203	\$ 16,009,974	951,329	615,958,099	\$ 8.63	\$ 0.01266	\$ 0.02599

* Excludes the outdoor lighting Rate OL and the Customer/Meter charge revenue from each rate. Used billing determinants from DE 19-064

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

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

	Current Rates*	2021 Res	2021 C&I	2022 Res	2022 C&I	2023 Res	2023 C&I
System Benefits Charge (\$/kWh)	\$ 0.00678	\$ 0.00719	0.00712	\$ 0.00864	0.00843	\$ 0.00922	0.01061
<u>Bill per month, including GSE default energy service</u>							
Residential Rate D (650 kWh/month)	\$ 117.47	\$ 117.73		\$ 118.68		\$ 119.19	
Rate G-2, 25 kW, 9,000 kWh per month	\$ 1,094.58		\$ 1,097.95		\$ 1,111.08		\$ 1,132.88
<u>Change from previous rate level - \$ per month</u>							
Residential Rate D (650 kWh/month)		\$ 0.26		\$ 0.94		\$ 0.51	
Rate G-2, 25 kW, 9,000 kWh per month			\$ 3.37		\$ 13.13		\$ 21.80
<u>Change from previous rate level - %</u>							
Residential Rate D (650 kWh/month)		0.23%		0.80%		0.43%	
Rate G-2, 25 kW, 9,000 kWh per month			0.31%		1.20%		1.96%

* Stated at Liberty's most recent rate levels (effective August 1, 2020). Rate G-2 energy service rate is based on September 1, 2020 rate.

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Calculation of Distribution Revenue at the Rate Levels in Effect During 2020
Based on Billing Determinants for the Twelve Months Ending December 2018

Residential Rate D										
Rate	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31, 2020		
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue
Standard	Customer Charge	141,213	\$ 14.67	\$ 2,071,595	70,576	\$ 14.74	\$ 1,040,290	212,778	\$ 14.74	\$ 3,136,348
	All kWh	95,419,680	\$0.04950	\$ 4,723,274	39,012,006	\$0.04930	\$ 1,923,292	141,608,595	\$0.05713	\$ 8,090,099
Off Peak kWh 16 Hour	All kWh	425,641	\$0.04281	\$ 18,222	168,850	\$0.04258	\$ 7,190	525,957	\$0.04934	\$ 25,951
Farm kWh	All kWh	336,408	\$0.04675	\$ 15,727	136,211	\$0.04654	\$ 6,339	422,161	\$0.05393	\$ 22,767
D-6 kWh	All kWh	285,950	\$0.04360	\$ 12,467	130,531	\$0.04337	\$ 5,661	352,892	\$0.05025	\$ 17,733
Total Residential	Customer/Meter	141,213		\$ 2,071,595	70,576		\$ 1,040,290	212,778		\$ 3,136,348
	Demand	-		-	-		-	-		-
	kWh	96,467,679		\$ 4,769,690	39,447,598		\$ 1,942,482	142,909,605		\$ 8,156,550
				\$ 6,841,285			\$ 2,982,772			\$11,292,897
										\$21,116,955

Residential Rate D-10										
Col. B - Col. C - Col. D - Col. E - Col. F	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31, 2020		
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue
Standard	Customer Charge	1,763	\$ 14.67	\$ 25,863	879	\$ 14.74	\$ 12,956	2,635	\$ 14.74	\$ 38,840
	On Peak kWh	819,396	\$0.10580	\$ 86,692	264,793	\$0.10588	\$ 28,036	953,429	\$0.12151	\$ 115,851
	Off Peak kWh	1,647,511	\$0.00197	\$ 3,246	439,551	\$0.00153	\$ 673	1,504,599	\$0.00173	\$ 2,603
Total Rate D-10	Customer/Meter	1,763		\$ 25,863	879		\$ 12,956	2,635		\$ 38,840
	Demand	-		-	-		-	-		-
	kWh	2,466,907		\$ 89,938	704,344		\$ 28,709	2,458,028		\$ 118,454
				\$ 115,801			\$ 41,665			\$ 157,294
										\$ 314,760

Commercial & Industrial Rate G-1										
Rate	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31, 2020		
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue
Standard	Customer Charge	533	\$ 382.48	\$ 203,862	279	\$ 384.39	\$ 107,245	845	\$ 426.78	\$ 360,629
	Demand Charge	293,661	\$ 8.14	\$ 2,390,401	158,070	\$ 8.18	\$ 1,293,013	499,598	\$ 9.06	\$ 4,526,358
	On Peak kWh	64,013,730	\$0.00575	\$ 368,079	36,141,242	\$0.00533	\$ 192,633	112,351,130	\$0.00588	\$ 660,625
	Off Peak kWh	48,788,724	\$0.00208	\$ 101,481	29,394,681	\$0.00164	\$ 48,207	88,495,485	\$0.00180	\$ 159,292
	Credit for High Voltage Delivery	90,841	\$ (0.44)	\$ (39,970)	86,717	\$ (0.44)	\$ (38,155)	176,791	\$ (0.44)	\$ (77,788)
Total Rate G-1	Customer/Meter	533		\$ 203,862	279		\$ 107,245	845		\$ 360,629
	Demand	293,661		\$ 2,390,401	158,070		\$ 1,293,013	499,598		\$ 4,526,358
	kWh	112,893,295		\$ 429,589	65,622,640		\$ 202,685	201,023,406		\$ 742,128
				\$ 3,023,852			\$ 1,602,942			\$ 5,629,115
										\$10,255,909

Commercial Rate G-2										
Rate	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31, 2020		
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue
Standard	Customer Charge	3,621	\$ 63.77	\$ 230,911	1,817	\$ 64.08	\$ 116,433	5,444	\$ 71.14	\$ 387,286
	Demand Charge	163,850	\$ 8.19	\$ 1,341,932	86,590	\$ 8.23	\$ 712,636	259,668	\$ 9.11	\$ 2,365,575
	All kWh	48,549,883	\$0.00257	\$ 124,773	24,347,591	\$0.00214	\$ 52,104	75,095,642	\$0.00238	\$ 178,728
	Credit for High Voltage Delivery	577	\$ (0.44)	\$ (254)	302	\$ (0.44)	\$ (133)	1,070	\$ (0.44)	\$ (471)
Total Rate G-2	Customer/Meter	3,621		\$ 230,911	1,817		\$ 116,433	5,444		\$ 387,286
	Demand	163,850		\$ 1,341,932	86,590		\$ 712,636	259,668		\$ 2,365,575
	kWh	48,550,460		\$ 124,519	24,347,893		\$ 51,971	75,096,712		\$ 178,257
				\$ 1,697,362			\$ 881,040			\$ 2,931,118
										\$ 2,578,402

General Service Rate G-3										
Rate	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31, 2020		
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue
Standard	Customer Charge	22,671	\$ 14.67	\$ 332,584	11,288	\$ 14.74	\$ 166,385	34,081	\$ 14.74	\$ 502,354
	All kWh	30,521,195	\$0.04703	\$ 1,435,412	13,568,301	\$0.04682	\$ 635,268	44,005,808	\$0.05190	\$ 2,283,901
Total Rate G-3	Customer/Meter	22,671		\$ 332,584	11,288		\$ 166,385	34,081		\$ 502,354
	Demand	-		-	-		-	-		-
	kWh	30,521,195		\$ 1,435,412	13,568,301		\$ 635,268	44,005,808		\$ 2,283,901
				\$ 1,767,995			\$ 801,653			\$ 2,786,255
										\$ 4,354,581

Electric Heat Rate T												
Rate	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31,2020			2020 Total	
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue	Units	Revenue
Standard	Customer Charge	3,898	\$ 14.67	\$ 57,184	1,935	\$ 14.74	\$ 28,522	5,733	\$ 14.74	\$ 84,504	11,566	\$ 170,210
	All kWh	7,115,111	\$0.04099	\$ 291,648	1,821,872	\$0.04075	\$ 74,241	6,415,090	\$0.04639	\$ 297,596	15,352,073	\$ 663,486
Total Rate T	Customer/Meter	3,898		\$ 57,184	1,935		\$ 28,522	5,733		\$ 84,504	11,566	\$ 170,210
	Demand	-		\$ -	-		\$ -	-		\$ -	-	\$ -
	kWh	7,115,111		\$ 291,648	1,821,872		\$ 74,241	6,415,090		\$ 297,596	15,352,073	\$ 663,486
				\$ 348,832			\$ 102,763			\$ 382,100		\$ 833,696

Electric Heat Rate V												
Rate	Source	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31,2020			2020 Total	
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue	Units	Revenue
Standard	Customer Charge	72	\$ 14.37	\$ 1,035	36	\$ 14.74	\$ 531	103	\$ 16.36	\$ 1,685	211	\$ 3,250
	All kWh	127,747	\$0.04834	\$ 6,175	44,462	\$0.04813	\$ 2,140	156,180	\$0.05338	\$ 8,337	328,389	\$ 16,652
Total Rate V	Customer/Meter	72		\$ 1,035	36		\$ 531	103		\$ 1,685	211	\$ 3,250
	Demand	-		\$ -	-		\$ -	-		\$ -	-	\$ -
	kWh	127,747		\$ 6,175	44,462		\$ 2,140	156,180		\$ 8,337	328,389	\$ 16,652
				\$ 7,210			\$ 2,671			\$ 10,022		\$ 19,902

Outdoor Lighting Rate OL													
Type	Fixture	January 1, 2020 - April 30, 2020			May 1, 2020 - June 30, 2020			July 1, 2020 - December 31,2020			2020 Total		
		Units	Rate	Revenue	Units	Rate	Revenue	Units	Rate	Revenue	Units	Revenue	
High Pressure Sodium	HPS RWY 50W	8,846	\$ 7.69	\$ 68,026	5,813	\$ 7.72	\$ 44,876	14,588	\$ 8.39	\$ 122,393	29,247	\$ 235,295	
	HPS RWY 100W	6,320	\$ 9.35	\$ 59,092	4,534	\$ 9.39	\$ 42,574	10,927	\$ 9.69	\$ 105,883	21,781	\$ 207,549	
	HPS RWY 250W	1,963	\$ 16.43	\$ 32,252	1,120	\$ 16.51	\$ 18,491	3,010	\$ 16.07	\$ 48,371	6,093	\$ 99,114	
	HPS RWY 400W	754	\$ 21.41	\$ 16,143	199	\$ 21.51	\$ 4,280	477	\$ 19.98	\$ 9,530	1,430	\$ 29,954	
	HPS POST 100W	1,240	\$ 10.77	\$ 13,355	1,192	\$ 10.82	\$ 12,897	2,416	\$ 11.36	\$ 27,446	4,848	\$ 53,698	
	HPS FLD 250W	1,030	\$ 16.57	\$ 17,067	534	\$ 16.65	\$ 8,891	1,518	\$ 16.24	\$ 24,652	3,082	\$ 50,611	
	HPS FLD 400W	1,680	\$ 22.88	\$ 38,438	864	\$ 22.99	\$ 19,863	2,500	\$ 21.69	\$ 54,225	5,044	\$ 112,527	
Incandescent	INC RWY 103W	92	\$ 10.29	\$ 947	46	\$ 10.34	\$ 476	138	\$ 10.75	\$ 1,484	276	\$ 2,906	
	MV RWY 100W	288	\$ 7.43	\$ 2,140	142	\$ 7.46	\$ 1,059	378	\$ 7.44	\$ 2,812	808	\$ 6,011	
Mercury	MV RWY 175W	570	\$ 9.06	\$ 5,164	280	\$ 9.10	\$ 2,548	725	\$ 8.36	\$ 6,061	1,575	\$ 13,773	
	MV RWY 400W	201	\$ 17.14	\$ 3,445	100	\$ 17.22	\$ 1,722	300	\$ 14.93	\$ 4,479	601	\$ 9,646	
POLES	MV RWY 1000W	4	\$ 32.54	\$ 130	2	\$ 32.70	\$ 65	6	\$ 25.21	\$ 151	12	\$ 347	
	MV FLD 400W	85	\$ 18.96	\$ 1,612	42	\$ 19.05	\$ 800	121	\$ 17.08	\$ 2,067	248	\$ 4,478	
	MV FLD 1000W	-	\$ 32.75	\$ -	-	\$ 32.91	\$ -	-	\$ 33.06	\$ -	-	\$ -	
	WOOD	468	\$ 9.09	\$ 4,254	237	\$ 9.14	\$ 2,166	685	\$ 9.47	\$ 6,487	1,390	\$ 12,907	
	POLE FIBER DIRECT EMBEDDED	747	\$ 9.41	\$ 7,029	723	\$ 9.46	\$ 6,840	1,470	\$ 9.81	\$ 14,421	2,940	\$ 28,290	
	POLE FIBER RWY <25FT	478	\$ 15.98	\$ 7,638	412	\$ 16.06	\$ 6,617	852	\$ 16.65	\$ 14,186	1,742	\$ 28,441	
	POLE FIBER RWY =>25FT	12	\$ 26.69	\$ 320	12	\$ 26.82	\$ 322	24	\$ 27.84	\$ 668	48	\$ 1,310	
	POLE METAL EMBEDDED	568	\$ 19.04	\$ 10,815	404	\$ 19.14	\$ 7,733	972	\$ 19.85	\$ 19,294	1,944	\$ 37,841	
	POLE METAL =>25FT	376	\$ 22.97	\$ 8,637	222	\$ 23.08	\$ 5,124	590	\$ 23.94	\$ 14,125	1,188	\$ 27,885	
	LED	LED 30W	56	\$ 11.38	\$ 637	28	\$ 11.43	\$ 320	89	\$ 5.44	\$ 484	173	\$ 1,441
LED	LED 50W	112	\$ 11.85	\$ 1,327	193	\$ 11.90	\$ 2,297	474	\$ 5.67	\$ 2,688	779	\$ 6,311	
	LED 130W	123	\$ 13.69	\$ 1,684	382	\$ 13.75	\$ 5,253	858	\$ 8.75	\$ 7,508	1,363	\$ 14,444	
	LED 190W	13	\$ 18.02	\$ 234	11	\$ 18.11	\$ 199	19	\$ 16.75	\$ 318	43	\$ 752	
	LED 30W URD	42	\$ 13.00	\$ 546	36	\$ 13.08	\$ 471	78	\$ 12.67	\$ 988	156	\$ 2,005	
	LED 90W FLOOD	-	\$ 13.12	\$ -	-	\$ 13.18	\$ -	17	\$ 8.62	\$ 147	17	\$ 147	
	LED 130W FLOOD	-	\$ 14.37	\$ -	4	\$ 14.44	\$ 58	26	\$ 9.90	\$ 257	30	\$ 315	
	LED 50W BARN	-	\$ 5.00	\$ -	-	\$ 5.02	\$ -	2	\$ 4.88	\$ 10	2	\$ 10	
	All kWh	-	\$ -	\$ -	-	\$ -	\$ -	-	\$0.03993	\$ -	-	\$ -	
	Total Rate OL	Fixtures	26,068		\$ 300,933	17,532		\$ 195,942	43,260		\$ 491,134	86,860	\$ 988,009
		Demand											
kWh		-		\$ 300,933	-		\$ 195,942	-		\$ 491,134	-	\$ 988,009	

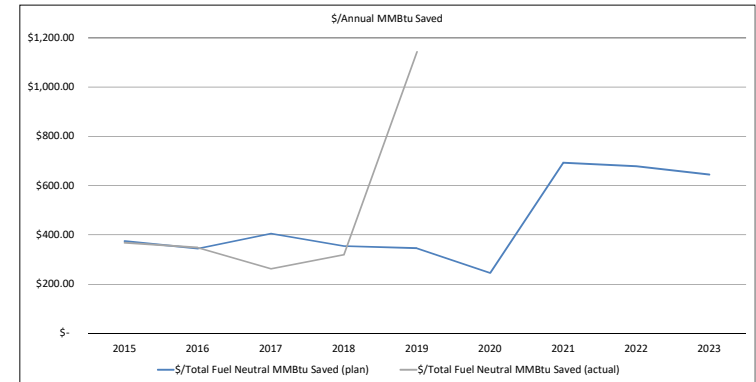
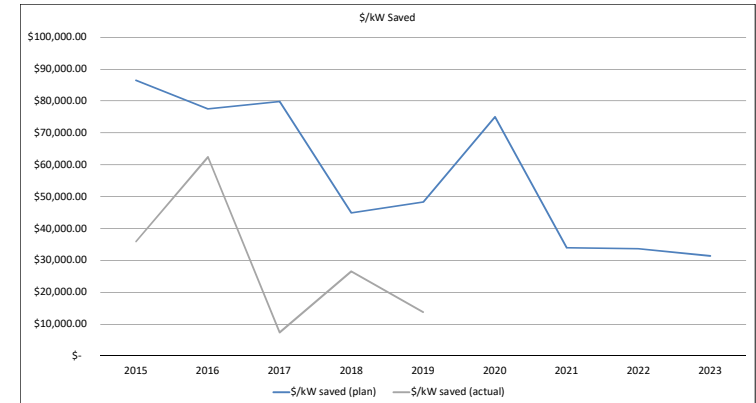
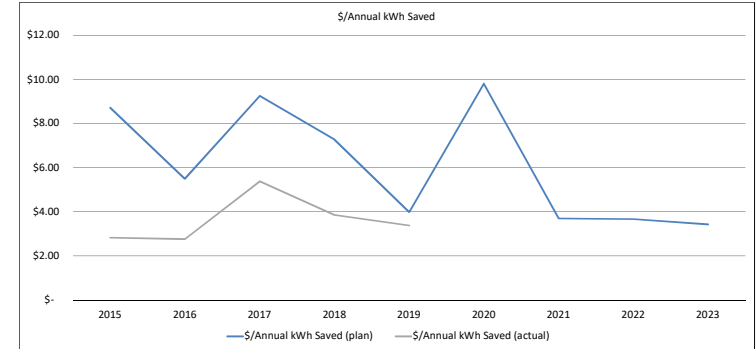
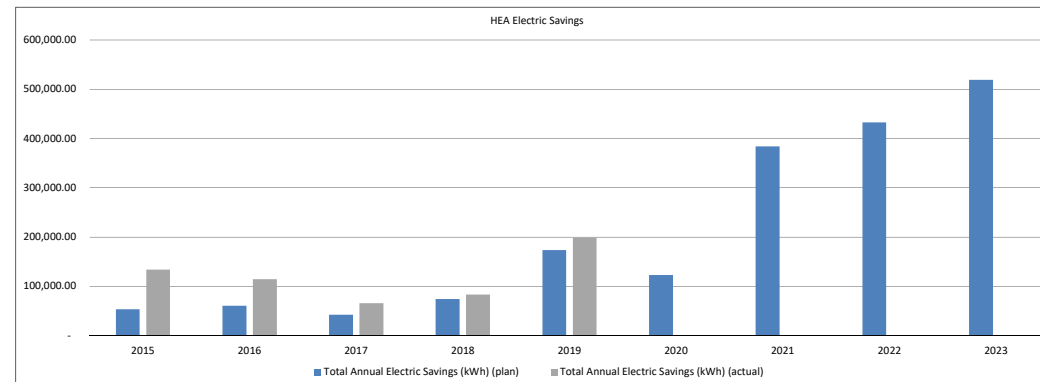
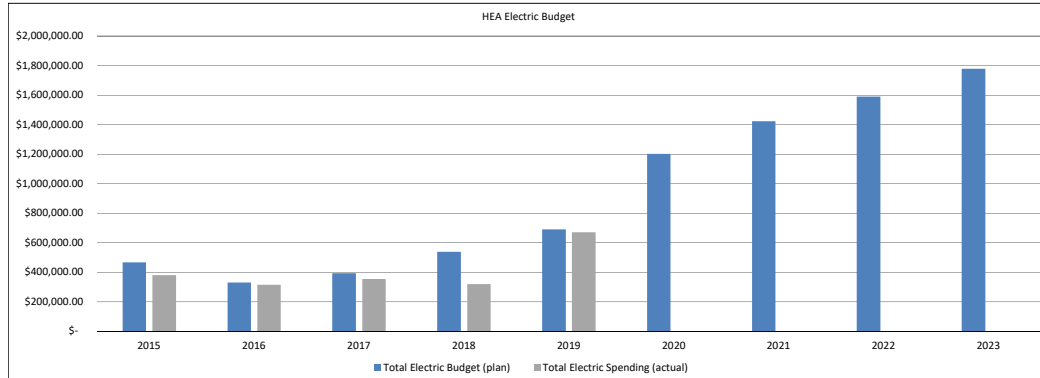
Total Retail									
Type	Source	January 1, 2020 - April 30, 2020		May 1, 2020 - June 30, 2020		July 1, 2020 - December 31,2020		2020 Total	
		Units	Revenue	Units	Revenue	Units	Revenue	Units	Revenue
Total Retail	Customer/Meter	173,771	\$2,923,032.80	86,810	\$ 1,472,363	261,619	\$ 4,511,646	522,200	\$ 8,907,042
	Fixtures	26,068	\$ 300,933	17,532	\$ 195,942	43,260	\$ 491,134	86,860	\$ 988,009
	Demand	457,511	\$ 3,732,332	244,660	\$ 1,967,360	759,266	\$ 6,813,675	1,461,437	\$12,513,367
	kWh	298,142,394	\$ 7,146,972	145,557,110	\$ 2,937,495	472,064,829	\$11,785,223	915,764,333	\$21,869,691
			\$ 14,103,270		\$ 6,573,160		\$23,601,678		\$44,278,109

Lost Base Revenue Summary of Data Included in the Calculation of the Average Distribution Rates*									
Type	Source	January 1, 2020 - April 30, 2020		May 1, 2020 - June 30, 2020		July 1, 2020 - December 31, 2020		2020 Total	
		Units	Revenue	Units	Revenue	Units	Revenue	Units	Revenue
Total Rate D	Demand	-	\$ -	-	\$ -	-	\$ -	-	\$ -
	kWh	96,467,679	<u>\$ 4,769,690</u>	39,447,598	<u>\$ 1,942,482</u>	142,909,605	<u>\$ 8,156,550</u>	278,824,882	<u>\$14,868,722</u>
			\$ 4,769,690		\$ 1,942,482		\$ 8,156,550		\$14,868,722
Total Rate D-10	Demand	-	\$ -	-	\$ -	-	\$ -	-	\$ -
	kWh	2,466,907	<u>\$ 89,938</u>	704,344	<u>\$ 28,709</u>	2,458,028	<u>\$ 118,454</u>	5,629,279	<u>\$ 237,101</u>
			\$ 89,938		\$ 28,709		\$ 118,454		\$ 237,101
Total Rate G-1	Demand	293,661	\$ 2,390,401	158,070	\$ 1,293,013	499,598	\$ 4,526,358	951,329	\$ 8,209,771
	kWh	112,893,295	<u>\$ 429,589</u>	65,622,640	<u>\$ 202,685</u>	201,023,406	<u>\$ 742,128</u>	379,539,341	<u>\$ 1,374,403</u>
			\$ 2,819,990		\$ 1,495,697		\$ 5,268,486		\$ 9,584,174
Total Rate G-2	Demand	163,850	\$ 1,341,932	86,590	\$ 712,636	259,668	\$ 2,365,575	510,108	\$ 4,420,143
	kWh	48,550,460	<u>\$ 124,519</u>	24,347,893	<u>\$ 51,971</u>	75,096,712	<u>\$ 178,257</u>	147,995,065	<u>\$ 354,747</u>
			\$ 1,466,451		\$ 764,607		\$ 2,543,832		\$ 4,774,890
Total Rate G-3	Demand	-	\$ -	-	\$ -	-	\$ -	-	\$ -
	kWh	30,521,195	<u>\$ 1,435,412</u>	13,568,301	<u>\$ 635,268</u>	44,005,808	<u>\$ 2,283,901</u>	88,095,304	<u>\$ 4,354,581</u>
			\$ 1,435,412		\$ 635,268		\$ 2,283,901		\$ 4,354,581
Total Rate T	Demand	-	\$ -	-	\$ -	-	\$ -	-	\$ -
	kWh	7,115,111	<u>\$ 291,648</u>	1,821,872	<u>\$ 74,241</u>	6,415,090	<u>\$ 297,596</u>	15,352,073	<u>\$ 663,486</u>
			\$ 291,648		\$ 74,241		\$ 297,596		\$ 663,486
Total Rate V	Demand	-	\$ -	-	\$ -	-	\$ -	-	\$ -
	kWh	127,747	<u>\$ 6,175</u>	44,462	<u>\$ 2,140</u>	156,180	<u>\$ 8,337</u>	328,389	<u>\$ 16,652</u>
			\$ 6,175		\$ 2,140		\$ 8,337		\$ 16,652
Total	Demand	457,511	\$ 3,732,332	39,692,258	\$ 2,005,648	143,668,871	\$ 6,891,933	1,461,437	\$12,629,914
	kWh	267,621,199	<u>\$ 5,711,561</u>	131,988,809	<u>\$ 2,302,228</u>	428,059,021	<u>\$ 9,501,322</u>	827,669,029	<u>\$17,515,110</u>
			\$ 9,443,893		\$ 4,307,876		\$16,393,255		\$30,145,024

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 465,548.53	\$ 330,589.02	\$ 392,167.81	\$ 536,897.99	\$ 690,347.57	\$ 1,201,848.73	\$ 1,421,776.44	\$ 1,589,772.40	\$ 1,776,839.40
	Total Annual Electric Savings (kWh) (plan)	53,434.31	60,075.89	42,395.61	73,782.18	173,346.85	122,542.44	384,064.48	432,807.65	518,881.28
	\$/Annual kWh Saved (plan)	\$ 8.71	\$ 5.50	\$ 9.25	\$ 7.28	\$ 3.98	\$ 9.81	\$ 3.70	\$ 3.67	\$ 3.42
2)	Total Electric Budget	\$ 465,548.53	\$ 330,589.02	\$ 392,167.81	\$ 536,897.99	\$ 690,347.57	\$ 1,201,848.73	\$ 1,421,776.44	\$ 1,589,772.40	\$ 1,776,839.40
	Total kW saved	5.38	4.26	4.92	11.95	14.29	16.02	41.89	47.21	56.59
	\$/kW saved (plan)	\$ 86,467.08	\$ 77,552.06	\$ 79,786.89	\$ 44,945.12	\$ 48,311.93	\$ 75,013.17	\$ 33,939.78	\$ 33,675.04	\$ 31,399.69
3)	Total Electric Budget	\$ 465,548.53	\$ 330,589.02	\$ 392,167.81	\$ 536,897.99	\$ 690,347.57	\$ 1,201,848.73	\$ 1,421,776.44	\$ 1,589,772.40	\$ 1,776,839.40
	Total Fuel Neutral MMBtu Saved	1,242.74	960.66	966.87	1,513.48	1,997.75	4,889.84	2,052.34	2,341.52	2,756.37
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 374.61	\$ 344.13	\$ 405.61	\$ 354.74	\$ 345.56	\$ 245.78	\$ 692.76	\$ 678.95	\$ 644.63

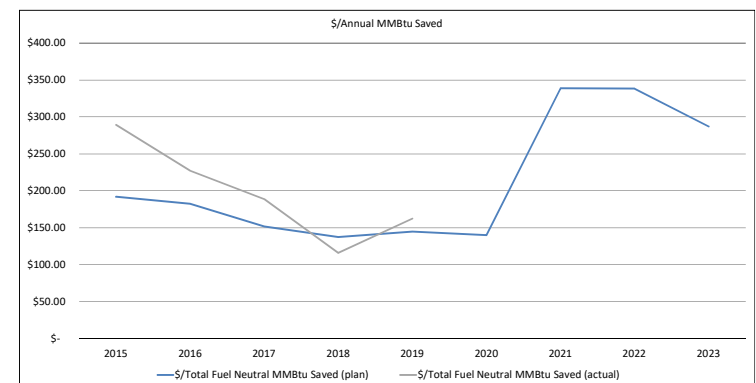
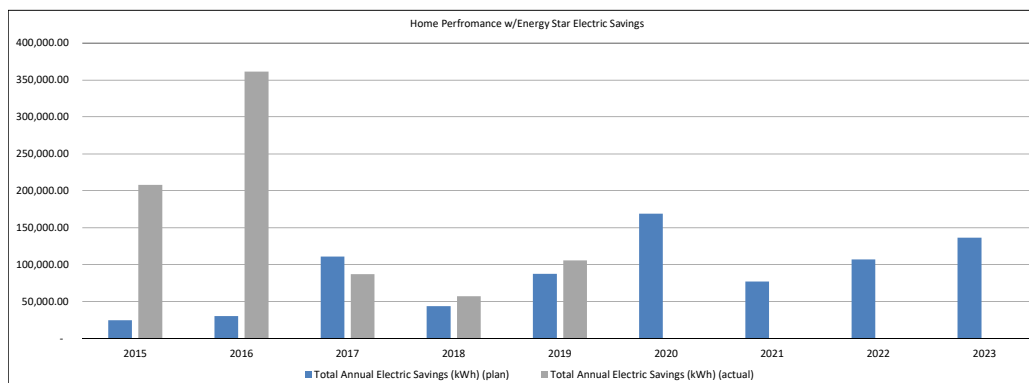
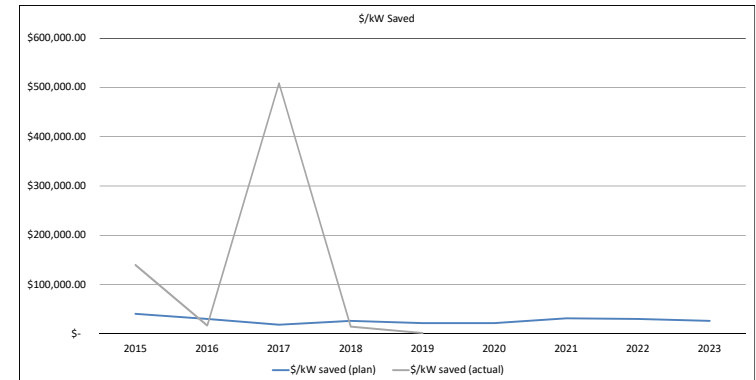
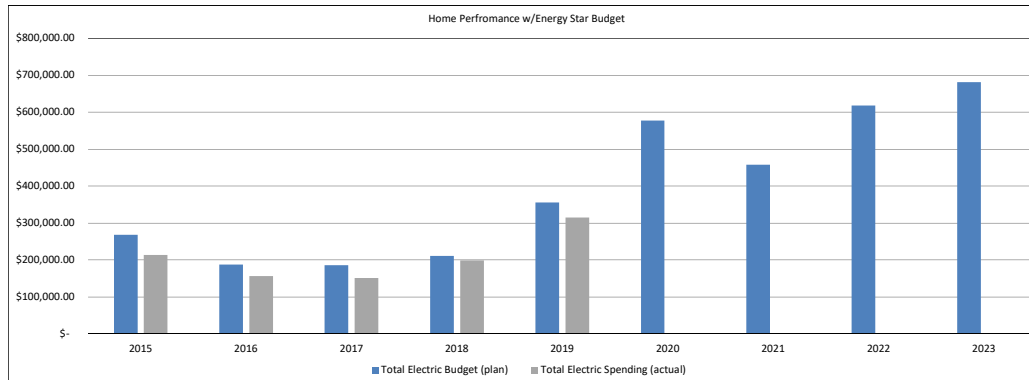
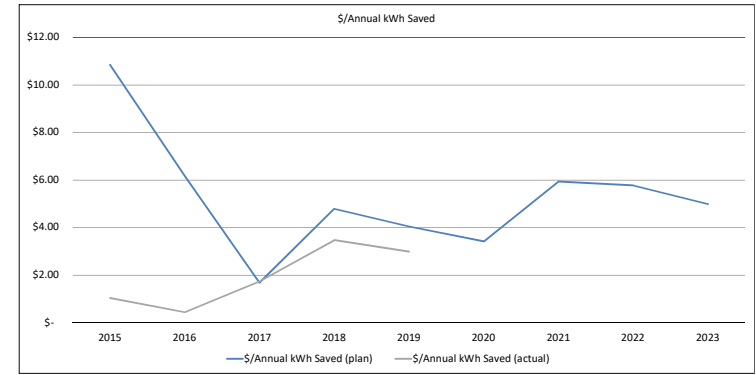
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 378,874.12	\$ 314,957.99	\$ 352,987.37	\$ 319,646.44	\$ 670,521.88
	Total Annual Electric Savings (kWh) (actu)	134,001.08	114,076.40	65,578.70	82,911.32	198,796.35
	\$/Annual kWh Saved (actual)	\$ 2.83	\$ 2.76	\$ 5.38	\$ 3.86	\$ 3.37
2)	Total Electric Spending	\$ 378,874.12	\$ 314,957.99	\$ 352,987.37	\$ 319,646.44	\$ 670,521.88
	Total kW saved	10.54	5.04	48.06	12.04	48.80
	\$/kW saved (actual)	\$ 35,939.11	\$ 62,434.91	\$ 7,345.02	\$ 26,558.81	\$ 13,739.89
3)	Total Electric Spending	\$ 378,874.12	\$ 314,957.99	\$ 352,987.37	\$ 319,646.44	\$ 670,521.88
	Total Fuel Neutral MMBtu Saved	1,031.25	905.27	1,344.94	998.82	586.74
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 367.39	\$ 347.91	\$ 262.45	\$ 320.02	\$ 1,142.79



Home Performance w/Energy Star

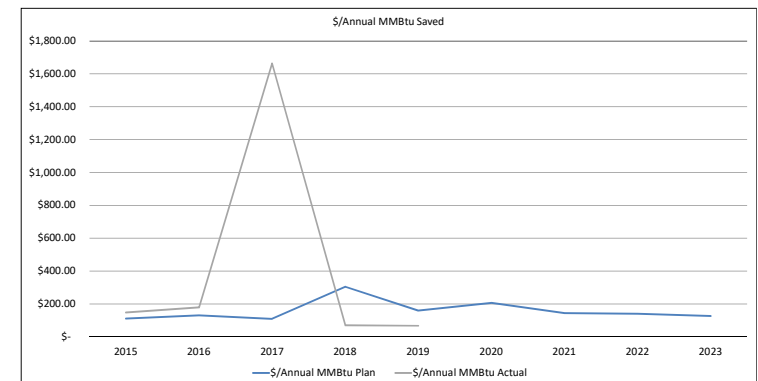
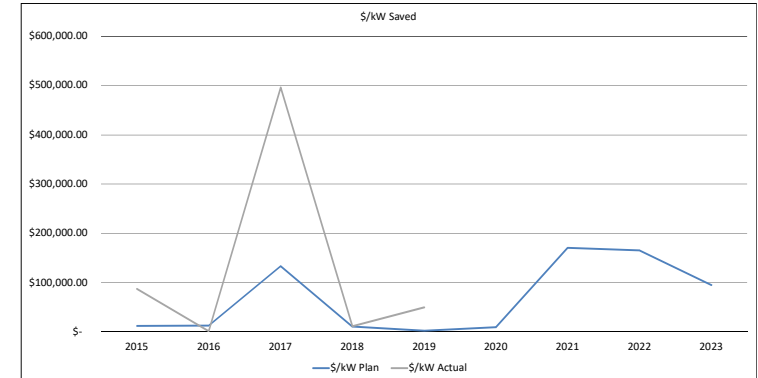
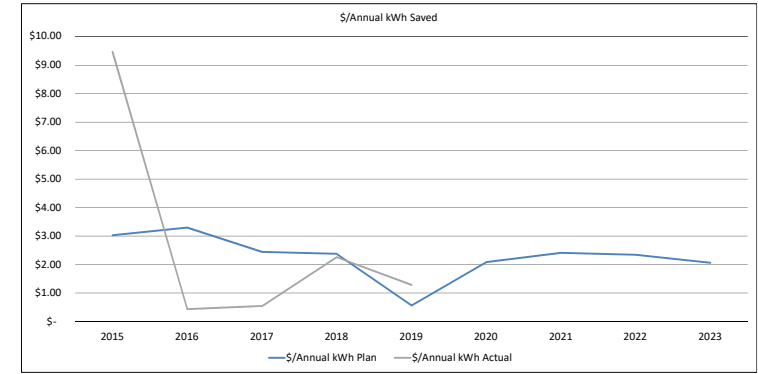
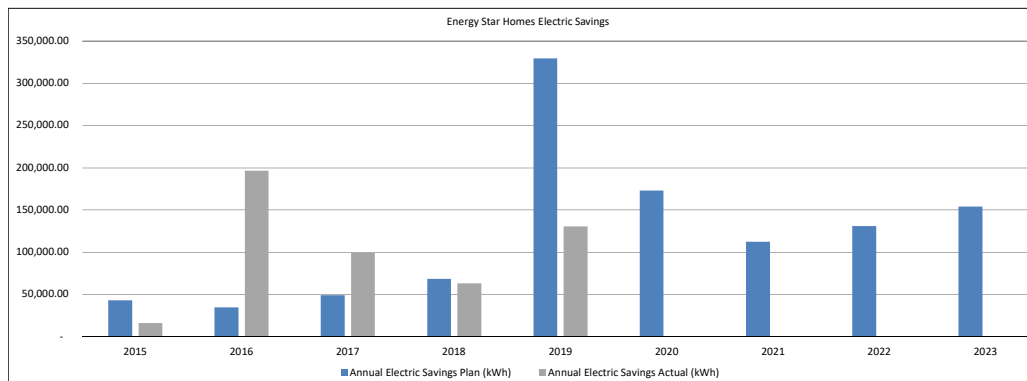
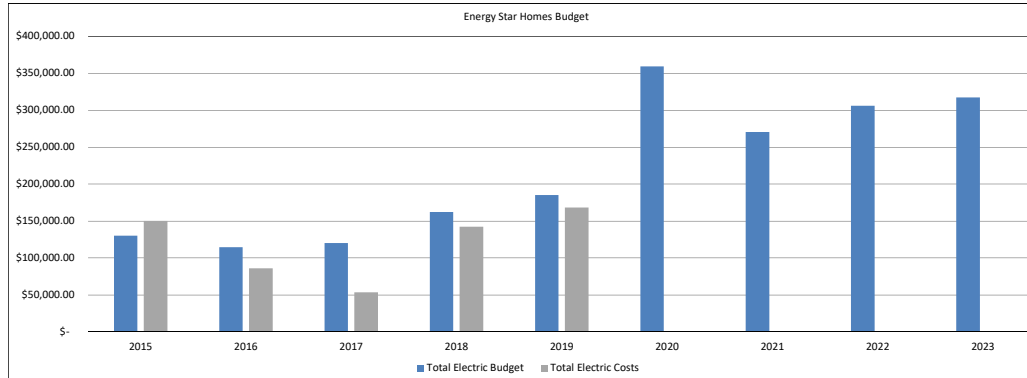
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 267,815.68	\$ 187,613.45	\$ 185,502.63	\$ 210,304.44	\$ 355,054.17	\$ 577,161.92	\$ 457,221.00	\$ 617,373.37	\$ 681,222.97
	Total Annual Electric Savings (kWh) (plan)	24,689.24	30,442.48	110,909.35	43,887.81	87,789.63	169,081.22	77,007.90	106,950.70	136,603.94
	\$/Annual kWh Saved (plan)	\$ 10.85	\$ 6.16	\$ 1.67	\$ 4.79	\$ 4.04	\$ 3.41	\$ 5.94	\$ 5.77	\$ 4.99
2)	Total Electric Budget	\$ 267,815.68	\$ 187,613.45	\$ 185,502.63	\$ 210,304.44	\$ 355,054.17	\$ 577,161.92	\$ 457,221.00	\$ 617,373.37	\$ 681,222.97
	Total kW saved	6.62	6.20	9.94	8.10	16.29	26.64	14.67	20.39	25.98
	\$/kW saved (plan)	\$ 40,437.10	\$ 30,241.93	\$ 18,661.03	\$ 25,963.96	\$ 21,799.23	\$ 21,666.27	\$ 31,160.95	\$ 30,276.21	\$ 26,223.09
3)	Total Electric Budget	\$ 267,815.68	\$ 187,613.45	\$ 185,502.63	\$ 210,304.44	\$ 355,054.17	\$ 577,161.92	\$ 457,221.00	\$ 617,373.37	\$ 681,222.97
	Total Fuel Neutral MMBtu Saved	1,394.32	1,029.31	1,224.48	1,530.01	2,452.03	4,125.69	1,349.36	1,824.06	2,370.81
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 192.08	\$ 182.27	\$ 151.49	\$ 137.45	\$ 144.80	\$ 139.89	\$ 338.84	\$ 338.46	\$ 287.34

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 213,206.14	\$ 155,978.47	\$ 150,522.13	\$ 198,333.60	\$ 314,423.99
	Total Annual Electric Savings (kWh) (actu)	208,056.02	361,214.88	87,034.75	57,194.00	105,608.00
	\$/Annual kWh Saved (actual)	\$ 1.02	\$ 0.43	\$ 1.73	\$ 3.47	\$ 2.98
2)	Total Electric Spending	\$ 213,206.14	\$ 155,978.47	\$ 150,522.13	\$ 198,333.60	\$ 314,423.99
	Total kW saved	1.52	9.32	0.30	13.80	187.14
	\$/kW saved (actual)	\$ 140,107.53	\$ 16,730.56	\$ 508,674.12	\$ 14,369.57	\$ 1,680.13
3)	Total Electric Spending	\$ 213,206.14	\$ 155,978.47	\$ 150,522.13	\$ 198,333.60	\$ 314,423.99
	Total Fuel Neutral MMBtu Saved	737.17	685.57	796.59	1,709.56	1,936.06
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 289.22	\$ 227.52	\$ 188.96	\$ 116.01	\$ 162.40



Energy Star Homes

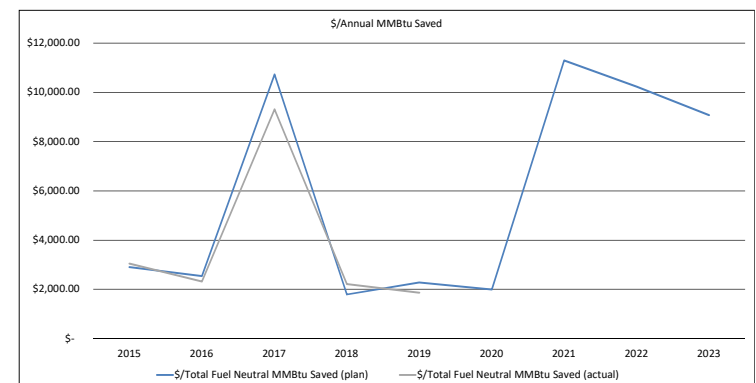
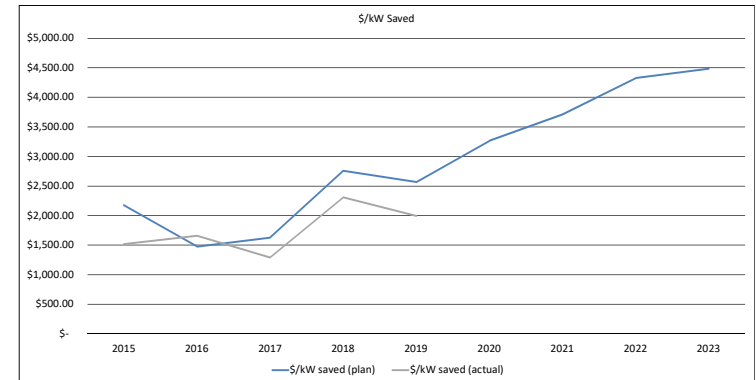
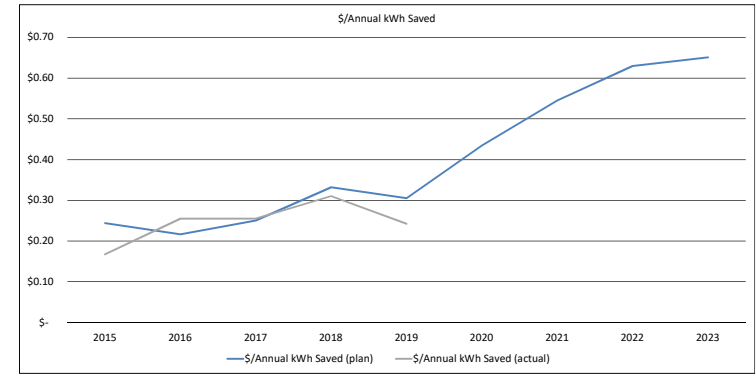
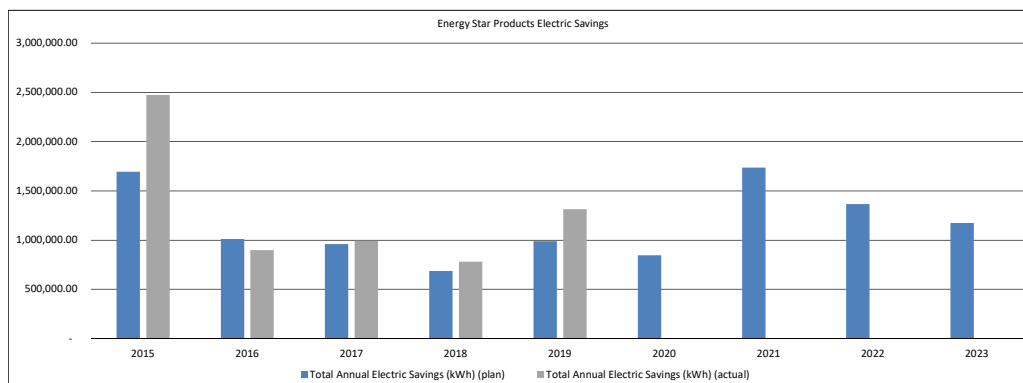
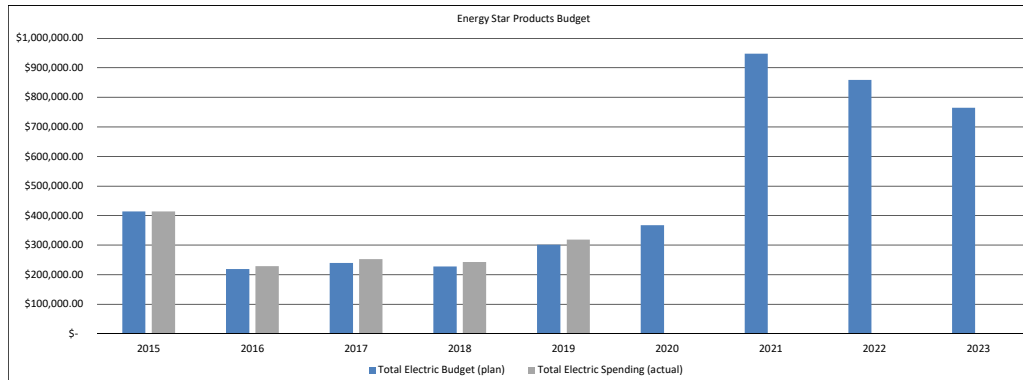
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1) Total Electric Budget	\$	129,850.03	\$ 114,652.66	\$ 120,031.11	\$ 162,234.85	\$ 185,137.81	\$ 359,195.01	\$ 270,354.00	\$ 305,660.05	\$ 317,082.71
Annual Electric Savings Plan (kWh)		42,970.69	34,754.68	49,089.91	68,431.30	329,428.18	172,775.98	112,161.82	130,854.57	154,153.81
\$/Annual kWh Plan	\$	3.02	\$ 3.30	\$ 2.45	\$ 2.37	\$ 0.56	\$ 2.08	\$ 2.41	\$ 2.34	\$ 2.06
2) Total Electric Budget	\$	129,850.03	\$ 114,652.66	\$ 120,031.11	\$ 162,234.85	\$ 185,137.81	\$ 359,195.01	\$ 270,354.00	\$ 305,660.05	\$ 317,082.71
Total summer peak kW Plan		10.91	9.11	0.90	14.91	76.83	39.79	1.59	1.85	3.33
\$/kW Plan	\$	11,899.51	\$ 12,590.64	\$ 133,400.23	\$ 10,880.75	\$ 2,409.86	\$ 9,027.79	\$ 170,374.18	\$ 165,107.12	\$ 95,281.35
3) Total Electric Budget	\$	129,850.03	\$ 114,652.66	\$ 120,031.11	\$ 162,234.85	\$ 185,137.81	\$ 359,195.01	\$ 270,354.00	\$ 305,660.05	\$ 317,082.71
Total Annual MMBtu Plan		1,186.87	888.95	1,105.64	533.16	1,171.12	1,746.11	1,882.64	2,196.40	2,510.16
\$/Annual MMBtu Plan	\$	109.41	\$ 128.98	\$ 108.56	\$ 304.29	\$ 158.09	\$ 205.71	\$ 143.60	\$ 139.16	\$ 126.32
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1) Total Electric Costs	\$	149,953.01	\$ 85,986.60	\$ 53,359.58	\$ 141,967.71	\$ 167,964.07				
Annual Electric Savings Actual (kWh)		15,851.36	196,439.12	99,035.15	62,863.80	130,469.24				
\$/Annual kWh Actual	\$	9.46	\$ 0.44	\$ 0.54	\$ 2.26	\$ 1.29				
2) Total Electric Costs	\$	149,953.01	\$ 85,986.60	\$ 53,359.58	\$ 141,967.71	\$ 167,964.07				
Total summer peak kW Actual		1.72	64.41	0.11	12.49	3.39				
\$/kW Actual	\$	87,032.94	\$ 1,334.91	\$ 496,168.23	\$ 11,368.13	\$ 49,501.61				
3) Total Electric Costs	\$	149,953.01	\$ 85,986.60	\$ 53,359.58	\$ 141,967.71	\$ 167,964.07				
Total Annual MMBtu Actual		1,017.91	480.69	32.07	2,084.36	2,535.83				
\$/Annual MMBtu Actual	\$	147.32	\$ 178.88	\$ 1,663.95	\$ 68.11	\$ 66.24				



Energy Star Products

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 413,896.97	\$ 218,882.36	\$ 240,062.22	\$ 228,330.53	\$ 301,611.91	\$ 367,436.22	\$ 948,100.00	\$ 859,337.53	\$ 764,561.91
	Total Annual Electric Savings (kWh) (plar	1,694,349.54	1,010,711.28	959,637.02	687,811.49	987,874.85	844,952.37	1,736,171.87	1,364,527.49	1,174,585.13
	\$/Annual kWh Saved (plan)	\$ 0.24	\$ 0.22	\$ 0.25	\$ 0.33	\$ 0.31	\$ 0.43	\$ 0.55	\$ 0.63	\$ 0.65
2)	Total Electric Budget	\$ 413,896.97	\$ 218,882.36	\$ 240,062.22	\$ 228,330.53	\$ 301,611.91	\$ 367,436.22	\$ 948,100.00	\$ 859,337.53	\$ 764,561.91
	Total kW saved	189.91	148.30	147.58	82.84	117.55	112.41	255.54	198.48	170.46
	\$/kW saved (plan)	\$ 2,179.47	\$ 1,475.95	\$ 1,626.67	\$ 2,756.42	\$ 2,565.89	\$ 3,268.79	\$ 3,710.23	\$ 4,329.60	\$ 4,485.18
3)	Total Electric Budget	\$ 413,896.97	\$ 218,882.36	\$ 240,062.22	\$ 228,330.53	\$ 301,611.91	\$ 367,436.22	\$ 948,100.00	\$ 859,337.53	\$ 764,561.91
	Total Fuel Neutral MMBtu Saved	142.88	86.18	22.38	127.38	131.99	183.87	83.95	83.95	84.30
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 2,896.73	\$ 2,539.71	\$ 10,728.47	\$ 1,792.52	\$ 2,285.09	\$ 1,998.37	\$ 11,293.58	\$ 10,236.44	\$ 9,069.42

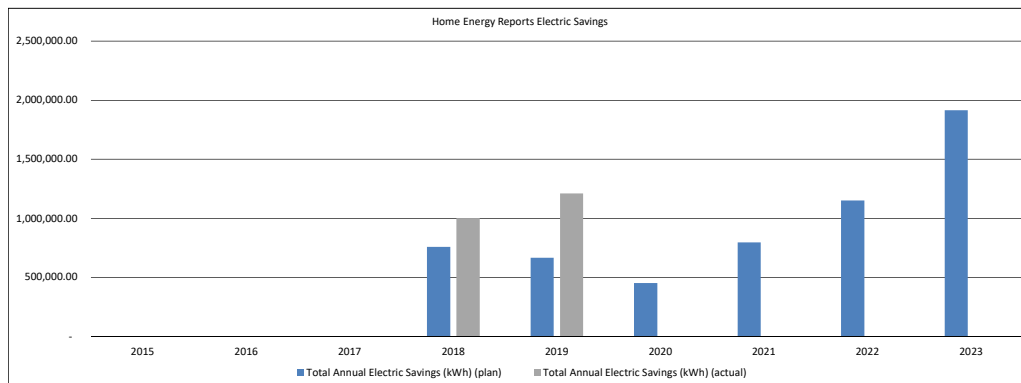
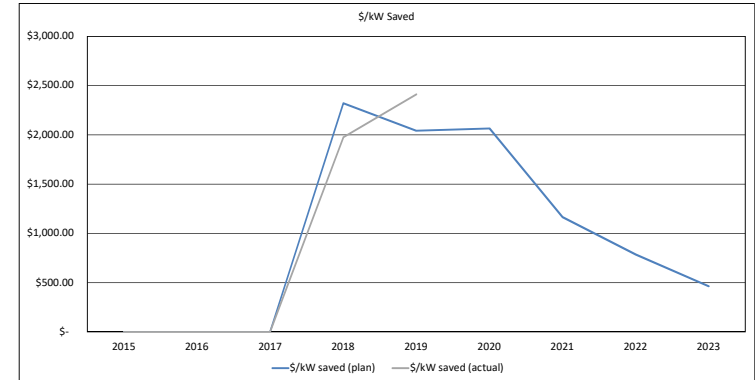
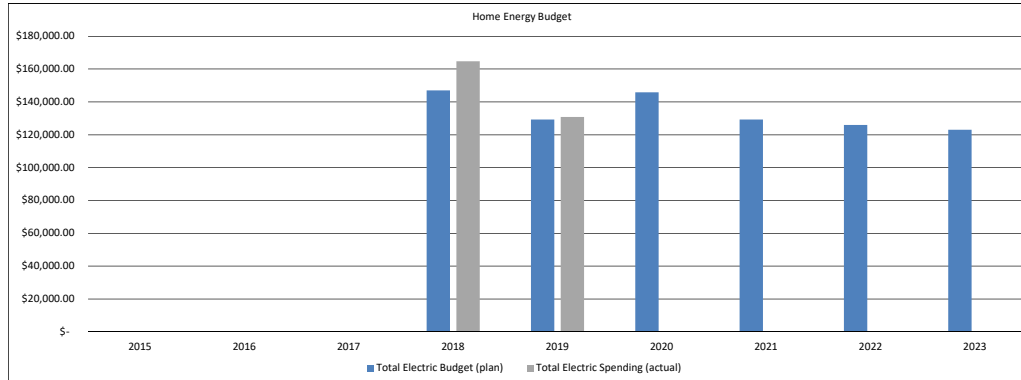
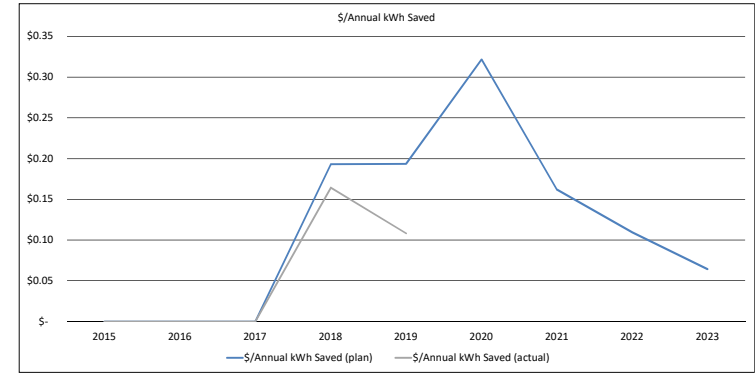
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 413,643.25	\$ 228,647.55	\$ 252,360.43	\$ 242,907.54	\$ 318,446.85
	Total Annual Electric Savings (kWh) (actu	2,473,522.93	896,766.75	990,531.96	782,494.70	1,312,686.74
	\$/Annual kWh Saved (actual)	\$ 0.17	\$ 0.25	\$ 0.25	\$ 0.31	\$ 0.24
2)	Total Electric Spending	\$ 413,643.25	\$ 228,647.55	\$ 252,360.43	\$ 242,907.54	\$ 318,446.85
	Total kW saved	272.18	137.68	195.41	105.17	159.64
	\$/kW saved (actual)	\$ 1,519.74	\$ 1,660.70	\$ 1,291.44	\$ 2,309.77	\$ 1,994.77
3)	Total Electric Spending	\$ 413,643.25	\$ 228,647.55	\$ 252,360.43	\$ 242,907.54	\$ 318,446.85
	Total Fuel Neutral MMBtu Saved	135.63	98.49	27.12	109.77	170.72
	\$/Total Fuel Neutral MMBtu Saved (actu	\$ 3,049.87	\$ 2,321.58	\$ 9,305.12	\$ 2,212.86	\$ 1,865.35



Home Energy Reports

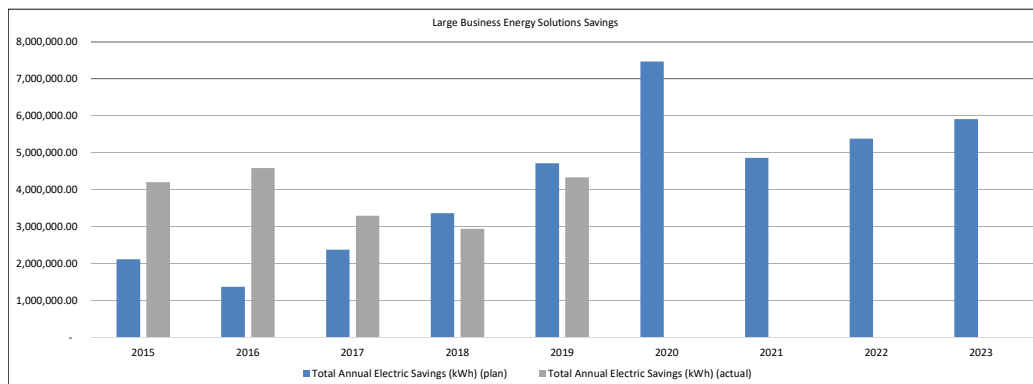
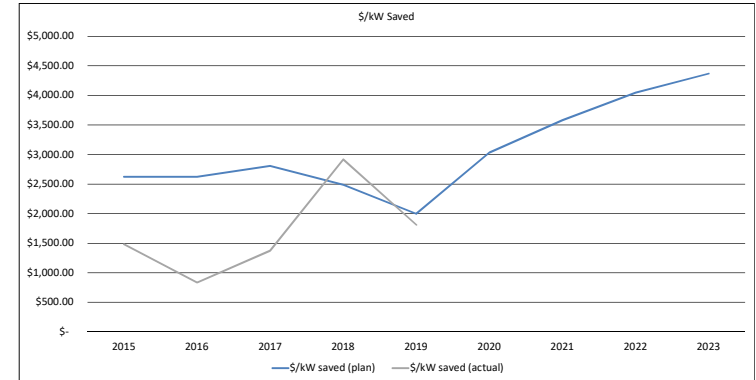
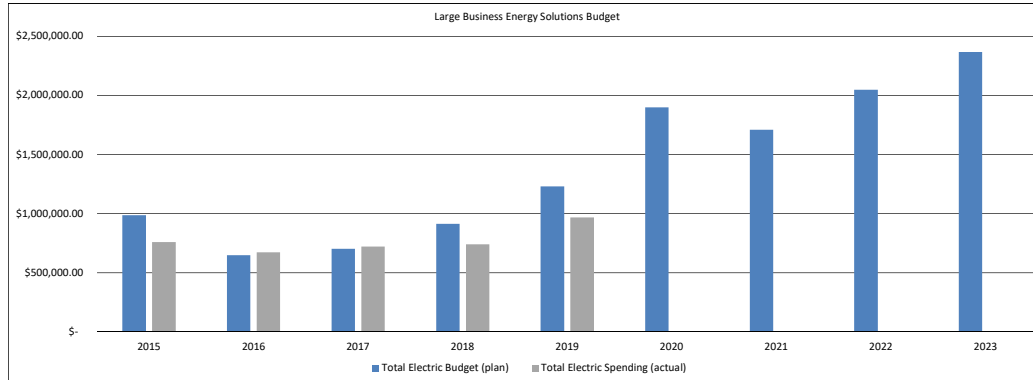
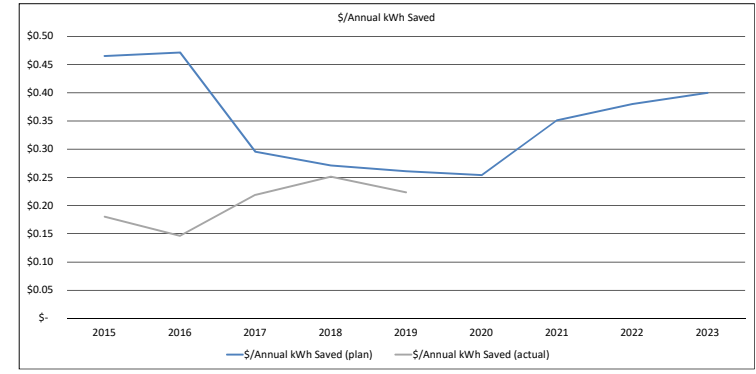
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ -	\$ -	\$ -	\$ 146,950.00	\$ 129,300.00	\$ 145,823.39	\$ 129,227.00	\$ 126,072.64	\$ 123,001.95
	Total Annual Electric Savings (kWh) (plan)	-	-	-	760,000.00	668,000.00	453,050.35	796,253.66	1,152,690.33	1,914,000.00
	\$/Annual kWh Saved (plan)	\$ -	\$ -	\$ -	\$ 0.19	\$ 0.19	\$ 0.32	\$ 0.16	\$ 0.11	\$ 0.06
2)	Total Electric Budget	\$ -	\$ -	\$ -	\$ 146,950.00	\$ 129,300.00	\$ 145,823.39	\$ 129,227.00	\$ 126,072.64	\$ 123,001.95
	Total kW saved	-	-	-	63.33	63.33	70.68	110.88	160.51	266.52
	\$/kW saved (plan)	\$ -	\$ -	\$ -	\$ 2,320.26	\$ 2,041.58	\$ 2,063.22	\$ 1,165.49	\$ 785.45	\$ 461.51
3)	Total Electric Budget	\$ -	\$ -	\$ -	\$ 146,950.00	\$ 129,300.00	\$ 145,823.39	\$ 129,227.00	\$ 126,072.64	\$ 123,001.95
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ -	\$ -	\$ -	\$ 164,702.60	\$ 130,923.88
	Total Annual Electric Savings (kWh) (actu)	-	-	-	1,001,918.20	1,210,000.00
	\$/Annual kWh Saved (actual)	\$ -	\$ -	\$ -	\$ 0.16	\$ 0.11
2)	Total Electric Spending	\$ -	\$ -	\$ -	\$ 164,702.60	\$ 130,923.88
	Total kW saved	-	-	-	83.49	54.30
	\$/kW saved (actual)	\$ -	\$ -	\$ -	\$ 1,972.65	\$ 2,410.97
3)	Total Electric Spending	\$ -	\$ -	\$ -	\$ 164,702.60	\$ 130,923.88
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ -	\$ -	\$ -	\$ -	\$ -



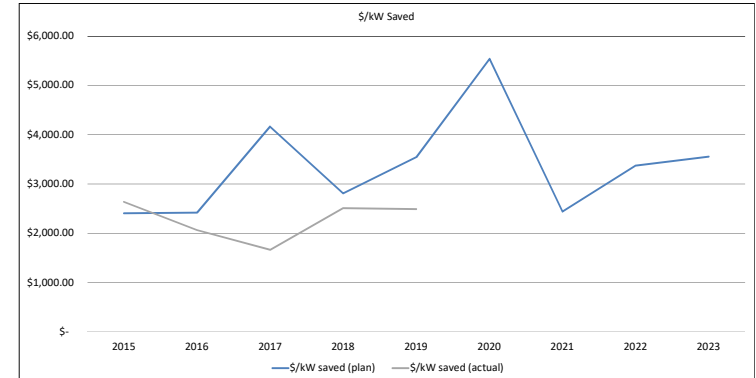
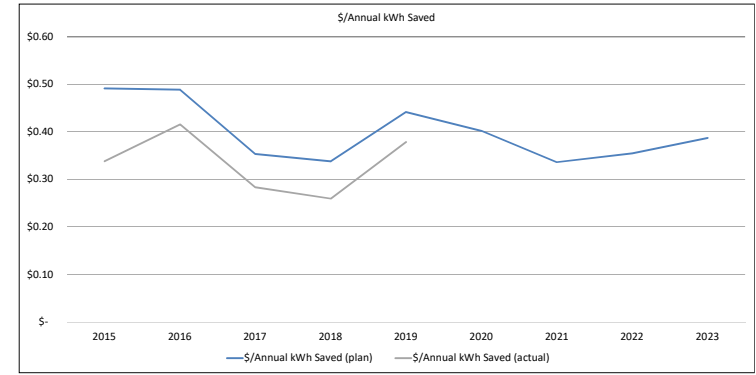
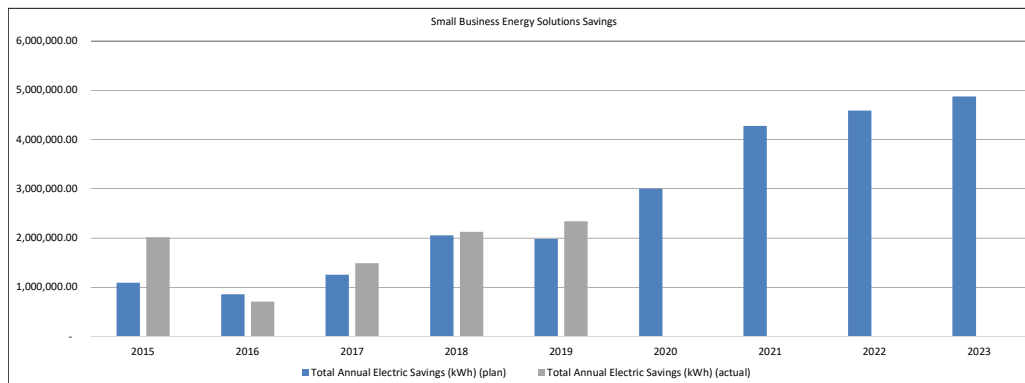
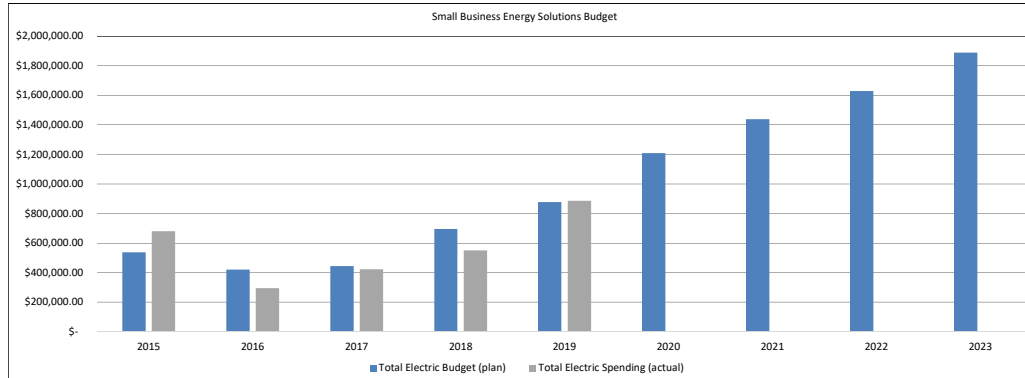
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 986,516.79	\$ 648,100.80	\$ 703,049.76	\$ 912,650.57	\$ 1,231,211.44	\$ 1,898,823.97	\$ 1,708,986.00	\$ 2,047,907.02	\$ 2,366,311.35
	Total Annual Electric Savings (kWh) (plan)	2,119,438.41	1,374,366.90	2,378,148.71	3,363,034.81	4,717,156.03	7,475,706.83	4,867,146.51	5,384,418.13	5,915,015.72
	\$/Annual kWh Saved (plan)	\$ 0.47	\$ 0.47	\$ 0.30	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.35	\$ 0.38	\$ 0.40
2)	Total Electric Budget	\$ 986,516.79	\$ 648,100.80	\$ 703,049.76	\$ 912,650.57	\$ 1,231,211.44	\$ 1,898,823.97	\$ 1,708,986.00	\$ 2,047,907.02	\$ 2,366,311.35
	Total kW saved	375.77	246.88	250.40	366.51	616.65	625.86	477.02	505.71	541.76
	\$/kW saved (plan)	\$ 2,625.32	\$ 2,625.16	\$ 2,807.71	\$ 2,490.11	\$ 1,996.63	\$ 3,033.96	\$ 3,582.62	\$ 4,049.57	\$ 4,367.86
3)	Total Electric Budget	\$ 986,516.79	\$ 648,100.80	\$ 703,049.76	\$ 912,650.57	\$ 1,231,211.44	\$ 1,898,823.97	\$ 1,708,986.00	\$ 2,047,907.02	\$ 2,366,311.35
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)	-	-	-	-	-	-	-	-	-
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)	\$ 758,942.69	\$ 671,700.75	\$ 722,352.73	\$ 739,766.19	\$ 968,272.22				
	Total Annual Electric Savings (kWh) (actual)	4,209,731.13	4,591,503.58	3,298,929.54	2,945,170.28	4,337,868.93				
	\$/Annual kWh Saved (actual)	\$ 0.18	\$ 0.15	\$ 0.22	\$ 0.25	\$ 0.22				
2)	Total Electric Spending	\$ 758,942.69	\$ 671,700.75	\$ 722,352.73	\$ 739,766.19	\$ 968,272.22				
	Total kW saved	512.42	804.65	525.73	253.49	534.26				
	\$/kW saved (actual)	\$ 1,481.09	\$ 834.77	\$ 1,374.01	\$ 2,918.28	\$ 1,812.37				
3)	Total Electric Spending	\$ 758,942.69	\$ 671,700.75	\$ 722,352.73	\$ 739,766.19	\$ 968,272.22				
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-				
	\$/Total Fuel Neutral MMBtu Saved (actual)	-	-	-	-	-				



Small Business Energy Solutions

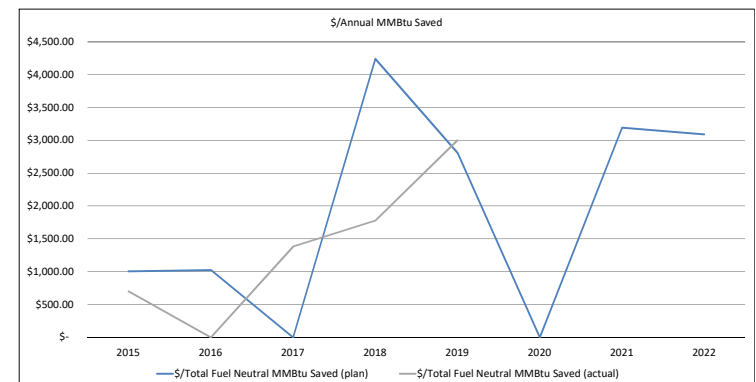
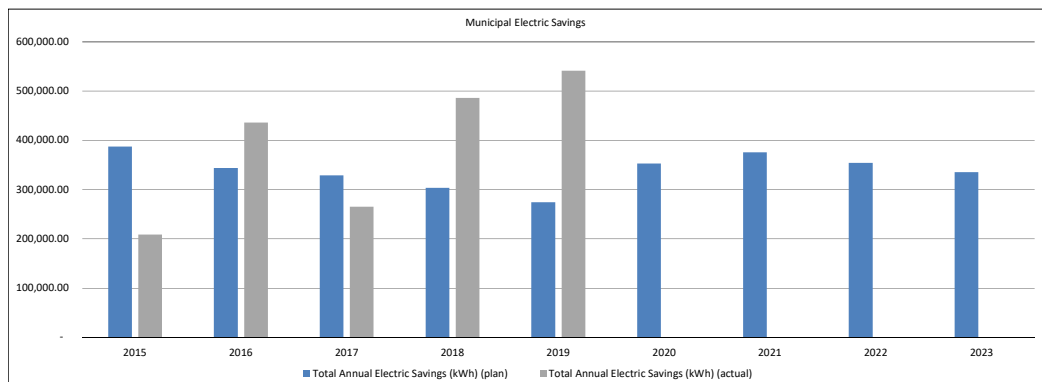
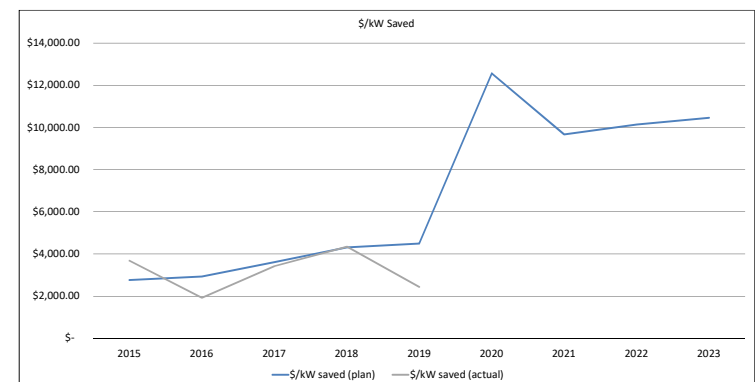
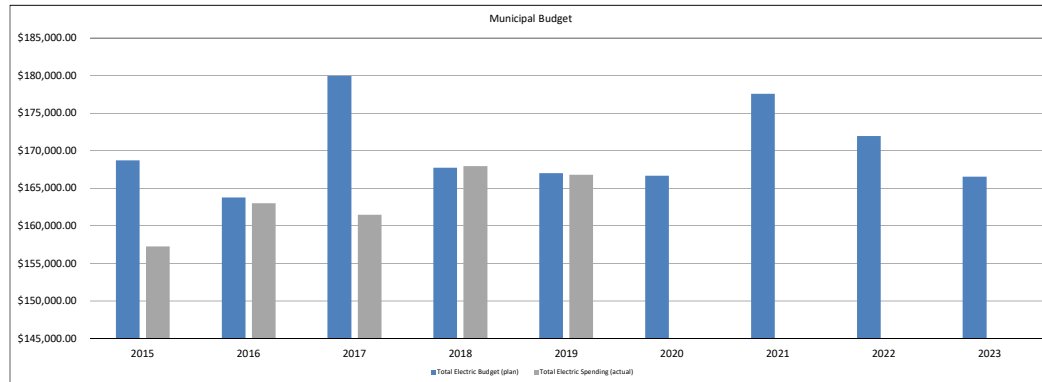
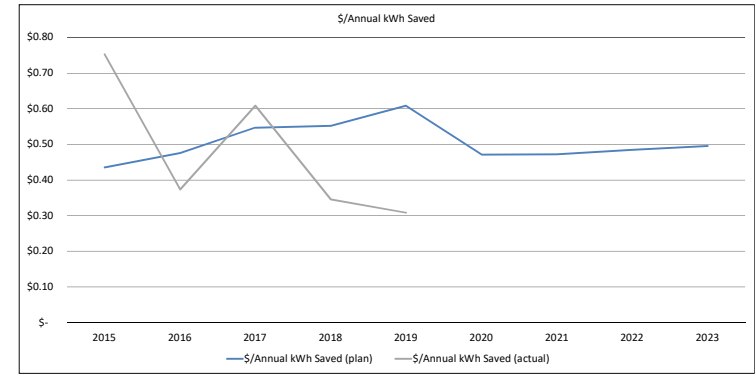
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 539,501.37	\$ 421,265.52	\$ 445,264.85	\$ 695,978.13	\$ 877,784.36	\$ 1,208,871.38	\$ 1,439,054.00	\$ 1,630,026.15	\$ 1,890,112.27
	Total Annual Electric Savings (kWh) (plan)	1,097,858.23	860,961.22	1,259,303.25	2,058,733.62	1,986,225.15	3,007,126.22	4,277,623.34	4,593,071.11	4,876,269.49
	\$/Annual kWh Saved (plan)	\$ 0.49	\$ 0.49	\$ 0.35	\$ 0.34	\$ 0.44	\$ 0.40	\$ 0.34	\$ 0.35	\$ 0.39
2)	Total Electric Budget	\$ 539,501.37	\$ 421,265.52	\$ 445,264.85	\$ 695,978.13	\$ 877,784.36	\$ 1,208,871.38	\$ 1,439,054.00	\$ 1,630,026.15	\$ 1,890,112.27
	Total kW saved	224.27	173.92	106.80	247.48	247.65	218.14	589.24	483.10	531.25
	\$/kW saved (plan)	\$ 2,405.55	\$ 2,422.14	\$ 4,169.17	\$ 2,812.23	\$ 3,544.45	\$ 5,541.82	\$ 2,442.22	\$ 3,374.06	\$ 3,557.88
3)	Total Electric Budget	\$ 539,501.37	\$ 421,265.52	\$ 445,264.85	\$ 695,978.13	\$ 877,784.36	\$ 1,208,871.38	\$ 1,439,054.00	\$ 1,630,026.15	\$ 1,890,112.27
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)	-	-	-	-	-	-	-	-	-
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)	\$ 681,255.21	\$ 295,732.97	\$ 423,319.49	\$ 552,031.47	\$ 886,126.77				
	Total Annual Electric Savings (kWh) (actu)	2,015,429.01	711,323.10	1,492,157.24	2,126,374.28	2,342,104.99				
	\$/Annual kWh Saved (actual)	\$ 0.34	\$ 0.42	\$ 0.28	\$ 0.26	\$ 0.38				
2)	Total Electric Spending	\$ 681,255.21	\$ 295,732.97	\$ 423,319.49	\$ 552,031.47	\$ 886,126.77				
	Total kW saved	258.17	143.16	254.31	219.57	355.76				
	\$/kW saved (actual)	\$ 2,638.78	\$ 2,065.69	\$ 1,664.55	\$ 2,514.11	\$ 2,490.81				
3)	Total Electric Spending	\$ 681,255.21	\$ 295,732.97	\$ 423,319.49	\$ 552,031.47	\$ 886,126.77				
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-				
	\$/Total Fuel Neutral MMBtu Saved (actu)	-	-	-	-	-				



Municipal

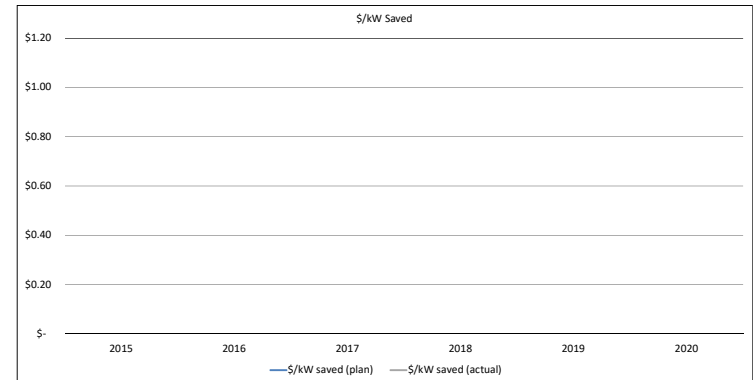
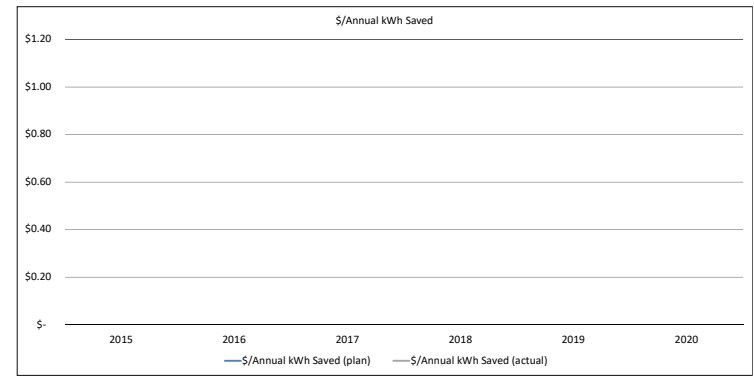
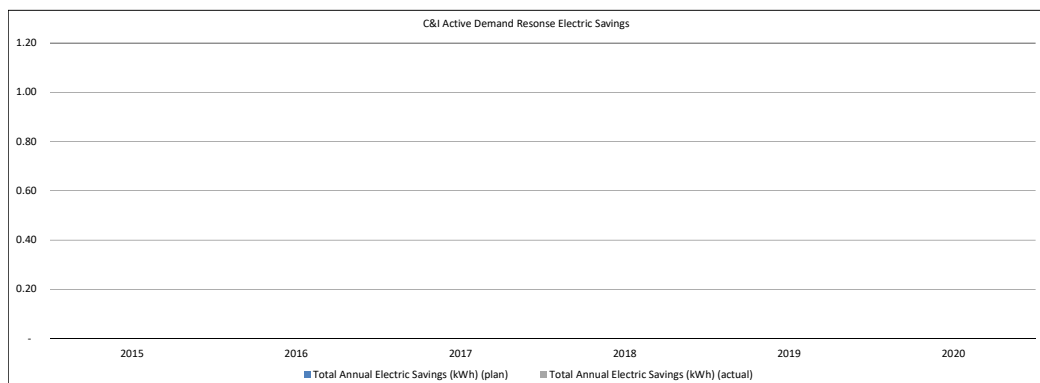
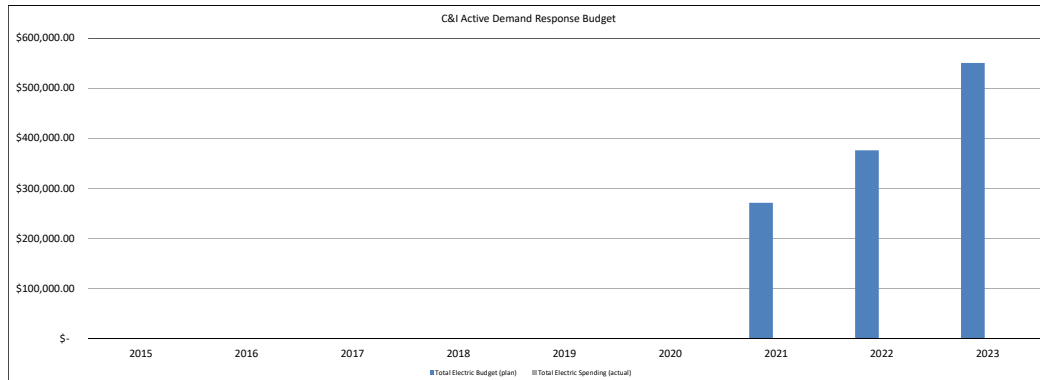
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 168,757.07	\$ 163,787.53	\$ 179,990.30	\$ 167,754.53	\$ 167,047.78	\$ 166,712.82	\$ 177,584.00	\$ 171,994.19	\$ 166,580.33
	Total Annual Electric Savings (kWh) (plan)	387,462.02	344,320.92	329,094.14	303,814.79	274,539.99	353,603.33	376,294.49	354,399.55	335,793.96
	\$/Annual kWh Saved (plan)	\$ 0.44	\$ 0.48	\$ 0.55	\$ 0.55	\$ 0.61	\$ 0.47	\$ 0.47	\$ 0.49	\$ 0.50
2)	Total Electric Budget	\$ 168,757.07	\$ 163,787.53	\$ 179,990.30	\$ 167,754.53	\$ 167,047.78	\$ 166,712.82	\$ 177,584.00	\$ 171,994.19	\$ 166,580.33
	Total kW saved	60.88	55.57	49.75	38.77	37.03	13.27	18.34	16.97	15.91
	\$/kW saved (plan)	\$ 2,771.77	\$ 2,947.59	\$ 3,618.26	\$ 4,327.39	\$ 4,510.93	\$ 12,563.97	\$ 9,680.62	\$ 10,137.61	\$ 10,467.17
3)	Total Electric Budget	\$ 168,757.07	\$ 163,787.53	\$ 179,990.30	\$ 167,754.53	\$ 167,047.78	\$ 166,712.82	\$ 177,584.00	\$ 171,994.19	\$ 166,580.33
	Total Fuel Neutral MMBtu Saved	167.47	159.50	-	39.55	59.41	-	55.60	55.60	55.60
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 1,007.71	\$ 1,026.91	\$ -	\$ 4,241.36	\$ 2,811.83	\$ -	\$ 3,193.96	\$ 3,093.42	\$ 2,996.05

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 157,291.46	\$ 163,041.91	\$ 161,504.59	\$ 167,984.97	\$ 166,842.35
	Total Annual Electric Savings (kWh) (actual)	208,878.40	436,335.10	265,410.20	486,351.10	541,529.25
	\$/Annual kWh Saved (actual)	\$ 0.75	\$ 0.37	\$ 0.61	\$ 0.35	\$ 0.31
2)	Total Electric Spending	\$ 157,291.46	\$ 163,041.91	\$ 161,504.59	\$ 167,984.97	\$ 166,842.35
	Total kW saved	42.75	84.37	47.08	38.61	68.12
	\$/kW saved (actual)	\$ 3,679.72	\$ 1,932.35	\$ 3,430.31	\$ 4,350.56	\$ 2,449.23
3)	Total Electric Spending	\$ 157,291.46	\$ 163,041.91	\$ 161,504.59	\$ 167,984.97	\$ 166,842.35
	Total Fuel Neutral MMBtu Saved	224.40	-	116.80	94.50	55.60
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ 700.94	\$ -	\$ 1,382.74	\$ 1,777.62	\$ 3,000.76



C&I Active Demand Response

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)							\$ 271,637.00	\$ 376,893.95	\$ 550,786.13
	Total Annual Electric Savings (kWh) (plan)							-	-	-
	\$/Annual kWh Saved (plan)							\$ -	\$ -	\$ -
2)	Total Electric Budget							\$ 271,637.00	\$ 376,893.95	\$ 550,786.13
	Total kW saved							-	-	-
	\$/kW saved (plan)							\$ -	\$ -	\$ -
3)	Total Electric Budget							\$ 271,637.00	\$ 376,893.95	\$ 550,786.13
	Total Fuel Neutral MMBtu Saved							-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)							\$ -	\$ -	\$ -
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)									
	Total Annual Electric Savings (kWh) (actual)									
	\$/Annual kWh Saved (actual)									
2)	Total Electric Spending									
	Total kW saved									
	\$/kW saved (actual)									
3)	Total Electric Spending									
	Total Fuel Neutral MMBtu Saved									
	\$/Total Fuel Neutral MMBtu Saved (actual)									



Program Cost-Effectiveness - 2021 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.24	0.12	1.29	1,730.3	166.5	1,810.9	1,401.0	-	133.575	1,956.415	28.3	10.7	90	1,952.2	45,589.5
A1 - Energy Star Homes	6.64	0.73	7.20	4,447.8	488.4	5,762.3	670.1	130.1	313.922	7,774.166	83.8	2.6	100	4,913.1	121,097.2
A2 - Home Performance with Energy Star	2.64	0.21	2.83	2,965.7	241.2	3,800.0	1,122.1	222.7	195.956	3,316.751	60.5	2.3	166	5,196.1	102,873.9
A3 - Energy Star Products	1.58	1.32	2.36	2,369.1	1,978.5	3,671.8	1,497.2	58.8	2,843.213	17,811.910	530.7	430.6	51,969	309.8	3,408.0
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	6.0	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	46.4	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Residential	2.43	0.61	2.92	11,512.9	2,874.7	15,044.9	4,742.9	411.6	3,486.666	30,859.242	703.2	446.2	52,325	12,371.2	272,968.7
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.68	1.68	1.20	1,675.6	1,675.6	2,509.1	996.2	1,100.3	2,738.079	35,598.876	143.5	180.4	31	-	-
C2 - Small Business Energy Solutions	2.88	2.88	2.73	2,985.1	2,985.1	4,665.4	1,036.1	673.4	2,427.376	32,401.337	307.0	237.4	210	-	-
C3 - Municipal Energy Solutions	1.71	1.08	1.26	279.2	175.7	381.5	163.3	138.6	153.107	2,014.853	14.7	17.2	15	126.8	3,170.4
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	14.0	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	46.4	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.19	2.14	1.81	4,939.9	4,836.4	7,556.0	2,256.0	1,912.3	5,318.562	70,015.066	465.2	435.0	256	126.8	3,170.4
C6e - Smart Start	-	-	-	-	-	-	5.4	-	-	-	-	-	-	-	-
Total	2.35	1.10	2.42	16,452.8	7,711.1	22,600.9	7,004.4	2,323.9	8,805.228	100,874.309	1,168.4	881.2	52,581	12,498.0	276,139.1

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

Annual kWh Savings		8,805,228	70.6%	kWh > 55%	Lifetime kWh Savings		100,874,309	55.5%	kWh > 55%
Annual MMBTU Savings (in kWh)		<u>3,662,803</u>	<u>29.4%</u>		Lifetime MMBTU Savings (in kWh)		<u>80,928,391</u>	<u>44.5%</u>	
		12,468,031	100.0%				181,802,699	100.0%	

Annual Savings as a % of 2019 Sales		1.15%	Spending per Customer		Low-Income	\$	577.99
					Residential	\$	48.37
					C&I	\$	55.84

Present Value Benefits - 2021 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)																Non-Resource Benefits (\$000)			Environ- mental Benefits (\$000)
				CAPACITY					Electric				Non-Electric		Total Resource Benefits								
	Granite State Test	Utility Cost Test	Secondary Granite State Test						Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak		Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	
				Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits																	
Residential Programs																							
B1 - Home Energy Assistance	\$ 1,730	\$ 167	\$ 1,811	\$ 9	\$ -	\$ 10	\$ 9	-	\$ 55	\$ 59	\$ 9	\$ 8	\$ 7	\$ 167	\$ 955	\$ 9	\$ 1,131	\$ 68	\$ 531	\$ 599	\$ 81		
A1 - Energy Star Homes	\$ 4,448	\$ 488	\$ 5,762	\$ 5	\$ -	\$ 5	\$ 4	-	\$ 208	\$ 243	\$ 3	\$ 3	\$ 18	\$ 488	\$ 3,748	\$ 6	\$ 4,242	\$ 205	\$ 1,059	\$ 1,264	\$ 255		
A2 - Home Performance with Energy Star	\$ 2,966	\$ 241	\$ 3,800	\$ 0	\$ -	\$ 0	\$ 0	-	\$ 105	\$ 124	\$ 0	\$ 0	\$ 11	\$ 241	\$ 2,567	\$ -	\$ 2,808	\$ 158	\$ 702	\$ 860	\$ 132		
A3 - Energy Star Products	\$ 2,369	\$ 1,979	\$ 3,672	\$ 208	\$ -	\$ 255	\$ 221	-	\$ 432	\$ 387	\$ 208	\$ 159	\$ 108	\$ 1,979	\$ 62	\$ 325	\$ 2,365	\$ 4	\$ 510	\$ 514	\$ 793		
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Sub-Total Residential	\$ 11,513	\$ 2,875	\$ 15,045	\$ 222	\$ -	\$ 271	\$ 234	-	\$ 800	\$ 812	\$ 222	\$ 170	\$ 144	\$ 2,875	\$ 7,332	\$ 340	\$ 10,546	\$ 436	\$ 2,802	\$ 3,238	\$ 1,261		
Commercial/Industrial Programs																							
C1 - Large Business Energy Solutions	\$ 1,676	\$ 1,676	\$ 2,509	\$ 191	\$ -	\$ 213	\$ 184	-	\$ 344	\$ 191	\$ 310	\$ 148	\$ 95	\$ 1,676	\$ -	\$ -	\$ 1,676	\$ -	\$ 168	\$ 168	\$ 666		
C2 - Small Business Energy Solutions	\$ 2,985	\$ 2,985	\$ 4,665	\$ 256	\$ -	\$ 284	\$ 246	-	\$ 675	\$ 477	\$ 551	\$ 356	\$ 141	\$ 2,985	\$ -	\$ -	\$ 2,985	\$ -	\$ 299	\$ 299	\$ 1,382		
C3 - Municipal Energy Solutions	\$ 279	\$ 176	\$ 381	\$ 18	\$ -	\$ 20	\$ 18	-	\$ 37	\$ 23	\$ 33	\$ 18	\$ 8	\$ 176	\$ 98	\$ -	\$ 274	\$ 5	\$ 27	\$ 33	\$ 75		
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Sub-Total Commercial & Industrial	\$ 4,940	\$ 4,836	\$ 7,556	\$ 465	\$ -	\$ 517	\$ 448	-	\$ 1,056	\$ 691	\$ 894	\$ 521	\$ 244	\$ 4,836	\$ 98	\$ -	\$ 4,934	\$ 5	\$ 493	\$ 499	\$ 2,123		
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Total	\$ 16,453	\$ 7,711	\$ 22,601	\$ 686	\$ -	\$ 788	\$ 682	-	\$ 1,856	\$ 1,503	\$ 1,116	\$ 692	\$ 388	\$ 7,711	\$ 7,430	\$ 340	\$ 15,481	\$ 441	\$ 3,296	\$ 3,737	\$ 3,383		

Portfolio Planned Versus Actual Performance - 2021										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	100,874,309	65,568,301		-	1.925%	-	\$ 134,730	\$ 168,412	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	8,805,228	5,723,398		-	0.550%	-	\$ 38,494	\$ 48,118	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	881	573		-	0.660%	-	\$ 46,193	\$ 57,741	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,168	759		-	0.440%	-	\$ 30,795	\$ 38,494	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	-	-		-	0.000%	-	\$ -	\$ -	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 15,480,650			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 6,998,953			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 8,481,697	\$ 5,513,103	\$ -	-	1.925%	-	\$ 134,730	\$ 168,412	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 384,942	\$ 481,178	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 16,452,838		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 384,942	\$ -	from row 9 above
12 Total Utility Costs	\$ 6,998,953	\$ -	from row 7 above
13 Portfolio GST BCR	2.23	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

Program Cost-Effectiveness - 2022 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.39	0.10	1.44	1,927.4	141.5	1,998.0	1,389.760	-	111.181	1,727.453	27.2	6.7	102	2,119.4	50,141.9
A1 - Energy Star Homes	7.00	0.76	7.60	4,600.8	501.7	5,951.5	657.117	126.0	313.922	7,774.166	83.8	2.6	100	4,913.1	121,097.2
A2 - Home Performance with Energy Star	2.64	0.21	2.80	3,209.3	258.8	4,106.8	1,215.888	249.1	204.246	3,475.049	63.1	2.4	174	5,408.7	107,368.8
A3 - Energy Star Products	1.73	1.38	2.33	1,972.1	1,572.7	2,994.0	1,137.730	148.2	1,731.594	13,793.103	285.8	275.5	28,368	309.8	3,408.0
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	48.514	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Residential	2.63	0.56	3.03	11,709.7	2,474.7	15,050.3	4,449.009	523.3	2,360.943	26,769.771	459.9	287.2	28,744	12,751.1	282,015.9
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.57	1.57	1.12	1,629.8	1,629.8	2,432.4	1,034.979	1,138.6	2,684.897	34,907.798	136.3	171.4	31	-	-
C2 - Small Business Energy Solutions	2.84	2.84	2.71	3,434.2	3,434.2	5,300.6	1,208.256	745.4	2,650.465	35,378.858	351.3	287.4	240	-	-
C3 - Municipal Energy Solutions	1.63	0.95	1.24	257.6	150.4	346.6	158.177	121.4	129.141	1,699.431	12.2	14.2	15	126.8	3,170.4
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	48.514	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.17	2.13	1.81	5,321.6	5,214.5	8,079.7	2,449.926	2,005.4	5,464.503	71,986.087	499.8	473.0	286	126.8	3,170.4
C6e - Smart Start	-	-	-	-	-	-	5.237	-	-	-	-	-	-	-	-
Total	2.47	1.11	2.45	17,031.3	7,689.1	23,130.0	6,904.173	2,528.7	7,825.446	98,755.858	959.7	760.2	29,030	12,877.9	285,186.3

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

Annual kWh Savings		7,825,446	67.5%	kWh > 55%	Lifetime kWh Savings		98,755,858	54.2%	kWh < 55%
Annual MMBTU Savings (in kWh)		<u>3,774,135</u>	<u>32.5%</u>		Lifetime MMBTU Savings (in kWh)		<u>83,579,872</u>	<u>45.8%</u>	
		11,599,581	100.0%				182,335,730	100.0%	

Annual Savings as a % of 2019 Sales		1.02%	Spending per Customer		Low-Income	\$	573.33
					Residential	\$	44.28
					C&I	\$	60.64

Present Value Benefits - 2022 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)			Environmental Benefits (\$000)
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit		Other Fuels	Water Benefit				
Residential Programs																					
B1 - Home Energy Assistance	\$ 1,927	\$ 141	\$ 1,998	\$ 5	\$ -	\$ 5	\$ 5	-	\$ 53	\$ 57	\$ 6	\$ 5	\$ 6	\$ 141	\$ 1,083	\$ 11	\$ 1,235	\$ 81	\$ 612	\$ 693	\$ 71
A1 - Energy Star Homes	\$ 4,601	\$ 502	\$ 5,952	\$ 5	\$ -	\$ 5	\$ 4	-	\$ 215	\$ 249	\$ 4	\$ 3	\$ 18	\$ 502	\$ 3,871	\$ 6	\$ 4,379	\$ 222	\$ 1,093	\$ 1,315	\$ 258
A2 - Home Performance with Energy Star	\$ 3,209	\$ 259	\$ 4,107	\$ 0	\$ -	\$ 0	\$ 0	-	\$ 113	\$ 132	\$ 0	\$ 0	\$ 12	\$ 259	\$ 2,772	\$ -	\$ 3,031	\$ 179	\$ 758	\$ 936	\$ 140
A3 - Energy Star Products	\$ 1,972	\$ 1,573	\$ 2,994	\$ 180	\$ -	\$ 206	\$ 179	-	\$ 333	\$ 299	\$ 165	\$ 130	\$ 79	\$ 1,573	\$ 64	\$ 330	\$ 1,968	\$ 5	\$ 409	\$ 414	\$ 613
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 330	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 11,710	\$ 2,475	\$ 15,050	\$ 190	\$ -	\$ 217	\$ 188	-	\$ 714	\$ 738	\$ 174	\$ 138	\$ 115	\$ 2,475	\$ 7,790	\$ 347	\$ 10,611	\$ 487	\$ 2,872	\$ 3,358	\$ 1,081
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 1,630	\$ 1,630	\$ 2,432	\$ 191	\$ -	\$ 206	\$ 178	-	\$ 334	\$ 185	\$ 300	\$ 143	\$ 93	\$ 1,630	\$ -	\$ -	\$ 1,630	\$ -	\$ 163	\$ 163	\$ 640
C2 - Small Business Energy Solutions	\$ 3,434	\$ 3,434	\$ 5,301	\$ 328	\$ -	\$ 353	\$ 305	-	\$ 755	\$ 527	\$ 614	\$ 394	\$ 157	\$ 3,434	\$ -	\$ -	\$ 3,434	\$ -	\$ 343	\$ 343	\$ 1,523
C3 - Municipal Energy Solutions	\$ 258	\$ 150	\$ 347	\$ 16	\$ -	\$ 17	\$ 15	-	\$ 32	\$ 20	\$ 28	\$ 15	\$ 7	\$ 150	\$ 101	\$ -	\$ 252	\$ 6	\$ 25	\$ 31	\$ 64
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 5,322	\$ 5,214	\$ 8,080	\$ 535	\$ -	\$ 575	\$ 498	-	\$ 1,122	\$ 732	\$ 943	\$ 552	\$ 257	\$ 5,214	\$ 101	\$ -	\$ 5,316	\$ 6	\$ 532	\$ 537	\$ 2,226
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 17,031	\$ 7,689	\$ 23,130	\$ 725	\$ -	\$ 793	\$ 687	-	\$ 1,835	\$ 1,470	\$ 1,117	\$ 690	\$ 372	\$ 7,689	\$ 7,891	\$ 347	\$ 15,927	\$ 493	\$ 3,403	\$ 3,896	\$ 3,307

Portfolio Planned Versus Actual Performance - 2022										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	125% of Planned PI		Actual PI	Source
1 Lifetime kWh Savings	98,755,858	64,191,308		-	1.925%	-	\$ 132,805	\$ 166,006	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	7,825,446	5,086,540		-	0.550%	-	\$ 37,944	\$ 47,430	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	760	494		-	0.660%	-	\$ 45,533	\$ 56,916	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	960	624		-	0.440%	-	\$ 30,355	\$ 37,944	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	-	-		-	0.000%	-	\$ -	\$ -	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 15,927,183			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 6,898,936			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 9,028,248	\$ 5,868,361	\$ -	-	1.925%	-	\$ 132,805	\$ 166,006	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 379,441	\$ 474,302	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 17,031,273		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 379,441	\$ -	from row 9 above
12 Total Utility Costs	\$ 6,898,936	\$ -	from row 7 above
13 Portfolio GST BCR	2.34	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2022\$) is \$391,773.31.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

Program Cost-Effectiveness - 2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.60	0.15	1.68	2,132.9	203.4	2,235.5	1,331.992	-	153.574	2,476.827	40.2	7.0	102	2,225.4	52,649.0
A1 - Energy Star Homes	7.38	0.82	8.02	4,757.9	526.0	6,148.1	644.777	122.1	317.245	7,840.638	84.3	3.5	100	4,913.1	121,097.2
A2 - Home Performance with Energy Star	2.62	0.21	2.76	3,464.7	279.1	4,428.1	1,323.499	278.7	212.950	3,641.262	65.7	2.6	183	5,632.0	112,088.3
A3 - Energy Star Products	2.05	1.60	2.36	1,845.7	1,437.7	2,763.3	898.630	270.7	1,219.690	12,216.525	174.6	205.8	8,811	309.8	3,408.0
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	5.797	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	18.279	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Residential	2.89	0.58	3.18	12,201.2	2,446.2	15,574.9	4,222.974	671.5	1,903.459	26,175.252	364.8	218.8	9,197	13,080.3	289,242.6
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.71	1.71	1.23	1,724.0	1,724.0	2,569.9	1,007.967	1,085.8	2,756.237	35,942.650	133.5	169.0	31	-	-
C2 - Small Business Energy Solutions	2.77	2.77	2.76	3,055.2	3,055.2	4,739.0	1,103.905	610.6	2,388.821	31,713.559	299.8	230.8	205	-	-
C3 - Municipal Energy Solutions	1.57	0.84	1.23	240.0	129.4	317.7	153.198	105.6	108.605	1,429.081	10.1	11.7	14	126.8	3,170.4
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	13.526	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	22.670	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.18	2.13	1.86	5,019.2	4,908.6	7,626.6	2,301.266	1,802.0	5,253.663	69,085.290	443.4	411.4	250	126.8	3,170.4
C6e - Smart Start	-	-	-	-	-	-	4.690	-	-	-	-	-	-	-	-
Total	2.64	1.13	2.58	17,220.4	7,354.8	23,201.5	6,528.930	2,473.5	7,157.123	95,260.542	808.3	630.3	9,447	13,207.1	292,413.0

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

Only use these tags: a , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b , b</									
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Present Value Benefits - 2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					ELECTRIC				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits		
Residential Programs																					
B1 - Home Energy Assistance	\$ 2,133	\$ 203	\$ 2,235	\$ 5	\$ -	\$ 6	\$ 5	\$ -	\$ 79	\$ 88	\$ 6	\$ 5	\$ 9	\$ 203	\$ 1,172	\$ 11	\$ 1,387	\$ 92	\$ 654	\$ 746	\$ 103
A1 - Energy Star Homes	\$ 4,758	\$ 526	\$ 6,148	\$ 7	\$ -	\$ 6	\$ 6	\$ -	\$ 223	\$ 257	\$ 5	\$ 4	\$ 19	\$ 526	\$ 3,985	\$ 6	\$ 4,518	\$ 240	\$ 1,128	\$ 1,368	\$ 262
A2 - Home Performance with Energy Star	\$ 3,465	\$ 279	\$ 4,428	\$ 0	\$ -	\$ 1	\$ 0	\$ -	\$ 122	\$ 143	\$ 0	\$ 0	\$ 13	\$ 279	\$ 2,983	\$ -	\$ 3,262	\$ 202	\$ 816	\$ 1,018	\$ 148
A3 - Energy Star Products	\$ 1,846	\$ 1,438	\$ 2,763	\$ 178	\$ -	\$ 190	\$ 164	\$ -	\$ 297	\$ 270	\$ 150	\$ 121	\$ 67	\$ 1,438	\$ 67	\$ 336	\$ 1,841	\$ 5	\$ 376	\$ 381	\$ 541
A5 - Residential Active Demand Response	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 12,201	\$ 2,446	\$ 15,575	\$ 190	\$ -	\$ 202	\$ 175	\$ -	\$ 721	\$ 758	\$ 162	\$ 130	\$ 107	\$ 2,446	\$ 8,207	\$ 354	\$ 11,008	\$ 540	\$ 2,973	\$ 3,513	\$ 1,054
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 1,724	\$ 1,724	\$ 2,570	\$ 202	\$ -	\$ 209	\$ 181	\$ -	\$ 351	\$ 206	\$ 317	\$ 159	\$ 98	\$ 1,724	\$ -	\$ -	\$ 1,724	\$ -	\$ 172	\$ 172	\$ 673
C2 - Small Business Energy Solutions	\$ 3,055	\$ 3,055	\$ 4,739	\$ 276	\$ -	\$ 285	\$ 247	\$ -	\$ 651	\$ 493	\$ 577	\$ 384	\$ 143	\$ 3,055	\$ -	\$ -	\$ 3,055	\$ -	\$ 306	\$ 306	\$ 1,378
C3 - Municipal Energy Solutions	\$ 240	\$ 129	\$ 318	\$ 14	\$ -	\$ 14	\$ 12	\$ -	\$ 27	\$ 18	\$ 25	\$ 13	\$ 6	\$ 129	\$ 104	\$ -	\$ 234	\$ 6	\$ 23	\$ 30	\$ 54
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 5,019	\$ 4,909	\$ 7,627	\$ 491	\$ -	\$ 508	\$ 440	\$ -	\$ 1,030	\$ 717	\$ 918	\$ 557	\$ 247	\$ 4,909	\$ 104	\$ -	\$ 5,013	\$ 6	\$ 501	\$ 508	\$ 2,106
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 17,220	\$ 7,355	\$ 23,202	\$ 682	\$ -	\$ 711	\$ 616	\$ -	\$ 1,751	\$ 1,475	\$ 1,080	\$ 687	\$ 354	\$ 7,355	\$ 8,312	\$ 354	\$ 16,020	\$ 546	\$ 3,475	\$ 4,021	\$ 3,160

Portfolio Planned Versus Actual Performance - 2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	125% of Planned PI		Actual PI	Source
1 Lifetime kWh Savings	95,260,542	61,919,353		-	1.925%	-	\$ 125,592	\$ 156,990	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	7,157,123	4,652,130		-	0.550%	-	\$ 35,883	\$ 44,854	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	630	410		-	0.660%	-	\$ 43,060	\$ 53,825	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	808	525		-	0.440%	-	\$ 28,707	\$ 35,883	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	-	-		-	0.000%	-	\$ -	\$ -	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 16,020,419			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 6,524,240			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 9,496,179	\$ 6,172,516	\$ -	-	1.925%	-	\$ 125,592	\$ 156,990	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 358,833	\$ 448,542	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 17,220,430		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 358,833	\$ -	from row 9 above
12 Total Utility Costs	\$ 6,524,240	\$ -	from row 7 above
13 Portfolio GST BCR	2.50	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2023\$) is \$382,536.39.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

Program Cost-Effectiveness - 2021-2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.40	0.12	1.47	5,790.6	511.4	6,044.4	4,122.8	-	398.3	6,160.7	95.7	24.4	294	6,297.0	148,380.4
A1 - Energy Star Homes	7.00	0.77	7.60	13,806.6	1,516.1	17,861.9	1,972.0	378.2	945.1	23,389.0	251.8	8.7	301	14,739.3	363,291.7
A2 - Home Performance with Energy Star	2.63	0.21	2.80	9,639.7	779.1	12,334.9	3,661.5	750.5	613.2	10,433.1	189.3	7.3	523	16,236.8	322,331.0
A3 - Energy Star Products	1.75	1.41	2.35	6,186.9	4,988.9	9,429.0	3,533.6	477.7	5,794.5	43,821.5	991.1	911.9	89,148	929.5	10,224.1
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	11.8	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	113.2	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Residential	2.64	0.58	3.04	35,423.8	7,795.6	45,670.1	13,414.9	1,606.4	7,751.1	83,804.3	1,527.9	952.3	90,266	38,202.5	844,227.2
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.65	1.65	1.18	5,029.5	5,029.5	7,511.5	3,039.1	3,324.7	8,179.2	106,449.3	413.3	520.7	93	-	-
C2 - Small Business Energy Solutions	2.83	2.83	2.73	9,474.5	9,474.5	14,705.0	3,348.3	2,029.3	7,466.7	99,493.8	958.1	755.6	655	-	-
C3 - Municipal Energy Solutions	1.64	0.96	1.24	776.8	455.5	1,045.8	474.7	365.7	390.9	5,143.4	37.0	43.2	44	380.5	9,511.3
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	27.5	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	117.6	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.18	2.13	1.83	15,280.7	14,959.5	23,262.3	7,007.2	5,719.7	16,036.7	211,086.4	1,408.5	1,319.4	792	380.5	9,511.3
C6e - Smart Start	-	-	-	-	-	-	15.4	-	-	-	-	-	-	-	-
Total	2.48	1.11	2.48	50,704.5	22,755.0	68,932.4	20,437.5	7,326.1	23,787.796	294,890.7	2,936.4	2,271.7	91,058	38,583.0	853,738.5

Notes:

(1) For the Secondary Granite State Test, NEI adders of 25% for Residential and 10% for C&I are applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars.

(2) Utility and Customer Costs Expressed in 2021 Dollars.										
		Annual kWh Savings	23,787,796	67.8%	kWh > 55%	Lifetime kWh Savings		294,890,709	54.1%	kWh < 55%
		Annual MMBTU Savings (in kWh)	11,307,558	32.2%		Lifetime MMBTU Savings (in kWh)		250,206,066	45.9%	
			35,095,354	100.0%				545,096,775	100.0%	
Cumulative Savings as a % of 2019 Sales		3.11%								
				Spending per Customer						
						Low-Income	\$	1,700.82		
						Residential	\$	134.50		
						C&I	\$	173.43		

Present Value Benefits - 2021-2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)				Environ- mental Benefits (\$000)
				CAPACITY					Electric				ENERGY		Non-Electric							
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Total Resource Benefits	Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits		
Residential Programs																						
B1 - Home Energy Assistance	\$ 5,791	\$ 511	\$ 6,044	\$ 19	\$ -	\$ 21	\$ 18	\$ -	\$ 187	\$ 204	\$ 21	\$ 18	\$ 23	\$ 511	\$ 3,210	\$ 31	\$ 3,752	\$ 242	\$ 1,796	\$ 2,038	\$ 254	
A1 - Energy Star Homes	\$ 13,807	\$ 1,516	\$ 17,862	\$ 16	\$ -	\$ 16	\$ 14	\$ -	\$ 646	\$ 749	\$ 12	\$ 9	\$ 55	\$ 1,516	\$ 11,604	\$ 18	\$ 13,139	\$ 668	\$ 3,280	\$ 3,948	\$ 775	
A2 - Home Performance with Energy Star	\$ 9,640	\$ 779	\$ 12,335	\$ 1	\$ -	\$ 1	\$ 1	\$ -	\$ 339	\$ 399	\$ 1	\$ 1	\$ 35	\$ 779	\$ 8,322	\$ -	\$ 9,101	\$ 539	\$ 2,275	\$ 2,814	\$ 420	
A3 - Energy Star Products	\$ 6,187	\$ 4,989	\$ 9,429	\$ 566	\$ -	\$ 652	\$ 565	\$ -	\$ 1,063	\$ 956	\$ 524	\$ 411	\$ 254	\$ 4,989	\$ 193	\$ 991	\$ 6,173	\$ 14	\$ 1,295	\$ 1,309	\$ 1,947	
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Residential	\$ 35,424	\$ 7,796	\$ 45,670	\$ 602	\$ -	\$ 690	\$ 598	\$ -	\$ 2,235	\$ 2,308	\$ 557	\$ 438	\$ 366	\$ 7,796	\$ 23,329	\$ 1,041	\$ 32,165	\$ 1,462	\$ 8,647	\$ 10,110	\$ 3,395	
Commercial/Industrial Programs																						
C1 - Large Business Energy Solutions	\$ 5,029	\$ 5,029	\$ 7,512	\$ 584	\$ -	\$ 627	\$ 543	\$ -	\$ 1,029	\$ 582	\$ 927	\$ 450	\$ 287	\$ 5,029	\$ -	\$ -	\$ 5,029	\$ -	\$ 503	\$ 503	\$ 1,979	
C2 - Small Business Energy Solutions	\$ 9,474	\$ 9,474	\$ 14,705	\$ 860	\$ -	\$ 922	\$ 799	\$ -	\$ 2,081	\$ 1,496	\$ 1,742	\$ 1,134	\$ 440	\$ 9,474	\$ -	\$ -	\$ 9,474	\$ -	\$ 947	\$ 947	\$ 4,283	
C3 - Municipal Energy Solutions	\$ 777	\$ 456	\$ 1,046	\$ 48	\$ -	\$ 52	\$ 45	\$ -	\$ 97	\$ 61	\$ 86	\$ 46	\$ 21	\$ 456	\$ 304	\$ -	\$ 759	\$ 18	\$ 76	\$ 93	\$ 193	
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Commercial & Industrial	\$ 15,281	\$ 14,959	\$ 23,262	\$ 1,491	\$ -	\$ 1,601	\$ 1,387	\$ -	\$ 3,207	\$ 2,139	\$ 2,755	\$ 1,631	\$ 748	\$ 14,959	\$ 304	\$ -	\$ 15,263	\$ 18	\$ 1,526	\$ 1,544	\$ 6,455	
C6e - Smart Start	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total	\$ 50,705	\$ 22,755	\$ 68,932	\$ 2,093	\$ -	\$ 2,291	\$ 1,985	\$ -	\$ 5,442	\$ 4,448	\$ 3,313	\$ 2,069	\$ 1,114	\$ 22,755	\$ 23,633	\$ 1,041	\$ 47,428	\$ 1,480	\$ 10,174	\$ 11,653	\$ 9,851	

Portfolio Planned Versus Actual Performance - 2021-2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	125% of Planned PI		Actual PI	Source
1 Lifetime kWh Savings	294,890,709	191,678,961		-	1.925%	-	\$ 393,126	\$ 491,407	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	23,787,796	15,462,068		-	0.550%	-	\$ 112,322	\$ 140,402	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	2,272	1,477		-	0.660%	-	\$ 134,786	\$ 168,483	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	2,936	1,909		-	0.440%	-	\$ 89,857	\$ 112,322	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	-	-		-	0.000%	-	\$ -	\$ -	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 47,428,252			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ^{1,2}	\$ 20,422,129			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 27,006,124	\$ 17,553,980	\$ -	-	1.925%	-	\$ 393,126	\$ 491,407	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 1,123,217	\$ 1,404,021	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 50,704,541		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 1,123,217	\$ -	from row 9 above
12 Total Utility Costs	\$ 20,422,129	\$ -	from row 7 above
13 Portfolio GST BCR	2.35	-	row 10 divided by rows 11+12

Costs, Benefits, and PI Expressed in 2021 Dollars. Three-year nominal PI is \$1,159,252.11.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

² Net of Smart Start

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
B1a - HEA (Weatherization)	Air Sealing, Cord Wood	E21B1a001	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Electric	E21B1a002	83	94	99	12.4	14.1	14.8	186.7	211.2	221.7	4.0	4.5	4.7	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Gas	E21B1a003	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Kerosene	E21B1a004	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Oil	E21B1a005	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Propane	E21B1a006	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Wood Pellets	E21B1a007	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Electric	E21B1a009	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Gas	E21B1a010	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Kerosene	E21B1a011	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Oil	E21B1a012	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Propane	E21B1a013	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Electric	E21B1a016	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Gas	E21B1a017	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Kerosene	E21B1a018	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Oil	E21B1a019	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Propane	E21B1a020	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Cord Wood	E21B1a022	90	102	107	-	-	-	-	-	-	-	-	-	-	-	-	367.2	415.2	436.0	9,179.6	10,381.2	10,900.2
B1a - HEA (Weatherization)	Insulation, Electric	E21B1a023	84	95	100	31.3	35.3	37.1	781.4	883.7	927.9	9.9	11.2	11.8	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Gas	E21B1a024	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Kerosene	E21B1a025	90	102	107	-	-	-	-	-	-	-	-	-	-	-	-	606.6	686.0	720.3	15,164.0	17,148.9	18,006.3
B1a - HEA (Weatherization)	Insulation, Oil	E21B1a026	90	102	107	-	-	-	-	-	-	-	-	-	-	-	-	364.2	411.9	432.5	9,106.2	10,298.2	10,813.1
B1a - HEA (Weatherization)	Insulation, Propane	E21B1a027	90	102	107	-	-	-	-	-	-	-	-	-	-	-	-	188.9	213.6	224.3	4,722.0	5,340.1	5,607.1
B1a - HEA (Weatherization)	Insulation, Wood Pellets	E21B1a028	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Electric	E21B1a030	69	78	82	11.8	13.3	14.0	176.8	200.0	210.0	2.3	2.6	2.8	0.9	1.0	1.1	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Gas	E21B1a031	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Kerosene	E21B1a032	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Oil	E21B1a033	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Propane	E21B1a034	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Electric	E21B1a037	27	30	32	3.3	3.8	4.0	50.0	56.5	59.3	0.7	0.7	0.8	0.3	0.3	0.3	-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Gas	E21B1a038	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Kerosene	E21B1a039	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Oil	E21B1a040	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Propane	E21B1a041	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	DHW Heat Pump Water Heater	E21B1a043	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, General Service Lamps	E21B1a044	479	542	569	15.4	17.4	18.3	30.8	34.8	36.5	3.3	3.8	3.9	2.1	2.4	2.5	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Linear	E21B1a045	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Other Specialty	E21B1a046	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Reflector	E21B1a047	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Fixture	E21B1a048	23	26	28	0.8	0.9	0.9	1.6	1.8	1.9	0.2	0.2	0.2	0.1	0.1	0.1	-	-	-	-	-	-
B1a - HEA (Weatherization)	Refrigerator	E21B1a049	83	32	34	52.0	20.3	21.3	624.2	243.0	255.2	5.9	2.3	2.4	7.3	2.8	3.0	-	-	-	-	-	-
B1a - HEA (Weatherization)	Freezer	E21B1a050	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Clothes Washer	E21B1a051	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Clothes Dryer	E21B1a052	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Dehumidifier	E21B1a053	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Room Air Conditioner	E21B1a054	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Triple Pane Window	E21B1a055	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Visual Audit	E21B1a056	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Baseload Audit - SF	E21B1a057	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Baseload Audit - MF	E21B1a058	-	-	-													-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Income Kits	E21B1a059	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Boiler Replacement, Gas	E21B1b001	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Boiler Replacement, Kerosene	E21B1b002	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	8.6	8.7	9.1	163.1	165.4	173.6
B1b - HEA (HVAC System)	Boiler Replacement, Oil	E21B1b003	6	10	10	-	-	-	-	-	-	-	-	-	-	-	-	85.3	140.2	147.2	1,621.1	2,663.9	2,797.1
B1b - HEA (HVAC System)	Boiler Replacement, Propane	E21B1b004	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Furnace Replacement, Gas	E21B1b005	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Furnace Replacement, Kerosene	E21B1b006	7	6	6	0.6	0.4	0.5	10.0	7.6	8.0	0.2	0.1	0.1	-	-	-	63.3	48.4	50.8	1,075.3	822.3	863.4
B1b - HEA (HVAC System)	Furnace Replacement, Oil	E21B1b007	15	10	11	2.3	1.6	1.7	38.3	27.0	28.3	0.7	0.5	0.5	-	-	-	223.2	157.1	164.9	3,795.0	2,670.0	2,803.5
B1b - HEA (HVAC System)	Furnace Replacement, Propane	E21B1b008	3	3	3	0.5	0.4	0.4	7.7	6.5	6.9	0.1	0.1	0.1	-	-	-	44.9	38.4	40.3	763.1	652.0	684.6
B1b - HEA (HVAC System)	Programmable Thermostat, Electric	E21B1b009	44	49	52	3.3	3.7	3.9	49.0	55.4	58.1	1.0	1.2	1.2	-	-	-	-	-	-	-	-	-
B1b - HEA (HVAC System)	Programmable Thermostat, Gas	E21B1b010	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Programmable Thermostat, Kerosene	E21B1b011	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Programmable Thermostat, Oil	E21B1b012	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Programmable Thermostat, Propane	E21B1b013	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Programmable Thermostat, Wood Pellets	E21B1b014	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
B1b - HEA (HVAC System)	Wifi Thermostat, Electric	E21B1b015	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
B1b - HEA (HVAC System)	Wifi Thermostat, Gas	E21B1b016	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Wifi Thermostat, Kerosene	E21B1b017	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Wifi Thermostat, Oil	E21B1b018	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Wifi Thermostat, Propane	E21B1b019	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Wifi Thermostat, Wood Pellets	E21B1b020	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Mini Split HP (cooling)	E21B1b021	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC System)	Mini Split HP (heating)	E21B1b022	-	-	8			36.8			663.0			11.7			-	-	-	-	-	-	-
	Home Energy Assistance Subtotal					133.6	111.2	153.6	1,956.4	1,727.5	2,476.8	28.3	27.2	40.2	10.7	6.7	7.0	1,952.2	2,119.4	2,225.4	45,589.5	50,141.9	52,649.0

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A1a - ES Homes	Cooling, Electric, SF	E21A1a001	23	23	23	3.5	3.5	3.5	86.3	86.3	86.3	-	-	-	1.9	1.9	1.9	-	-	-	-	-	-
A1a - ES Homes	Heating, Electric, SF	E21A1a002	22	22	22	261.6	261.6	261.6	6,540.5	6,540.5	6,540.5	83.1	83.1	83.1	-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, SF	E21A1a003	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Oil, SF	E21A1a004	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Propane, SF	E21A1a005	78	78	78	43.6	43.6	43.6	1,090.7	1,090.7	1,090.7	-	-	-	-	-	-	4,740.9	4,740.9	4,740.9	118,522.4	118,522.4	118,522.4
A1a - ES Homes	Heating, Wood Pellets, SF	E21A1a006	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Electric, SF	E21A1a007	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Gas, SF	E21A1a008	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Oil, SF	E21A1a009	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Propane, SF	E21A1a010	39	39	39	-	-	-	-	-	-	-	-	-	-	-	-	170.1	170.1	170.1	2,551.6	2,551.6	2,551.6
A1a - ES Homes	Hot Water, Wood Pellets, SF	E21A1a011	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Cooling, Electric, MF	E21A1a012	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Electric, MF	E21A1a013	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, MF	E21A1a014	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Oil, MF	E21A1a015	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Propane, MF	E21A1a016	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Wood Pellets, MF	E21A1a017	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Electric, MF	E21A1a018	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Gas, MF	E21A1a019	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Oil, MF	E21A1a020	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Propane, MF	E21A1a021	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Hot Water, Wood Pellets, MF	E21A1a022	-	-	-													-	-	-	-	-	-
A1a - ES Homes	LED Bulb	E21A1a023	47	47	47	0.3	0.3	0.3	0.9	0.9	0.9	0.1	0.1	0.1	0.0	0.0	0.0	-	-	-	-	-	-
A1a - ES Homes	LED Fixture	E21A1a024	12	12	12	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
A1a - ES Homes	Refrigerator	E21A1a025	49	49	49	2.1	2.1	2.1	25.8	25.8	25.8	0.2	0.2	0.2	0.2	0.3	0.3	-	-	-	-	-	-
A1a - ES Homes	Clothes Washer	E21A1a026	30	30	30	2.7	2.7	2.7	29.8	29.8	29.8	0.4	0.4	0.4	0.4	0.4	0.4	2.1	2.1	2.1	23.2	23.2	23.2
A1a - ES Homes	Clothes Dryer	E21A1a027	-	-	-													-	-	-	-	-	-
A1a - ES Homes	HERS - Lighting and Appliances	E21A1a028	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Residential New Construction Code Compliance	E21A1a029	1	1	1	-	-	3.3	-	-	66.5	-	-	0.5	-	-	0.9	-	-	-	-	-	-
ES Homes Subtotal						313.9	313.9	317.2	7,774.2	7,774.2	7,840.6	83.8	83.8	84.3	2.6	2.6	3.5	4,913.1	4,913.1	4,913.1	121,097.2	121,097.2	121,097.2

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A2a - HPwES (Weatheriza	Air Sealing, Cord Wood	E21A2a001	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Air Sealing, Electric	E21A2a002	161	169	177	59.4	62.4	65.5	891.0	935.5	982.3	18.9	19.8	20.8	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza	Air Sealing, Gas	E21A2a003	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Air Sealing, Kerosene	E21A2a004	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Air Sealing, Oil	E21A2a005	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Air Sealing, Propane	E21A2a006	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Air Sealing, Wood Pellets	E21A2a007	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Faucet Aerator, Electric	E21A2a009	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Faucet Aerator, Gas	E21A2a010	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Faucet Aerator, Kerosene	E21A2a011	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Faucet Aerator, Oil	E21A2a012	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Faucet Aerator, Propane	E21A2a013	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Hand Held Showerhead, Electric	E21A2a016	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Hand Held Showerhead, Gas	E21A2a017	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Hand Held Showerhead, Kerosene	E21A2a018	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Hand Held Showerhead, Oil	E21A2a019	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Hand Held Showerhead, Propane	E21A2a020	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Insulation, Cord Wood	E21A2a022	166	174	183	-	-	-	-	-	-	-	-	-	-	-	-	372.7	391.3	410.9	7,961.1	8,359.1	8,777.1
A2a - HPwES (Weatheriza	Insulation, Electric	E21A2a023	159	167	175	89.7	94.1	98.9	2,241.5	2,353.6	2,471.3	28.5	29.9	31.4	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatheriza	Insulation, Gas	E21A2a024	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Insulation, Kerosene	E21A2a025	166	174	183	-	-	-	-	-	-	-	-	-	-	-	-	14.5	15.2	15.9	323.7	339.9	356.9
A2a - HPwES (Weatheriza	Insulation, Oil	E21A2a026	166	174	183	-	-	-	-	-	-	-	-	-	-	-	-	2,516.1	2,641.9	2,774.0	53,039.3	55,691.3	58,475.9
A2a - HPwES (Weatheriza	Insulation, Propane	E21A2a027	166	174	183	-	-	-	-	-	-	-	-	-	-	-	-	1,349.0	1,416.5	1,487.3	28,572.5	30,001.1	31,501.2
A2a - HPwES (Weatheriza	Insulation, Wood Pellets	E21A2a028	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Low Flow Showerhead, Electric	E21A2a030	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Low Flow Showerhead, Gas	E21A2a031	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Low Flow Showerhead, Kerosene	E21A2a032	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Low Flow Showerhead, Oil	E21A2a033	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Low Flow Showerhead, Propane	E21A2a034	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Pipe Insulation - Hot Water, Electric	E21A2a037	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Pipe Insulation - Hot Water, Gas	E21A2a038	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Pipe Insulation - Hot Water, Kerosene	E21A2a039	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Pipe Insulation - Hot Water, Oil	E21A2a040	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Pipe Insulation - Hot Water, Propane	E21A2a041	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	DHW Heat Pump Water Heater	E21A2a043	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	LED Bulb, General Service Lamps	E21A2a044	479	503	528	16.7	17.6	18.5	33.5	35.2	36.9	3.6	3.8	4.0	2.3	2.4	2.6	-	-	-	-	-	-
A2a - HPwES (Weatheriza	LED Bulb, Linear	E21A2a045	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	LED Bulb, Other Specialty	E21A2a046	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	LED Bulb, Reflector	E21A2a047	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	LED Fixture	E21A2a048	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Refrigerator	E21A2a049	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Freezer	E21A2a053	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Clothes Washer	E21A2a054	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Clothes Dryer	E21A2a055	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Dehumidifier	E21A2a056	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Room Air Conditioner	E21A2a057	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Triple Pane Window	E21A2a058	-	-	-													-	-	-	-	-	-
A2a - HPwES (Weatheriza	Visual Audit Oil Savings	E21A2a050	42	42	42	-	-	-	-	-	-	-	-	-	-	-	-	471.9	471.9	471.9	6,488.6	6,488.6	6,488.6
A2a - HPwES (Weatheriza	Visual Audit Propane Savings	E21A2a051	42	42	42	-	-	-	-	-	-	-	-	-	-	-	-	471.9	471.9	471.9	6,488.6	6,488.6	6,488.6
A2a - HPwES (Weatheriza	Visual Audit Electric Savings	E21A2a052	91	91	91	30.2	30.2	30.2	150.8	150.8	150.8	9.6	9.6	9.6	-	-	-	-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Boiler Replacement, Gas	E21A2b001	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Boiler Replacement, Kerosene	E21A2b002	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Boiler Replacement, Oil	E21A2b003	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Boiler Replacement, Propane	E21A2b004	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Furnace Replacement, Gas	E21A2b005	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Furnace Replacement, Kerosene	E21A2b006	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Furnace Replacement, Oil	E21A2b007	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Furnace Replacement, Propane	E21A2b008	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Programmable Thermostat, Electric	E21A2b009	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Programmable Thermostat, Gas	E21A2b010	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Programmable Thermostat, Kerosene	E21A2b011	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Programmable Thermostat, Oil	E21A2b012	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Programmable Thermostat, Propane	E21A2b013	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Programmable Thermostat, Wood Pellets	E21A2b014	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Wifi Thermostat, Electric	E21A2b015	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A2b - HPwES (HVAC Syst	Wifi Thermostat, Gas	E21A2b016	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Wifi Thermostat, Kerosene	E21A2b017	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Wifi Thermostat, Oil	E21A2b018	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Wifi Thermostat, Propane	E21A2b019	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syst	Wifi Thermostat, Wood Pellets	E21A2b020	-	-	-													-	-	-	-	-	-
Home Performance with Energy Star Subtotal						196.0	204.2	213.0	3,316.8	3,475.0	3,641.3	60.5	63.1	65.7	2.3	2.4	2.6	5,196.1	5,408.7	5,632.0	102,873.9	107,368.8	112,088.3

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A3a - ES Lighting	LED Bulb, General Service Lamps	E21A3a001	95,948	47,974	-	865.1	301.5		2,595.4	904.5		186.8	65.1		120.5	42.0		-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Linear	E21A3a002	15,534	7,767	914	49.0	17.1	1.1	489.8	170.7	10.2	10.6	3.7	0.2	6.8	2.4	0.2	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Other Specialty	E21A3a003	27,414	13,707	9,138	220.6	76.9	29.0	661.9	230.7	57.9	47.6	16.6	6.3	30.7	10.7	4.0	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Reflector	E21A3a004	31,983	15,991	-	316.9	110.5		633.9	220.9		68.4	23.8		44.1	15.4		-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, General Service Lamps (Hard to Reach)	E21A3a005	5,050	2,525	1,683	73.1	29.7	15.2	219.4	89.0	30.4	15.8	6.4	3.3	10.2	4.1	2.1	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Linear (Hard to Reach)	E21A3a006	902	451	301	4.6	1.9	0.9	45.7	18.5	8.5	1.0	0.4	0.2	0.6	0.3	0.1	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Other Specialty (Hard to Reach)	E21A3a007	1,443	721	481	18.6	7.6	3.9	55.9	22.7	7.7	4.0	1.6	0.8	2.6	1.1	0.5	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Reflector (Hard to Reach)	E21A3a008	2,525	1,262	842	40.2	16.3	8.3	80.4	32.6	8.3	8.7	3.5	1.8	5.6	2.3	1.2	-	-	-	-	-	-
A3a - ES Lighting	LED Fixture	E21A3a009	6,825	3,413	2,275	54.1	18.9	7.1	162.3	56.6	14.2	11.7	4.1	1.5	7.5	2.6	1.0	-	-	-	-	-	-
A3a - ES Lighting	LED Fixture (Hard to Reach)	E21A3a010	359	180	120	4.6	1.9	0.9	13.7	5.6	1.9	1.0	0.4	0.2	0.6	0.3	0.1	-	-	-	-	-	-
A3b - ES Appliances	Advanced Power Strip, Tier I	E21A3b001	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	Advanced Power Strip, Tier II	E21A3b002	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Air Source Heat Pump - Lost Opportunity (cooling)	E21A3b003	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Air Source Heat Pump - Lost Opportunity (heating)	E21A3b004	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Mini Split HP - Lost Opportunity (cooling)	E21A3b005	400	300	300	41.2	30.9	30.9	741.1	555.8	555.8	-	-	-	19.0	14.3	14.3	-	-	-	-	-	-
A3c - ES HVAC Systems	Mini Split HP - Lost Opportunity (heating)	E21A3b006	400	300	300	131.3	98.5	98.5	2,363.8	1,772.8	1,772.8	59.7	44.8	44.8	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 50 gal - Downstream	E21A3b007	150	150	150	144.2	144.2	144.2	1,874.0	1,874.0	1,874.0	23.7	23.7	23.7	13.1	13.1	13.1	-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 80 gal - Downstream	E21A3b008	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Heat Pump Swimming Pool Heater	E21A3b009	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	ES Clothes Dryers	E21A3b010	682	682	682	109.4	109.4	109.4	1,312.7	1,312.7	1,312.7	18.6	18.6	18.6	14.4	14.4	14.4	-	-	-	-	-	-
A3b - ES Appliances	Dryer Heat Pump	E21A3b011	45	45	45	18.9	18.9	18.9	227.4	227.4	227.4	3.2	3.2	3.2	2.5	2.5	2.5	-	-	-	-	-	-
A3b - ES Appliances	Dryer Hybrid	E21A3b012	23	23	23	4.9	4.9	4.9	58.9	58.9	58.9	0.8	0.8	0.8	0.6	0.6	0.6	-	-	-	-	-	-
A3c - ES HVAC Systems	ECM Motors for FHA Furnace Fans	E21A3b014	3	3	3	0.5	0.5	0.5	7.6	7.6	7.6	0.1	0.1	0.1	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	ES AC (central) 3 ton	E21A3b015	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Room Air Conditioner	E21A3b016	455	455	455	15.0	15.0	15.0	135.1	135.1	135.1	-	-	-	7.8	7.8	7.8	-	-	-	-	-	-
A3b - ES Appliances	ES Clothes Washers	E21A3b017	682	682	682	61.3	61.3	61.3	674.4	674.4	674.4	8.6	8.6	8.6	8.1	8.1	8.1	47.7	47.7	47.7	525.1	525.1	525.1
A3b - ES Appliances	Washer Tier CEE Tier 2+	E21A3b018	546	546	546	75.8	75.8	75.8	834.2	834.2	834.2	10.6	10.6	10.6	10.1	10.1	10.1	262.1	262.1	262.1	2,882.9	2,882.9	2,882.9
A3b - ES Appliances	ES Dehumidifier	E21A3b019	546	546	546	44.9	44.9	44.9	763.9	763.9	763.9	1.8	1.8	1.8	8.6	8.6	8.6	-	-	-	-	-	-
A3b - ES Appliances	ES Dishwasher	E21A3b020	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	ES Freezers	E21A3b021	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	Refrigerator	E21A3b022	591	591	591	26.1	26.1	26.1	313.5	313.5	313.5	3.0	3.0	3.0	3.7	3.7	3.7	-	-	-	-	-	-
A3b - ES Appliances	Refrigerator CEE Tier 2+	E21A3b023	227	227	227	21.9	21.9	21.9	262.6	262.6	262.6	2.5	2.5	2.5	3.1	3.1	3.1	-	-	-	-	-	-
A3b - ES Appliances	ES Pool Pumps (Variable Speed)	E21A3b024	68	65	68	87.3	83.7	87.3	873.1	837.3	873.1	-	-	-	50.5	48.4	50.5	-	-	-	-	-	-
A3b - ES Appliances	Room Air Purifier	E21A3b025	227	227	227	86.0	86.0	86.0	773.9	773.9	773.9	9.8	9.8	9.8	9.8	9.8	9.8	-	-	-	-	-	-
A3c - ES HVAC Systems	Wifi Thermostat (Heating & Cooling)	E21A3b026	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	Primary Refrigerator Recycling	E21A3b027	91	91	91	93.5	93.5	93.5	467.3	467.3	467.3	10.7	10.7	10.7	13.1	13.1	13.1	-	-	-	-	-	-
A3b - ES Appliances	Secondary Refrigerator Recycling	E21A3b028	227	227	227	233.1	233.1	233.1	1,165.6	1,165.6	1,165.6	21.8	21.8	21.8	36.4	36.4	36.4	-	-	-	-	-	-
A3b - ES Appliances	Secondary Freezer Recycling	E21A3b029	-	-	-													-	-	-	-	-	-
A3b - ES Appliances	Room Air Conditioner Recycling	E21A3b030	7	7	7	0.8	0.8	0.8	2.4	2.4	2.4	-	-	-	0.6	0.6	0.6	-	-	-	-	-	-
A3c - ES HVAC Systems	Ductless Mini-split Heat Pump - Retrofit Resistance	E21A3b031	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Ductless Mini-split Heat Pump - Retrofit HP	E21A3b032	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Air-source Heat Pump – Retrofit HP	E21A3b033	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	Air-source Heat Pump – Retrofit Resistance	E21A3b034	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 50 gal - Midstream	E21A3b035	-	-	-													-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 80 gal - Midstream	E21A3b036	-	-	-													-	-	-	-	-	-
ES Products Subtotal						2,843.2	1,731.6	1,219.7	17,811.9	13,793.1	12,216.5	530.7	285.8	174.6	430.6	275.5	205.8	309.8	309.8	309.8	3,408.0	3,408.0	3,408.0

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1a - LCI Retrofit	Custom Large Compressed Air Retro	E21C1a001	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Hot Water Retro	E21C1a002	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large HVAC Retro	E21C1a003	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Lighting Retro - Interior	E21C1a004	14	14	14	1,126.3	1,069.8	1,028.2	14,642.3	13,906.8	13,367.1	137.5	130.6	125.6	180.4	171.3	164.7	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Lighting Retro - Exterior	E21C1a047	2	2	2	29.6	28.1	27.1	385.2	365.9	351.7	5.9	5.6	5.4	-	-	-	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Lighting Retro - Controls	E21C1a048	0	0	0	1.3	1.2	1.2	11.6	11.1	10.6	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Motors Retro	E21C1a005	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Process Retro	E21C1a006	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Refrigeration Retro	E21C1a007	5	5	5	305.2	306.2	311.8	3,968.2	3,980.6	4,053.9	-	-	-	-	-	-	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Other Retro	E21C1a008	9	9	9	1,236.0	1,239.8	1,262.7	16,067.6	16,117.9	16,414.5	-	-	-	-	-	-	-	-	-	-	-	-
C1a - LCI Retrofit	Daylight Dimming	E21C1a009	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C1a010	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C1a011	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C1a012	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C1a013	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Lighting Occupancy Sensors	E21C1a014	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Boiler Reset Controls, Electric	E21C1a015	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Case Motor Replacement	E21C1a016	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Cooler Night Cover	E21C1a017	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Demand Control Ventilation	E21C1a018	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Door Heater Controls	E21C1a019	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C1a020	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Duct Sealing, Electric	E21C1a021	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Ductless Mini Split Heat Pump	E21C1a022	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C1a023	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Electronic Defrost Control	E21C1a024	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Energy Management System, Electric	E21C1a025	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C1a026	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Evaporator Fan Control	E21C1a027	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Faucet Aerator, Electric	E21C1a028	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Hotel Occupancy Sensor	E21C1a031	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Low Pressure Drop Filter	E21C1a032	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C1a033	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Low-Flow Showerhead, Electric	E21C1a034	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Motors, Open Drip	E21C1a035	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C1a036	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Novelty Cooler Shutoff	E21C1a037	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Pipe Wrap - Heating, Electric	E21C1a038	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C1a039	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Pre Rinse Spray Valve, Electric	E21C1a040	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Programmable Thermostat, Electric	E21C1a041	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Steam Trap, Electric	E21C1a042	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Variable Frequency Drive	E21C1a043	0	0	1	35.1	35.2	107.6	456.3	457.7	1,398.4	-	-	-	-	-	-	-	-	-	-	-	-
C1a - LCI Retrofit	Variable Frequency Drive with Motor	E21C1a044	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Vending Miser	E21C1a045	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Zero Loss Condensate Drain	E21C1a046	-	-	-													-	-	-	-	-	-
C1a - LCI Retrofit	Large Retrocommissioning	E21C1a049	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Compressed Air New	E21C1b001	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Hot Water New	E21C1b002	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large HVAC New	E21C1b003	1	1	0	4.5	4.5	1.5	67.7	67.9	23.1	-	-	-	-	-	-	-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Lighting New - Interior	E21C1b004	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Lighting New - Exterior	E21C1b054	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Lighting New - Controls	E21C1b055	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Motors New	E21C1b005	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Process New	E21C1b006	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Refrigeration New	E21C1b007	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Other New	E21C1b008	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Comprehensive Design	E21C1b056	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Daylight Dimming	E21C1b009	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Lighting Occupancy Sensors	E21C1b014	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Advanced Power Strip	E21C1b015	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Air Compressor	E21C1b016	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Air Nozzle	E21C1b017	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Circulator Pump	E21C1b018	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Combination Oven, Electric	E21C1b019	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1b - LCI New Equipment	Compressor Storage	E21C1b020	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Convection Oven, Electric	E21C1b021	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Door Type	E21C1b022	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C1b023	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C1b024	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C1b025	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - High Temp Under Counter	E21C1b026	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Door Type	E21C1b027	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C1b028	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C1b029	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Dishwasher - Low Temp Under Counter	E21C1b030	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Faucet Aerator, Electric	E21C1b031	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Fryer Large Vat, Electric	E21C1b032	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Fryer Standard Vat, Electric	E21C1b033	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Griddle, Electric	E21C1b034	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ground Source Heat Pump	E21C1b035	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C1b036	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Hot Food Holding Cabinet Full Size	E21C1b037	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Hot Food Holding Cabinet Half Size	E21C1b038	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Ice Making Head	E21C1b039	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C1b040	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C1b041	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Ice Machine - Self Contained	E21C1b042	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Low Pressure Drop Filter	E21C1b043	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C1b044	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Low-Flow Showerhead, Electric	E21C1b045	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Pre Rinse Spray Valve, Electric	E21C1b046	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Refrigerated Air Dryer	E21C1b047	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Steam Cooker, Electric	E21C1b048	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Unitary Air Conditioner	E21C1b049	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Water Source Heat Pump	E21C1b050	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	Zero Loss Condensate Drain	E21C1b051	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	High Efficiency Chiller - FL	E21C1b052	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	High Efficiency Chiller - IPLV	E21C1b053	-	-	-													-	-	-	-	-	-
C1b - LCI New Equipment	C&I Large New Construction Code Compliance	E21C1b057	1	1	1	-	-	16.2	-	-	323.5	-	-	2.5	-	-	4.3	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Circulator Pump	E21C1c001	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Demand Control Ventilation	E21C1c002	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream DMSHP Systems	E21C1c003	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dual Enthalpy Economizer Controls	E21C1c004	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream ECM Fan Motors	E21C1c005	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Systems	E21C1c006	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Unitary Air Conditioners	E21C1c007	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream VRF	E21C1c008	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Water Source Heat Pump Systems	E21C1c009	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Downlight	E21C1c010	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Exterior	E21C1c011	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED High Bay/Low Bay	E21C1c012	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Linear Fixture	E21C1c013	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Linear Fixture with Controls	E21C1c014	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Linear Lamp	E21C1c015	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Screw In	E21C1c016	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream LED Stairwell Kit	E21C1c017	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Combination Oven, Electric	E21C1c018	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Convection Oven, Electric	E21C1c019	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Door Type	E21C1c020	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Multi Tank Conveyor	E21C1c021	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Pot, Pan, Utensil	E21C1c022	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Single Tank Conveyor	E21C1c023	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - High Temp Under Counter	E21C1c024	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Door Type	E21C1c025	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Multi Tank Conveyor	E21C1c026	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Single Tank Conveyor	E21C1c027	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Dishwasher - Low Temp Under Counter	E21C1c028	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Freezer - Solid Door	E21C1c029	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Freezer -Glass Door	E21C1c030	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1c - LCI Midstream	Midstream Fryer Large Vat, Electric	E21C1c031	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Fryer Standard Vat, Electric	E21C1c032	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Griddle, Electric	E21C1c033	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Hot Food Holding Cabinet 3/4 Size	E21C1c034	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Hot Food Holding Cabinet Full Size	E21C1c035	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Hot Food Holding Cabinet Half Size	E21C1c036	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Ice Making Head	E21C1c037	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Batch	E21C1c038	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Contin	E21C1c039	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Ice Machine Self Contained	E21C1c040	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Refrigerator - Glass Door	E21C1c041	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Refrigerator - Solid Door	E21C1c042	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Steam Cooker, Electric	E21C1c043	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Water Heater, 120 gallons	E21C1c044	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Water Heater, 50 gallons	E21C1c045	-	-	-													-	-	-	-	-	-
C1c - LCI Midstream	Midstream Heat Pump Water Heater, 80 gallons	E21C1c046	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Compressed Air Direct Install	E21C1d001	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Hot Water Direct Install	E21C1d002	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large HVAC Direct Install	E21C1d003	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Lighting Direct Install - Interior	E21C1d004	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Lighting Direct Install - Exterior	E21C1d005	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Lighting Direct Install - Controls	E21C1d006	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Motors Direct Install	E21C1d007	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Process Direct Install	E21C1d008	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Refrigeration Direct Install	E21C1d009	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Custom Large Other Direct Install	E21C1d010	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Daylight Dimming	E21C1d011	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Exterior w/ Controls	E21C1d012	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Exterior w/o Controls	E21C1d013	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Interior w/ Controls	E21C1d014	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Fixture - Interior w/o Controls	E21C1d015	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Lighting Occupancy Sensors	E21C1d016	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Boiler Reset Controls, Electric	E21C1d017	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Case Motor Replacement	E21C1d018	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Cooler Night Cover	E21C1d019	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Demand Control Ventilation	E21C1d020	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Door Heater Controls	E21C1d021	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C1d022	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Duct Sealing, Electric	E21C1d023	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Ductless Mini Split Heat Pump	E21C1d024	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C1d025	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Electronic Defrost Control	E21C1d026	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Energy Management System, Electric	E21C1d027	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C1d028	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Evaporator Fan Control	E21C1d029	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Faucet Aerator, Electric	E21C1d030	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Hotel Occupancy Sensor	E21C1d031	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Low Pressure Drop Filter	E21C1d032	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C1d033	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Low-Flow Showerhead, Electric	E21C1d034	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Motors, Open Drip	E21C1d035	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C1d036	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Novelty Cooler Shutoff	E21C1d037	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Pipe Wrap - Heating, Electric	E21C1d038	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C1d039	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Pre Rinse Spray Valve, Electric	E21C1d040	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Programmable Thermostat, Electric	E21C1d041	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Steam Trap, Electric	E21C1d042	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Variable Frequency Drive	E21C1d043	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Variable Frequency Drive with Motor	E21C1d044	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Vending Miser	E21C1d045	-	-	-													-	-	-	-	-	-
C1d - LCI Direct Install	Zero Loss Condensate Drain	E21C1d046	-	-	-													-	-	-	-	-	-
Large Business Energy Solutions Subtotal						2,738.1	2,684.9	2,756.2	35,598.9	34,907.8	35,942.7	143.5	136.3	133.5	180.4	171.4	169.0	-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2a - SCI Retrofit	Custom Small Compressed Air Retro	E21C2a001	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Hot Water Retro	E21C2a002	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small HVAC Retro	E21C2a003	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Interior	E21C2a004	105	122	119	1,405.3	1,539.9	1,415.7	18,268.9	20,019.1	18,404.0	160.8	176.2	162.0	210.9	231.1	212.5	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Exterior	E21C2a047	38	44	44	509.0	546.6	518.3	6,616.6	7,105.9	6,737.8	99.1	106.4	100.9	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Controls	E21C2a048	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Motors Retro	E21C2a005	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Process Retro	E21C2a006	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Refrigeration Retro	E21C2a007	6	7	8	90.4	102.5	125.4	1,174.9	1,332.7	1,630.2	-	11.3	-	-	10.3	-	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Other Retro	E21C2a008	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Daylight Dimming	E21C2a009	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C2a010	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C2a011	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C2a012	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C2a013	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Occupancy Sensors	E21C2a014	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Boiler Reset Controls, Electric	E21C2a015	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Case Motor Replacement	E21C2a016	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Cooler Night Cover	E21C2a017	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Demand Control Ventilation	E21C2a018	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Door Heater Controls	E21C2a019	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C2a020	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Duct Sealing, Electric	E21C2a021	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Ductless Mini Split Heat Pump	E21C2a022	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C2a023	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Electronic Defrost Control	E21C2a024	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Energy Management System, Electric	E21C2a025	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C2a026	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Evaporator Fan Control	E21C2a027	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Faucet Aerator, Electric	E21C2a028	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Hotel Occupancy Sensor	E21C2a031	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low Pressure Drop Filter	E21C2a032	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C2a033	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low-Flow Showerhead, Electric	E21C2a034	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Motors, Open Drip	E21C2a035	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C2a036	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Novelty Cooler Shutoff	E21C2a037	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Wrap - Heating, Electric	E21C2a038	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C2a039	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pre Rinse Spray Valve, Electric	E21C2a040	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Programmable Thermostat, Electric	E21C2a041	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Steam Trap, Electric	E21C2a042	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Variable Frequency Drive	E21C2a043	1	1	3	32.6	37.0	76.4	489.6	555.3	1,146.6	-	-	-	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Variable Frequency Drive with Motor	E21C2a044	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Vending Miser	E21C2a045	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Zero Loss Condensate Drain	E21C2a046	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Small Retrocommissioning	E21C2a049	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Compressed Air New	E21C2b001	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Hot Water New	E21C2b002	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small HVAC New	E21C2b003	31	35	8	90.4	102.5	24.1	1,355.7	1,537.7	361.7	-	6.8	-	-	17.6	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Interior	E21C2b004	15	17	12	165.2	177.4	114.4	2,477.9	2,661.1	1,716.7	20.2	21.6	14.0	26.4	28.4	18.3	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Exterior	E21C2b054	12	14	12	134.5	144.5	114.4	2,017.7	2,166.9	1,716.7	26.9	28.9	22.9	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Controls	E21C2b055	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Motors New	E21C2b005	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Process New	E21C2b006	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Refrigeration New	E21C2b007	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Other New	E21C2b008	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Comprehensive Design	E21C2b056	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Daylight Dimming	E21C2b009	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Lighting Occupancy Sensors	E21C2b014	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Advanced Power Strip	E21C2b015	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Air Compressor	E21C2b016	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Air Nozzle	E21C2b017	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Circulator Pump	E21C2b018	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Combination Oven, Electric	E21C2b019	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2b - SCI New Equipment	Compressor Storage	E21C2b020	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2b - SCI New Equipment	Convection Oven, Electric	E21C2b021	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Door Type	E21C2b022	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C2b023	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C2b024	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C2b025	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Under Counter	E21C2b026	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Door Type	E21C2b027	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C2b028	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C2b029	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Under Counter	E21C2b030	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Faucet Aerator, Electric	E21C2b031	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Fryer Large Vat, Electric	E21C2b032	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Fryer Standard Vat, Electric	E21C2b033	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Griddle, Electric	E21C2b034	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ground Source Heat Pump	E21C2b035	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C2b036	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet Full Size	E21C2b037	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet Half Size	E21C2b038	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Ice Making Head	E21C2b039	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C2b040	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C2b041	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Self Contained	E21C2b042	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Low Pressure Drop Filter	E21C2b043	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C2b044	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Low-Flow Showerhead, Electric	E21C2b045	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Pre Rinse Spray Valve, Electric	E21C2b046	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Refrigerated Air Dryer	E21C2b047	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Steam Cooker, Electric	E21C2b048	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Unitary Air Conditioner	E21C2b049	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Water Source Heat Pump	E21C2b050	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	Zero Loss Condensate Drain	E21C2b051	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	High Efficiency Chiller - FL	E21C2b052	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	High Efficiency Chiller - IPLV	E21C2b053	-	-	-													-	-	-	-	-	-
C2b - SCI New Equipment	C&I Small New Construction Code Compliance	E21C2b057	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Circulator Pump	E21C2c001	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Demand Control Ventilation	E21C2c002	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream DMSHP Systems	E21C2c003	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dual Enthalpy Economizer Controls	E21C2c004	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream ECM Fan Motors	E21C2c005	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Systems	E21C2c006	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Unitary Air Conditioners	E21C2c007	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream VRF	E21C2c008	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Water Source Heat Pump Systems	E21C2c009	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Downlight	E21C2c010	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Exterior	E21C2c011	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED High Bay/Low Bay	E21C2c012	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Fixture	E21C2c013	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Fixture with Controls	E21C2c014	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Lamp	E21C2c015	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Screw In	E21C2c016	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Stairwell Kit	E21C2c017	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Combination Oven, Electric	E21C2c018	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Convection Oven, Electric	E21C2c019	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Door Type	E21C2c020	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Multi Tank Conveyor	E21C2c021	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Pot, Pan, Utensil	E21C2c022	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Single Tank Conveyor	E21C2c023	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Under Counter	E21C2c024	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Door Type	E21C2c025	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Multi Tank Conveyor	E21C2c026	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Single Tank Conveyor	E21C2c027	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Under Counter	E21C2c028	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Freezer - Solid Door	E21C2c029	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Freezer -Glass Door	E21C2c030	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer Large Vat, Electric	E21C2c031	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2c - SCI Midstream	Midstream Fryer Standard Vat, Electric	E21C2c032	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2c - SCI Midstream	Midstream Griddle, Electric	E21C2c033	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet 3/4 Size	E21C2c034	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet Full Size	E21C2c035	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet Half Size	E21C2c036	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Ice Making Head	E21C2c037	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Batch	E21C2c038	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Remote Cond/Split Unit Contin	E21C2c039	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Self Contained	E21C2c040	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Refrigerator - Glass Door	E21C2c041	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Refrigerator - Solid Door	E21C2c042	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Steam Cooker, Electric	E21C2c043	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 120 gallons	E21C2c044	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 50 gallons	E21C2c045	-	-	-													-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 80 gallons	E21C2c046	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Compressed Air Direct Install	E21C2d001	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Hot Water Direct Install	E21C2d002	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small HVAC Direct Install	E21C2d003	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Interior	E21C2d004	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Exterior	E21C2d005	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Controls	E21C2d006	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Motors Direct Install	E21C2d007	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Process Direct Install	E21C2d008	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Refrigeration Direct Install	E21C2d009	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Other Direct Install	E21C2d010	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Daylight Dimming	E21C2d011	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Exterior w/ Controls	E21C2d012	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Exterior w/o Controls	E21C2d013	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Interior w/ Controls	E21C2d014	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Interior w/o Controls	E21C2d015	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Occupancy Sensors	E21C2d016	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Boiler Reset Controls, Electric	E21C2d017	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Case Motor Replacement	E21C2d018	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Cooler Night Cover	E21C2d019	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Demand Control Ventilation	E21C2d020	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Door Heater Controls	E21C2d021	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C2d022	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Duct Sealing, Electric	E21C2d023	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Ductless Mini Split Heat Pump	E21C2d024	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C2d025	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Electronic Defrost Control	E21C2d026	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Energy Management System, Electric	E21C2d027	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C2d028	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Evaporator Fan Control	E21C2d029	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Faucet Aerator, Electric	E21C2d030	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Hotel Occupancy Sensor	E21C2d031	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Low Pressure Drop Filter	E21C2d032	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C2d033	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Low-Flow Showerhead, Electric	E21C2d034	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Motors, Open Drip	E21C2d035	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C2d036	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Novelty Cooler Shutoff	E21C2d037	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Pipe Wrap - Heating, Electric	E21C2d038	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C2d039	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Pre Rinse Spray Valve, Electric	E21C2d040	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Programmable Thermostat, Electric	E21C2d041	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Steam Trap, Electric	E21C2d042	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Variable Frequency Drive	E21C2d043	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Variable Frequency Drive with Motor	E21C2d044	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Vending Miser	E21C2d045	-	-	-													-	-	-	-	-	-
C2d - SCI Direct Install	Zero Loss Condensate Drain	E21C2d046	-	-	-													-	-	-	-	-	-
Small Business Energy Solutions Subtotal						2,427.4	2,650.5	2,388.8	32,401.3	35,378.9	31,713.6	307.0	351.3	299.8	237.4	287.4	230.8	-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3a - Muni Retrofit	Custom Muni Compressed Air Retro	E21C3a001	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Hot Water Retro	E21C3a002	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni HVAC Retro	E21C3a003	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Interior	E21C3a004	8	8	8	107.5	88.7	72.9	1,397.4	1,153.3	947.1	13.1	10.8	8.9	17.2	14.2	11.7	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Exterior	E21C3a091	2	2	1	7.9	6.8	5.8	103.0	88.7	75.7	1.6	1.4	1.2	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Controls	E21C3a092	1	1	1	2.7	2.3	1.9	24.6	20.3	16.7	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Motors Retro	E21C3a005	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Process Retro	E21C3a006	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Refrigeration Retro	E21C3a007	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Other Retro	E21C3a008	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Daylight Dimming	E21C3a009	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Exterior w/ Controls	E21C3a010	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Exterior w/o Controls	E21C3a011	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Interior w/ Controls	E21C3a012	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Interior w/o Controls	E21C3a013	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Occupancy Sensors	E21C3a014	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Electric	E21C3a015	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Gas	E21C3a016	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Oil	E21C3a017	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Propane	E21C3a018	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Gas	E21C3a019	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Oil	E21C3a020	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Propane	E21C3a021	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Case Motor Replacement	E21C3a022	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Cooler Night Cover	E21C3a023	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Demand Control Ventilation	E21C3a024	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Door Heater Controls	E21C3a025	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C3a026	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Electric	E21C3a027	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Gas	E21C3a028	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Oil	E21C3a029	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Propane	E21C3a030	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Electric	E21C3a031	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Gas	E21C3a032	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Oil	E21C3a033	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Propane	E21C3a034	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Ductless Mini Split Heat Pump	E21C3a035	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C3a036	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Electronic Defrost Control	E21C3a037	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Management System, Electric	E21C3a038	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Electric	E21C3a039	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Gas	E21C3a040	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Oil	E21C3a041	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Propane	E21C3a042	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Evaporator Fan Control	E21C3a043	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Electric	E21C3a044	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Gas	E21C3a045	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Oil	E21C3a046	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Propane	E21C3a047	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Hotel Occupancy Sensor	E21C3a050	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Electric	E21C3a051	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Gas	E21C3a052	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Oil	E21C3a053	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Propane	E21C3a054	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	126.8	126.8	126.8	3,170.4	3,170.4	3,170.4
C3a - Muni Retrofit	Low Pressure Drop Filter	E21C3a055	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C3a056	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3a057	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Oil	E21C3a058	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3a059	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Electric	E21C3a060	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Gas	E21C3a061	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Oil	E21C3a062	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Propane	E21C3a063	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Motors, Open Drip	E21C3a064	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Motors, Totally Enclosed Fan Cooled	E21C3a065	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3a - Muni Retrofit	Novelty Cooler Shutoff	E21C3a066	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Electric	E21C3a067	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Gas	E21C3a068	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Oil	E21C3a069	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Propane	E21C3a070	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Electric	E21C3a071	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Gas	E21C3a072	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Oil	E21C3a073	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Propane	E21C3a074	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Electric	E21C3a075	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Gas	E21C3a076	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Oil	E21C3a077	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Propane	E21C3a078	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Electric	E21C3a079	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Gas	E21C3a080	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Oil	E21C3a081	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Propane	E21C3a082	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Electric	E21C3a083	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Gas	E21C3a084	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Oil	E21C3a085	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Propane	E21C3a086	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Variable Frequency Drive	E21C3a087	1	1	1	17.2	16.5	15.8	224.2	214.8	204.9	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Variable Frequency Drive with Motor	E21C3a088	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Vending Miser	E21C3a089	-	-	-													-	-	-	-	-	-
C3a - Muni Retrofit	Zero Loss Condensate Drain	E21C3a090	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Compressed Air New	E21C3b001	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Hot Water New	E21C3b002	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni HVAC New	E21C3b003	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Interior	E21C3b004	1	1	1	12.2	10.0	8.2	182.5	150.6	123.7	-	-	-	-	-	-	-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Exterior	E21C3b085	1	1	1	5.5	4.8	4.1	83.2	71.7	61.1	-	-	-	-	-	-	-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Controls	E21C3b086	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Motors New	E21C3b005	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Process New	E21C3b006	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Refrigeration New	E21C3b007	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Other New	E21C3b008	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Comprehensive Design	E21C3b087	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Daylight Dimming	E21C3b009	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Lighting Occupancy Sensors	E21C3b014	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Advanced Power Strip	E21C3b015	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Air Compressor	E21C3b016	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Air Nozzle	E21C3b017	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1000 to 1700 MBH 90 AFUE, Oil	E21C3b018	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1000 to 1700 MBH 90 AFUE, Propane	E21C3b019	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1701 to 2000 MBH 85 AFUE, Oil	E21C3b020	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1701 to 2000 MBH 90 AFUE, Propane	E21C3b021	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 301 to 499 MBH 85 AFUE, Oil	E21C3b022	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 301 to 499 MBH 90 AFUE, Propane	E21C3b023	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 500 to 999 MBH 85 AFUE, Oil	E21C3b024	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 500 to 999 MBH 90 AFUE, Propane	E21C3b025	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 85 AFUE, Oil	E21C3b026	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 87 AFUE, Oil	E21C3b027	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 90 AFUE, Propane	E21C3b028	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 95 AFUE, Propane	E21C3b029	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Circulator Pump	E21C3b030	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Combination Oven, Electric	E21C3b031	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Compressor Storage	E21C3b032	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Condensing Unit Heater up to 300 MBH, Oil	E21C3b033	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Condensing Unit Heater up to 300 MBH, Propane	E21C3b034	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Convection Oven, Electric	E21C3b035	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Door Type	E21C3b036	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C3b037	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C3b038	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C3b039	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Under Counter	E21C3b040	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Door Type	E21C3b041	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3b - Muni New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C3b042	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C3b043	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Under Counter	E21C3b044	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Electric	E21C3b045	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Gas	E21C3b046	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Oil	E21C3b047	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Propane	E21C3b048	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Fryer Large Vat, Electric	E21C3b049	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Fryer Standard Vat, Electric	E21C3b050	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 85 AFUE up to 150 MBH, Oil	E21C3b051	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 87 AFUE up to 150 MBH, Oil	E21C3b052	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 95 AFUE up to 150 MBH, Propane	E21C3b053	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 97 AFUE up to 150 MBH, Propane	E21C3b054	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Griddle, Electric	E21C3b055	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ground Source Heat Pump	E21C3b056	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C3b057	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet Full Size	E21C3b058	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet Half Size	E21C3b059	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Ice Making Head	E21C3b060	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C3b061	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C3b062	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Self Contained	E21C3b063	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Infrared Heater	E21C3b064	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low Pressure Drop Filter	E21C3b065	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C3b066	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3b067	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Oil	E21C3b068	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3b069	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Electric	E21C3b070	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Gas	E21C3b071	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Oil	E21C3b072	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Propane	E21C3b073	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Electric	E21C3b074	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Gas	E21C3b075	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Oil	E21C3b076	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Propane	E21C3b077	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Refrigerated Air Dryer	E21C3b078	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Steam Cooker, Electric	E21C3b079	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Unitary Air Conditioner	E21C3b080	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Water Source Heat Pump	E21C3b081	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	Zero Loss Condensate Drain	E21C3b082	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	High Efficiency Chiller - FL	E21C3b083	-	-	-													-	-	-	-	-	-
C3b - Muni New Equipment	High Efficiency Chiller - IPLV	E21C3b084	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Compressed Air Direct Install	E21C3d001	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Hot Water Direct Install	E21C3d002	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni HVAC Direct Install	E21C3d003	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Interior	E21C3d004	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Exterior	E21C3d005	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Controls	E21C3d006	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Motors Direct Install	E21C3d007	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Process Direct Install	E21C3d008	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Refrigeration Direct Install	E21C3d009	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Other Direct Install	E21C3d010	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Daylight Dimming	E21C3d011	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Exterior w/ Controls	E21C3d012	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Exterior w/o Controls	E21C3d013	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Interior w/ Controls	E21C3d014	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Interior w/o Controls	E21C3d015	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Occupancy Sensors	E21C3d016	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Electric	E21C3d017	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Gas	E21C3d018	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Oil	E21C3d019	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Propane	E21C3d020	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Boiler Reset Controls, Gas	E21C3d021	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Boiler Reset Controls, Oil	E21C3d022	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3d - Muni Direct Install	Boiler Reset Controls, Propane	E21C3d023	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Case Motor Replacement	E21C3d024	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Cooler Night Cover	E21C3d025	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3d - Muni Direct Install	Demand Control Ventilation	E21C3d026	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Door Heater Controls	E21C3d027	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C3d028	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Electric	E21C3d029	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Gas	E21C3d030	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Oil	E21C3d031	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Propane	E21C3d032	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Electric	E21C3d033	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Gas	E21C3d034	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Oil	E21C3d035	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Propane	E21C3d036	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Ductless Mini Split Heat Pump	E21C3d037	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler/Freezer	E21C3d038	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Electronic Defrost Control	E21C3d039	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Management System, Electric	E21C3d040	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Electric	E21C3d041	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Gas	E21C3d042	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Oil	E21C3d043	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Propane	E21C3d044	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Evaporator Fan Control	E21C3d045	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Electric	E21C3d046	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Gas	E21C3d047	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Oil	E21C3d048	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Propane	E21C3d049	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Hotel Occupancy Sensor	E21C3d050	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Electric	E21C3d051	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Gas	E21C3d052	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Oil	E21C3d053	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Propane	E21C3d054	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low Pressure Drop Filter	E21C3d055	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C3d056	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3d057	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Oil	E21C3d058	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3d059	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Electric	E21C3d060	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Gas	E21C3d061	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Oil	E21C3d062	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Propane	E21C3d063	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Motors, Open Drip	E21C3d064	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Motors, Totally Enclosed Fan Cooled	E21C3d065	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Novelty Cooler Shutoff	E21C3d066	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Electric	E21C3d067	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Gas	E21C3d068	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Oil	E21C3d069	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Propane	E21C3d070	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Electric	E21C3d071	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Gas	E21C3d072	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Oil	E21C3d073	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Propane	E21C3d074	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Electric	E21C3d075	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Gas	E21C3d076	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Oil	E21C3d077	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Propane	E21C3d078	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Electric	E21C3d079	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Gas	E21C3d080	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Oil	E21C3d081	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Propane	E21C3d082	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Electric	E21C3d083	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Gas	E21C3d084	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Oil	E21C3d085	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Propane	E21C3d086	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Variable Frequency Drive	E21C3d087	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Variable Frequency Drive with Motor	E21C3d088	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Vending Miser	E21C3d089	-	-	-													-	-	-	-	-	-
C3d - Muni Direct Install	Zero Loss Condensate Drain	E21C3d090	-	-	-													-	-	-	-	-	-

			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
	Municipal Energy Solutions Subtotal					153.1	129.1	108.6	2,014.9	1,699.4	1,429.1	14.7	12.2	10.1	17.2	14.2	11.7	126.8	126.8	126.8	3,170.4	3,170.4	3,170.4

New Hampshire Electric Cooperative, Inc.
2021-2023 System Benefits Charge ("SBC") Calculation
(\$ in 000's)

Year	Member Sector	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)	Total SBC Rate (cents/kWh)
Col. A	Col. B	Col. C	Col. D	Col. E	Col. G	Col. I	Col. J	Col. K	Col. L	Col. N
2021	Residential	\$ 4,407	\$ 37.56	\$ 30.00	\$ 607.83	\$ 3,732	490,242	0.7612	0.150	0.911
2021	C&I	\$ 2,982	\$ 172.87	\$ 70.00	\$ 428.16	\$ 2,311	282,441	0.8183	0.150	0.968
2021	Total	\$ 7,389	\$ 210	\$ 100	\$ 1,036	\$ 6,043	\$ 772,683	0.7821	0.150	0.932
2022	Residential	\$ 4,165	\$ 36.09	\$ 30.00	\$ -	\$ 4,099	483,522	0.8478	0.150	0.998
2022	C&I	\$ 3,343	\$ 172.87	\$ 70.00	\$ -	\$ 3,100	295,141	1.0503	0.150	1.200
2022	Total	\$ 7,508	\$ 209	\$ 100	\$ -	\$ 7,199	\$ 778,663	0.9245	0.150	1.075
2023	Residential	\$ 4,071	\$ 34.61	\$ 30.00	\$ -	\$ 4,007	485,967	0.8245	0.150	0.975
2023	C&I	\$ 3,248	\$ 172.87	\$ 70.00	\$ -	\$ 3,005	300,544	0.9998	0.150	1.150
2023	Total	\$ 7,319	\$ 207.49	\$ 100.00	\$ -	\$ 7,012	768,597	0.9122	0.150	1.062

Col. A: Effective year (January 1 - December 31)
 Col. B: Member Sector
 Col. C: Company Forecast
 Col. D: Company Forecast
 Col. E: Company Forecast
 Col. F: Company Forecast
 Col. G: Page 2, Line 9 Col. N + Line 11 Col. O
 Col. H: Page 2, Line 13, Col. O
 Col. I: Col. C - Col. D - Col. E - Col. F + Col. G - Col. H
 Col. J: Company Forecast
 Col. K: (Col. I / Col. J) x 100
 Col. L: EAP Portion of SBC Rate
 Col. M: Page 3, Col. G
 Col. N: Col. J + Col. K

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation (Residential)
January 1, 2021 to December 31, 2021

(\$ in 000's)															
Line	Description	Carrover 12/31/2020	Actual Jan 2021	Actual Feb 2021	Actual Mar 2021	Actual Apr 2021	Actual May 2021	Actual Jun 2021	Actual Jul 2021	Actual Aug 2021	Actual Sep 2021	Actual Oct 2021	Actual Nov 2021	Actual Dec 2021	2021 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		387	406	342	298	261	257	283	356	300	232	268	341	3,732
2	RGGI Revenues		-	-	9	-	-	9	-	-	9	-	-	9	38
3	FCM Revenues		3	3	3	3	3	3	3	3	3	3	3	3	30
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		390	408	354	301	264	269	285	359	312	234	270	353	3,799
6	Program Expenses		184	200	368	279	298	296	207	385	318	623	402	847	4,407
7	Total Program Expenses		184	200	368	279	298	296	207	385	318	623	402	847	4,407
8	Current Month (Over)/Under Recovery		(205)	(209)	14	(22)	34	27	(78)	26	6	389	132	493	
9	Cumulative (Over)/Under Recovery	(608)	(813)	(1,022)	(1,008)	(1,030)	(995)	(968)	(1,046)	(1,020)	(1,014)	(625)	(493)	0	
10	Interest @ Prime Rate	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(2)	(2)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(2)	(2)	(1)	(10)
12	Monthly Sales (MWh)		50,844	53,315	44,962	39,198	34,304	33,743	37,161	46,801	39,390	30,463	35,205	44,856	490,242
13	EE SBC Rate		0.761	0.761	0.761	0.761	0.761	0.761	0.761	0.761	0.761	0.761	0.761	0.761	

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: SBC Rate

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation (Commercial)
January 1, 2021 to December 31, 2021

Line	Description	(\$ in 000's)													
		Carrover 12/31/20	Actual Jan 2021	Actual Feb 2021	Actual Mar 2021	Actual Apr 2021	Actual May 2021	Actual Jun 2021	Actual Jul 2021	Actual Aug 2021	Actual Sep 2021	Actual Oct 2021	Actual Nov 2021	Actual Dec 2021	2021 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		257	228	185	173	157	173	189	214	198	154	159	224	2,311
2	RGGI Revenues		-	-	43	-	-	43	-	-	43	-	-	43	173
3	FCM Revenues		6	6	6	6	6	6	6	6	6	6	6	6	70
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		263	234	234	178	163	222	195	220	247	160	165	273	2,554
6	Program Expenses		125	135	249	189	202	200	140	260	215	422	272	573	2,982
7	Total Program Expenses		125	135	249	189	202	200	140	260	215	422	272	573	2,982
8	Current Month (Over)/Under Recovery		(138)	(99)	15	11	38	(22)	(54)	40	(32)	262	107	300	
9	Cumulative (Over)/Under Recovery	(428)	(566)	(665)	(650)	(639)	(601)	(623)	(677)	(637)	(669)	(406)	(300)	-	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(1)	(0)	
12	Monthly Sales (MWh)		31,390	27,840	22,642	21,091	19,231	21,103	23,075	26,208	24,176	18,792	19,489	27,406	282,441
13	EE SBC Rate		0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	

Line 1: (Line 12 X Line 13)/100
Line 2: Page 1, Col. C
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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: SBC Rate

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
January 1, 2022 to December 31, 2022 (Residential)

(\$ in 000's)															
Line	Description	Carrover 12/31/20	Actual Jan 2021	Actual Feb 2021	Actual Mar 2021	Actual Apr 2021	Actual May 2021	Actual Jun 2021	Actual Jul 2021	Actual Aug 2021	Actual Sep 2021	Actual Oct 2021	Actual Nov 2021	Actual Dec 2021	2021 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		425	446	376	328	287	282	311	391	329	255	294	375	4,099
2	RGGI Revenues		-	-	9	-	-	9	-	-	9	-	-	9	36
3	FCM Revenues		3	3	3	3	3	3	3	3	3	3	3	3	30
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		428	448	387	330	289	294	313	394	341	257	297	387	4,165
6	Program Expenses		174	189	348	264	282	280	196	364	300	589	380	800	4,165
7	Total Program Expenses		174	189	348	264	282	280	196	364	300	589	380	800	4,165
8	Current Month (Over)/Under Recovery		(253)	(260)	(40)	(66)	(8)	(14)	(117)	(30)	(40)	332	83	414	
9	Cumulative (Over)/Under Recovery		(253)	(513)	(553)	(619)	(627)	(641)	(758)	(788)	(829)	(497)	(414)	(0)	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(0)	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(1)	
12	Monthly Sales (MWh)		50,147	52,584	44,346	38,661	33,833	33,280	36,652	46,159	38,850	30,046	34,722	44,241	483,522
13	EE SBC Rate		0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	0.848	

Line 1: (Line 12 X Line 13)/100

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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: SBC Rate

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation (Commercial)
January 1, 2022 to December 31, 2022

(\$ in 000's)																
Line	Description	Carrover 12/31/20	Actual Jan 2021	Actual Feb 2021	Actual Mar 2021	Actual Apr 2021	Actual May 2021	Actual Jun 2021	Actual Jul 2021	Actual Aug 2021	Actual Sep 2021	Actual Oct 2021	Actual Nov 2021	Actual Dec 2021	2021 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		345	306	249	231	211	232	253	288	265	206	214	301	3,100	
2	RGGI Revenues		0	0	43	0	0	43	0	0	43	0	0	43	173	
3	FCM Revenues		6	6	6	6	6	6	6	6	6	6	6	6	70	
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-	
5	Total Revenues		350	311	298	237	217	281	259	293	314	212	220	350	3,343	
6	Program Expenses		140	151	279	212	226	224	157	292	241	473	305	642	3,343	
7	Total Program Expenses		140	151	279	212	226	224	157	292	241	473	305	642	3,343	
8	Current Month (Over)/Under Recovery		(210)	(160)	(19)	(25)	9	(56)	(102)	(2)	(73)	261	85	292		
9	Cumulative (Over)/Under Recovery		(210)	(370)	(389)	(414)	(405)	(462)	(563)	(565)	(638)	(378)	(292)	0		
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%		
11	Interest on Deferral Balance		(0)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(0)		
12	Monthly Sales (MWh)		32,801	29,091	23,661	22,039	20,095	22,052	24,112	27,386	25,263	19,637	20,365	28,638	295,141	
13	EE SBC Rate		1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050		

Line 1: (Line 12 X Line 13)/100

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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: SBC Rate

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation (Residential)
January 1, 2023 to December 31, 2023

(\$ in 000's)																
Line	Description	Carrover 12/31/20	Actual Jan 2021	Actual Feb 2021	Actual Mar 2021	Actual Apr 2021	Actual May 2021	Actual Jun 2021	Actual Jul 2021	Actual Aug 2021	Actual Sep 2021	Actual Oct 2021	Actual Nov 2021	Actual Dec 2021	2021 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		416	436	367	320	280	276	304	383	322	249	288	367	4007	
2	RGGI Revenues		-	-	9	-	-	9	-	-	9	-	-	9	35	
3	FCM Revenues		3	3	3	3	3	3	3	3	3	3	3	3	30	
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-	
5	Total Revenues		418	438	379	323	283	287	306	385	333	251	290	378	4071	
6	Program Expenses		170	184	340	258	275	273	192	356	294	576	371	782	4,071	
7	Total Program Expenses		170	184	340	258	275	273	192	356	294	576	371	782	4,071	
8	Current Month (Over)/Under Recovery		(248)	(254)	(39)	(65)	(8)	(14)	(115)	(29)	(39)	324	81	404		
9	Cumulative (Over)/Under Recovery		(248)	(502)	(540)	(605)	(613)	(626)	(741)	(771)	(810)	(486)	(404)	-		
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%		
11	Interest on Deferral Balance		(0)	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(1)		
12	Monthly Sales (MWh)		50,401	52,850	44,570	38,857	34,004	33,448	36,837	46,392	39,047	30,198	34,898	44,465		
13	EE SBC Rate		0.825	0.825	0.825	0.825	0.825	0.825	0.825	0.825	0.825	0.825	0.825	0.825		

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 Line 12: Company Forecast
 Line 13: SBC Rate

New Hampshire Electric Cooperative, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation (Commercial)
January 1, 2023 to December 31, 2023

(\$ in 000's)															
Line	Description	Carrover 12/31/20	Actual Jan 2021	Actual Feb 2021	Actual Mar 2021	Actual Apr 2021	Actual May 2021	Actual Jun 2021	Actual Jul 2021	Actual Aug 2021	Actual Sep 2021	Actual Oct 2021	Actual Nov 2021	Actual Dec 2021	2021 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		334	296	241	224	205	225	245	279	257	200	207	292	3,005
2	RGGI Revenues		0	0	43	0	0	43	0	0	43	0	0	43	173
3	FCM Revenues		6	6	6	6	6	6	6	6	6	6	6	6	70
4	Other Revenues		-	-	-	-	-	-	-	-	-	-	-	-	-
5	Total Revenues		340	302	290	230	210	274	251	285	306	206	213	341	3,248
6	Program Expenses		136	147	271	206	220	218	153	284	234	459	296	624	3,248
7	Total Program Expenses		136	147	271	206	220	218	153	284	234	459	296	624	3,248
8	Current Month (Over)/Under Recovery		(204)	(155)	(19)	(24)	9	(56)	(98)	(1)	(72)	254	83	283	
9	Cumulative (Over)/Under Recovery		(204)	(359)	(378)	(402)	(393)	(448)	(547)	(548)	(620)	(366)	(283)	-	
10	Interest @ Prime Rate		0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	0.2708%	
11	Interest on Deferral Balance		(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(1)	(0)	
12	Monthly Sales (MWh)		33,402	29,624	24,094	22,442	20,463	22,456	24,554	27,888	25,725	19,996	20,738	29,163	
13	EE SBC Rate		0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	

Line 1: (Line 12 X Line 13)/100

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Line 11: (Prior Month Line 9 + Current Month Line 9)/2 x Line 10

Line 12: Company Forecast

Line 13: SBC Rate

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

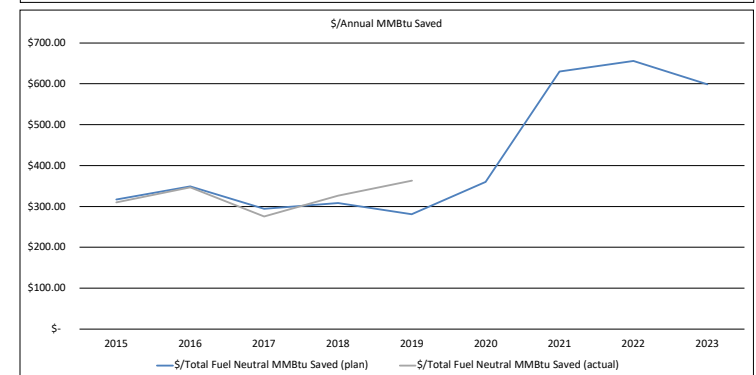
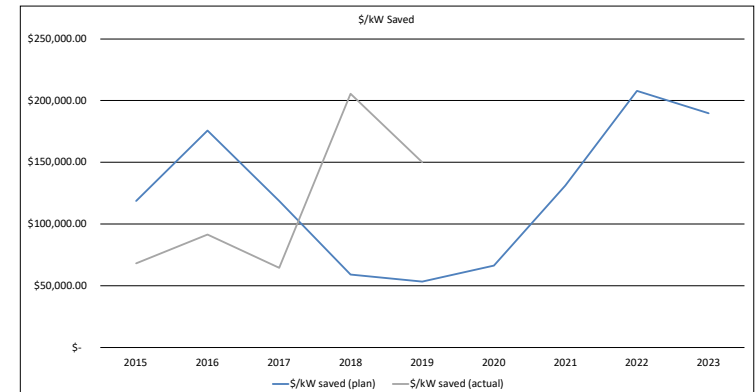
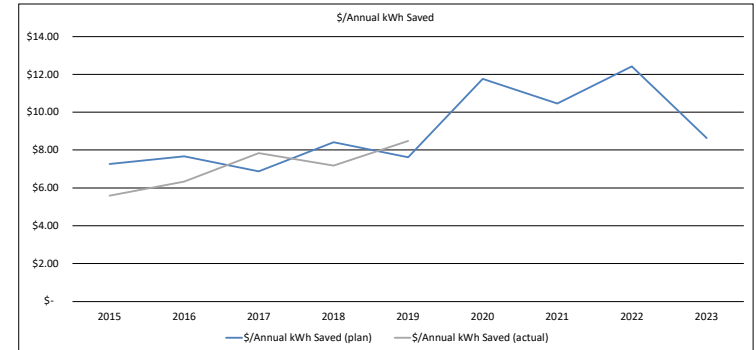
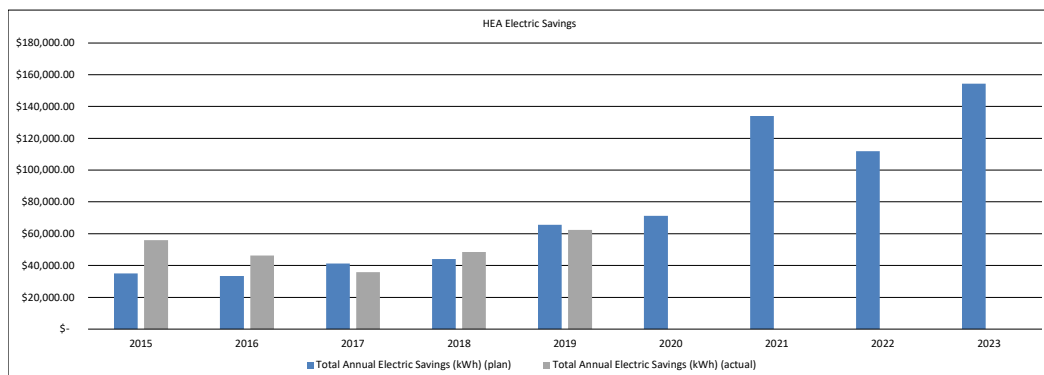
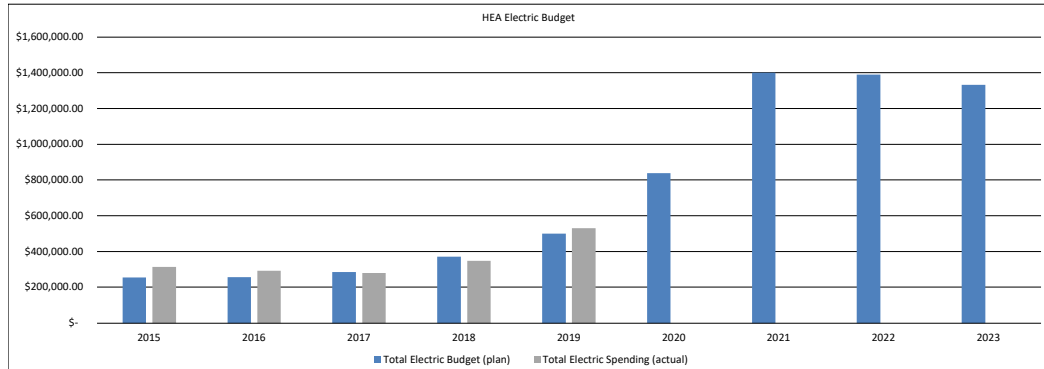
	Current Rates*			2021	2022	2023
EE Portion of System Benefits Charge (\$/kWh)	\$	0.00528	N/A			
Proposed Residential EE Portion of System Benefits Charge (\$/kWh)	N/A		\$	0.00761	0.00848	0.00825
Proposed Commercial EE Portion of System Benefits Charge (\$/kWh)	N/A		\$	0.00818	0.01050	0.00912
<u>Bill per month, including NHEC default energy service</u>						
Residential Rate Basic (625 kWh/month)	\$	128.79	\$	130.25	\$ 130.79	\$ 130.64
Commercial B3, three phase service (<50 kW, 10,000 kWh/month)	\$	1,837.64	\$	1,866.67	\$ 1,889.87	\$ 1,876.06
<u>Change from previous rate level - \$ per month</u>						
Residential Rate Basic (625 kWh/month)			\$	1.46	\$ 0.54	\$ (0.15)
Commercial B3, three phase service (<50 kW, 10,000 kWh/month)			\$	29.03	\$ 23.20	\$ (13.81)
<u>Change from previous rate level - %</u>						
Residential Rate Basic (625 kWh/month)				1.1%	0.42%	-0.11%
Commercial B3, three phase service (<50 kW, 10,000 kWh/month)				1.6%	1.24%	-0.73%

* Stated at NHEC's rate levels approved March 31,2020

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 254,857.00	\$ 255,703.00	\$ 284,308.00	\$ 371,084.55	\$ 499,415.73	\$ 838,773.00	\$ 1,401,044.44	\$ 1,389,759.92	\$ 1,331,991.65
	Total Annual Electric Savings (kWh) (plan)	\$ 35,100.20	\$ 33,320.82	\$ 41,277.05	\$ 44,118.52	\$ 65,569.58	\$ 71,262.75	\$ 133,985.40	\$ 111,856.22	\$ 154,282.45
	\$/Annual kWh Saved (plan)	\$ 7.26	\$ 7.67	\$ 6.89	\$ 8.41	\$ 7.62	\$ 11.77	\$ 10.46	\$ 12.42	\$ 8.63
2)	Total Electric Budget	\$ 254,857.00	\$ 255,703.00	\$ 284,308.00	\$ 371,084.55	\$ 499,415.73	\$ 838,773.00	\$ 1,401,044.44	\$ 1,389,759.92	\$ 1,331,991.65
	Total kW saved	\$ 2.15	\$ 1.45	\$ 2.39	\$ 6.28	\$ 9.34	\$ 12.64	\$ 10.69	\$ 6.68	\$ 7.02
	\$/kW saved (plan)	\$ 118,803.99	\$ 175,764.94	\$ 118,738.52	\$ 59,056.07	\$ 53,477.66	\$ 66,382.70	\$ 131,084.30	\$ 207,953.92	\$ 189,818.94
3)	Total Electric Budget	\$ 254,857.00	\$ 255,703.00	\$ 284,308.00	\$ 371,084.55	\$ 499,415.73	\$ 838,773.00	\$ 1,401,044.44	\$ 1,389,759.92	\$ 1,331,991.65
	Total Fuel Neutral MMBtu Saved	\$ 803.73	\$ 732.78	\$ 965.66	\$ 1,204.43	\$ 1,773.71	\$ 2,329.89	\$ 2,225.39	\$ 2,119.42	\$ 2,225.39
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 317.09	\$ 348.95	\$ 294.42	\$ 308.10	\$ 281.57	\$ 360.00	\$ 629.57	\$ 655.73	\$ 598.54

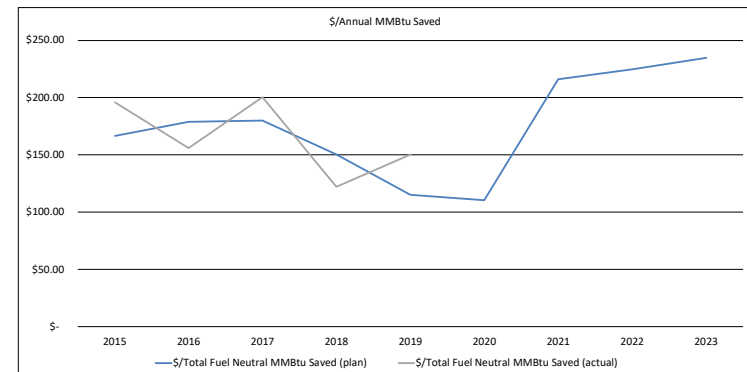
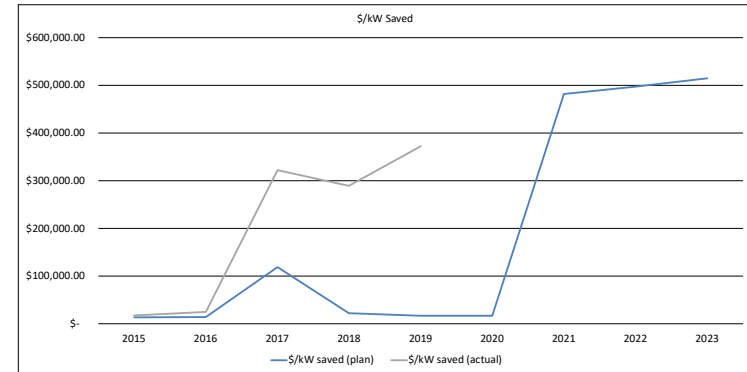
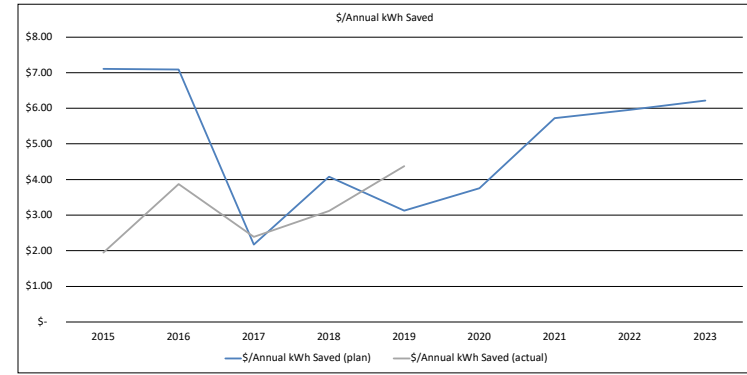
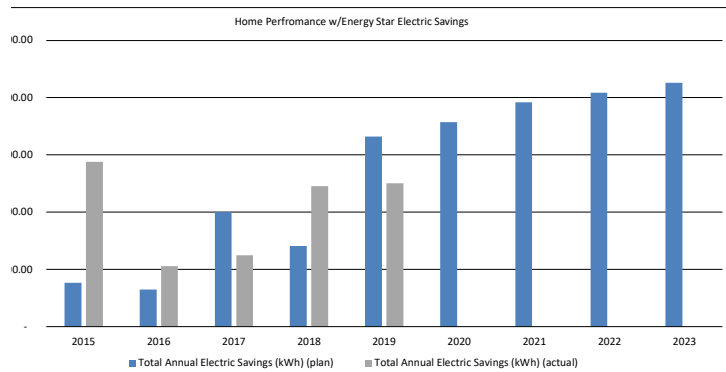
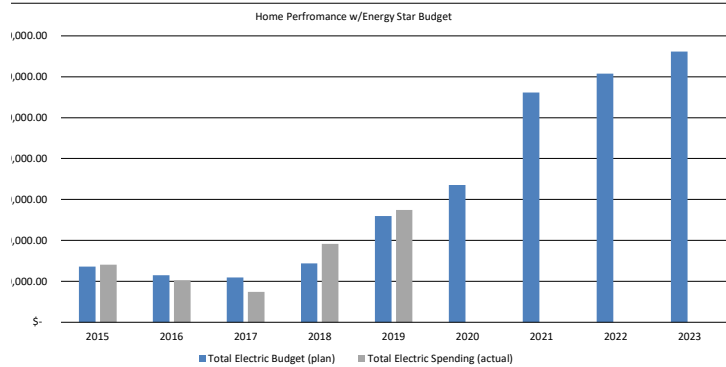
Actuals		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Spending (actual)	\$ 313,005.00	\$ 292,376.00	\$ 280,148.40	\$ 348,316.37	\$ 529,829.57				
	Total Annual Electric Savings (kWh) (actu)	\$ 55,900.00	\$ 46,200.00	\$ 35,764.57	\$ 48,480.85	\$ 62,388.23				
	\$/Annual kWh Saved (actual)	\$ 5.60	\$ 6.33	\$ 7.83	\$ 7.18	\$ 8.49				
2)	Total Electric Spending	\$ 313,005.00	\$ 292,376.00	\$ 280,148.40	\$ 348,316.37	\$ 529,829.57				
	Total kW saved	\$ 4.60	\$ 3.20	\$ 4.33	\$ 1.69	\$ 3.53				
	\$/kW saved (actual)	\$ 68,044.57	\$ 91,367.50	\$ 64,654.44	\$ 205,508.97	\$ 150,172.66				
3)	Total Electric Spending	\$ 313,005.00	\$ 292,376.00	\$ 280,148.40	\$ 348,316.37	\$ 529,829.57				
	Total Fuel Neutral MMBtu Saved	\$ 1,010.08	\$ 842.90	\$ 1,015.69	\$ 1,067.33	\$ 1,456.82				
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 309.88	\$ 346.87	\$ 275.82	\$ 326.34	\$ 363.69				



Home Performance w/Energy Star

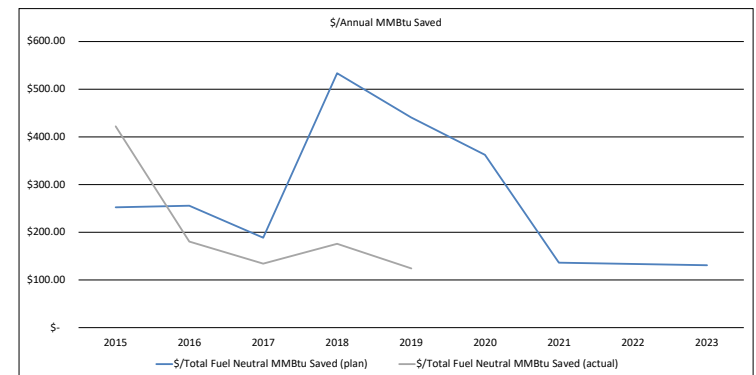
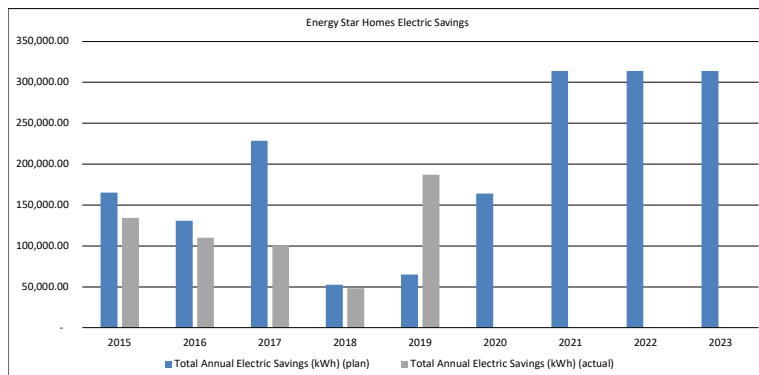
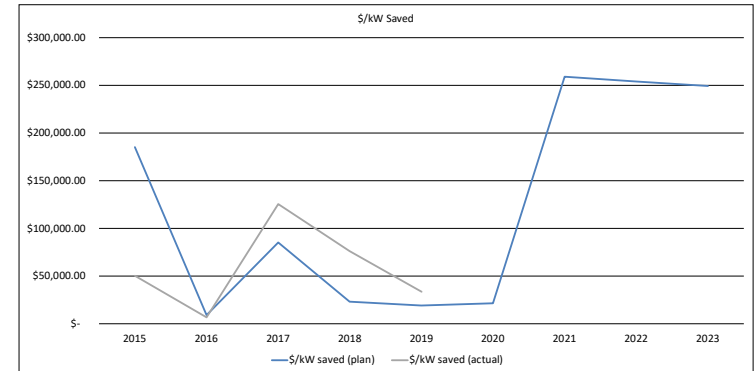
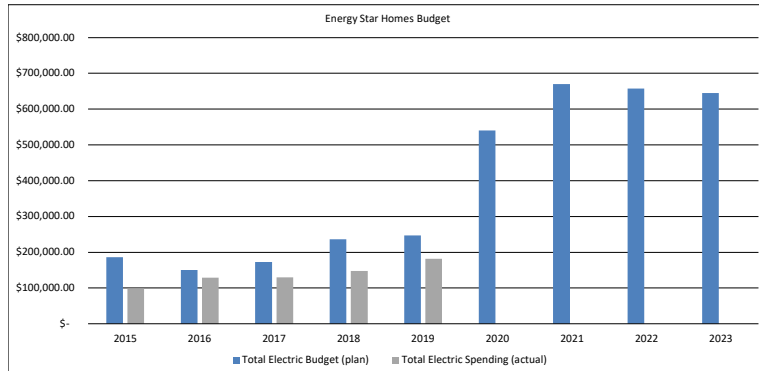
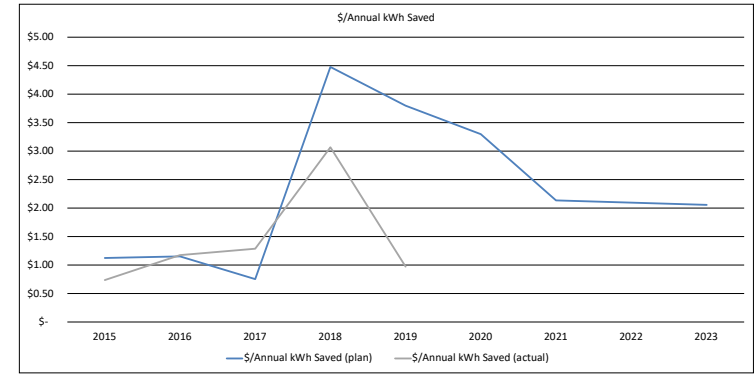
	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Electric Budget (plan)	\$ 272,233.00	\$ 229,205.00	\$ 218,456.00	\$ 287,669.67	\$ 519,510.90	\$ 670,225.00	\$ 1,122,087	\$ 1,215,888	\$ 1,323,499
Total Annual Electric Savings (kWh) (plan)	38,271.72	32,355.03	100,197.78	70,460.53	166,032.86	178,487.22	195,956	204,246	212,950
\$/Annual kWh Saved (plan)	\$ 7.11	\$ 7.08	\$ 2.18	\$ 4.08	\$ 3.13	\$ 3.76	\$ 5.73	\$ 5.95	\$ 6.22
Total Electric Budget	\$ 272,233.00	\$ 229,205.00	\$ 218,456.00	\$ 287,669.67	\$ 519,510.90	\$ 670,225.00	\$ 1,122,087	\$ 1,215,888	\$ 1,323,499
Total kW saved	19.43	16.31	1.84	12.99	30.65	39.67	2.33	2.45	2.57
\$/kW saved (plan)	\$ 14,008.04	\$ 14,051.07	\$ 118,668.66	\$ 22,145.49	\$ 16,952.03	\$ 16,893.39	\$ 481,399	\$ 496,802	\$ 515,020
Total Electric Budget	\$ 272,233.00	\$ 229,205.00	\$ 218,456.00	\$ 287,669.67	\$ 519,510.90	\$ 670,225.00	\$ 1,122,087	\$ 1,215,888	\$ 1,323,499
Total Fuel Neutral MMBtu Saved	1,633.55	1,281.68	1,214.38	1,912.43	4,506.44	6,066.04	5,196	5,409	5,632
\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 166.65	\$ 178.83	\$ 179.89	\$ 150.42	\$ 115.28	\$ 110.49	\$ 216	\$ 225	\$ 235

	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Electric Spending (actual)	\$ 281,645.00	\$ 204,480.00	\$ 148,636.84	\$ 383,006.41	\$ 548,206.97				
Total Annual Electric Savings (kWh) (actu)	144,000.00	52,805.00	62,273.93	122,706.43	125,325.72				
\$/Annual kWh Saved (actual)	\$ 1.96	\$ 3.87	\$ 2.39	\$ 3.12	\$ 4.37				
Total Electric Spending	\$ 281,645.00	\$ 204,480.00	\$ 148,636.84	\$ 383,006.41	\$ 548,206.97				
Total kW saved	15.90	8.10	0.46	1.33	1.47				
\$/kW saved (actual)	\$ 17,713.52	\$ 25,244.44	\$ 322,270.51	\$ 288,998.22	\$ 372,381.72				
Total Electric Spending	\$ 281,645.00	\$ 204,480.00	\$ 148,636.84	\$ 383,006.41	\$ 548,206.97				
Total Fuel Neutral MMBtu Saved	1,437.92	1,310.31	741.02	3,132.17	3,646.40				
\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 195.87	\$ 156.05	\$ 200.58	\$ 122.28	\$ 150.34				



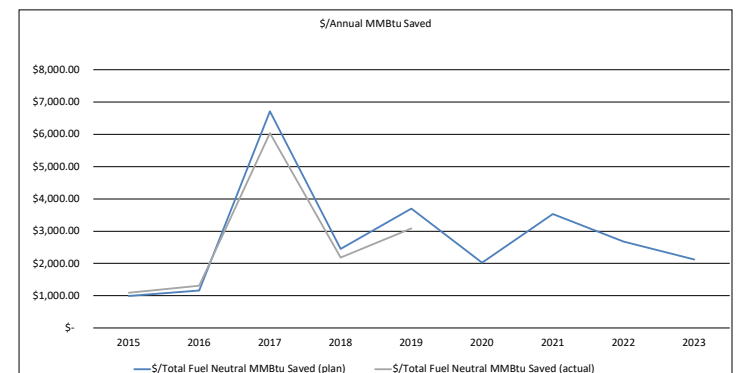
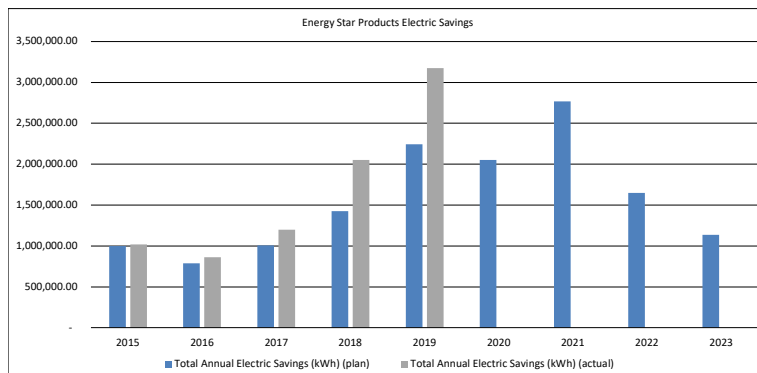
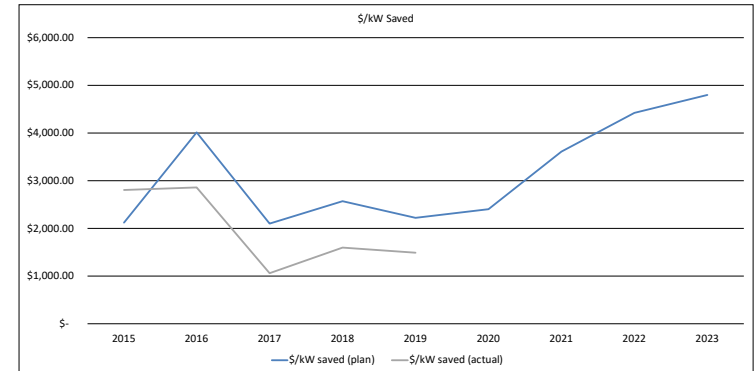
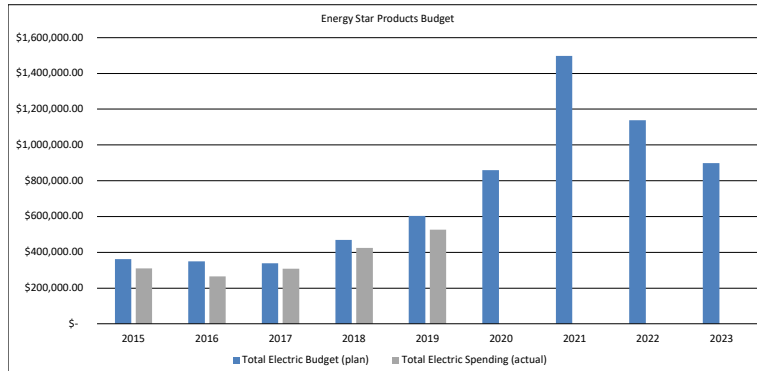
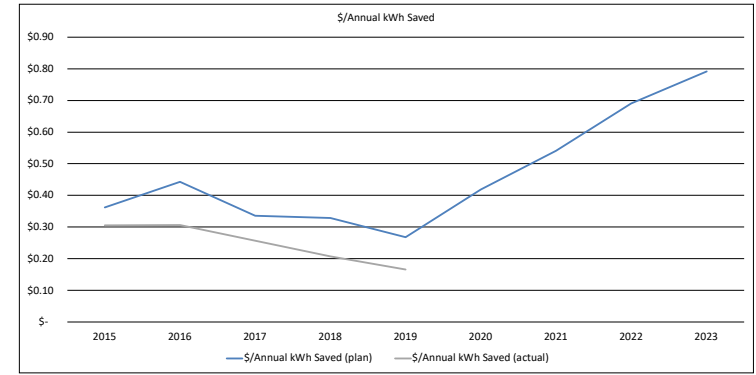
Energy Star Homes

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 186,042.00	\$ 150,426.00	\$ 172,764.00	\$ 235,909.21	\$ 246,674.96	\$ 540,544.00	\$ 670,122	\$ 657,117	\$ 644,777
	Total Annual Electric Savings (kWh) (plan)	165,241.44	130,931.27	228,636.03	52,681.05	65,009.21	163,862.33	313,729	313,729	313,729
	\$/Annual kWh Saved (plan)	\$ 1.13	\$ 1.15	\$ 0.76	\$ 4.48	\$ 3.79	\$ 3.30	\$ 2.14	\$ 2.09	\$ 2.06
2)	Total Electric Budget	\$ 186,042.00	\$ 150,426.00	\$ 172,764.00	\$ 235,909.21	\$ 246,674.96	\$ 540,544.00	\$ 670,122	\$ 657,117	\$ 644,777
	Total kW saved	1.01	16.55	2.03	10.22	12.76	25.02	2.59	2.59	2.59
	\$/kW saved (plan)	\$ 185,056.05	\$ 9,089.54	\$ 85,266.64	\$ 23,075.53	\$ 19,333.56	\$ 21,603.62	\$ 259,058	\$ 254,030	\$ 249,260
3)	Total Electric Budget	\$ 186,042.00	\$ 150,426.00	\$ 172,764.00	\$ 235,909.21	\$ 246,674.96	\$ 540,544.00	\$ 670,122	\$ 657,117	\$ 644,777
	Total Fuel Neutral MMBtu Saved	737.56	587.75	916.77	442.43	559.33	1,490.73	4,919	4,919	4,919
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 252.24	\$ 255.94	\$ 188.45	\$ 533.21	\$ 441.02	\$ 362.60	\$ 136	\$ 134	\$ 131
Actuals		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Spending (actual)	\$ 99,069.00	\$ 129,039.00	\$ 129,650.82	\$ 147,672.12	\$ 181,874.58				
	Total Annual Electric Savings (kWh) (actu)	134,300.00	109,900.00	100,710.35	48,129.32	187,159.38				
	\$/Annual kWh Saved (actual)	\$ 0.74	\$ 1.17	\$ 1.29	\$ 3.07	\$ 0.97				
2)	Total Electric Spending	\$ 99,069.00	\$ 129,039.00	\$ 129,650.82	\$ 147,672.12	\$ 181,874.58				
	Total kW saved	1.96	18.80	1.03	1.94	5.41				
	\$/kW saved (actual)	\$ 50,501.18	\$ 6,863.78	\$ 125,444.95	\$ 76,096.52	\$ 33,647.03				
3)	Total Electric Spending	\$ 99,069.00	\$ 129,039.00	\$ 129,650.82	\$ 147,672.12	\$ 181,874.58				
	Total Fuel Neutral MMBtu Saved	234.69	713.60	966.41	839.99	1,464.62				
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 422.13	\$ 180.83	\$ 134.16	\$ 175.80	\$ 124.18				



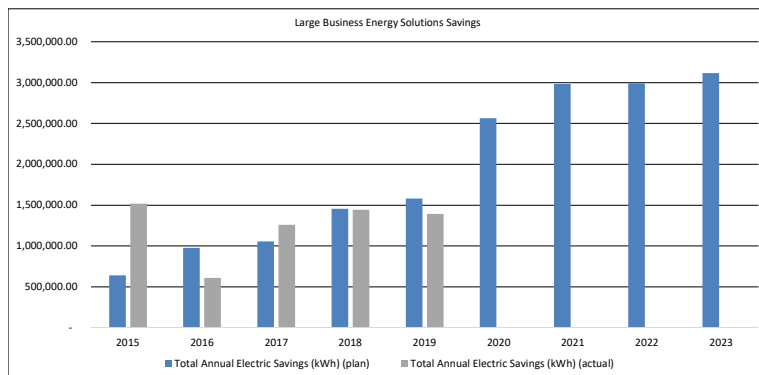
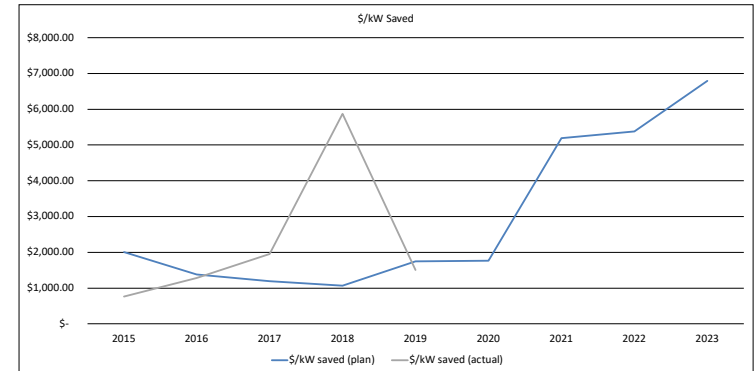
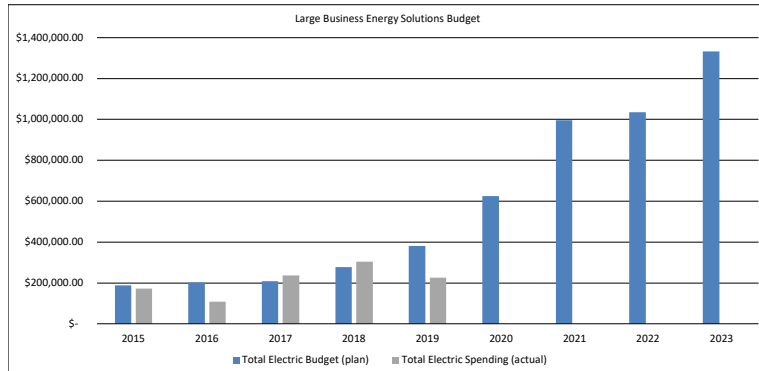
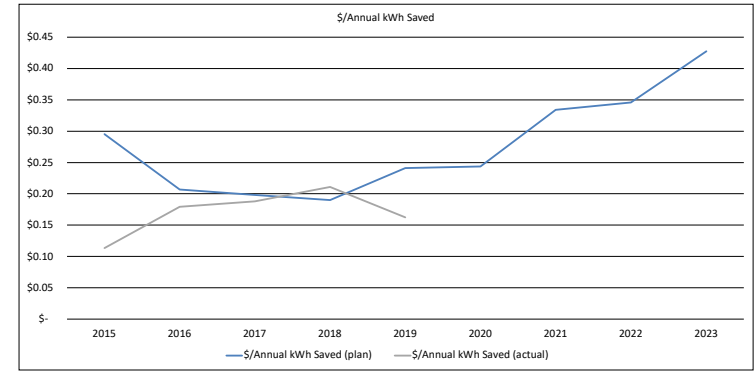
Energy Star Products

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 362,250.00	\$ 349,270.00	\$ 338,248.00	\$ 469,558.56	\$ 602,894.51	\$ 858,424.35	\$ 1,497,232	\$ 1,137,730	\$ 898,630
	Total Annual Electric Savings (kWh) (plan)	999,269.23	787,893.83	1,008,685.09	1,426,971.51	2,244,494.09	2,052,977.25	2,767,818	1,646,896	1,134,690
	\$/Annual kWh Saved (plan)	\$ 0.36	\$ 0.44	\$ 0.34	\$ 0.33	\$ 0.27	\$ 0.42	\$ 0.54	\$ 0.69	\$ 0.79
2)	Total Electric Budget	\$ 362,250.00	\$ 349,270.00	\$ 338,248.00	\$ 469,558.56	\$ 602,894.51	\$ 858,424.35	\$ 1,497,232	\$ 1,137,730	\$ 898,630
	Total kW saved	170.49	86.98	161.13	182.83	270.89	357.45	414.37	257.31	187.28
	\$/kW saved (plan)	\$ 2,124.74	\$ 4,015.30	\$ 2,099.27	\$ 2,568.30	\$ 2,225.57	\$ 2,401.54	\$ 3,613	\$ 4,422	\$ 4,798
3)	Total Electric Budget	\$ 362,250.00	\$ 349,270.00	\$ 338,248.00	\$ 469,558.56	\$ 602,894.51	\$ 858,424.35	\$ 1,497,232	\$ 1,137,730	\$ 898,630
	Total Fuel Neutral MMBtu Saved	364.14	300.17	50.35	191.64	162.77	424.34	424	424	424
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 994.82	\$ 1,163.59	\$ 6,717.37	\$ 2,450.24	\$ 3,703.93	\$ 2,022.95	\$ 3,529	\$ 2,682	\$ 2,118
Actuals		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Spending (actual)	\$ 310,934.00	\$ 264,733.00	\$ 308,155.35	\$ 425,054.56	\$ 527,215.81				
	Total Annual Electric Savings (kWh) (actu)	1,018,400.00	863,500.00	1,199,911.22	2,052,977.25	3,172,843.69				
	\$/Annual kWh Saved (actual)	\$ 0.31	\$ 0.31	\$ 0.26	\$ 0.21	\$ 0.17				
2)	Total Electric Spending	\$ 310,934.00	\$ 264,733.00	\$ 308,155.35	\$ 425,054.56	\$ 527,215.81				
	Total kW saved	110.80	92.60	289.14	265.97	353.37				
	\$/kW saved (actual)	\$ 2,806.26	\$ 2,858.89	\$ 1,065.76	\$ 1,598.11	\$ 1,491.95				
3)	Total Electric Spending	\$ 310,934.00	\$ 264,733.00	\$ 308,155.35	\$ 425,054.56	\$ 527,215.81				
	Total Fuel Neutral MMBtu Saved	283.50	201.40	51.06	194.68	171.096				
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 1,096.77	\$ 1,314.46	\$ 6,035.52	\$ 2,183.39	\$ 3,081.40				



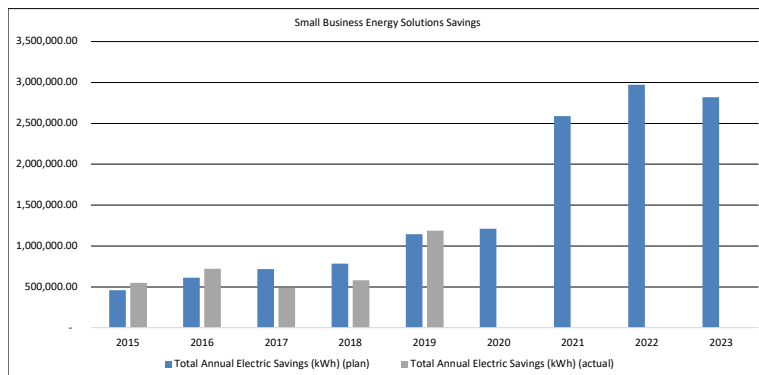
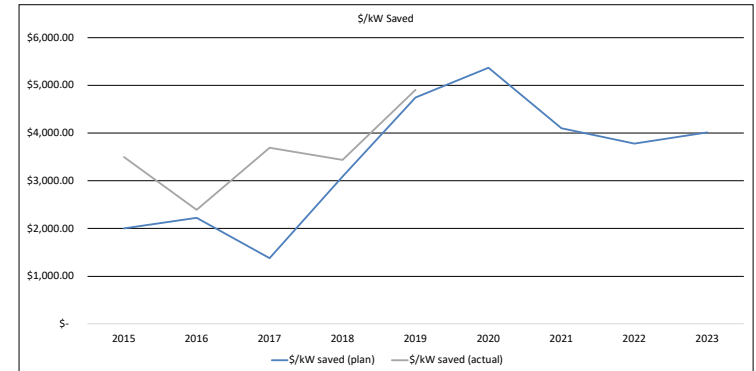
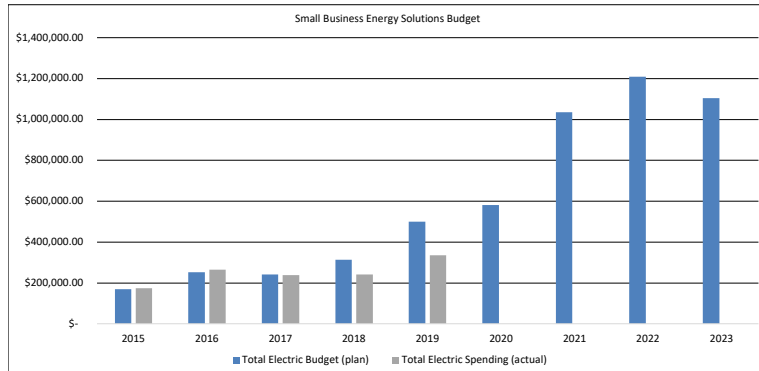
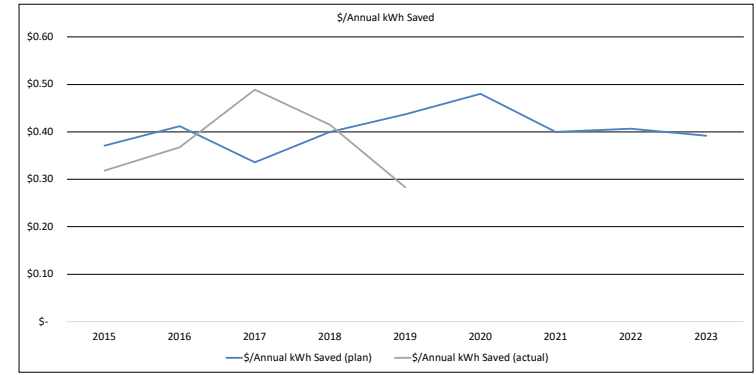
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 188,981.00	\$ 202,403.00	\$ 209,679.00	\$ 277,067.46	\$ 381,523.59	\$ 624,576.00	\$ 996,188.04	\$ 1,034,978.57	\$ 1,331,991.65
	Total Annual Electric Savings (kWh) (plan)	639,637.22	978,279.40	1,056,642.38	1,456,171.75	1,581,541.99	2,564,148.19	2,981,976.04	2,991,305.70	3,114,657.18
	\$/Annual kWh Saved (plan)	\$ 0.30	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.24	\$ 0.24	\$ 0.33	\$ 0.35	\$ 0.43
2)	Total Electric Budget	\$ 188,981.00	\$ 202,403.00	\$ 209,679.00	\$ 277,067.46	\$ 381,523.59	\$ 624,576.00	\$ 996,188.04	\$ 1,034,978.57	\$ 1,331,991.65
	Total kW saved	94.11	146.13	175.61	259.47	218.04	353.51	191.93	192.53	196.07
	\$/kW saved (plan)	\$ 2,008.02	\$ 1,385.12	\$ 1,194.04	\$ 1,067.80	\$ 1,749.79	\$ 1,766.80	\$ 5,190	\$ 5,376	\$ 6,793
3)	Total Electric Budget	\$ 188,981.00	\$ 202,403.00	\$ 209,679.00	\$ 277,067.46	\$ 381,523.59	\$ 624,576.00	\$ 996,188.04	\$ 1,034,978.57	\$ 1,331,991.65
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Actuals		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Spending (actual)	\$ 172,179.00	\$ 109,309.00	\$ 236,808.93	\$ 304,536.17	\$ 226,077.07				
	Total Annual Electric Savings (kWh) (actu)	1,519,000.00	609,900.00	1,258,258.52	1,442,732.56	1,393,199.13				
	\$/Annual kWh Saved (actual)	\$ 0.11	\$ 0.18	\$ 0.19	\$ 0.21	\$ 0.16				
2)	Total Electric Spending	\$ 172,179.00	\$ 109,309.00	\$ 236,808.93	\$ 304,536.17	\$ 226,077.07				
	Total kW saved	225.50	84.90	121.28	51.89	149.97				
	\$/kW saved (actual)	\$ 763.54	\$ 1,287.50	\$ 1,952.66	\$ 5,868.41	\$ 1,507.53				
3)	Total Electric Spending	\$ 172,179.00	\$ 109,309.00	\$ 236,808.93	\$ 304,536.17	\$ 226,077.07				
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-				
	\$/Total Fuel Neutral MMBtu Saved (actu)	-	-	-	-	-				



Small Business Energy Solutions

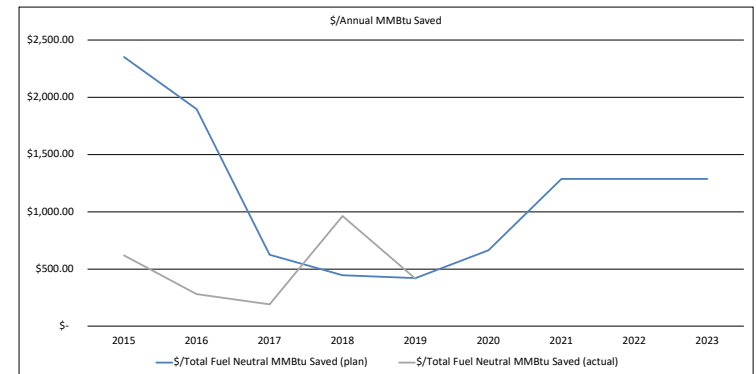
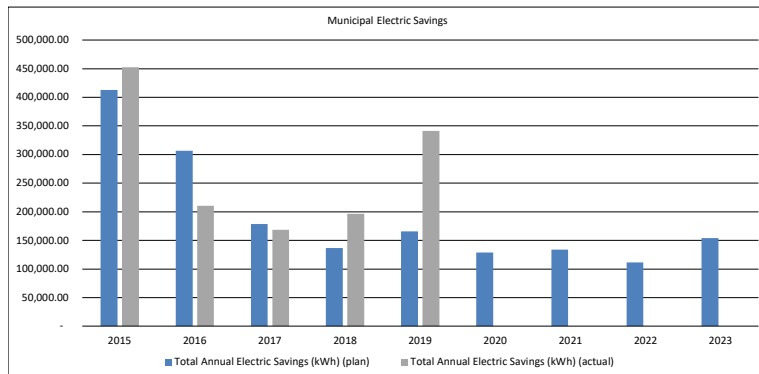
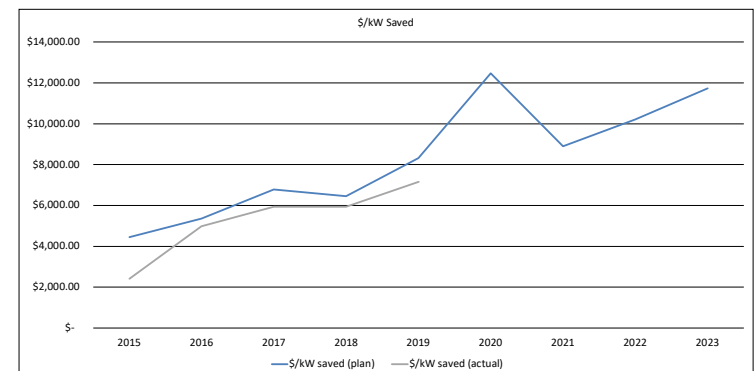
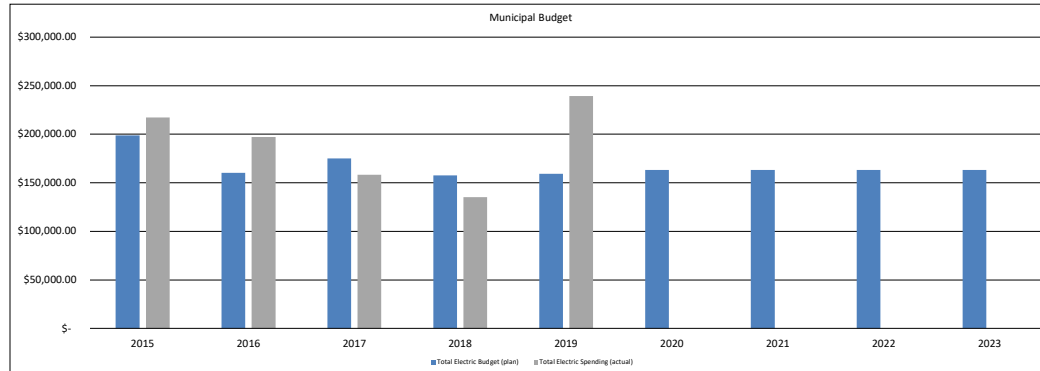
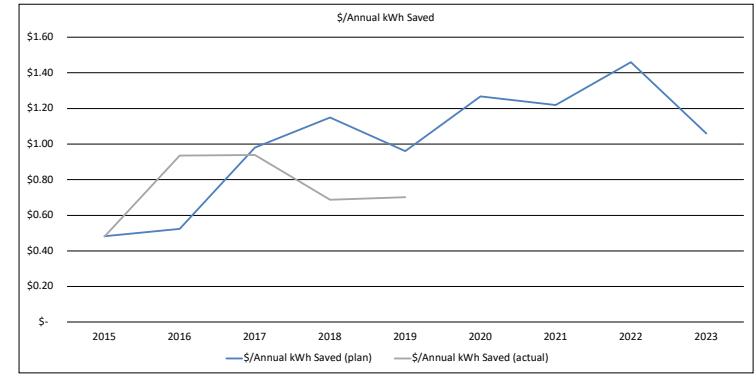
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 170,507.00	\$ 253,038.00	\$ 241,342.00	\$ 314,465.22	\$ 499,966.58	\$ 581,067.00	\$ 1,036,092	\$ 1,208,256	\$ 1,103,905
	Total Annual Electric Savings (kWh) (plan)	459,727.00	614,054.23	718,002.42	786,162.50	1,144,703.92	1,209,604.03	2,588,778	2,970,915	2,817,409
	\$/Annual kWh Saved (plan)	\$ 0.37	\$ 0.41	\$ 0.34	\$ 0.40	\$ 0.44	\$ 0.48	\$ 0.40	\$ 0.41	\$ 0.39
2)	Total Electric Budget	\$ 170,507.00	\$ 253,038.00	\$ 241,342.00	\$ 314,465.22	\$ 499,966.58	\$ 581,067.00	\$ 1,036,092	\$ 1,208,256	\$ 1,103,905
	Total kW saved	85.06	113.62	175.08	101.83	105.30	108.23	252.51	319.49	274.76
	\$/kW saved (plan)	\$ 2,004.49	\$ 2,227.11	\$ 1,378.49	\$ 3,088.21	\$ 4,748.00	\$ 5,368.82	\$ 4,103	\$ 3,782	\$ 4,018
3)	Total Electric Budget	\$ 170,507.00	\$ 253,038.00	\$ 241,342.00	\$ 314,465.22	\$ 499,966.58	\$ 581,067.00	\$ 1,036,092	\$ 1,208,256	\$ 1,103,905
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-	-	-	-	-
	\$/Total Fuel Neutral MMBtu Saved (plan)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Actuals		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Spending (actual)	\$ 175,186.00	\$ 265,112.00	\$ 238,151.99	\$ 241,447.38	\$ 336,499.89				
	Total Annual Electric Savings (kWh) (actu)	550,600.00	721,700.00	487,246.98	582,120.00	1,189,122.82				
	\$/Annual kWh Saved (actual)	\$ 0.32	\$ 0.37	\$ 0.49	\$ 0.41	\$ 0.28				
2)	Total Electric Spending	\$ 175,186.00	\$ 265,112.00	\$ 238,151.99	\$ 241,447.38	\$ 336,499.89				
	Total kW saved	50.10	111.00	64.46	70.22	68.57				
	\$/kW saved (actual)	\$ 3,496.73	\$ 2,388.40	\$ 3,694.33	\$ 3,438.44	\$ 4,907.32				
3)	Total Electric Spending	\$ 175,186.00	\$ 265,112.00	\$ 238,151.99	\$ 241,447.38	\$ 336,499.89				
	Total Fuel Neutral MMBtu Saved	-	-	-	-	-				
	\$/Total Fuel Neutral MMBtu Saved (actu)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!				



Municipal

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 198,828.00	\$ 160,393.00	\$ 174,968.00	\$ 157,518.81	\$ 159,402.78	\$ 163,318.00	\$ 163,318	\$ 163,318	\$ 163,318
	Total Annual Electric Savings (kWh) (plan)	413,076.33	306,456.75	178,641.98	137,004.63	166,023.21	128,772.82	133,985	111,856	154,282
	\$/Annual kWh Saved (plan)	\$ 0.48	\$ 0.52	\$ 0.98	\$ 1.15	\$ 0.96	\$ 1.27	\$ 1.22	\$ 1.46	\$ 1.06
2)	Total Electric Budget	\$ 198,828.00	\$ 160,393.00	\$ 174,968.00	\$ 157,518.81	\$ 159,402.78	\$ 163,318.00	\$ 163,318	\$ 163,318	\$ 163,318
	Total kW saved	44.77	29.96	25.80	24.38	19.17	13.10	18.34	15.99	13.91
	\$/kW saved (plan)	\$ 4,441.47	\$ 5,353.27	\$ 6,781.68	\$ 6,461.52	\$ 8,315.74	\$ 12,467.50	\$ 8,905	\$ 10,215	\$ 11,741
3)	Total Electric Budget	\$ 198,828.00	\$ 160,393.00	\$ 174,968.00	\$ 157,518.81	\$ 159,402.78	\$ 163,318.00	\$ 163,318	\$ 163,318	\$ 163,318
	Total Fuel Neutral MMBtu Saved	84.60	84.60	280.03	353.15	379.89	245.77	127	127	127
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 2,350.21	\$ 1,895.90	\$ 624.81	\$ 446.04	\$ 419.60	\$ 664.51	\$ 1,288	\$ 1,288	\$ 1,288

Actuals		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Spending (actual)	\$ 217,200.00	\$ 197,081.00	\$ 158,370.45	\$ 135,104.98	\$ 239,397.86				
	Total Annual Electric Savings (kWh) (actu)	452,700.00	210,600.00	168,841.99	196,823.00	341,480.29				
	\$/Annual kWh Saved (actual)	\$ 0.48	\$ 0.94	\$ 0.94	\$ 0.69	\$ 0.70				
2)	Total Electric Spending	\$ 217,200.00	\$ 197,081.00	\$ 158,370.45	\$ 135,104.98	\$ 239,397.86				
	Total kW saved	90.20	39.50	26.63	22.73	33.42				
	\$/kW saved (actual)	\$ 2,407.98	\$ 4,989.39	\$ 5,946.23	\$ 5,944.32	\$ 7,164.01				
3)	Total Electric Spending	\$ 217,200.00	\$ 197,081.00	\$ 158,370.45	\$ 135,104.98	\$ 239,397.86				
	Total Fuel Neutral MMBtu Saved	350.53	700.35	830.79	140.51	577.55				
	\$/Total Fuel Neutral MMBtu Saved (actu)	\$ 619.63	\$ 281.40	\$ 190.63	\$ 961.53	\$ 414.50				



Program Cost-Effectiveness - 2021 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.77	0.18	1.83	2,898.783	299.763	3,002.290	1,637.476	-	207.6	2,634.5	45.7	43.0	124	3,322.5	66,547.9
A1 - Energy Star Homes	3.23	0.26	3.35	1,397.288	113.507	1,786.897	432.655	101.125	64.6	1,465.6	16.7	2.5	120	1,654.0	39,310.0
A2 - Home Performance with Energy Star	1.70	0.26	1.82	869.298	134.398	1,117.561	510.435	104.976	69.4	1,079.0	23.6	19.7	60	1,337.5	25,717.2
A3 - Energy Star Products	2.25	1.52	3.10	3,405.431	2,298.731	5,017.464	1,513.474	106.436	3,210.4	19,171.6	656.9	542.5	61,666	2,484.4	35,838.8
A4 - Residential Behavior	1.01	1.01	1.70	201.145	201.145	336.847	198.183	-	1,749.0	1,749.0	377.6	243.5	22,700	-	-
A5 - Residential Active Demand Response	0.75	0.75	0.83	27.148	27.148	29.863	36.000	-	-	-	-	-	125	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	13.000	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	26.950	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	65.500	-	-	-	-	-	-	-	-
Sub-Total Residential	1.98	0.69	2.38	8,799.093	3,074.692	11,290.923	4,433.672	312.537	5,301.0	26,099.8	1,120.4	851.2	84,795	8,798.4	167,413.9
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.77	1.76	1.74	4,006.561	3,983.558	6,317.735	2,257.665	1,373.459	5,091.2	63,864.6	249.1	307.1	184	107.4	1,074.2
C2 - Small Business Energy Solutions	2.00	1.99	1.95	3,912.336	3,890.425	6,264.045	1,959.838	1,245.348	3,960.3	45,232.9	340.3	258.8	448	165.3	1,652.6
C3 - Municipal Energy Solutions	5.14	4.92	5.99	1,052.017	1,006.682	1,429.237	204.700	33.860	432.1	6,697.3	28.7	154.6	11	87.0	2,175.0
C5 - C&I Active Demand Response	3.20	3.20	3.52	442.871	442.871	487.027	138.250	-	-	-	-	-	19	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	19.000	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	57.500	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.03	2.01	1.99	9,413.785	9,323.536	14,498.043	4,636.953	2,652.666	9,483.6	115,794.8	618.0	720.5	662	359.7	4,901.7
C6e - Smart Start	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2.01	1.37	2.14	18,212.877	12,398.228	25,788.966	9,070.625	2,965.203	14,784.6	141,894.6	1,738.5	1,571.7	85,457	9,158.1	172,315.7

Notes:

(1) For the Secondary Granite State Test an NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars

Annual kWh Savings		14,784,570	84.6%	kWh > 55%	Lifetime kWh Savings		141,894,621	73.8%	kWh > 55%
Annual MMBTU Savings (in kWh)		2,683,970	15.4%		Lifetime MMBTU Savings (in kWh)		50,500,746	26.2%	
		17,468,540	100.0%				192,395,367	100.0%	
Annual Savings as a % of 2019 Sales		1.27%		Spending per Customer		Low-Income	\$	360.28	
						Residential	\$	46.30	
						C&I	\$	416.73	

Present Value Benefits - 2021 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)			Environmental Benefits (\$000)
				CAPACITY					ENERGY				Electric		Non-Electric		Total Resource Benefits	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits	
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit					
Residential Programs																					
B1 - Home Energy Assistance	\$ 2,899	\$ 300	\$ 3,002	\$ 42	\$ -	\$ 45	\$ 39	\$ -	\$ 51	\$ 51	\$ 32	\$ 27	\$ 11	\$ 300	\$ 1,747	\$ 8	\$ 2,055	\$ 113	\$ 731	\$ 844	\$ 104
A1 - Energy Star Homes	\$ 1,397	\$ 114	\$ 1,787	\$ 3	\$ -	\$ 3	\$ 3	\$ -	\$ 45	\$ 50	\$ 3	\$ 2	\$ 4	\$ 114	\$ 1,218	\$ -	\$ 1,332	\$ 66	\$ 333	\$ 399	\$ 57
A2 - Home Performance with Energy Star	\$ 869	\$ 134	\$ 1,118	\$ 20	\$ -	\$ 21	\$ 18	\$ -	\$ 23	\$ 25	\$ 13	\$ 10	\$ 4	\$ 134	\$ 689	\$ 3	\$ 827	\$ 43	\$ 206	\$ 249	\$ 42
A3 - Energy Star Products	\$ 3,405	\$ 2,299	\$ 5,017	\$ 270	\$ -	\$ 341	\$ 295	\$ -	\$ 436	\$ 398	\$ 248	\$ 187	\$ 123	\$ 2,299	\$ 722	\$ 336	\$ 3,357	\$ 49	\$ 755	\$ 804	\$ 857
A4 - Residential Behavior	\$ 201	\$ 201	\$ 337	\$ 13	\$ -	\$ 24	\$ 21	\$ -	\$ 49	\$ 40	\$ 23	\$ 15	\$ 16	\$ 201	\$ -	\$ -	\$ 201	\$ -	\$ 50	\$ 50	\$ 85
A5 - Residential Active Demand Response	\$ 27	\$ 27	\$ 30	\$ 1	\$ -	\$ 12	\$ 11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3	\$ 27	\$ -	\$ -	\$ 27	\$ -	\$ 3	\$ 3	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 8,799	\$ 3,075	\$ 11,291	\$ 350	\$ -	\$ 447	\$ 387	\$ -	\$ 604	\$ 564	\$ 319	\$ 242	\$ 161	\$ 3,075	\$ 4,376	\$ 348	\$ 7,798	\$ 270	\$ 2,078	\$ 2,348	\$ 1,145
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 4,007	\$ 3,984	\$ 6,318	\$ 293	\$ -	\$ 335	\$ 290	\$ -	\$ 752	\$ 585	\$ 870	\$ 625	\$ 234	\$ 3,984	\$ 9	\$ 13	\$ 4,006	\$ 1	\$ 399	\$ 400	\$ 1,912
C2 - Small Business Energy Solutions	\$ 3,912	\$ 3,890	\$ 6,264	\$ 235	\$ -	\$ 272	\$ 236	\$ -	\$ 943	\$ 683	\$ 801	\$ 488	\$ 233	\$ 3,890	\$ 14	\$ 6	\$ 3,911	\$ 2	\$ 390	\$ 392	\$ 1,961
C3 - Municipal Energy Solutions	\$ 1,052	\$ 1,007	\$ 1,429	\$ 188	\$ -	\$ 203	\$ 176	\$ -	\$ 78	\$ 41	\$ 186	\$ 110	\$ 25	\$ 1,007	\$ 41	\$ -	\$ 1,048	\$ 4	\$ 105	\$ 109	\$ 272
C5 - C&I Active Demand Response	\$ 443	\$ 443	\$ 487	\$ 30	\$ -	\$ 187	\$ 162	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 64	\$ 443	\$ -	\$ -	\$ 443	\$ -	\$ 44	\$ 44	\$ (0)
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 9,414	\$ 9,324	\$ 14,498	\$ 746	\$ -	\$ 997	\$ 863	\$ -	\$ 1,773	\$ 1,308	\$ 1,857	\$ 1,223	\$ 556	\$ 9,323	\$ 64	\$ 19	\$ 9,407	\$ 7	\$ 939	\$ 946	\$ 4,145
Total	\$ 18,213	\$ 12,398	\$ 25,789	\$ 1,097	\$ -	\$ 1,444	\$ 1,251	\$ -	\$ 2,376	\$ 1,872	\$ 2,176	\$ 1,465	\$ 718	\$ 12,398	\$ 4,440	\$ 367	\$ 17,205	\$ 277	\$ 3,017	\$ 3,293	\$ 5,290

Portfolio Planned Versus Actual Performance - 2021										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	141,894,621	92,231,504		-	1.925%	-	\$ 174,610	\$ 218,262	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	14,784,570	9,609,971		-	0.550%	-	\$ 49,888	\$ 62,361	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	1,572	1,022		-	0.495%	-	\$ 44,900	\$ 56,124	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,738	1,130		-	0.330%	-	\$ 29,933	\$ 37,416	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	2,025	1,316		-	0.275%	-	\$ 24,944	\$ 31,180	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 17,205,086			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 9,070,625			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 8,134,461	\$ 5,287,400	\$ -	-	1.925%	-	\$ 174,610	\$ 218,262	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 498,884	\$ 623,605	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 18,212,877		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 498,884	\$ -	from row 8 above
12 Total Utility Costs	\$ 9,070,625	\$ -	from row 6 above
13 Portfolio GST BCR	1.90	-	row 9 divided by rows 10+11

Costs, Benefits, and PI Expressed in 2021 Dollars.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2022 PLAN

	Benefit/Cost Ratios			Benefits (\$000)									Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹	Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings			
Residential Programs															
B1 - Home Energy Assistance	2.02	0.15	2.07	4,017.6	297.1	4,116.9	1,991.2	-	285.0	2,581.5	56.3	48.5	168	4,584.2	91,898.6
A1 - Energy Star Homes	3.21	0.29	3.23	1,248.2	113.0	1,601.3	388.6	106.9	72.3	1,660.4	15.3	1.1	25	1,432.5	33,562.5
A2 - Home Performance with Energy Star	2.04	0.29	2.17	1,252.5	175.2	1,606.2	614.1	125.7	77.3	1,457.8	20.4	16.9	74	1,878.9	35,903.5
A3 - Energy Star Products	2.80	1.78	3.46	3,910.8	2,481.1	5,643.8	1,397.6	235.3	2,509.2	19,758.4	496.7	472.4	42,495	3,105.5	44,798.5
A4 - Residential Behavior	1.31	1.31	2.21	236.0	236.0	398.2	180.0	-	2,087.0	2,087.0	450.5	290.6	22,700	-	-
A5 - Residential Active Demand Response	1.02	1.02	1.12	41.580	41.580	45.738	40.9	-	-	-	-	-	188	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	23.7	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	31.6	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	67.9	-	-	-	-	-	-	-	-
Sub-Total Residential	2.26	0.71	2.58	10,706.7	3,344.0	13,412.2	4,735.7	467.9	5,030.7	27,545.1	1,039.2	829.5	65,650	11,001.1	206,163.1
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.64	1.63	1.63	4,879.5	4,854.3	7,833.0	2,983.9	1,820.6	6,803.3	87,714.7	245.4	259.6	170	123.9	1,239.4
C2 - Small Business Energy Solutions	1.66	1.65	1.99	3,721.5	3,702.7	6,086.4	2,248.2	807.9	3,921.8	45,711.4	206.1	149.8	356	-	-
C3 - Municipal Energy Solutions	5.01	4.53	5.23	982.9	888.7	1,299.6	196.1	52.3	279.0	5,679.0	-	111.2	11	174.0	4,350.0
C5 - C&I Active Demand Response	3.32	3.32	3.65	541.267	541.267	595.261	163.1	-	-	-	-	-	23	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	20.3	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	69.1	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	1.78	1.76	1.89	10,125.2	9,987.0	15,814.2	5,680.7	2,680.9	11,004.0	139,105.1	451.5	520.6	561	297.9	5,589.4
Total	2.00	1.28	2.15	20,831.9	13,331.1	29,226.4	10,416.4	3,148.8	16,034.7	166,650.1	1,490.7	1,350.1	66,210	11,299.0	211,752.5

Notes:

(1) For the Secondary Granite State Test an NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs and Performance Incentive tabs.

		Annual kWh Savings	16,034,732	82.9%	kWh > 55%	Lifetime kWh Savings	166,650,147	72.9%	kWh > 55%
		Annual MMBTU Savings (in kWh)	3,311,415	17.1%		Lifetime MMBTU Savings (in kWh)	62,058,547	27.1%	
			19,346,147	100.0%			228,708,694	100.0%	
Annual Savings as a % of 2019 Sales		1.38%		<div>Spending per Customer</div> <div>Low-Income\$438.10</div> <div>Residential\$45.45</div> <div>C&I\$510.54</div>					

Present Value Benefits - 2022 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)															Non-Resource Benefits (\$000)			Environmental Benefits (\$000)
				CAPACITY					Electric				Non-Electric		Total Resource Benefits							
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits			
Residential Programs																						
B1 - Home Energy Assistance	\$ 4,018	\$ 297	\$ 4,117	\$ 44	\$ -	\$ 45	\$ 39	\$ -	\$ 51	\$ 47	\$ 34	\$ 27	\$ 11	\$ 297	\$ 2,533	\$ 10	\$ 2,839	\$ 167	\$ 1,011	\$ 1,178	\$ 99	
A1 - Energy Star Homes	\$ 1,248	\$ 113	\$ 1,601	\$ 2	\$ -	\$ 2	\$ 2	\$ -	\$ 46	\$ 54	\$ 2	\$ 1	\$ 4	\$ 113	\$ 1,075	\$ -	\$ 1,188	\$ 60	\$ 297	\$ 357	\$ 56	
A2 - Home Performance with Energy Star	\$ 1,252	\$ 175	\$ 1,606	\$ 25	\$ -	\$ 25	\$ 21	\$ -	\$ 34	\$ 38	\$ 16	\$ 12	\$ 4	\$ 175	\$ 1,010	\$ 4	\$ 1,189	\$ 64	\$ 296	\$ 360	\$ 58	
A3 - Energy Star Products	\$ 3,911	\$ 2,481	\$ 5,644	\$ 332	\$ -	\$ 379	\$ 329	\$ -	\$ 441	\$ 413	\$ 263	\$ 204	\$ 121	\$ 2,481	\$ 936	\$ 428	\$ 3,845	\$ 66	\$ 854	\$ 920	\$ 879	
A4 - Residential Behavior	\$ 236	\$ 236	\$ 398	\$ 15	\$ -	\$ 29	\$ 25	\$ -	\$ 57	\$ 46	\$ 26	\$ 17	\$ 20	\$ 236	\$ -	\$ -	\$ 236	\$ -	\$ 59	\$ 59	\$ 103	
A5 - Residential Active Demand Response	\$ 42	\$ 42	\$ 46	\$ 2	\$ -	\$ 19	\$ 16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4	\$ 42	\$ -	\$ -	\$ 42	\$ -	\$ 4	\$ 4	\$ -	
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Residential	\$ 10,707	\$ 3,344	\$ 13,412	\$ 421	\$ -	\$ 499	\$ 432	\$ -	\$ 628	\$ 597	\$ 342	\$ 261	\$ 164	\$ 3,344	\$ 5,553	\$ 441	\$ 9,338	\$ 357	\$ 2,522	\$ 2,879	\$ 1,195	
Commercial/Industrial Programs																						
C1 - Large Business Energy Solutions	\$ 4,879	\$ 4,854	\$ 7,833	\$ 274	\$ -	\$ 296	\$ 256	\$ -	\$ 950	\$ 744	\$ 1,173	\$ 861	\$ 300	\$ 4,854	\$ 11	\$ 13	\$ 4,878	\$ 1	\$ 487	\$ 488	\$ 2,467	
C2 - Small Business Energy Solutions	\$ 3,722	\$ 3,703	\$ 6,086	\$ 154	\$ -	\$ 167	\$ 145	\$ -	\$ 984	\$ 712	\$ 812	\$ 497	\$ 232	\$ 3,703	\$ -	\$ 19	\$ 3,722	\$ -	\$ 370	\$ 370	\$ 1,995	
C3 - Municipal Energy Solutions	\$ 983	\$ 889	\$ 1,300	\$ 177	\$ -	\$ 175	\$ 152	\$ -	\$ 35	\$ 17	\$ 199	\$ 117	\$ 16	\$ 889	\$ 85	\$ -	\$ 973	\$ 9	\$ 97	\$ 107	\$ 219	
C5 - C&I Active Demand Response	\$ 541	\$ 541	\$ 595	\$ 35	\$ -	\$ 231	\$ 200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75	\$ 541	\$ -	\$ -	\$ 541	\$ -	\$ 54	\$ 54	\$ (0)	
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Commercial & Industrial	\$ 10,125	\$ 9,987	\$ 15,814	\$ 641	\$ -	\$ 869	\$ 753	\$ -	\$ 1,969	\$ 1,472	\$ 2,184	\$ 1,475	\$ 624	\$ 9,987	\$ 96	\$ 32	\$ 10,114	\$ 11	\$ 1,008	\$ 1,019	\$ 4,681	
Total	\$ 20,832	\$ 13,331	\$ 29,226	\$ 1,062	\$ -	\$ 1,368	\$ 1,185	\$ -	\$ 2,597	\$ 2,069	\$ 2,526	\$ 1,737	\$ 788	\$ 13,331	\$ 5,648	\$ 473	\$ 19,453	\$ 368	\$ 3,530	\$ 3,898	\$ 5,876	

Portfolio Planned Versus Actual Performance - 2022										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime kWh Savings	166,650,147	108,322,596		-	1.925%	-	\$ 200,516	\$ 250,645	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	16,034,732	10,422,576		-	0.550%	-	\$ 57,290	\$ 71,613	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	1,350	878		-	0.495%	-	\$ 51,561	\$ 64,452	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,491	969		-	0.330%	-	\$ 34,374	\$ 42,968	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	2,488	1,617		-	0.275%	-	\$ 24,850	\$ 31,062	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 19,452,755			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 10,416,433			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 9,036,322	\$ 5,873,609	\$ -	-	1.925%	-	\$ 200,516	\$ 250,645	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 569,109	\$ 711,386	\$ -	

Granite State Test				Source
	Planned	Actual		
10 Total Benefits	\$ 20,831,876			Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 569,109	\$ -		from row 8 above
12 Total Utility Costs	\$ 10,416,433	\$ -		from row 6 above
13 Portfolio GST BCR	1.90	-		row 9 divided by rows 10+11

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2022\$) is \$591,523.20.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.23	0.16	2.28	5,106.2	374.8	5,225.1	2,293.5	-	377.1	3,035.8	75.9	63.0	190	5,553.6	109,596.7
A1 - Energy Star Homes	2.64	0.34	2.71	1,039.1	135.1	1,363.5	392.9	110.2	80.8	1,869.7	16.9	1.2	31	1,133.5	25,877.5
A2 - Home Performance with Energy Star	2.16	0.30	2.18	1,527.1	211.8	1,855.2	706.3	143.3	83.2	1,736.6	17.5	15.3	86	2,259.4	42,844.0
A3 - Energy Star Products	3.53	2.15	3.28	4,517.5	2,748.8	5,629.5	1,281.0	436.7	2,142.1	20,938.5	409.0	445.9	18,312	3,726.6	53,758.2
A4 - Residential Behavior	1.74	1.74	2.63	308.2	308.2	464.3	176.9	-	3,116.0	3,116.0	377.6	243.5	22,700	-	-
A5 - Residential Active Demand Response	1.23	1.23	1.36	56.483	56.483	62.131	45.8	-	-	-	-	-	250	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	15.0	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	30.7	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	71.3	-	-	-	-	-	-	-	-
Sub-Total Residential	2.50	0.76	2.56	12,554.6	3,835.2	14,599.8	5,013.5	690.2	5,799.2	30,696.5	896.9	769.0	41,568	12,673.1	232,076.4
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.67	1.66	1.64	6,563.2	6,529.9	10,102.2	3,937.7	2,228.7	8,930.8	114,860.7	310.4	385.4	170	165.3	1,652.6
C2 - Small Business Energy Solutions	1.53	1.52	2.20	3,828.2	3,800.2	6,175.6	2,496.2	312.2	3,904.5	47,540.2	152.5	110.4	356	-	-
C3 - Municipal Energy Solutions	5.35	4.84	5.49	1,033.1	935.5	1,235.8	193.2	31.9	252.0	5,220.0	-	123.8	11	174.0	4,350.0
C5 - C&I Active Demand Response	3.95	3.95	4.34	641.918	641.918	705.975	162.7	-	-	-	-	-	27	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	22.5	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	79.7	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	1.75	1.73	1.92	12,066.5	11,907.5	18,219.5	6,892.1	2,572.8	13,087.3	167,621.0	463.0	619.6	565	339.3	6,002.6
Total	2.07	1.32	2.16	24,621.0	15,742.6	32,819.3	11,905.6	3,263.0	18,886.6	198,317.5	1,359.9	1,388.6	42,133	13,012.3	238,079.0

Notes:

(1) For the Secondary Granite State Test an NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs and Performance Incentive tabs.

Annual kWh Savings		18,886,565	83.2%	kWh > 55%	Lifetime kWh Savings		198,317,517	74.0%	kWh > 55%
Annual MMBTU Savings (in kWh)		<u>3,813,542</u>	<u>16.8%</u>		Lifetime MMBTU Savings (in kWh)		<u>69,774,059</u>	<u>26.0%</u>	
		22,700,107	100.0%				268,091,576	100.0%	
Annual Savings as a % of 2019 Sales		1.62%		<div>Spending per Customer</div> <div>1.62% Low-Income</div> <div>Residential</div> <div>C&I</div> <div>\$ 504.62</div> <div>\$ 45.04</div> <div>\$ 619.40</div>					

Present Value Benefits - 2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)			Environmental Benefits (\$000)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				CAPACITY					Electric				Non-Electric		Total Resource Benefits																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit		Other Fuels	Water Benefit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

Portfolio Planned Versus Actual Performance - 2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	125% of Planned PI		Actual PI	Source
1 Lifetime kWh Savings	198,317,517	128,906,386		-	1.925%	-	\$ 229,182	\$ 286,477	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	18,886,565	12,276,267		-	0.550%	-	\$ 65,481	\$ 81,851	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	1,389	903		-	0.495%	-	\$ 58,932	\$ 73,666	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	1,360	884		-	0.330%	-	\$ 39,288	\$ 49,110	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	2,950	1,918		-	0.275%	-	\$ 29,871	\$ 37,339	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 22,767,851			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 11,905,554			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 10,862,297	\$ 7,060,493	\$ -	-	1.925%	-	\$ 229,182	\$ 286,477	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 651,937	\$ 814,921	\$ -	

	Granite State Test		Source
	Planned	Actual	
10 Total Benefits	\$ 24,621,024		Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 651,937	\$ -	from row 8 above
12 Total Utility Costs	\$ 11,905,554	\$ -	from row 6 above
13 Portfolio GST BCR	1.96	-	row 9 divided by rows 10+11

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2023\$) is \$698,059.45.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2021-2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.03	0.16	2.08	12,022.5	971.7	12,344.3	5,922.2	-	869.6	8,251.8	177.9	154.5	482	13,460.2	268,043.3
A1 - Energy Star Homes	3.03	0.30	3.10	3,684.6	361.7	4,751.8	1,214.2	318.3	217.7	4,995.6	49.0	4.9	176	4,220.0	98,750.0
A2 - Home Performance with Energy Star	1.99	0.28	2.08	3,648.8	521.5	4,579.0	1,830.8	373.9	229.9	4,273.5	61.5	51.9	220	5,475.8	104,464.8
A3 - Energy Star Products	2.82	1.80	3.28	11,833.8	7,528.6	16,290.7	4,192.1	778.4	7,861.7	59,868.5	1,562.5	1,460.9	122,473	9,316.5	134,395.4
A4 - Residential Behavior	1.34	1.34	2.16	745.3	745.3	1,199.4	555.1	-	6,952.0	6,952.0	1,205.7	777.7	22,700	-	-
A5 - Residential Active Demand Response	1.02	1.02	1.12	125.2	125.2	137.7	122.7	-	-	-	-	-	563	-	-
A6b - Res ISO Forward Capacity Market Expenses	-	-	-	-	-	-	51.7	-	-	-	-	-	-	-	-
A6c - Res Education	-	-	-	-	-	-	89.2	-	-	-	-	-	-	-	-
A6d - Energy Optimization Pilot	-	-	-	-	-	-	204.7	-	-	-	-	-	-	-	-
Sub-Total Residential	2.26	0.72	2.51	32,060.3	10,253.9	39,302.9	14,182.9	1,470.6	16,130.9	84,341.4	3,056.6	2,449.8	146,613	32,472.6	605,653.4
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	1.68	1.67	1.66	15,449.2	15,367.8	24,252.9	9,179.2	5,422.8	20,825.3	266,440.1	804.9	952.1	524	396.6	3,966.2
C2 - Small Business Energy Solutions	1.71	1.70	2.04	11,462.1	11,393.3	18,526.0	6,704.3	2,365.5	11,786.6	138,484.5	699.0	519.0	1,161	165.3	1,652.6
C3 - Municipal Energy Solutions	5.16	4.77	5.57	3,068.1	2,830.9	3,964.7	594.1	118.1	963.1	17,596.3	28.7	389.6	33	435.0	10,875.0
C5 - C&I Active Demand Response	3.50	3.50	3.85	1,626.1	1,626.1	1,788.3	464.0	-	-	-	-	-	69	-	-
C6b - C&I ISO Forward Capacity Market Expenses	-	-	-	-	-	-	61.9	-	-	-	-	-	-	-	-
C6c - C&I Education	-	-	-	-	-	-	206.3	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	1.84	1.81	1.93	31,605.4	31,218.0	48,531.8	17,209.8	7,906.3	33,574.9	422,520.9	1,532.5	1,860.6	1,787	996.9	16,493.8
Total	2.03	1.32	2.15	63,665.8	41,471.9	87,834.7	31,392.6	9,377.0	49,705.9	506,862.3	4,589.1	4,310.4	148,400	33,469.4	622,147.2

Notes:

(1) For the Secondary Granite State Test an NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs and Performance Incentive tabs.

17) Utility and customer costs in 2021 Dollars and will not equal the normal cost of ownership. The costs and performance metrics are as follows:											
		Annual kWh Savings		49,705,868	83.5%	kWh > 55%	Lifetime kWh Savings		506,862,285	73.5%	kWh > 55%
		Annual MMBTU Savings (in kWh)		9,808,927	16.5%		Lifetime MMBTU Savings (in kWh)		182,333,352	26.5%	
				59,514,795	100.0%				689,195,637	100.0%	
Cumulative Savings as a % of 2019 Sales		4.28%									
				Spending per Customer		1.62%	Low-Income	\$	1,303.01		
							Residential	\$	136.79		
							C&I	\$	1,546.67		

Present Value Benefits - 2021-2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)														Non-Resource Benefits (\$000)			Environmental Benefits (\$000)
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits		
Residential Programs																					
B1 - Home Energy Assistance	\$ 12,023	\$ 972	\$ 12,344	\$ 145	\$ -	\$ 148	\$ 128	\$ -	\$ 164	\$ 155	\$ 108	\$ 87	\$ 36	\$ 972	\$ 7,376	\$ 30	\$ 8,378	\$ 495	\$ 3,150	\$ 3,645	\$ 322
A1 - Energy Star Homes	\$ 3,685	\$ 362	\$ 4,752	\$ 9	\$ -	\$ 8	\$ 7	\$ -	\$ 144	\$ 166	\$ 8	\$ 6	\$ 13	\$ 362	\$ 3,147	\$ -	\$ 3,509	\$ 176	\$ 888	\$ 1,064	\$ 179
A2 - Home Performance with Energy Star	\$ 3,649	\$ 521	\$ 4,579	\$ 76	\$ -	\$ 74	\$ 64	\$ -	\$ 98	\$ 109	\$ 49	\$ 37	\$ 13	\$ 521	\$ 2,926	\$ 12	\$ 3,460	\$ 189	\$ 761	\$ 950	\$ 169
A3 - Energy Star Products	\$ 11,834	\$ 7,529	\$ 16,291	\$ 1,008	\$ -	\$ 1,145	\$ 992	\$ -	\$ 1,341	\$ 1,256	\$ 800	\$ 619	\$ 367	\$ 7,529	\$ 2,818	\$ 1,287	\$ 11,634	\$ 200	\$ 1,792	\$ 1,993	\$ 2,665
A4 - Residential Behavior	\$ 745	\$ 745	\$ 1,199	\$ 44	\$ -	\$ 78	\$ 68	\$ -	\$ 195	\$ 156	\$ 87	\$ 57	\$ 61	\$ 745	\$ -	\$ -	\$ 745	\$ -	\$ 109	\$ 109	\$ 345
A5 - Residential Active Demand Response	\$ 125	\$ 125	\$ 138	\$ 6	\$ -	\$ 57	\$ 49	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13	\$ 125	\$ -	\$ -	\$ 125	\$ -	\$ 13	\$ 13	\$ -
A6b - Res ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 32,060	\$ 10,254	\$ 39,303	\$ 1,288	\$ -	\$ 1,510	\$ 1,308	\$ -	\$ 1,943	\$ 1,842	\$ 1,053	\$ 806	\$ 504	\$ 10,254	\$ 16,267	\$ 1,329	\$ 27,850	\$ 1,060	\$ 6,713	\$ 7,773	\$ 3,679
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 15,449	\$ 15,368	\$ 24,253	\$ 1,010	\$ -	\$ 1,082	\$ 937	\$ -	\$ 2,910	\$ 2,279	\$ 3,588	\$ 2,635	\$ 927	\$ 15,368	\$ 35	\$ 43	\$ 15,445	\$ 4	\$ 1,270	\$ 1,275	\$ 7,533
C2 - Small Business Energy Solutions	\$ 11,462	\$ 11,393	\$ 18,526	\$ 513	\$ -	\$ 565	\$ 490	\$ -	\$ 2,974	\$ 2,149	\$ 2,484	\$ 1,517	\$ 701	\$ 11,393	\$ 14	\$ 53	\$ 11,460	\$ 2	\$ 1,030	\$ 1,032	\$ 6,034
C3 - Municipal Energy Solutions	\$ 3,068	\$ 2,831	\$ 3,965	\$ 569	\$ -	\$ 572	\$ 495	\$ -	\$ 146	\$ 74	\$ 579	\$ 340	\$ 56	\$ 2,831	\$ 213	\$ -	\$ 3,044	\$ 24	\$ 202	\$ 226	\$ 694
C5 - C&I Active Demand Response	\$ 1,626	\$ 1,626	\$ 1,788	\$ 106	\$ -	\$ 693	\$ 601	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 225	\$ 1,626	\$ -	\$ -	\$ 1,626	\$ -	\$ 163	\$ 163	\$ (0)
C6b - C&I ISO Forward Capacity Market Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 31,605	\$ 31,218	\$ 48,532	\$ 2,198	\$ -	\$ 2,913	\$ 2,524	\$ -	\$ 6,030	\$ 4,502	\$ 6,651	\$ 4,492	\$ 1,909	\$ 31,218	\$ 262	\$ 96	\$ 31,576	\$ 30	\$ 2,665	\$ 2,695	\$ 14,261
Total	\$ 63,666	\$ 41,472	\$ 87,835	\$ 3,486	\$ -	\$ 4,422	\$ 3,831	\$ -	\$ 7,973	\$ 6,345	\$ 7,704	\$ 5,298	\$ 2,412	\$ 41,472	\$ 16,529	\$ 1,424	\$ 59,426	\$ 1,090	\$ 9,378	\$ 10,468	\$ 17,941

Portfolio Planned Versus Actual Performance - 2021-2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	125% of Planned PI		Actual PI	Source
1 Lifetime kWh Savings	506,862,285	329,460,485		-	1.925%	-	\$ 604,308	\$ 755,385	\$ -	Planned and Actual from Cost Eff Tab
2 Annual kWh Savings	49,705,868	32,308,814		-	0.550%	-	\$ 172,659	\$ 215,824	\$ -	Planned and Actual from Cost Eff Tab
3 Summer Peak Demand kW	4,310	2,802		-	0.495%	-	\$ 155,393	\$ 194,242	\$ -	Planned and Actual from Cost Eff Tab
4 Winter Peak Demand kW	4,589	2,983		-	0.330%	-	\$ 103,596	\$ 129,495	\$ -	Planned and Actual from Cost Eff Tab
5 Active Demand kW	7,176	4,664		-	0.275%	-	\$ 77,091	\$ 96,364	\$ -	Planned and Actual from ADR Cost Eff Tab
6 Total Resource Benefits	\$ 59,425,692			-						Planned and Actual from Benefits Tab
7 Total Utility Costs ¹	\$ 31,392,612			-						Planned and Actual from Cost Eff Tab
8 Net Benefits	\$ 28,033,080	\$ 18,221,502	\$ -	-	1.925%	-	\$ 604,308	\$ 755,385	\$ -	Line 5 minus line 6
9 Total					5.500%	-	\$ 1,717,355	\$ 2,146,694	\$ -	

Granite State Test				Source
	Planned	Actual		
10 Total Benefits	\$ 63,665,777			Planned and Actual from Cost Eff Tab
11 Performance Incentive	\$ 1,717,355	\$ -		from row 8 above
12 Total Utility Costs	\$ 31,392,612	\$ -		from row 6 above
13 Portfolio GST BCR	1.92	-		row 9 divided by rows 10+11

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2023\$) is \$1,420,443.51.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

ADR Program Cost-Effectiveness

2021									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	0.79	27.1	34.5	-	-	-	-	125.0	125
Sub-Total Residential	0.79	27.1	34.5	-	-	-	-	125.0	125
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	3.21	442.9	138.0	-	(2.6)	(2.6)	-	1,900.0	19
Sub-Total Commercial & Industrial	3.21	442.9	138.0	-	(2.6)	(2.6)	-	1,900.0	19
Total	2.72	470.0	172.5	-	(2.6)	(2.6)	-	2,025.0	144

(1) Utility and Customer Costs in 2021 Dollars

2022									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	1.02	41.6	40.9	-	-	-	-	187.5	188
Sub-Total Residential	1.02	41.6	40.9	-	-	-	-	187.5	188
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	3.82	541.3	141.8	-	(2.6)	(2.6)	-	2,300.0	23
Sub-Total Commercial & Industrial	3.82	541.3	141.8	-	(2.6)	(2.6)	-	2,300.0	23
Total	3.19	582.8	182.7	-	(2.6)	(2.6)	-	2,487.5	211

(1) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs tab.

2023									
	Benefit/Cost Ratio Granite State Test	Benefit (\$000) Granite State Test	Utility Costs (\$000 - 2021\$) ¹	Customer Costs (\$000 - 2021\$) ¹	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served
Residential Programs									
A5 - Residential Active Demand Response	1.20	56.5	47.1	-	-	-	-	250.0	250
Sub-Total Residential	1.20	56.5	47.1	-	-	-	-	250.0	250
Commercial, Industrial & Municipal									
C5 - C&I Active Demand Response	3.95	641.9	162.7	-	(2.6)	(2.6)	-	2,700.0	27
Sub-Total Commercial & Industrial	3.95	641.9	162.7	-	(2.6)	(2.6)	-	2,700.0	27
Total	3.33	698.4	209.8	-	(2.6)	(2.6)	-	2,950.0	277

(1) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs tab.

Home Enegy Assistance			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
B1a - HEA (Weatherization)	Air Sealing, Electric	E21B1a002	4	4	5	3.6	4.0	4.4	54.6	60.1	66.1	1.2	1.3	1.4	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Gas	E21B1a003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Air Sealing, Kerosene	E21B1a004	20	24	30	1.8	2.2	2.7	27.3	32.8	41.0	-	-	-	-	-	-	145.6	174.7	218.4	2,184.0	2,620.8	3,276.0
B1a - HEA (Weatherization)	Air Sealing, Oil	E21B1a005	40	50	55	3.6	4.6	5.0	54.6	68.3	75.1	-	-	-	-	-	-	364.0	455.0	500.5	5,460.0	6,825.0	7,507.5
B1a - HEA (Weatherization)	Air Sealing, Propane	E21B1a006	60	90	100	5.5	8.2	9.1	81.9	122.9	136.5	-	-	-	-	-	-	546.0	819.0	910.0	8,190.0	12,285.0	13,650.0
B1a - HEA (Weatherization)	Air Sealing, Wood Pellets	E21B1a007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Electric	E21B1a009	30	45	60	1.3	1.9	2.6	9.0	13.4	17.9	0.3	0.4	0.5	0.1	0.1	0.2	-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Gas	E21B1a010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Kerosene	E21B1a011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Faucet Aerator, Oil	E21B1a012	50	60	80	-	-	-	-	-	-	-	-	-	-	-	-	7.1	8.5	11.4	49.7	59.6	79.5
B1a - HEA (Weatherization)	Faucet Aerator, Propane	E21B1a013	65	50	55	-	-	-	-	-	-	-	-	-	-	-	-	9.2	7.1	7.8	64.6	49.7	54.7
B1a - HEA (Weatherization)	Hand Held Showerhead, Electric	E21B1a016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Gas	E21B1a017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Kerosene	E21B1a018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Oil	E21B1a019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Hand Held Showerhead, Propane	E21B1a020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Electric	E21B1a023	4	4	5	9.1	10.0	11.0	227.5	250.3	275.3	2.9	3.2	3.5	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Gas	E21B1a024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Kerosene	E21B1a025	20	24	30	2.7	3.3	4.1	68.3	81.9	102.4	-	-	-	1.5	1.8	2.3	218.4	262.1	327.6	5,460.0	6,552.0	8,190.0
B1a - HEA (Weatherization)	Insulation, Oil	E21B1a026	40	50	55	5.5	6.8	7.5	136.5	170.6	187.7	-	-	-	3.0	3.8	4.1	546.0	682.5	750.8	13,650.0	17,062.5	18,768.8
B1a - HEA (Weatherization)	Insulation, Propane	E21B1a027	60	90	100	8.2	12.3	13.7	204.8	307.1	341.3	-	-	-	4.5	6.8	7.5	819.0	1,228.5	1,365.0	20,475.0	30,712.5	34,125.0
B1a - HEA (Weatherization)	Insulation, Wood Pellets	E21B1a028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Electric	E21B1a030	3	4	-	0.4	0.5	-	5.9	7.9	-	0.1	0.1	-	0.0	0.0	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Gas	E21B1a031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Kerosene	E21B1a032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Oil	E21B1a033	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	2.9	3.5	4.6	43.2	51.8	69.1
B1a - HEA (Weatherization)	Low Flow Showerhead, Propane	E21B1a034	8	10	12	-	-	-	-	-	-	-	-	-	-	-	-	4.6	5.8	6.9	69.1	86.4	103.7
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Electric	E21B1a037	15	16	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Gas	E21B1a038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Kerosene	E21B1a039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Oil	E21B1a040	20	25	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Propane	E21B1a041	30	45	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	DHW Heat Pump Water Heater	E21B1a043	5	8	10	8.3	13.2	16.5	107.5	172.1	215.1	1.1	1.7	2.2	0.4	0.7	0.8	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, General Service Lamps	E21B1a044	870	505	253	27.9	16.2	8.1	55.9	32.5	16.2	20.1	11.7	5.8	13.0	7.5	3.8	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Linear	E21B1a045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Other Specialty	E21B1a046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Reflector	E21B1a047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Fixture	E21B1a048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Refrigerator	E21B1a049	150	75	75	114.9	57.5	57.5	1,379.2	689.6	689.6	13.1	6.6	6.6	16.1	8.1	8.1	-	-	-	-	-	-
B1a - HEA (Weatherization)	Freezer	E21B1a050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Clothes Washer	E21B1a051	10	11	15	0.8	0.9	1.2	8.9	9.8	13.4	0.1	0.1	0.2	0.1	0.1	0.2	2.2	2.5	3.4	24.6	27.1	36.9
B1a - HEA (Weatherization)	Clothes Dryer	E21B1a052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Dehumidifier	E21B1a053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Room Air Conditioner	E21B1a054	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Triple Pane Window	E21B1a055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Visual Audit	E21B1a056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Baseload Audit - SF	E21B1a057	50	75	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Baseload Audit - MF	E21B1a058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Income Kits	E21B1a059	-	1,500	2,500	-	123.3	205.4	-	246.5	410.9	-	26.6	44.3	-	17.2	28.6	-	-	-	-	-	-

B1b - HEA (HVAC Systems)	Boiler Replacement, Gas	E21B1b001	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Boiler Replacement, Kerosene	E21B1b002	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Boiler Replacement, Oil	E21B1b003	8	12	15	-	-	-	-	-	-	-	-	-	-	-	-	120.8	181.3	226.6	2,296.1	3,444.2	4,305.2
B1b - HEA (HVAC Systems)	Boiler Replacement, Propane	E21B1b004	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Furnace Replacement, Gas	E21B1b005	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Furnace Replacement, Kerosene	E21B1b006	8	12	12	0.6	1.0	1.0	10.8	16.3	16.3	0.2	0.3	0.3	-	-	-	68.7	103.0	103.0	1,167.1	1,750.6	1,750.6
B1b - HEA (HVAC Systems)	Furnace Replacement, Oil	E21B1b007	8	12	16	1.0	1.4	1.9	16.2	24.2	32.3	0.3	0.4	0.6	-	-	-	121.8	182.7	243.6	2,070.5	3,105.8	4,141.0
B1b - HEA (HVAC Systems)	Furnace Replacement, Propane	E21B1b008	5	8	14	0.6	1.0	1.7	10.1	16.2	28.3	0.2	0.3	0.5	-	-	-	76.1	121.8	213.1	1,294.1	2,070.5	3,623.4
B1b - HEA (HVAC Systems)	Programmable Thermostat, Electric	E21B1b009	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Programmable Thermostat, Gas	E21B1b010	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Programmable Thermostat, Kerosene	E21B1b011	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Programmable Thermostat, Oil	E21B1b012	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Programmable Thermostat, Propane	E21B1b013	5	8	10	0.1	0.2	0.2	1.8	2.9	3.7	-	-	-	0.1	0.1	0.1	15.9	25.5	31.9	238.9	382.2	477.8
B1b - HEA (HVAC Systems)	Programmable Thermostat, Wood Pellets	E21B1b014	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Electric	E21B1b015	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Gas	E21B1b016	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Kerosene	E21B1b017	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Wifi Thermostat, Oil	E21B1b018	2	4	50	0.1	0.2	2.1	1.3	2.5	31.4	-	-	-	0.0	0.1	1.2	10.7	21.5	268.5	161.1	322.1	4,026.8
B1b - HEA (HVAC Systems)	Wifi Thermostat, Propane	E21B1b019	3	5	8	0.1	0.2	0.3	1.9	3.1	5.0	-	-	-	0.1	0.1	0.2	15.8	26.4	42.2	237.5	395.9	633.4
B1b - HEA (HVAC Systems)	Wifi Thermostat, Wood Pellets	E21B1b020	-	-	-													-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Mini Split HP (cooling)	E21B1b021	-	2	4		0.4	0.7		6.6	13.1		-	-		0.2	0.4	-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Mini Split HP (heating)	E21B1b022	-	2	4		2.2	4.4		39.3	78.6		0.7	1.4				-	-	-	-	-	-
Home Energy Assistance Subtotal						207.6	285.0	377.1	2,634.5	2,581.5	3,035.8	45.7	56.3	75.9	43.0	48.5	63.0	3,322.5	4,584.2	5,553.6	66,547.9	91,898.6	109,596.7

ES Homes			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A1a - ES Homes	Cooling, Electric, SF	E21A1a001	-	-	-													-	-	-	-	-	-
A1a - ES Homes	Heating, Electric, SF	E21A1a002	2	3	4	4.0	5.7	7.2	100.0	142.5	180.0	1.1	1.5	2.2	-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, SF	E21A1a003	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Oil, SF	E21A1a004	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Propane, SF	E21A1a005	18	22	27	-	-	-	-	-	-	-	-	-	-	-	-	450.0	412.5	337.5	11,250.0	10,312.5	8,437.5
A1a - ES Homes	Heating, Wood Pellets, SF	E21A1a006	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Electric, SF	E21A1a007	50	-	-	12.5			187.5			2.5			0.9			-	-	-	-	-	-
A1a - ES Homes	Hot Water, Gas, SF	E21A1a008	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Oil, SF	E21A1a009	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Propane, SF	E21A1a010	18	22	27	-	5.5	5.4	-	82.5	81.0	-	-	-	-	-	-	54.0	66.0	81.0	810.0	990.0	1,215.0
A1a - ES Homes	Hot Water, Wood Pellets, SF	E21A1a011	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Cooling, Electric, MF	E21A1a012	25	28	30	1.6	1.8	2.0	40.6	45.5	48.8	-	-	-	0.9	1.0	1.1	-	-	-	-	-	-
A1a - ES Homes	Heating, Electric, MF	E21A1a013	25	28	30	45.0	50.4	54.0	1,125.0	1,260.0	1,350.0	12.2	13.7	14.7	-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, MF	E21A1a014	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Oil, MF	E21A1a015	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Heating, Propane, MF	E21A1a016	50	53	55	-	-	-	-	-	-	-	-	-	-	-	-	1,000.0	795.0	550.0	25,000.0	19,875.0	13,750.0
A1a - ES Homes	Heating, Wood Pellets, MF	E21A1a017	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Electric, MF	E21A1a018	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Gas, MF	E21A1a019	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Oil, MF	E21A1a020	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Hot Water, Propane, MF	E21A1a021	50	53	55	-	8.0	5.5	-	119.3	82.5	-	-	-	-	-	-	150.0	159.0	165.0	2,250.0	2,385.0	2,475.0
A1a - ES Homes	Hot Water, Wood Pellets, MF	E21A1a022	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	LED Bulb	E21A1a023	75	-	-	0.5			1.4			0.6			0.4			-	-	-	-	-	-
A1a - ES Homes	LED Fixture	E21A1a024	25	-	-	0.1			0.4			0.2			0.1			-	-	-	-	-	-
A1a - ES Homes	Refrigerator	E21A1a025	20	20	23	0.9	0.9	1.0	10.6	10.6	12.2	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-
A1a - ES Homes	Clothes Washer	E21A1a026	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Clothes Dryer	E21A1a027	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	HERS - Lighting and Appliances	E21A1a028	-	-	-										-	-	-	-	-	-	-	-	-
A1a - ES Homes	Residential New Construction Code Compliance	E21A1a029	1	1	1	-	-	5.8	-	-	115.2	-	-	-	-	-	-	-	-	-	-	-	-
ES Homes Subtotal						64.6	72.3	80.8	1,465.6	1,660.4	1,869.7	16.7	15.3	16.9	2.5	1.1	1.2	1,654.0	1,432.5	1,133.5	39,310.0	33,562.5	25,877.5

Home Performance with Energy Star			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A2a - HPwES (Weatherizat	Air Sealing, Electric	E21A2a002	6	9	11	11.9	17.8	21.8	178.2	267.3	326.7	3.8	5.7	6.9	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatherizat	Air Sealing, Gas	E21A2a003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Air Sealing, Kerosene	E21A2a004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Air Sealing, Oil	E21A2a005	28	35	45	3.0	3.7	4.8	44.4	55.4	71.3	-	-	-	1.6	2.0	2.6	277.2	346.5	445.5	4,158.0	5,197.5	6,682.5
A2a - HPwES (Weatherizat	Air Sealing, Propane	E21A2a006	26	30	30	2.7	3.2	3.2	41.2	47.5	47.5	-	-	-	1.5	1.7	1.7	257.4	297.0	297.0	3,861.0	4,455.0	4,455.0
A2a - HPwES (Weatherizat	Air Sealing, Wood Pellets	E21A2a007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Faucet Aerator, Electric	E21A2a009	10	12	15	0.5	0.6	0.7	3.2	3.9	4.9	0.1	0.1	0.1	0.0	0.0	0.1	-	-	-	-	-	-
A2a - HPwES (Weatherizat	Faucet Aerator, Gas	E21A2a010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Faucet Aerator, Kerosene	E21A2a011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Faucet Aerator, Oil	E21A2a012	50	65	75	-	-	-	-	-	-	-	-	-	-	-	-	7.7	10.0	11.6	54.1	70.3	81.1
A2a - HPwES (Weatherizat	Faucet Aerator, Propane	E21A2a013	35	40	50	-	-	-	-	-	-	-	-	-	-	-	-	5.4	6.2	7.7	37.8	43.2	54.1
A2a - HPwES (Weatherizat	Hand Held Showerhead, Electric	E21A2a016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Hand Held Showerhead, Gas	E21A2a017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Hand Held Showerhead, Kerosene	E21A2a018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Hand Held Showerhead, Oil	E21A2a019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Hand Held Showerhead, Propane	E21A2a020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Insulation, Electric	E21A2a023	5	7	8	17.8	26.7	32.7	445.5	668.3	816.8	5.7	8.5	10.4	-	-	-	-	-	-	-	-	-
A2a - HPwES (Weatherizat	Insulation, Gas	E21A2a024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Insulation, Kerosene	E21A2a025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Insulation, Oil	E21A2a026	21	26	34	6.2	7.8	10.0	155.9	194.9	250.6	-	-	-	3.4	4.3	5.5	291.1	363.8	467.8	7,276.5	9,095.6	11,694.4
A2a - HPwES (Weatherizat	Insulation, Propane	E21A2a027	20	23	23	5.8	6.7	6.7	144.8	167.1	167.1	-	-	-	3.2	3.7	3.7	270.3	311.9	311.9	6,756.8	7,796.3	7,796.3
A2a - HPwES (Weatherizat	Insulation, Wood Pellets	E21A2a028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Low Flow Showerhead, Electric	E21A2a030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Low Flow Showerhead, Gas	E21A2a031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Low Flow Showerhead, Kerosene	E21A2a032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Low Flow Showerhead, Oil	E21A2a033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Low Flow Showerhead, Propane	E21A2a034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Pipe Insulation - Hot Water, Electric	E21A2a037	3	4	5	0.3	0.4	0.5	4.5	5.9	7.4	0.1	0.1	0.1	0.0	0.0	0.0	-	-	-	-	-	-
A2a - HPwES (Weatherizat	Pipe Insulation - Hot Water, Gas	E21A2a038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Pipe Insulation - Hot Water, Kerosene	E21A2a039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Pipe Insulation - Hot Water, Oil	E21A2a040	20	30	40	-	-	-	-	-	-	-	-	-	-	-	-	4.0	5.9	7.9	59.4	89.1	118.8
A2a - HPwES (Weatherizat	Pipe Insulation - Hot Water, Propane	E21A2a041	12	15	25	-	-	-	-	-	-	-	-	-	-	-	-	2.4	3.0	5.0	35.6	44.6	74.3
A2a - HPwES (Weatherizat	DHW Heat Pump Water Heater	E21A2a043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	LED Bulb, General Service Lamps	E21A2a044	480	240	-	16.8	8.4	-	33.5	16.8	-	12.1	6.0	-	7.8	3.9	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	LED Bulb, Linear	E21A2a045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	LED Bulb, Other Specialty	E21A2a046	30	-	-	1.5	-	-	3.0	-	-	1.3	-	-	0.8	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	LED Bulb, Reflector	E21A2a047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	LED Fixture	E21A2a048	40	-	-	1.5	-	-	3.0	-	-	0.7	-	-	0.4	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Refrigerator	E21A2a049	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Freezer	E21A2a053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Clothes Washer	E21A2a054	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Clothes Dryer	E21A2a055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Dehumidifier	E21A2a056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Room Air Conditioner	E21A2a057	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Triple Pane Window	E21A2a058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Visual Audit Oil Savings	E21A2a050	40	60	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Visual Audit Propane Savings	E21A2a051	25	35	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A2a - HPwES (Weatherizat	Visual Audit Electric Savings	E21A2a052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

A2b - HPwES (HVAC Syste	Boiler Replacement, Gas	E21A2b001	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Boiler Replacement, Kerosene	E21A2b002	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Boiler Replacement, Oil	E21A2b003	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Boiler Replacement, Propane	E21A2b004	2	15	18	-	-	-	-	-	-	-	-	-	-	-	-	36.4	273.2	327.9	692.2	5,191.6	6,229.9
A2b - HPwES (HVAC Syste	Furnace Replacement, Gas	E21A2b005	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Furnace Replacement, Kerosene	E21A2b006	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Furnace Replacement, Oil	E21A2b007	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Furnace Replacement, Propane	E21A2b008	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Programmable Thermostat, Electric	E21A2b009	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Programmable Thermostat, Gas	E21A2b010	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Programmable Thermostat, Kerosene	E21A2b011	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Programmable Thermostat, Oil	E21A2b012	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Programmable Thermostat, Propane	E21A2b013	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Programmable Thermostat, Wood Pellets	E21A2b014	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Wifi Thermostat, Electric	E21A2b015	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Wifi Thermostat, Gas	E21A2b016	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Wifi Thermostat, Kerosene	E21A2b017	-	-	-													-	-	-	-	-	-
A2b - HPwES (HVAC Syste	Wifi Thermostat, Oil	E21A2b018	20	30	40	0.9	1.4	1.8	13.7	20.5	27.3	-	-	-	0.5	0.8	1.0	116.8	175.2	233.6	1,752.3	2,628.5	3,504.6
A2b - HPwES (HVAC Syste	Wifi Thermostat, Propane	E21A2b019	12	15	25	0.5	0.7	1.1	8.2	10.2	17.1	-	-	-	0.3	0.4	0.6	68.9	86.1	143.6	1,033.6	1,292.0	2,153.3
A2b - HPwES (HVAC Syste	Wifi Thermostat, Wood Pellets	E21A2b020	-	-	-													-	-	-	-	-	-
Home Performance with Energy Star Subtotal						69.4	77.3	83.2	1,079.0	1,457.8	1,736.6	23.6	20.4	17.5	19.7	16.9	15.3	1,337.5	1,878.9	2,259.4	25,717.2	35,903.5	42,844.0

ES Products			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A3a - ES Lighting	LED Bulb, General Service Lamps	E21A3a001	110,000	80,000	-	991.8	502.7		2,975.5	1,508.2		214.1	108.5		138.1	70.0		-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Linear	E21A3a002	1,000	500	250	2.8	1.0	0.3	27.9	9.7	2.5	0.6	0.2	0.1	0.4	0.1	0.0	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Other Specialty	E21A3a003	36,000	20,000	10,000	113.5	44.0	12.4	340.5	131.9	24.8	24.5	9.5	2.7	15.8	6.1	1.7	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Reflector	E21A3a004	40,000	10,000	-	396.4	69.1		792.8	138.1		85.6	14.9		55.2	9.6		-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, General Service Lamps (Hard to Reach)	E21A3a005	12,000	8,000	5,000	173.8	94.0	45.1	521.3	282.0	90.2	37.5	20.3	9.7	24.2	13.1	6.3	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Linear (Hard to Reach)	E21A3a006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Other Specialty (Hard to Reach)	E21A3a007	4,800	6,000	8,000	62.0	62.9	64.4	186.1	188.8	128.8	13.4	13.6	13.9	8.6	8.8	9.0	-	-	-	-	-	-
A3a - ES Lighting	LED Bulb, Reflector (Hard to Reach)	E21A3a008	2,400	3,000	3,500	38.2	38.7	34.7	76.4	77.5	34.7	8.2	8.4	7.5	5.3	5.4	4.8	-	-	-	-	-	-
A3a - ES Lighting	LED Fixture	E21A3a009	12,000	6,000	4,000	95.1	33.2	12.5	285.4	99.5	25.0	20.5	7.2	2.7	13.2	4.6	1.7	-	-	-	-	-	-
A3a - ES Lighting	LED Fixture (Hard to Reach)	E21A3a010	2,400	4,000	4,000	30.6	41.3	31.7	91.7	124.0	63.4	6.6	8.9	6.8	4.3	5.8	4.4	-	-	-	-	-	-
A3b - ES Appliances	Advanced Power Strip, Tier I	E21A3b001	250	313	375	23.1	28.9	34.7	115.7	144.6	173.6	1.9	2.3	2.8	1.3	1.6	1.9	-	-	-	-	-	-
A3b - ES Appliances	Advanced Power Strip, Tier II	E21A3b002	250	313	375	30.0	37.5	45.0	150.1	187.6	225.1	2.7	3.3	4.0	1.8	2.3	2.7	-	-	-	-	-	-
A3c - ES HVAC Systems	Air Source Heat Pump - Lost Opportunity (cooling)	E21A3b003	4	5	6	0.9	1.1	1.3	15.8	19.8	23.8	-	-	-	0.5	0.6	0.7	-	-	-	-	-	-
A3c - ES HVAC Systems	Air Source Heat Pump - Lost Opportunity (heating)	E21A3b004	4	5	6	8.3	10.4	12.5	150.3	187.8	225.4	3.8	4.7	5.7	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	Mini Split HP - Lost Opportunity (cooling)	E21A3b005	325	406	488	33.5	41.8	50.2	602.1	752.7	903.2	-	-	-	24.3	30.4	36.4	-	-	-	-	-	-
A3c - ES HVAC Systems	Mini Split HP- Lost Opportunity (heating)	E21A3b006	325	406	488	106.7	133.4	160.0	1,920.6	2,400.7	2,880.8	128.3	160.4	192.4	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 50 gal	E21A3b007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	DHW Heat Pump Water Heater 80 gal	E21A3b008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	Heat Pump Swimming Pool Heater	E21A3b009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3b - ES Appliances	ES Clothes Dryers	E21A3b010	600	750	900	96.2	120.3	144.4	1,154.9	1,443.6	1,732.3	16.4	20.5	24.6	12.6	15.8	18.9	-	-	-	-	-	-
A3b - ES Appliances	Dryer Heat Pump	E21A3b011	10	13	15	4.2	5.3	6.3	50.5	63.2	75.8	0.7	0.9	1.1	0.6	0.7	0.8	-	-	-	-	-	-
A3b - ES Appliances	Dryer Hybrid	E21A3b012	35	44	53	7.5	9.3	11.2	89.6	112.0	134.4	1.3	1.6	1.9	1.0	1.2	1.5	-	-	-	-	-	-
A3c - ES HVAC Systems	ECM Motor for FWH Circulating Pump - Mid	E21A3b013	50	63	75	2.3	2.9	3.5	35.2	44.0	52.8	0.8	1.0	1.2	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	ECM Motors for FHA Furnace Fans	E21A3b014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	ES AC (central) 3 ton	E21A3b015	8	10	12	0.8	1.0	1.2	14.7	18.4	22.1	-	-	-	1.4	1.8	2.2	-	-	-	-	-	-
A3c - ES HVAC Systems	Room Air Conditioner	E21A3b016	500	750	900	16.5	24.8	29.7	148.5	222.8	267.3	-	-	-	15.6	23.4	28.0	-	-	-	-	-	-
A3b - ES Appliances	ES Clothes Washers	E21A3b017	800	1,000	1,200	70.9	88.7	106.4	993.1	1,241.4	1,489.7	10.0	12.5	14.9	9.4	11.8	14.1	196.8	246.0	295.2	2,755.2	3,444.0	4,132.8
A3b - ES Appliances	Washer Tier CEE Tier 2+	E21A3b018	400	500	600	55.6	69.5	83.3	611.2	764.0	916.7	7.8	9.8	11.7	7.4	9.2	11.0	307.6	384.5	461.4	3,383.6	4,229.5	5,075.4
A3b - ES Appliances	ES Dehumidifier	E21A3b019	500	625	750	41.2	51.4	61.7	699.6	874.4	1,049.3	1.7	2.1	2.5	7.9	9.9	11.8	-	-	-	-	-	-
A3b - ES Appliances	ES Dishwasher	E21A3b020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3b - ES Appliances	ES Freezers	E21A3b021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3b - ES Appliances	Refrigerator	E21A3b022	1,000	1,100	1,200	44.2	48.6	53.0	530.4	583.4	636.5	5.0	5.6	6.1	6.2	6.8	7.4	-	-	-	-	-	-
A3b - ES Appliances	Refrigerator CEE Tier 2+	E21A3b023	300	375	450	28.9	36.2	43.4	347.0	433.8	520.6	3.3	4.1	5.0	4.1	5.1	6.1	-	-	-	-	-	-
A3b - ES Appliances	ES Pool Pumps (Variable Speed)	E21A3b024	150	188	225	192.6	240.8	288.9	1,926.0	2,407.5	2,889.0	-	-	-	111.3	139.2	167.0	-	-	-	-	-	-
A3b - ES Appliances	Room Air Purifier	E21A3b025	800	1,000	1,200	303.0	378.8	454.5	2,727.3	3,409.1	4,090.9	34.6	43.2	51.9	34.6	43.2	51.9	-	-	-	-	-	-
A3c - ES HVAC Systems	Wifi Thermostat (Heating & Cooling)	E21A3b026	300	375	450	7.5	9.3	11.2	111.9	139.8	167.8	-	-	-	4.1	5.1	6.2	1,980.0	2,475.0	2,970.0	29,700.0	37,125.0	44,550.0
A3b - ES Appliances	Primary Refrigerator Recycling	E21A3b027	150	188	225	154.1	192.6	231.1	770.3	962.8	1,155.4	17.6	22.0	26.4	21.6	27.0	32.4	-	-	-	-	-	-
A3b - ES Appliances	Secondary Refrigerator Recycling	E21A3b028	10	13	15	10.3	12.8	15.4	51.4	64.2	77.0	1.0	1.2	1.4	1.6	2.0	2.4	-	-	-	-	-	-
A3b - ES Appliances	Secondary Freezer Recycling	E21A3b029	25	31	38	19.2	24.0	28.8	76.9	96.1	115.4	1.9	2.3	2.8	2.5	3.2	3.8	-	-	-	-	-	-
A3b - ES Appliances	Room Air Conditioner Recycling	E21A3b030	45	56	68	5.1	6.4	7.6	15.3	19.1	22.9	-	-	-	3.7	4.6	5.5	-	-	-	-	-	-
A3c - ES HVAC Systems	Ductless Mini-split Heat Pump - Retrofit Res	E21A3b031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	Ductless Mini-split Heat Pump - Retrofit HP	E21A3b032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	Air-source Heat Pump – Retrofit HP	E21A3b033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3c - ES HVAC Systems	Air-source Heat Pump – Retrofit Resistance	E21A3b034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A3b - ES Appliances	DHW Heat Pump Water Heater 50 gal - Mid	E21A3b035	50	63	75	37.0	46.6	55.5	481.0	606.0	721.5	6.1	7.7	9.1	3.4	4.2	5.0	-	-	-	-	-	-
A3b - ES Appliances	DHW Heat Pump Water Heater 80 gal - Mid	E21A3b036	15	-	-	6.5			84.8			1.1			0.6			-	-	-	-	-	-
ES Products Subtotal						3,210.4	2,509.2	2,142.1	19,171.6	19,758.4	20,938.5	656.9	496.7	409.0	542.5	472.4	445.9	2,484.4	3,105.5	3,726.6	35,838.8	44,798.5	53,758.2

Residential Behavior			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A4a - Residential Behavior	Home Energy Reports	E21A4a001	22,700	22,700	22,700	1,749.0	2,087.0	3,116.0	1,749.0	2,087.0	3,116.0	377.6	450.5	377.6	243.5	290.6	243.5	-	-	-	-	-	-
Residential Behavior Subtotal						1,749.0	2,087.0	3,116.0	1,749.0	2,087.0	3,116.0	377.6	450.5	377.6	243.5	290.6	243.5	-	-	-	-	-	-

A5a - Residential Active De	Direct Load Control	E21A5a001																	-				-
A5a - Residential Active De	Storage Daily Dispatch (savings)	E21A5a002																	-				-
A5a - Residential Active De	Storage Daily Dispatch (consumption)	E21A5a003																	-				-
Large Business Energy Solutions			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1a - LCI Retrofit	Custom Large Compressed Air Retro	E21C1a001	3	4	5	180.0	228.0	270.0	2,340.0	2,964.0	3,510.0	32.7	43.6	54.4	39.0	52.0	65.0	-	-	-	-	-	-
C1a - LCI Retrofit	Custom Large Hot Water Retro	E21C1a002	5	6	8	240.0	273.6	345.6	2,400.0	2,736.0	3,456.0	-	-	-	-	-	-	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large HVAC Retro	E21C1a003	1	2	3	57.3	108.8	720.0	859.1	1,632.3	7,200.0	-	-	-	-	-	-	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Lighting Retro - Interior	E21C1a004	15	18	20	341.5	389.3	366.2	3,414.8	3,892.8	3,661.8	-	-	-	-	-	-	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Lighting Retro - Exterior	E21C1a047	8	8	8	182.1	173.0	146.5	1,821.2	1,730.1	1,464.7	14.2	34.6	12.7	18.4	-	16.4	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Lighting Retro - Controls	E21C1a048	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Motors Retro	E21C1a005	3	4	6	192.9	244.3	347.1	2,507.1	3,175.7	4,512.9	21.8	47.6	43.6	28.6	47.6	57.1	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Process Retro	E21C1a006	5	6	9	500.0	570.0	810.0	6,500.0	7,410.0	10,530.0	36.0	6.7	64.8	46.7	54.4	84.0	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Refrigeration Retro	E21C1a007	4	5	8	360.0	427.5	648.0	4,680.0	5,557.5	8,424.0	25.9	-	51.9	33.6	-	67.2	-	-	-	-	-	
C1a - LCI Retrofit	Custom Large Other Retro	E21C1a008	15	25	37	1,350.0	2,137.5	2,997.0	17,550.0	27,787.5	38,961.0	-	-	-	-	-	-	-	-	-	-	-	
C1a - LCI Retrofit	Daylight Dimming	E21C1a009	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C1a010	15	25	15	61.6	102.6	55.0	615.8	1,026.4	550.3	4.8	20.7	4.3	6.3	-	5.6	-	-	-	-	-	
C1a - LCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C1a011	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C1a012	2,000	1,500	1,200	832.6	624.5	446.4	8,326.4	6,244.8	4,464.4	65.4	49.1	35.1	84.8	63.6	45.5	-	-	-	-	-	
C1a - LCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C1a013	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Lighting Occupancy Sensors	E21C1a014	200	1,000	1,200	29.2	146.1	156.6	262.9	1,314.5	1,409.6	1.8	2.0	9.7	2.4	2.0	12.7	-	-	-	-	-	
C1a - LCI Retrofit	Boiler Reset Controls, Electric	E21C1a015	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Case Motor Replacement	E21C1a016	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Cooler Night Cover	E21C1a017	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Demand Control Ventilation	E21C1a018	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Door Heater Controls	E21C1a019	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C1a020	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Duct Sealing, Electric	E21C1a021	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Ductless Mini Split Heat Pump	E21C1a022	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	ECM Evaporator Fan Motors for Walk-in Co	E21C1a023	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Electronic Defrost Control	E21C1a024	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Energy Management System, Electric	E21C1a025	2	3	4	0.6	87.4	122.4	5.6	874.1	1,223.8	-	-	-	-	-	-	-	-	-	-	-	
C1a - LCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C1a026	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Evaporator Fan Control	E21C1a027	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Faucet Aerator, Electric	E21C1a028	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Hotel Occupancy Sensor	E21C1a031	65	75	100	28.4	32.8	43.8	284.4	328.2	437.6	-	-	-	-	-	-	107.4	123.9	165.3	1,074.2	1,239.4	1,652.6
C1a - LCI Retrofit	Low Pressure Drop Filter	E21C1a032	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Low-Flow Showerhead With Thermostatic V	E21C1a033	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Low-Flow Showerhead, Electric	E21C1a034	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Motors, Open Drip	E21C1a035	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C1a036	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Novelty Cooler Shutoff	E21C1a037	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Pipe Wrap - Heating, Electric	E21C1a038	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C1a039	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Pre Rinse Spray Valve, Electric	E21C1a040	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Programmable Thermostat, Electric	E21C1a041	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Steam Trap, Electric	E21C1a042	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Variable Frequency Drive	E21C1a043	5	8	10	71.0	113.5	141.9	1,064.3	1,702.8	2,128.5	-	-	-	-	-	-	-	-	-	-	-	
C1a - LCI Retrofit	Variable Frequency Drive with Motor	E21C1a044	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Vending Miser	E21C1a045	-	-	-													-	-	-	-	-	
C1a - LCI Retrofit	Zero Loss Condensate Drain	E21C1a046	-	-	-													-	-	-	-	-	

C1b - LCI New Equipment	Custom Large Compressed Air New	E21C1b001	2	3	4	120.0	171.0	216.0	1,440.0	2,052.0	2,592.0	-	-	-	-	-	-	-	-	-	-	-	-	-
C1b - LCI New Equipment	Custom Large Hot Water New	E21C1b002	-	-	-																			
C1b - LCI New Equipment	Custom Large HVAC New	E21C1b003	-	-	-																			
C1b - LCI New Equipment	Custom Large Lighting New - Interior	E21C1b004	-	-	-																			
C1b - LCI New Equipment	Custom Large Lighting New - Exterior	E21C1b054	-	-	-																			
C1b - LCI New Equipment	Custom Large Lighting New - Controls	E21C1b055	-	-	-																			
C1b - LCI New Equipment	Custom Large Motors New	E21C1b005	-	-	-																			
C1b - LCI New Equipment	Custom Large Process New	E21C1b006	-	-	-																			
C1b - LCI New Equipment	Custom Large Refrigeration New	E21C1b007	-	-	-																			
C1b - LCI New Equipment	Custom Large Other New	E21C1b008	-	-	-																			
C1b - LCI New Equipment	Custom Large Comprehensive Design	E21C1b052	-	-	-																			
C1b - LCI New Equipment	Daylight Dimming	E21C1b009	-	-	-																			
C1b - LCI New Equipment	Performance Lighting - Exterior w/ Controls	E21C1b010	85	75	65	23.3	19.5	15.9	349.4	291.9	238.7	4.7	3.9	3.2	-	-	-	-	-	-	-	-	-	-
C1b - LCI New Equipment	Performance Lighting - Exterior w/o Controls	E21C1b011	-	-	-																			
C1b - LCI New Equipment	Performance Lighting - Interior w/ Controls	E21C1b012	100	100	75	46.5	44.1	31.2	698.0	660.8	467.8	3.7	3.5	2.5	4.7	4.5	3.2	-	-	-	-	-	-	-
C1b - LCI New Equipment	Performance Lighting - Interior w/o Controls	E21C1b013	-	-	-																			
C1b - LCI New Equipment	Lighting Occupancy Sensors	E21C1b014	35	3,000	3,500	2.7	220.3	242.6	27.1	2,202.8	2,425.5	0.0	3.0	3.3	0.0	3.1	3.4	-	-	-	-	-	-	-
C1b - LCI New Equipment	Advanced Power Strip	E21C1b015	-	-	-																			
C1b - LCI New Equipment	Air Compressor	E21C1b016	-	-	-																			
C1b - LCI New Equipment	Air Nozzle	E21C1b017	-	-	-																			
C1b - LCI New Equipment	Circulator Pump	E21C1b018	-	-	-																			
C1b - LCI New Equipment	Combination Oven, Electric	E21C1b019	-	-	-																			
C1b - LCI New Equipment	Compressor Storage	E21C1b020	-	-	-																			
C1b - LCI New Equipment	Convection Oven, Electric	E21C1b021	-	-	-																			
C1b - LCI New Equipment	Dishwasher - High Temp Door Type	E21C1b022	-	-	-																			
C1b - LCI New Equipment	Dishwasher - High Temp Multi Tank Convey	E21C1b023	-	-	-																			
C1b - LCI New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C1b024	-	-	-																			
C1b - LCI New Equipment	Dishwasher - High Temp Single Tank Conve	E21C1b025	-	-	-																			
C1b - LCI New Equipment	Dishwasher - High Temp Under Counter	E21C1b026	-	-	-																			
C1b - LCI New Equipment	Dishwasher - Low Temp Door Type	E21C1b027	-	-	-																			
C1b - LCI New Equipment	Dishwasher - Low Temp Multi Tank Convey	E21C1b028	-	-	-																			
C1b - LCI New Equipment	Dishwasher - Low Temp Single Tank Conve	E21C1b029	-	-	-																			
C1b - LCI New Equipment	Dishwasher - Low Temp Under Counter	E21C1b030	-	-	-																			
C1b - LCI New Equipment	Faucet Aerator, Electric	E21C1b031	-	-	-																			
C1b - LCI New Equipment	Fryer Large Vat, Electric	E21C1b032	-	-	-																			
C1b - LCI New Equipment	Fryer Standard Vat, Electric	E21C1b033	-	-	-																			
C1b - LCI New Equipment	Griddle, Electric	E21C1b034	-	-	-																			
C1b - LCI New Equipment	Ground Source Heat Pump	E21C1b035	-	-	-																			
C1b - LCI New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C1b036	-	-	-																			
C1b - LCI New Equipment	Hot Food Holding Cabinet Full Size	E21C1b037	-	-	-																			
C1b - LCI New Equipment	Hot Food Holding Cabinet Half Size	E21C1b038	-	-	-																			
C1b - LCI New Equipment	Ice Machine - Ice Making Head	E21C1b039	-	-	-																			
C1b - LCI New Equipment	Ice Machine - Remote Cond./Split Unit - Bat	E21C1b040	-	-	-																			
C1b - LCI New Equipment	Ice Machine - Remote Cond./Split Unit - Col	E21C1b041	-	-	-																			
C1b - LCI New Equipment	Ice Machine - Self Contained	E21C1b042	-	-	-																			
C1b - LCI New Equipment	Low Pressure Drop Filter	E21C1b043	-	-	-																			
C1b - LCI New Equipment	Low-Flow Showerhead With Thermostatic V	E21C1b044	-	-	-																			
C1b - LCI New Equipment	Low-Flow Showerhead, Electric	E21C1b045	-	-	-																			
C1b - LCI New Equipment	Pre Rinse Spray Valve, Electric	E21C1b046	-	-	-																			
C1b - LCI New Equipment	Refrigerated Air Dryer	E21C1b047	-	-	-																			
C1b - LCI New Equipment	Steam Cooker, Electric	E21C1b048	-	-	-																			
C1b - LCI New Equipment	Unitary Air Conditioner	E21C1b049	-	-	-																			
C1b - LCI New Equipment	Water Source Heat Pump	E21C1b050	-	-	-																			
C1b - LCI New Equipment	Zero Loss Condensate Drain	E21C1b051	-	-	-																			
C1b - LCI New Equipment	High Efficiency Chiller - FL	E21C1b052	10	20	25	249.8	499.5	624.4	5,744.3	11,488.5	14,360.6	-	-	-	-	-	-	-	-	-	-	-	-	-
C1b - LCI New Equipment	High Efficiency Chiller - IPLV	E21C1b053	-	-	-																			
C1b - LCI New Equipment	C&I Large New Construction Code Complia	E21C1b057	1	1	1	-	-	17.8	-	-	355.0	-	-	-	-	-	-	-	-	-	-	-	-	-

C1d - LCI Direct Install	Energy Management System, Electric	E21C1d027	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C1d028	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Evaporator Fan Control	E21C1d029	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Faucet Aerator, Electric	E21C1d030	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Hotel Occupancy Sensor	E21C1d031	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Low Pressure Drop Filter	E21C1d032	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Low-Flow Showerhead With Thermostatic Valve	E21C1d033	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Low-Flow Showerhead, Electric	E21C1d034	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Motors, Open Drip	E21C1d035	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C1d036	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Novelty Cooler Shutoff	E21C1d037	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Pipe Wrap - Heating, Electric	E21C1d038	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C1d039	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Pre Rinse Spray Valve, Electric	E21C1d040	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Programmable Thermostat, Electric	E21C1d041	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Steam Trap, Electric	E21C1d042	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Variable Frequency Drive	E21C1d043	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Variable Frequency Drive with Motor	E21C1d044	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Vending Miser	E21C1d045	-	-	-												-	-	-	-	-	-	
C1d - LCI Direct Install	Zero Loss Condensate Drain	E21C1d046	-	-	-												-	-	-	-	-	-	
Large Business Energy Solutions Subtotal						5,091.2	6,803.3	8,930.8	63,864.6	87,714.7	114,860.7	249.1	245.4	310.4	307.1	259.6	385.4	107.4	123.9	165.3	1,074.2	1,239.4	1,652.6

Small Business Energy Solutions			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2a - SCI Retrofit	Custom Small Compressed Air Retro	E21C2a001	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Hot Water Retro	E21C2a002	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small HVAC Retro	E21C2a003	5	8	13	67.5	102.6	158.0	1,687.5	2,565.0	3,948.8	-	-	-	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Interior	E21C2a004	25	70	75	447.2	1,126.2	899.1	4,471.7	11,262.1	8,991.0	-	-	-	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Exterior	E21C2a047	15	15	10	375.6	337.9	167.8	3,380.6	3,040.8	1,510.5	75.2	67.6	44.8	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Lighting Retro - Controls	E21C2a048	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Motors Retro	E21C2a005	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Process Retro	E21C2a006	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Refrigeration Retro	E21C2a007	12	15	25	43.2	51.3	81.0	518.4	615.6	972.0	-	-	-	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Other Retro	E21C2a008	25	35	50	642.9	855.0	1,157.1	8,357.1	10,260.0	13,885.7	-	-	-	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Daylight Dimming	E21C2a009	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Exterior w/ Controls	E21C2a010	100	5	5	19.6	0.9	0.9	195.6	9.3	8.7	3.8	0.2	0.2	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Exterior w/o Controls	E21C2a011	200	4	4	194.6	3.7	3.5	1,946.2	36.9	34.8	37.9	0.7	0.7	-	-	-	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Interior w/ Controls	E21C2a012	3,500	75	75	631.3	12.8	12.1	6,312.9	128.1	120.9	46.1	0.9	0.9	59.7	1.2	1.1	-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Fixture - Interior w/o Controls	E21C2a013	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Lighting Occupancy Sensors	E21C2a014	500	-	-	73.8			663.9			1.0			1.3			-	-	-	-	-	-
C2a - SCI Retrofit	Boiler Reset Controls, Electric	E21C2a015	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Case Motor Replacement	E21C2a016	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Cooler Night Cover	E21C2a017	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Demand Control Ventilation	E21C2a018	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Door Heater Controls	E21C2a019	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C2a020	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Duct Sealing, Electric	E21C2a021	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Ductless Mini Split Heat Pump	E21C2a022	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	ECM Evaporator Fan Motors for Walk-in Co	E21C2a023	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Electronic Defrost Control	E21C2a024	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Energy Management System, Electric	E21C2a025	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Energy Star Wifi Thermostat, Electric	E21C2a026	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Evaporator Fan Control	E21C2a027	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Faucet Aerator, Electric	E21C2a028	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Hotel Occupancy Sensor	E21C2a031	100	-	-	43.8			438.0			-			-			165.3	-	-	1,652.6	-	-
C2a - SCI Retrofit	Low Pressure Drop Filter	E21C2a032	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low-Flow Showerhead With Thermostatic V	E21C2a033	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Low-Flow Showerhead, Electric	E21C2a034	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Motors, Open Drip	E21C2a035	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Motors, Totally Enclosed Fan Cooled	E21C2a036	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Novelty Cooler Shutoff	E21C2a037	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Wrap - Heating, Electric	E21C2a038	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Wrap - Hot Water, Electric	E21C2a039	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Pre Rinse Spray Valve, Electric	E21C2a040	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Programmable Thermostat, Electric	E21C2a041	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Steam Trap, Electric	E21C2a042	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Variable Frequency Drive	E21C2a043	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Variable Frequency Drive with Motor	E21C2a044	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Vending Miser	E21C2a045	-	-	-													-	-	-	-	-	-
C2a - SCI Retrofit	Zero Loss Condensate Drain	E21C2a046	-	-	-													-	-	-	-	-	-

C2b - SCI New Equipment	Custom Small Compressed Air New	E21C2b001	2	3	4	53.3	80.0	106.7	693.3	1,040.0	1,386.7	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Hot Water New	E21C2b002	4	5	6	48.0	57.0	57.6	720.0	855.0	864.0	10.5	12.5	15.7	4.0	4.8	6.1	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small HVAC New	E21C2b003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Interior	E21C2b004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Exterior	E21C2b054	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Lighting New - Controls	E21C2b055	4	4	5	25.0	22.5	21.0	175.3	157.7	146.9	0.3	0.3	0.4	0.4	0.3	0.4	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Motors New	E21C2b005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Process New	E21C2b006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Refrigeration New	E21C2b007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Other New	E21C2b008	12	18	23	405.0	577.1	698.6	5,265.0	7,502.6	9,082.1	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Custom Small Comprehensive Design	E21C2b052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Daylight Dimming	E21C2b009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Exterior w/ Controls	E21C2b010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Exterior w/o Controls	E21C2b011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Interior w/ Controls	E21C2b012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Performance Lighting - Interior w/o Controls	E21C2b013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Lighting Occupancy Sensors	E21C2b014	20	30	40	1.6	2.2	2.8	15.7	22.3	28.0	0.0	0.0	0.0	0.0	0.0	0.1	-	-	-	-	-	-	-
C2b - SCI New Equipment	Advanced Power Strip	E21C2b015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Air Compressor	E21C2b016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Air Nozzle	E21C2b017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Circulator Pump	E21C2b018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Combination Oven, Electric	E21C2b019	3	4	5	45.3	60.4	75.5	543.4	724.6	905.7	9.5	12.6	15.8	9.5	12.6	15.8	-	-	-	-	-	-	-
C2b - SCI New Equipment	Compressor Storage	E21C2b020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Convection Oven, Electric	E21C2b021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Door Type	E21C2b022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Multi Tank Convey	E21C2b023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C2b024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Single Tank Conve	E21C2b025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - High Temp Under Counter	E21C2b026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Door Type	E21C2b027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Multi Tank Convey	E21C2b028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Single Tank Conve	E21C2b029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Dishwasher - Low Temp Under Counter	E21C2b030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Faucet Aerator, Electric	E21C2b031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Fryer Large Vat, Electric	E21C2b032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Fryer Standard Vat, Electric	E21C2b033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Griddle, Electric	E21C2b034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Ground Source Heat Pump	E21C2b035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C2b036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet Full Size	E21C2b037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Hot Food Holding Cabinet Half Size	E21C2b038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Ice Making Head	E21C2b039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Remote Cond./Split Unit - Bat	E21C2b040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Remote Cond./Split Unit - Cor	E21C2b041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Ice Machine - Self Contained	E21C2b042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Low Pressure Drop Filter	E21C2b043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Low-Flow Showerhead With Thermostatic V	E21C2b044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Low-Flow Showerhead, Electric	E21C2b045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Pre Rinse Spray Valve, Electric	E21C2b046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Refrigerated Air Dryer	E21C2b047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Steam Cooker, Electric	E21C2b048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Unitary Air Conditioner	E21C2b049	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Water Source Heat Pump	E21C2b050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	Zero Loss Condensate Drain	E21C2b051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	High Efficiency Chiller - FL	E21C2b052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	High Efficiency Chiller - IPLV	E21C2b053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment	C&I Small New Construction Code Complia	E21C2b057	1	1	1	-	-	10.9	-	-	217.6	-	-	-	-	-	-	-	-	-	-	-	-	-

C2c - SCI Midstream	Midstream Circulator Pump	E21C2c001	7	8	9	2.7	3.1	3.5	54.2	61.9	69.7	0.0	-	0.0	0.3	-	0.3	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Demand Control Ventilation	E21C2c002	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream DMSHP Systems	E21C2c003	4	5	6	2.8	3.4	4.1	33.0	41.3	49.5	-	-	-	0.1	0.1	0.2	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dual Enthalpy Economizer Controls	E21C2c004	2	3	3	2.2	3.2	3.2	21.5	32.3	32.3	-	-	-	0.1	0.1	0.1	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream ECM Fan Motors	E21C2c005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Systems	E21C2c006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Unitary Air Conditioners	E21C2c007	8	9	10	25.7	28.9	32.1	308.0	346.5	385.0	-	-	-	1.0	1.1	1.3	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream VRF	E21C2c008	4	5	5	30.3	37.8	37.8	363.0	453.8	453.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Water Source Heat Pump System	E21C2c009	7	8	9	4.0	4.6	5.1	99.6	113.8	128.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Downlight	E21C2c010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Exterior	E21C2c011	175	131	88	50.3	34.5	21.0	490.2	336.4	204.2	11.6	8.0	4.9	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED High Bay/Low Bay	E21C2c012	750	563	375	378.2	260.3	157.6	4,750.5	3,268.8	1,979.4	87.8	60.4	36.6	112.1	77.2	46.7	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Fixture	E21C2c013	1,500	1,125	750	154.9	106.5	64.5	1,702.2	1,170.2	709.2	23.7	16.3	9.9	30.2	20.8	12.6	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Fixture with Controls	E21C2c014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Linear Lamp	E21C2c015	3,000	2,250	1,500	168.2	115.6	70.1	1,770.7	1,217.4	737.8	25.7	17.7	10.7	32.8	22.6	13.7	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Screw In	E21C2c016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream LED Stairwell Kit	E21C2c017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Combination Oven, Electric	E21C2c018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Convection Oven, Electric	E21C2c019	1	1	1	2.4	2.4	2.4	28.8	28.8	28.8	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Door Type	E21C2c020	1	1	3	3.6	3.6	10.7	53.5	53.5	160.6	0.6	0.6	1.7	0.6	0.6	1.7	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Multi Temp	E21C2c021	-	1	1	-	8.3	8.3	-	165.6	165.6	-	-	1.3	1.3	1.3	1.3	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Pot, Pan	E21C2c022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Single	E21C2c023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - High Temp Under	E21C2c024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Door Type	E21C2c025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Multi Temp	E21C2c026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Single	E21C2c027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Dishwasher - Low Temp Under	E21C2c028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Freezer - Solid Door	E21C2c029	3	3	3	0.5	0.5	0.5	6.6	6.6	6.6	2.1	2.1	2.1	2.1	2.1	2.1	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Freezer -Glass Door	E21C2c030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer Large Vat, Electric	E21C2c031	3	3	6	7.3	7.3	14.7	88.0	88.0	175.9	1.2	1.2	2.3	1.2	1.2	2.3	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer Standard Vat, Electric	E21C2c032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Griddle, Electric	E21C2c033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet 3/4 Size	E21C2c034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet Full Size	E21C2c035	-	1	2	-	2.4	4.7	-	28.2	56.5	-	0.4	0.8	-	0.4	0.8	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Hot Food Holding Cabinet Half Size	E21C2c036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Ice Making Head	E21C2c037	10	10	12	9.6	9.6	11.5	76.8	76.8	92.2	2.3	2.3	2.8	2.3	2.3	2.8	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Remote Cond/Split	E21C2c038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Remote Cond/Split	E21C2c039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Ice Machine Self Contained	E21C2c040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Refrigerator - Glass Door	E21C2c041	1	1	1	0.1	0.1	0.1	1.8	1.8	1.8	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Refrigerator - Solid Door	E21C2c042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Steam Cooker, Electric	E21C2c043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 120 gal	E21C2c044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 50 gal	E21C2c045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Heat Pump Water Heater, 80 gal	E21C2c046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Compressed Air Direct Install	E21C2d001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Hot Water Direct Install	E21C2d002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small HVAC Direct Install	E21C2d003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Interior	E21C2d004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Exterior	E21C2d005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Lighting Direct Install - Controls	E21C2d006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Motors Direct Install	E21C2d007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Process Direct Install	E21C2d008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Refrigeration Direct Install	E21C2d009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Custom Small Other Direct Install	E21C2d010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Daylight Dimming	E21C2d011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Exterior w/ Controls	E21C2d012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Exterior w/o Controls	E21C2d013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Interior w/ Controls	E21C2d014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Fixture - Interior w/o Controls	E21C2d015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Lighting Occupancy Sensors	E21C2d016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Boiler Reset Controls, Electric	E21C2d017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Case Motor Replacement	E21C2d018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Cooler Night Cover	E21C2d019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Demand Control Ventilation	E21C2d020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Door Heater Controls	E21C2d021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C2d022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Duct Sealing, Electric	E21C2d023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Ductless Mini Split Heat Pump	E21C2d024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	ECM Evaporator Fan Motors for Walk-in Cooler	E21C2d025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2d - SCI Direct Install	Electronic Defrost Control	E21C2d026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

C2d - SCI Direct Install	Energy Management System, Electric	E21C2d027	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Energy Star Wifi Thermostat, Electric	E21C2d028	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Evaporator Fan Control	E21C2d029	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Faucet Aerator, Electric	E21C2d030	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Hotel Occupancy Sensor	E21C2d031	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Low Pressure Drop Filter	E21C2d032	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Low-Flow Showerhead With Thermostatic Valve	E21C2d033	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Low-Flow Showerhead, Electric	E21C2d034	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Motors, Open Drip	E21C2d035	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Motors, Totally Enclosed Fan Cooled	E21C2d036	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Novelty Cooler Shutoff	E21C2d037	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Pipe Wrap - Heating, Electric	E21C2d038	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Pipe Wrap - Hot Water, Electric	E21C2d039	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Pre Rinse Spray Valve, Electric	E21C2d040	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Programmable Thermostat, Electric	E21C2d041	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Steam Trap, Electric	E21C2d042	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Variable Frequency Drive	E21C2d043	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Variable Frequency Drive with Motor	E21C2d044	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Vending Miser	E21C2d045	-	-	-												-	-	-	-	-	-
C2d - SCI Direct Install	Zero Loss Condensate Drain	E21C2d046	-	-	-												-	-	-	-	-	-
Small Business Energy Solutions Subtotal						3,960.3	3,921.8	3,904.5	45,232.9	45,711.4	47,540.2	340.3	206.1	152.5	258.8	149.8	110.4	165.3	-	-	1,652.6	-

Municipal Energy Solutions			Quantity			Net Annual MWh Savings			Net Lifetime MWh Savings			Annual Net Winter kW			Annual Net Summer kW			Total Net Annual MMBTU			Total Net Lifetime MMBTU		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C3a - Muni Retrofit	Custom Muni Compressed Air Retro	E21C3a001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Hot Water Retro	E21C3a002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni HVAC Retro	E21C3a003	2	4	4	90.0	171.0	162.0	2,250.0	4,275.0	4,050.0	-	-	-	22.5	45.0	45.0	87.0	174.0	174.0	2,175.0	4,350.0	4,350.0
C3a - Muni Retrofit	Custom Muni Lighting Retro - Interior	E21C3a004	3	-	-	187.8	-	-	2,441.6	-	-	28.7	-	-	37.6	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Exterior	E21C3a091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Lighting Retro - Controls	E21C3a092	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Motors Retro	E21C3a005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Process Retro	E21C3a006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Refrigeration Retro	E21C3a007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Custom Muni Other Retro	E21C3a008	6	6	5	154.3	108.0	90.0	2,005.7	1,404.0	1,170.0	-	-	-	94.5	66.2	78.8	-	-	-	-	-	-
C3a - Muni Retrofit	Daylight Dimming	E21C3a009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Exterior w/ Controls	E21C3a010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Exterior w/o Controls	E21C3a011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Interior w/ Controls	E21C3a012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Fixture - Interior w/o Controls	E21C3a013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Lighting Occupancy Sensors	E21C3a014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Electric	E21C3a015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Gas	E21C3a016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Oil	E21C3a017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Air Sealing, Propane	E21C3a018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Gas	E21C3a019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Oil	E21C3a020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Boiler Reset Controls, Propane	E21C3a021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Case Motor Replacement	E21C3a022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Cooler Night Cover	E21C3a023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Demand Control Ventilation	E21C3a024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Door Heater Controls	E21C3a025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Dual Enthalpy Economizer Controls (DEEC)	E21C3a026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Electric	E21C3a027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Gas	E21C3a028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Oil	E21C3a029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Insulation, Propane	E21C3a030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Electric	E21C3a031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Gas	E21C3a032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Oil	E21C3a033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Duct Sealing, Propane	E21C3a034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Ductless Mini Split Heat Pump	E21C3a035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	ECM Evaporator Fan Motors for Walk-in Co	E21C3a036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Electronic Defrost Control	E21C3a037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Energy Management System, Electric	E21C3a038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Electric	E21C3a039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Gas	E21C3a040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Oil	E21C3a041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Energy Star Wifi Thermostat, Propane	E21C3a042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Evaporator Fan Control	E21C3a043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Electric	E21C3a044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Gas	E21C3a045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Oil	E21C3a046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Faucet Aerator, Propane	E21C3a047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Hotel Occupancy Sensor	E21C3a050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Electric	E21C3a051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Gas	E21C3a052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Oil	E21C3a053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Insulation, Propane	E21C3a054	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low Pressure Drop Filter	E21C3a055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic V	E21C3a056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic V	E21C3a057	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic V	E21C3a058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead With Thermostatic V	E21C3a059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Electric	E21C3a060	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Gas	E21C3a061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3a - Muni Retrofit	Low-Flow Showerhead, Oil	E21C3a062	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

C3a - Muni Retrofit	Low-Flow Showerhead, Propane	E21C3a063	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Motors, Open Drip	E21C3a064	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Motors, Totally Enclosed Fan Cooled	E21C3a065	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Novelty Cooler Shutoff	E21C3a066	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Electric	E21C3a067	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Gas	E21C3a068	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Oil	E21C3a069	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Heating, Propane	E21C3a070	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Electric	E21C3a071	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Gas	E21C3a072	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Oil	E21C3a073	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pipe Wrap - Hot Water, Propane	E21C3a074	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Electric	E21C3a075	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Gas	E21C3a076	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Oil	E21C3a077	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Pre Rinse Spray Valve, Propane	E21C3a078	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Electric	E21C3a079	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Gas	E21C3a080	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Oil	E21C3a081	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Programmable Thermostat, Propane	E21C3a082	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Electric	E21C3a083	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Gas	E21C3a084	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Oil	E21C3a085	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Steam Trap, Propane	E21C3a086	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Variable Frequency Drive	E21C3a087	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Variable Frequency Drive with Motor	E21C3a088	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Vending Miser	E21C3a089	-	-	-												-	-	-	-	-	-
C3a - Muni Retrofit	Zero Loss Condensate Drain	E21C3a090	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Compressed Air New	E21C3b001	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Hot Water New	E21C3b002	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni HVAC New	E21C3b003	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Interior	E21C3b004	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Exterior	E21C3b085	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Lighting New - Controls	E21C3b086	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Motors New	E21C3b005	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Process New	E21C3b006	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Refrigeration New	E21C3b007	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Other New	E21C3b008	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Custom Muni Comprehensive Design	E21C3b083	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Daylight Dimming	E21C3b009	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Exterior w/ Controls	E21C3b010	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Exterior w/o Controls	E21C3b011	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Interior w/ Controls	E21C3b012	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Performance Lighting - Interior w/o Controls	E21C3b013	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Lighting Occupancy Sensors	E21C3b014	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Advanced Power Strip	E21C3b015	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Air Compressor	E21C3b016	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Air Nozzle	E21C3b017	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1000 to 1700 MBH 90 AFUE, Oil	E21C3b018	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1000 to 1700 MBH 90 AFUE, Propane	E21C3b019	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1701 to 2000 MBH 85 AFUE, Oil	E21C3b020	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 1701 to 2000 MBH 90 AFUE, Propane	E21C3b021	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 301 to 499 MBH 85 AFUE, Oil	E21C3b022	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 301 to 499 MBH 90 AFUE, Propane	E21C3b023	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 500 to 999 MBH 85 AFUE, Oil	E21C3b024	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler 500 to 999 MBH 90 AFUE, Propane	E21C3b025	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 85 AFUE, Oil	E21C3b026	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 87 AFUE, Oil	E21C3b027	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 90 AFUE, Propane	E21C3b028	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Boiler to 300 MBH 95 AFUE, Propane	E21C3b029	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Circulator Pump	E21C3b030	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Combination Oven, Electric	E21C3b031	-	-	-												-	-	-	-	-	-
C3b - Muni New Equipment	Compressor Storage	E21C3b032	-	-	-												-	-	-	-	-	-

C3b - Muni New Equipment	Condensing Unit Heater up to 300 MBH, Oil	E21C3b033	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Condensing Unit Heater up to 300 MBH, Propane	E21C3b034	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Convection Oven, Electric	E21C3b035	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Door Type	E21C3b036	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Multi Tank Conveyor	E21C3b037	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Pot, Pan, Utensil	E21C3b038	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Single Tank Conveyor	E21C3b039	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - High Temp Under Counter	E21C3b040	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Door Type	E21C3b041	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Multi Tank Conveyor	E21C3b042	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Single Tank Conveyor	E21C3b043	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Dishwasher - Low Temp Under Counter	E21C3b044	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Electric	E21C3b045	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Gas	E21C3b046	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Oil	E21C3b047	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Faucet Aerator, Propane	E21C3b048	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Fryer Large Vat, Electric	E21C3b049	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Fryer Standard Vat, Electric	E21C3b050	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 85 AFUE up to 150 MBH, Oil	E21C3b051	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 87 AFUE up to 150 MBH, Oil	E21C3b052	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 95 AFUE up to 150 MBH, Oil	E21C3b053	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Furnace w/ ECM 97 AFUE up to 150 MBH, Oil	E21C3b054	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Griddle, Electric	E21C3b055	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Ground Source Heat Pump	E21C3b056	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet 3/4 Size	E21C3b057	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet Full Size	E21C3b058	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Hot Food Holding Cabinet Half Size	E21C3b059	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Ice Making Head	E21C3b060	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Remote Cond./Split Unit - Batch	E21C3b061	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Remote Cond./Split Unit - Continuous	E21C3b062	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Ice Machine - Self Contained	E21C3b063	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Infrared Heater	E21C3b064	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low Pressure Drop Filter	E21C3b065	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve	E21C3b066	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Electric	E21C3b067	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Gas	E21C3b068	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead With Thermostatic Valve, Propane	E21C3b069	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Electric	E21C3b070	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Gas	E21C3b071	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Oil	E21C3b072	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Low-Flow Showerhead, Propane	E21C3b073	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Electric	E21C3b074	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Gas	E21C3b075	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Oil	E21C3b076	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Pre Rinse Spray Valve, Propane	E21C3b077	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Refrigerated Air Dryer	E21C3b078	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Steam Cooker, Electric	E21C3b079	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Unitary Air Conditioner	E21C3b080	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Water Source Heat Pump	E21C3b081	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	Zero Loss Condensate Drain	E21C3b082	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	High Efficiency Chiller - FL	E21C3b083	-	-	-											-	-	-	-	-	-
C3b - Muni New Equipment	High Efficiency Chiller - IPLV	E21C3b084	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Compressed Air Direct Install	E21C3d001	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Hot Water Direct Install	E21C3d002	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni HVAC Direct Install	E21C3d003	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Interior	E21C3d004	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Exterior	E21C3d005	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Lighting Direct Install - Control	E21C3d006	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Motors Direct Install	E21C3d007	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Process Direct Install	E21C3d008	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Refrigeration Direct Install	E21C3d009	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Custom Muni Other Direct Install	E21C3d010	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Daylight Dimming	E21C3d011	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Exterior w/ Controls	E21C3d012	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Exterior w/o Controls	E21C3d013	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Interior w/ Controls	E21C3d014	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Fixture - Interior w/o Controls	E21C3d015	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Lighting Occupancy Sensors	E21C3d016	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Electric	E21C3d017	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Gas	E21C3d018	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Oil	E21C3d019	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Air Sealing, Propane	E21C3d020	-	-	-											-	-	-	-	-	-

C3d - Muni Direct Install	Boiler Reset Controls, Gas	E21C3d021	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Boiler Reset Controls, Oil	E21C3d022	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Boiler Reset Controls, Propane	E21C3d023	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Case Motor Replacement	E21C3d024	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Cooler Night Cover	E21C3d025	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Demand Control Ventilation	E21C3d026	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Door Heater Controls	E21C3d027	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Dual Enthalpy Economizer Controls (DEEC)	E21C3d028	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Electric	E21C3d029	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Gas	E21C3d030	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Oil	E21C3d031	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Insulation, Propane	E21C3d032	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Electric	E21C3d033	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Gas	E21C3d034	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Oil	E21C3d035	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Duct Sealing, Propane	E21C3d036	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Ductless Mini Split Heat Pump	E21C3d037	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	ECM Evaporator Fan Motors for Walk-in Co	E21C3d038	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Electronic Defrost Control	E21C3d039	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Energy Management System, Electric	E21C3d040	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Electric	E21C3d041	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Gas	E21C3d042	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Oil	E21C3d043	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Energy Star Wifi Thermostat, Propane	E21C3d044	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Evaporator Fan Control	E21C3d045	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Electric	E21C3d046	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Gas	E21C3d047	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Oil	E21C3d048	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Faucet Aerator, Propane	E21C3d049	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Hotel Occupancy Sensor	E21C3d050	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Electric	E21C3d051	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Gas	E21C3d052	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Oil	E21C3d053	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Insulation, Propane	E21C3d054	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low Pressure Drop Filter	E21C3d055	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic V	E21C3d056	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic V	E21C3d057	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic V	E21C3d058	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead With Thermostatic V	E21C3d059	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Electric	E21C3d060	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Gas	E21C3d061	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Oil	E21C3d062	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Low-Flow Showerhead, Propane	E21C3d063	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Motors, Open Drip	E21C3d064	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Motors, Totally Enclosed Fan Cooled	E21C3d065	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Novelty Cooler Shutoff	E21C3d066	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Electric	E21C3d067	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Gas	E21C3d068	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Oil	E21C3d069	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Heating, Propane	E21C3d070	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Electric	E21C3d071	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Gas	E21C3d072	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Oil	E21C3d073	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pipe Wrap - Hot Water, Propane	E21C3d074	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Electric	E21C3d075	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Gas	E21C3d076	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Oil	E21C3d077	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Pre Rinse Spray Valve, Propane	E21C3d078	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Electric	E21C3d079	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Gas	E21C3d080	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Oil	E21C3d081	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Programmable Thermostat, Propane	E21C3d082	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Electric	E21C3d083	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Gas	E21C3d084	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Oil	E21C3d085	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Steam Trap, Propane	E21C3d086	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Variable Frequency Drive	E21C3d087	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Variable Frequency Drive with Motor	E21C3d088	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Vending Miser	E21C3d089	-	-	-											-	-	-	-	-	-
C3d - Muni Direct Install	Zero Loss Condensate Drain	E21C3d090	-	-	-											-	-	-	-	-	-
Municipal Energy Solutions Subtotal			432.1	279.0	252.0	6,697.3	5,679.0	5,220.0	28.7	-	-	154.6	111.2	123.8	87.0	174.0	174.0	2,175.0	4,350.0	4,350.0	

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

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
 Page 1 of 11

Residential Sector (includes Low-Income Residential)					Prior Year	Current		Forecasted	SBC Rate	SBC Rate	SBC Rate	(Jan 1, 21 & 22 & 23)	
Year	EE	RGGI	FCM	Other	Deferral	Year		SBC	Distribution	EE Portion	EAP Portion	LBR Portion	Total SBC Rate
	Total Budget	Revenues	Revenues	Revenues	with Interest	Interest		Requirement	(kWh)	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/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
2021	\$ 4,677,524	\$ 56,687	\$ 168,524	\$ 963,228	\$ (465,753)	\$ (14,347)	\$ 3,008,984	489,122,763	\$0.00615	\$0.00150	\$0.00120	\$0.00885	
2022	\$ 5,158,548	\$ 54,463	\$ 140,137	\$ 1,239,115	\$ 879	\$ (727)	\$ 3,724,986	482,005,817	\$0.00773	\$0.00150	\$0.00144	\$0.01067	
2023	\$ 5,638,608	\$ 52,238	\$ 133,129	\$ 1,488,459	\$ (148)	\$ (715)	\$ 3,963,919	478,409,960	\$0.00829	\$0.00150	\$0.00186	\$0.01165	

Commercial & Industrial (C&I) Sector					Prior Year Deferral	Current Year	Forecasted	SBC Rate	SBC Rate	SBC Rate	Total SBC Rate	
Year	EE	RGGI	FCM	Other	with Interest	Interest	SBC	Distribution	EE Portion	EAP Portion		LBR Portion
	Total Budget	Revenues	Revenues	Revenues			Requirement	(kWh)	(\$/kWh)	(\$/kWh)		(\$/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
2021	\$ 4,891,985	\$ 228,000	\$ 393,222	\$ (963,228)	\$ 122,445	\$ (11,204)	\$ 5,345,233	616,422,193	\$0.00867	\$0.00150	\$0.00128	\$0.01145
2022	\$ 6,187,942	\$ 228,000	\$ 326,985	\$ (1,239,115)	\$ 852	\$ 1,295	\$ 6,874,218	642,314,405	\$0.01070	\$0.00150	\$0.00120	\$0.01340
2023	\$ 7,751,441	\$ 228,000	\$ 310,634	\$ (1,488,459)	\$ (14)	\$ 934	\$ 8,702,186	652,689,123	\$0.01333	\$0.00150	\$0.00128	\$0.01611

Col. A: Effective year
 Col. B: Company Forecast
 Col. C: Company Forecast
 Col. D: Company Forecast
 Col. E: Company Forecast, C&I Funding for Low-Income Program
 Col. F: Page 2, Line 15
 Col. G: Page 3, Line 14
 Col. H: Col. B - Col. C - Col. D - Col. E + Col. F + Col. G
 Col. I: Company Forecast
 Col. J: Col. H / Col. I
 Col. K: EAP Portion of SBC Rate
 Col. L: Page 4, Col. G
 Col. M: Col. J + Col. K + Col. L

Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
January 1, 2020 to December 31, 2020

	Jan-20 <u>Recast</u>	Feb-20 <u>Recast</u>	Mar-20 <u>Recast</u>	Apr-20 <u>Recast</u>	May-20 <u>Recast</u>	Jun-20 <u>Recast</u>	Jul-20 <u>Estimate</u>	Aug-20 <u>Estimate</u>	Sep-20 <u>Estimate</u>	Oct-20 <u>Estimate</u>	Nov-20 <u>Estimate</u>	Dec-20 <u>Estimate</u>	Total
1 Beginning Balance -- (Over)/Under Recovery	\$ (1,154,187)	\$ (1,583,066)	\$ (1,788,235)	\$ (1,888,553)	\$ (2,113,676)	\$ (2,316,469)	\$ (2,565,452)	\$ (2,265,308)	\$ (1,979,172)	\$ (1,723,117)	\$ (1,234,261)	\$ (805,341)	
2 Total Costs	183,721	396,761	490,271	280,126	356,701	336,778	\$ 867,844	\$ 897,534	\$ 934,545	\$ 947,018	\$ 976,709	\$ 1,023,616	\$ 7,691,624
Revenues													
3 Class Sales (Residential inc. LI) -- kWh	47,877,662	43,447,320	41,788,394	36,919,734	34,845,155	43,074,211	42,464,449	49,044,653	47,171,852	31,371,125	34,379,732	44,937,859	497,322,147
Class Sales (C&I) -- kWh	<u>57,648,909</u>	<u>57,361,500</u>	<u>56,685,607</u>	<u>45,265,444</u>	<u>44,359,715</u>	<u>53,888,841</u>	<u>53,039,214</u>	<u>54,887,862</u>	<u>56,213,703</u>	<u>43,874,345</u>	<u>44,670,644</u>	<u>50,365,956</u>	<u>618,261,740</u>
Total Class Sales - kWh	105,526,571	100,808,820	98,474,001	82,185,178	79,204,870	96,963,052	95,503,664	103,932,515	103,385,555	75,245,470	79,050,376	95,303,816	1,115,583,887
4 Charge -- \$/kWh	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	\$ 0.00528	
5 Energy Efficiency Revenues	\$ 473,467	\$ 532,633	\$ 520,570	\$ 434,496	\$ 418,791	\$ 512,651	\$ 504,259	\$ 548,764	\$ 545,876	\$ 397,296	\$ 417,386	\$ 503,204	\$ 5,809,393
6 Forward Capacity Market Revenue	\$ 62,522	\$ 62,965	\$ 62,639	\$ 62,926	\$ 62,996	\$ 63,624	\$ 56,801	\$ 56,801	\$ 56,801	\$ 56,801	\$ 56,801	\$ 56,801	\$ 718,476
7 RGGI Funding	\$ 71,223	\$ -	\$ -	\$ -	\$ 68,813	\$ -	\$ -	\$ -	\$ 70,889	\$ -	\$ 70,889	\$ -	\$ 281,815
8 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9 Total Revenues	\$ 607,212	\$ 595,598	\$ 583,209	\$ 497,422	\$ 550,601	\$ 576,275	\$ 561,060	\$ 605,564	\$ 673,565	\$ 454,097	\$ 545,076	\$ 560,005	\$ 6,809,684
10 (Over)/Under Recovery (excluding interest)	\$ (1,577,677)	\$ (1,781,903)	\$ (1,881,172)	\$ (2,105,849)	\$ (2,307,576)	\$ (2,555,967)	\$ (2,258,668)	\$ (1,973,338)	\$ (1,718,192)	\$ (1,230,196)	\$ (802,628)	\$ (341,730)	
Interest Calculation													
11 Average Monthly Balance	\$ (1,365,932)	\$ (1,682,484)	\$ (1,834,703)	\$ (1,997,201)	\$ (2,210,626)	\$ (2,436,218)	\$ (2,412,060)	\$ (2,119,323)	\$ (1,848,682)	\$ (1,476,656)	\$ (1,018,444)	\$ (573,535)	
12 Interest Rate	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
13 Days per Month	<u>31</u>	<u>29</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>30</u>	<u>31</u>	366
14 Computed Interest	\$ (5,388)	\$ (6,331)	\$ (7,381)	\$ (7,827)	\$ (8,894)	\$ (9,485)	\$ (6,640)	\$ (5,834)	\$ (4,925)	\$ (4,065)	\$ (2,713)	\$ (1,579)	\$ (71,062)
15 Ending Balance	\$ (1,583,066)	\$ (1,788,235)	\$ (1,888,553)	\$ (2,113,676)	\$ (2,316,469)	\$ (2,565,452)	\$ (2,265,308)	\$ (1,979,172)	\$ (1,723,117)	\$ (1,234,261)	\$ (805,341)	\$ (343,309)	

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)). March includes interest adjustments for 2017 performance incentive true-ups.
 Line 15: Line 10 + Line 14

Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
Residential Sector
January 1, 2021 to December 31, 2021

	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Total
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
1 Beginning Balance -- (Over)/Under Recovery	\$ (465,753)	\$ (604,706)	\$ (777,581)	\$ (826,429)	\$ (543,931)	\$ (595,652)	\$ (462,215)	\$ (137,870)	\$ (315,128)	\$ (324,439)	\$ (239,023)	\$ (269,826)	
2 Total Residential Costs	240,657	196,590	335,529	593,195	240,657	467,731	681,329	240,657	379,596	372,859	284,724	644,000	\$ 4,677,524
Revenues													
3 Class Sales (inc. LI) -- kWh	46,825,059	44,889,222	43,716,625	35,837,589	32,970,684	36,652,577	41,682,485	50,446,340	44,344,475	32,263,800	34,593,108	44,900,799	489,122,763
4 Charge -- \$/kWh	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	\$ 0.00615	
5 Energy Efficiency Revenues	\$ 287,974	\$ 276,069	\$ 268,857	\$ 220,401	\$ 202,770	\$ 225,413	\$ 256,347	\$ 310,245	\$ 272,719	\$ 198,422	\$ 212,748	\$ 276,140	\$ 3,008,105
6 Forward Capacity Market Revenue	\$ 14,401	\$ 14,401	\$ 14,401	\$ 14,401	\$ 14,401	\$ 13,788	\$ 13,788	\$ 13,788	\$ 13,788	\$ 13,788	\$ 13,788	\$ 13,788	\$ 168,524
7 RGGI Funding	\$ -	\$ -	\$ 14,172	\$ -	\$ -	\$ 14,172	\$ -	\$ -	\$ 14,172	\$ -	\$ 14,172	\$ -	\$ 56,687
8 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9 Low-Income Funding From C&I Sector	\$ 75,759	\$ 77,274	\$ 84,736	\$ 74,067	\$ 73,636	\$ 79,509	\$ 86,022	\$ 93,258	\$ 87,375	\$ 74,456	\$ 74,140	\$ 82,996	\$ 963,228
10 Total Revenues	\$ 378,134	\$ 367,744	\$ 382,166	\$ 308,869	\$ 290,807	\$ 332,883	\$ 356,157	\$ 417,291	\$ 388,054	\$ 286,667	\$ 314,848	\$ 372,924	\$ 4,196,544
11 (Over)/Under Recovery (excluding interest)	\$ (603,231)	\$ (775,860)	\$ (824,218)	\$ (542,103)	\$ (594,081)	\$ (460,804)	\$ (137,043)	\$ (314,504)	\$ (323,586)	\$ (238,247)	\$ (269,147)	\$ 1,250	
Interest Calculation													
12 Average Monthly Balance	\$ (534,492)	\$ (690,283)	\$ (800,900)	\$ (684,266)	\$ (569,006)	\$ (528,228)	\$ (299,629)	\$ (226,187)	\$ (319,357)	\$ (281,343)	\$ (254,085)	\$ (134,288)	
13 Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
14 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
15 Computed Interest	\$ (1,475)	\$ (1,721)	\$ (2,211)	\$ (1,828)	\$ (1,571)	\$ (1,411)	\$ (827)	\$ (624)	\$ (853)	\$ (777)	\$ (679)	\$ (371)	\$ (14,347)
16 Ending Balance	\$ (604,706)	\$ (777,581)	\$ (826,429)	\$ (543,931)	\$ (595,652)	\$ (462,215)	\$ (137,870)	\$ (315,128)	\$ (324,439)	\$ (239,023)	\$ (269,826)	\$ 879	

Line 1: Prior period ending balance
 Line 2: Page 1, Col. B, Company budget
 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: Page 3a, C&I Funding, Line 12
 Line 10: Sum of Lines 5 - 9
 Line 11: Line 1 + Line 2 - Line 10
 Line 12: (Line 1 + Line 11)/2
 Line 13: Prime Rate
 Line 15: Line 12 * ((Line 13/# days per year) * Line 14))
 Line 16: Line 11 + Line 15

Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
Commercial & Industrial (C&I) Sector
January 1, 2021 to December 31, 2021

	Jan-21 Estimate	Feb-21 Estimate	Mar-21 Estimate	Apr-21 Estimate	May-21 Estimate	Jun-21 Estimate	Jul-21 Estimate	Aug-21 Estimate	Sep-21 Estimate	Oct-21 Estimate	Nov-21 Estimate	Dec-21 Estimate	Total
1 Beginning Balance -- (Over)/Under Recovery	\$ 122,445	\$ (97,070)	\$ (232,330)	\$ (444,679)	\$ (520,434)	\$ (502,766)	\$ (461,292)	\$ (498,440)	\$ (431,076)	\$ (287,669)	\$ (317,519)	\$ (403,058)	
2 Total C&I Costs	158,636	250,225	264,600	296,020	387,609	493,573	387,609	524,993	630,957	341,814	341,814	814,135	\$ 4,891,985
Revenues													
3 Class Sales C&I kWh	47,826,525	48,805,207	53,583,677	46,759,599	46,468,649	50,221,509	54,412,029	59,025,743	55,255,824	46,990,413	46,794,308	52,460,383	608,603,868
4 Outdoor Lighting kWh	655,812	646,441	643,518	639,643	655,263	660,735	638,027	655,115	660,391	658,236	652,060	653,084	7,818,326
5 Total Sales	48,482,338	49,451,648	54,227,195	47,399,243	47,123,912	50,882,244	55,050,056	59,680,858	55,916,215	47,648,649	47,446,368	53,113,467	616,422,193
6 Charge -- \$/kWh	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	\$ 0.00867	
7 Energy Efficiency Revenues	\$ 420,342	\$ 428,746	\$ 470,150	\$ 410,951	\$ 408,564	\$ 441,149	\$ 477,284	\$ 517,433	\$ 484,794	\$ 413,114	\$ 411,360	\$ 460,494	\$ 5,344,380
8 Forward Capacity Market Revenue	\$ 33,603	\$ 33,603	\$ 33,603	\$ 33,603	\$ 33,603	\$ 32,172	\$ 32,172	\$ 32,172	\$ 32,172	\$ 32,172	\$ 32,172	\$ 32,172	\$ 393,222
9 RGGI Funding	\$ -	\$ -	\$ 57,000	\$ -	\$ -	\$ 57,000	\$ -	\$ -	\$ 57,000	\$ -	\$ 57,000	\$ -	\$ 228,000
10 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11 Total Revenues	\$ 453,945	\$ 462,349	\$ 560,753	\$ 444,554	\$ 442,167	\$ 530,322	\$ 509,456	\$ 549,605	\$ 573,966	\$ 445,286	\$ 500,532	\$ 492,666	\$ 5,965,602
12 Low-Income Funding	\$ (75,759)	\$ (77,274)	\$ (84,736)	\$ (74,067)	\$ (73,636)	\$ (79,509)	\$ (86,022)	\$ (93,258)	\$ (87,375)	\$ (74,456)	\$ (74,140)	\$ (82,996)	\$ (963,228)
13 Net Revenue	\$ 378,186	\$ 385,075	\$ 476,017	\$ 370,488	\$ 368,531	\$ 450,812	\$ 423,435	\$ 456,347	\$ 486,591	\$ 370,830	\$ 426,392	\$ 409,670	\$ 5,002,374
14 (Over)/Under Recovery (excluding interest)	\$ (97,105)	\$ (231,919)	\$ (443,746)	\$ (519,147)	\$ (501,356)	\$ (460,006)	\$ (497,117)	\$ (429,795)	\$ (286,710)	\$ (316,685)	\$ (402,096)	\$ 1,407	
Interest Calculation													
15 Average Monthly Balance	\$ 12,670	\$ (164,495)	\$ (338,038)	\$ (481,913)	\$ (510,895)	\$ (481,386)	\$ (479,205)	\$ (464,118)	\$ (358,893)	\$ (302,177)	\$ (359,808)	\$ (200,825)	
16 Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
17 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
18 Computed Interest	\$ 35	\$ (410)	\$ (933)	\$ (1,287)	\$ (1,410)	\$ (1,286)	\$ (1,323)	\$ (1,281)	\$ (959)	\$ (834)	\$ (961)	\$ (554)	\$ (11,204)
19 Ending Balance	\$ (97,070)	\$ (232,330)	\$ (444,679)	\$ (520,434)	\$ (502,766)	\$ (461,292)	\$ (498,440)	\$ (431,076)	\$ (287,669)	\$ (317,519)	\$ (403,058)	\$ 852	

Line 1: Prior period ending balance
 Line 2: Page 1, Col. B, Company budget
 Lines 3 & 4: Company Forecast
 Line 5: Line 3 + Line 4
 Line 6: Page 1, Col. J
 Line 7: Line 5 * Line 6
 Line 8: Page 1, Col. D
 Line 9: Page 1, Col. C
 Line 11: Sum of Lines 5 through 8
 Line 12: LI funding allocation based on sales
 Line 13: Line 11- Line 12
 Line 14: Line 1 + Line 2 - Line 13
 Line 15: (Line 1 + Line 14)/2
 Line 16: Prime Rate
 Line 18: Line 15 * ((Line 16/# days per year) * Line 17))
 Line 19: Line 14 + Line 18

Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
Residential Sector
January 1, 2022 to December 31, 2022

	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Total
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
1 Beginning Balance -- (Over)/Under Recovery	\$ 879	\$ (47,595)	\$ (75,790)	\$ (78,402)	\$ (44,835)	\$ 28,193	\$ 54,610	\$ 46,329	\$ (46,722)	\$ (89,246)	\$ (26,794)	\$ 7,157	
2 Total Residential Costs	429,879	429,879	429,879	429,879	429,879	429,879	429,879	429,879	429,879	429,879	429,879	429,879	\$ 5,158,548
Revenues													
3 Class Sales (inc. LI) -- kWh	47,375,528	44,688,111	39,613,993	36,836,779	32,358,184	35,852,218	40,972,370	50,451,757	43,427,926	33,154,827	35,263,723	42,010,402	482,005,817
4 Charge -- \$/kWh	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	\$ 0.00773	
5 Energy Efficiency Revenues	\$ 366,137	\$ 345,368	\$ 306,153	\$ 284,689	\$ 250,077	\$ 277,080	\$ 316,651	\$ 389,911	\$ 335,628	\$ 256,234	\$ 272,532	\$ 324,673	\$ 3,725,135
6 Forward Capacity Market Revenue	\$ 12,307	\$ 12,307	\$ 12,307	\$ 12,307	\$ 12,307	\$ 11,229	\$ 11,229	\$ 11,229	\$ 11,229	\$ 11,229	\$ 11,229	\$ 11,229	\$ 140,137
7 RGGI Funding	\$ -	\$ -	\$ 13,616	\$ -	\$ -	\$ 13,616	\$ -	\$ -	\$ 13,616	\$ -	\$ 13,616	\$ -	\$ 54,463
8 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9 Low-Income Funding From C&I Sector	\$ 99,845	\$ 100,246	\$ 100,204	\$ 99,151	\$ 94,444	\$ 101,648	\$ 110,419	\$ 121,789	\$ 111,749	\$ 99,804	\$ 98,524	\$ 101,292	\$ 1,239,115
10 Total Revenues	\$ 478,289	\$ 457,921	\$ 432,279	\$ 396,148	\$ 356,828	\$ 403,573	\$ 438,299	\$ 522,929	\$ 472,222	\$ 367,267	\$ 395,901	\$ 437,194	\$ 5,158,849
11 (Over)/Under Recovery (excluding interest)	\$ (47,530)	\$ (75,636)	\$ (78,190)	\$ (44,671)	\$ 28,216	\$ 54,499	\$ 46,190	\$ (46,722)	\$ (89,065)	\$ (26,634)	\$ 7,183	\$ (158)	
Interest Calculation													
12 Average Monthly Balance	\$ (23,325)	\$ (61,615)	\$ (76,990)	\$ (61,536)	\$ (8,309)	\$ 41,346	\$ 50,400	\$ (196)	\$ (67,894)	\$ (57,940)	\$ (9,805)	\$ 3,500	
13 Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
14 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
15 Computed Interest	\$ (64)	\$ (154)	\$ (213)	\$ (164)	\$ (23)	\$ 110	\$ 139	\$ (1)	\$ (181)	\$ (160)	\$ (26)	\$ 10	\$ (727)
16 Ending Balance	\$ (47,595)	\$ (75,790)	\$ (78,402)	\$ (44,835)	\$ 28,193	\$ 54,610	\$ 46,329	\$ (46,722)	\$ (89,246)	\$ (26,794)	\$ 7,157	\$ (148)	

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Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
Commercial & Industrial (C&I) Sector
January 1, 2022 to December 31, 2022

	Jan-22 Estimate	Feb-22 Estimate	Mar-22 Estimate	Apr-22 Estimate	May-22 Estimate	Jun-22 Estimate	Jul-22 Estimate	Aug-22 Estimate	Sep-22 Estimate	Oct-22 Estimate	Nov-22 Estimate	Dec-22 Estimate	Total
1 Beginning Balance -- (Over)/Under Recovery	\$ 852	\$ 33,783	\$ 64,963	\$ 39,357	\$ 75,547	\$ 133,278	\$ 103,791	\$ 91,368	\$ 27,133	\$ (48,634)	\$ (13,137)	\$ (28,792)	
2 Total C&I Costs	515,662	515,662	515,662	515,662	515,662	515,662	515,662	515,662	515,662	515,662	515,662	515,662	\$ 6,187,942
Revenues													
3 Class Sales C&I kWh	51,103,544	51,321,000	51,301,799	50,760,216	48,304,548	52,033,342	56,602,701	62,479,394	57,269,665	51,080,073	50,422,922	51,856,358	634,535,562
4 Outdoor Lighting kWh	652,501	643,176	640,268	636,413	651,954	657,398	634,805	651,807	657,056	654,912	648,767	649,786	7,778,844
5 Total Sales	51,756,045	51,964,176	51,942,067	51,396,629	48,956,502	52,690,740	57,237,506	63,131,201	57,926,721	51,734,985	51,071,689	52,506,143	642,314,405
6 Charge -- \$/kWh	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	\$ 0.01070	
7 Energy Efficiency Revenues	\$ 553,908	\$ 556,135	\$ 555,899	\$ 550,061	\$ 523,946	\$ 563,911	\$ 612,572	\$ 675,648	\$ 619,948	\$ 553,683	\$ 546,584	\$ 561,936	\$ 6,874,233
8 Forward Capacity Market Revenue	\$ 28,716	\$ 28,716	\$ 28,716	\$ 28,716	\$ 28,716	\$ 26,201	\$ 26,201	\$ 26,201	\$ 26,201	\$ 26,201	\$ 26,201	\$ 26,201	\$ 326,985
9 RGGI Funding	\$ -	\$ -	\$ 57,000	\$ -	\$ -	\$ 57,000	\$ -	\$ -	\$ 57,000	\$ -	\$ 57,000	\$ -	\$ 228,000
10 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11 Total Revenues	\$ 582,624	\$ 584,851	\$ 641,615	\$ 578,777	\$ 552,662	\$ 647,112	\$ 638,773	\$ 701,849	\$ 703,149	\$ 579,884	\$ 629,785	\$ 588,137	\$ 7,429,218
12 Low-Income Funding	\$ (99,845)	\$ (100,246)	\$ (100,204)	\$ (99,151)	\$ (94,444)	\$ (101,648)	\$ (110,419)	\$ (121,789)	\$ (111,749)	\$ (99,804)	\$ (98,524)	\$ (101,292)	\$ (1,239,115)
13 Net Revenue	\$ 482,779	\$ 484,605	\$ 541,411	\$ 479,626	\$ 458,218	\$ 545,465	\$ 528,354	\$ 580,060	\$ 591,401	\$ 480,080	\$ 531,260	\$ 486,845	\$ 6,190,103
 14 (Over)/Under Recovery (excluding interest)	\$ 33,735	\$ 64,840	\$ 39,213	\$ 75,393	\$ 132,990	\$ 103,475	\$ 91,099	\$ 26,970	\$ (48,605)	\$ (13,052)	\$ (28,736)	\$ 25	
Interest Calculation													
15 Average Monthly Balance	\$ 17,294	\$ 49,311	\$ 52,088	\$ 57,375	\$ 104,268	\$ 118,377	\$ 97,445	\$ 59,169	\$ (10,736)	\$ (30,843)	\$ (20,936)	\$ (14,383)	
16 Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
17 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
18 Computed Interest	\$ 48	\$ 123	\$ 144	\$ 153	\$ 288	\$ 316	\$ 269	\$ 163	\$ (29)	\$ (85)	\$ (56)	\$ (40)	\$ 1,295
19 Ending Balance	\$ 33,783	\$ 64,963	\$ 39,357	\$ 75,547	\$ 133,278	\$ 103,791	\$ 91,368	\$ 27,133	\$ (48,634)	\$ (13,137)	\$ (28,792)	\$ (14)	

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Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
Residential Sector
January 1, 2023 to December 31, 2023

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Total
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
1 Beginning Balance -- (Over)/Under Recovery	\$ (148)	\$ (51,049)	\$ (80,376)	\$ (80,735)	\$ (43,419)	\$ 36,531	\$ 64,849	\$ 53,493	\$ (50,029)	\$ (96,332)	\$ (29,770)	\$ 8,098	
2 Total Residential Costs	469,884	469,884	469,884	469,884	469,884	469,884	469,884	469,884	469,884	469,884	469,884	469,884	\$ 5,638,608
Revenues													
3 Class Sales (inc. LI) -- kWh	46,810,442	44,194,012	39,185,784	36,447,735	32,030,136	35,548,498	40,698,142	50,213,654	43,234,425	32,982,499	35,129,070	41,935,563	478,409,960
4 Charge -- \$/kWh	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	\$ 0.00829	
5 Energy Efficiency Revenues	\$ 387,866	\$ 366,186	\$ 324,689	\$ 302,001	\$ 265,398	\$ 294,550	\$ 337,220	\$ 416,064	\$ 358,235	\$ 273,289	\$ 291,075	\$ 347,473	\$ 3,964,046
6 Forward Capacity Market Revenue	\$ 10,352	\$ 10,352	\$ 10,352	\$ 10,352	\$ 10,352	\$ 11,624	\$ 11,624	\$ 11,624	\$ 11,624	\$ 11,624	\$ 11,624	\$ 11,624	\$ 133,129
7 RGGI Funding	\$ -	\$ -	\$ 13,060	\$ -	\$ -	\$ 13,060	\$ -	\$ -	\$ 13,060	\$ -	\$ 13,060	\$ -	\$ 52,238
8 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9 Low-Income Funding From C&I Sector	\$ 122,497	\$ 122,509	\$ 121,921	\$ 120,049	\$ 114,175	\$ 122,467	\$ 132,559	\$ 145,722	\$ 133,073	\$ 118,235	\$ 116,228	\$ 119,023	\$ 1,488,459
10 Total Revenues	\$ 520,715	\$ 499,047	\$ 470,021	\$ 432,403	\$ 389,925	\$ 441,701	\$ 481,403	\$ 573,411	\$ 515,992	\$ 403,148	\$ 431,987	\$ 478,120	\$ 5,637,872
11 (Over)/Under Recovery (excluding interest)	\$ (50,979)	\$ (80,212)	\$ (80,513)	\$ (43,253)	\$ 36,541	\$ 64,714	\$ 53,330	\$ (50,034)	\$ (96,137)	\$ (29,596)	\$ 8,127	\$ (138)	
Interest Calculation													
12 Average Monthly Balance	\$ (25,563)	\$ (65,631)	\$ (80,444)	\$ (61,994)	\$ (3,439)	\$ 50,623	\$ 59,090	\$ 1,730	\$ (73,083)	\$ (62,964)	\$ (10,821)	\$ 3,980	
13 Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
14 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
15 Computed Interest	\$ (71)	\$ (164)	\$ (222)	\$ (166)	\$ (9)	\$ 135	\$ 163	\$ 5	\$ (195)	\$ (174)	\$ (29)	\$ 11	\$ (715)
16 Ending Balance	\$ (51,049)	\$ (80,376)	\$ (80,735)	\$ (43,419)	\$ 36,531	\$ 64,849	\$ 53,493	\$ (50,029)	\$ (96,332)	\$ (29,770)	\$ 8,098	\$ (127)	

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Unitil Energy Systems, Inc.
Energy Efficiency Expense & SBC Revenue Reconciliation
Commercial & Industrial (C&I) Sector
January 1, 2023 to December 31, 2023

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Total
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
1 Beginning Balance -- (Over)/Under Recovery	\$ (14)	\$ 28,148	\$ 56,321	\$ 30,356	\$ 70,477	\$ 139,223	\$ 107,855	\$ 84,511	\$ (2,782)	\$ (86,001)	\$ (40,362)	\$ (41,933)	
2 Total C&I Costs	645,953	645,953	645,953	645,953	645,953	645,953	645,953	645,953	645,953	645,953	645,953	645,953	\$ 7,751,441
Revenues													
3 Class Sales C&I kWh	53,065,882	53,080,199	52,825,422	52,008,481	49,417,114	53,047,583	57,495,510	63,250,770	57,698,804	51,194,274	50,320,395	51,545,129	644,949,562
4 Outdoor Lighting kWh	649,205	639,928	637,035	633,199	648,662	654,078	631,599	648,515	653,738	651,605	645,491	646,504	7,739,561
5 Total Sales	53,715,088	53,720,127	53,462,456	52,641,680	50,065,776	53,701,661	58,127,109	63,899,285	58,352,542	51,845,879	50,965,886	52,191,634	652,689,123
6 Charge -- \$/kWh	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	\$ 0.01333	
7 Energy Efficiency Revenues	\$ 716,173	\$ 716,241	\$ 712,805	\$ 701,862	\$ 667,518	\$ 715,994	\$ 774,998	\$ 851,958	\$ 778,004	\$ 691,252	\$ 679,519	\$ 695,862	\$ 8,702,185
8 Forward Capacity Market Revenue	\$ 24,154	\$ 24,154	\$ 24,154	\$ 24,154	\$ 24,154	\$ 27,124	\$ 27,124	\$ 27,124	\$ 27,124	\$ 27,124	\$ 27,124	\$ 27,124	\$ 310,634
9 RGGI Funding	\$ -	\$ -	\$ 57,000	\$ -	\$ -	\$ 57,000	\$ -	\$ -	\$ 57,000	\$ -	\$ 57,000	\$ -	\$ 228,000
10 Other Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11 Total Revenues	\$ 740,327	\$ 740,395	\$ 793,959	\$ 726,016	\$ 691,672	\$ 800,118	\$ 802,122	\$ 879,081	\$ 862,127	\$ 718,375	\$ 763,642	\$ 722,985	\$ 9,240,819
12 Low-Income Funding	\$ (122,497)	\$ (122,509)	\$ (121,921)	\$ (120,049)	\$ (114,175)	\$ (122,467)	\$ (132,559)	\$ (145,722)	\$ (133,073)	\$ (118,235)	\$ (116,228)	\$ (119,023)	\$ (1,488,459)
13 Net Revenue	\$ 617,830	\$ 617,886	\$ 672,038	\$ 605,966	\$ 577,497	\$ 677,651	\$ 669,563	\$ 733,359	\$ 729,054	\$ 600,141	\$ 647,415	\$ 603,962	\$ 7,752,360
14 (Over)/Under Recovery (excluding interest)	\$ 28,109	\$ 56,216	\$ 30,236	\$ 70,343	\$ 138,934	\$ 107,525	\$ 84,246	\$ (2,894)	\$ (85,883)	\$ (40,188)	\$ (41,823)	\$ 58	
Interest Calculation													
15 Average Monthly Balance	\$ 14,047	\$ 42,182	\$ 43,278	\$ 50,349	\$ 104,706	\$ 123,374	\$ 96,050	\$ 40,808	\$ (44,332)	\$ (63,095)	\$ (41,093)	\$ (20,937)	
16 Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
17 Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
18 Computed Interest	\$ 39	\$ 105	\$ 119	\$ 134	\$ 289	\$ 330	\$ 265	\$ 113	\$ (118)	\$ (174)	\$ (110)	\$ (58)	\$ 934
19 Ending Balance	\$ 28,148	\$ 56,321	\$ 30,356	\$ 70,477	\$ 139,223	\$ 107,855	\$ 84,511	\$ (2,782)	\$ (86,001)	\$ (40,362)	\$ (41,933)	\$ 1	

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Unitil Energy Systems, Inc.
2021 System Benefits Charge Calculation (LBR Component)

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
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Residential Sector

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
2021	\$ 513,011	\$ 71,235	\$ 452	\$ 584,698	489,122,763	\$ 0.00120
2022	\$ 696,748	\$ (2,249)	\$ (719)	\$ 693,780	482,005,817	\$ 0.00144
2023	\$ 889,593	\$ (308)	\$ (1,361)	\$ 887,924	478,409,960	\$ 0.00186

Commercial & Industrial Sector (C&I)

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
2021	\$ 700,269	\$ 88,558	\$ 1,362	\$ 790,189	616,422,193	\$ 0.00128
2022	\$ 770,940	\$ 1,168	\$ 8	\$ 772,116	642,314,405	\$ 0.00120
2023	\$ 836,495	\$ 1,339	\$ (94)	\$ 837,740	652,689,123	\$ 0.00128

Col. A: Effective year
 Col. B: Page 5, Line 9, Col. P & Line 21, Col. P
 Col. C: Page 7, Line 1, Col. B
 Col. D: Page 7, Line 8, Col. O
 Col. E: Col. B + Col. C + Col. D
 Col. F: Company Forecast
 Col. G: Col. E/Col. F

Unitil Energy System, Inc.
Estimated Monthly and Cumulative Savings (kWh& kW) and Lost Base Revenue
January 1, 2020 to December 31, 2020

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
 Page 5 of 11

Line	Description	12/31/2019	Forecast Jan-20	Forecast Feb-20	Forecast Mar-20	Forecast Apr-20	Forecast May-20	Forecast Jun-20	Forecast Jul-20	Forecast Aug-20	Forecast Sep-20	Forecast Oct-20	Forecast Nov-20	Forecast Dec-20	2020 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	Monthly Savings Installation Assumption		6.70%	7.00%	7.30%	7.60%	7.90%	8.20%	8.50%	8.80%	9.10%	9.30%	9.60%	10.00%	
2	Residential Annualized kWh Savings (2020)		215,359	225,002	234,645	244,287	253,930	263,573	273,216	282,859	292,502	298,931	308,574	321,431	3,214,309
3	C&I Annualized kWh Savings (2020)		<u>719,221</u>	<u>751,425</u>	<u>783,629</u>	<u>815,833</u>	<u>848,037</u>	<u>880,241</u>	<u>912,445</u>	<u>944,649</u>	<u>976,853</u>	<u>998,322</u>	<u>1,030,526</u>	<u>1,073,464</u>	<u>10,734,644</u>
4	Total		934,580	976,427	1,018,274	1,060,120	1,101,967	1,143,814	1,185,661	1,227,508	1,269,355	1,297,253	1,339,099	1,394,895	13,948,953
5	C&I Annualized kW Savings (2020)		92	92	92	92	92	92	92	92	92	92	92	92	1,101
6	Monthly Residential kWh Savings		<u>17,947</u>	<u>18,750</u>	<u>19,554</u>	<u>20,357</u>	<u>21,161</u>	<u>21,964</u>	<u>22,768</u>	<u>23,572</u>	<u>24,375</u>	<u>24,911</u>	<u>25,714</u>	<u>26,786</u>	
7	Cumulative Residential kWh Savings	709,903	727,849	746,599	766,153	786,510	807,671	829,636	852,404	875,975	900,351	925,261	950,976	977,762	10,147,148
8	Average Residential Distribution Rate		<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	
9	Lost Residential Revenue		\$ 25,897	\$ 26,564	\$ 27,260	\$ 27,984	\$ 28,737	\$ 29,518	\$ 30,329	\$ 31,167	\$ 32,034	\$ 32,921	\$ 33,836	\$ 34,789	\$ 361,036
10	Monthly C&I kWh Savings (2017 & 2018)	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	
11	Average C&I Distribution Rate		<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	
12	Lost C&I Revenue		\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 408,978
13	Monthly C&I kWh Savings (2020)		59,935	62,619	65,302	67,986	70,670	73,353	76,037	78,721	81,404	83,193	85,877	89,455	
14	Cumulative C&I kWh Savings (2019 & 2020)	534,180	594,115	656,733	722,036	790,022	860,692	934,045	1,010,082	1,088,803	1,170,207	1,253,401	1,339,278	1,428,733	
15	Average C&I Distribution Rate (kWh)		<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	
16	Lost C&I Revenue		\$ 143	\$ 158	\$ 173	\$ 190	\$ 207	\$ 224	\$ 242	\$ 261	\$ 281	\$ 301	\$ 321	\$ 343	\$ 2,844
17	Monthly C&I kW Savings (2020)		46	46	46	46	46	46	46	46	46	46	46	46	
18	Cumulative C&I Savings (2019 & 2020)	1,140	1,186	1,278	1,370	1,462	1,553	1,645	1,737	1,829	1,921	2,012	2,104	2,196	
19	Average C&I Demand Rate		<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	
20	Lost C&I Demand Revenue		\$ 10,867	\$ 11,708	\$ 12,549	\$ 13,389	\$ 14,230	\$ 15,071	\$ 15,911	\$ 16,752	\$ 17,593	\$ 18,433	\$ 19,274	\$ 20,115	\$ 185,892
21	Total Lost Revenue		\$ 70,988	\$ 72,511	\$ 74,063	\$ 75,644	\$ 77,255	\$ 78,895	\$ 80,564	\$ 82,262	\$ 83,990	\$ 85,737	\$ 87,513	\$ 89,328	958,749

Notes
 Line 1: Company Estimate
 Line 2: Estimated Savings per DE 17-136
 Line 3: Estimated Savings per DE 17-136
 Line 4: Line 2 + Line 3
 Line 5: Estimated Savings per DE 17-136
 Line 6: Line 2 / 12
 Line 7: Prior Month Line 7 + Current Month Line 6. 2019 Cumulative savings shown in Col. N from 2019 Annual Report.
 Line 8: Page 8, Line 1, Col. 5
 Line 9: Line 7 x Line 8
 Line 10: Prior Month Line 10. 12/31/18 Cumulative savings shown in Col. N from 2019 Annual Report.
 Line 11: Page 8, line 2, column (b)
 Line 12: Line 10 x Line 11
 Line 13: Line 3/12
 Line 14: Prior month Line 14 + current month Line 12. 2019 Cumulative savings shown in Col. N from 2019 Annual Report
 Line 15: Page 8 Line 4, Column (a)
 Line 16: Line 14 x Line 15
 Line 17: Line 5 / 2
 Line 18: Prior month Lines 18 + Current month Line 17. 2019 Cumulative savings shown in Col. N from 2019 Annual Report
 Line 19: Page 8 Line 4 Column 6
 Line 20: Line 18 x Line 19
 Line 21: Line 9 + Line 12 + Line 16 + Line 20

Unitil Energy System, Inc.
Estimated Monthly and Cumulative Savings (kWh& kW) and Lost Base Revenue
January 1, 2021 to December 31, 2021

Unitil Energy Systems, Inc.
NHPUC Docket No. DE 20-092
Settlement - Attachment H3
Page 5a of 11

Line	Description	12/31/2020	Forecast Jan-21	Forecast Feb-21	Forecast Mar-21	Forecast Apr-21	Forecast May-21	Forecast Jun-21	Forecast Jul-21	Forecast Aug-21	Forecast Sep-21	Forecast Oct-21	Forecast Nov-21	Forecast Dec-21	2021 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	Monthly Savings Installation Assumption		6.70%	7.00%	7.30%	7.60%	7.90%	8.20%	8.50%	8.80%	9.10%	9.30%	9.60%	10.00%	
2	Residential Annualized kWh Savings (2021)		355,164	371,067	386,970	402,873	418,776	434,679	450,582	466,484	482,387	492,989	508,892	530,096	5,300,959
3	C&I Annualized kWh Savings (2021)		<u>635,402</u>	<u>663,853</u>	<u>692,304</u>	<u>720,754</u>	<u>749,205</u>	<u>777,656</u>	<u>806,107</u>	<u>834,558</u>	<u>863,009</u>	<u>881,976</u>	<u>910,427</u>	<u>948,361</u>	<u>9,483,611</u>
4	Total		990,566	1,034,920	1,079,274	1,123,627	1,167,981	1,212,335	1,256,688	1,301,042	1,345,396	1,374,965	1,419,319	1,478,457	14,784,570
5	C&I Annualized kW Savings (2021)		60	60	60	60	60	60	60	60	60	60	60	60	721
			12 Jan-21	11 Feb-21	10 Mar-21	9 Apr-21	8 May-21	7 Jun-21	6 Jul-21	5 Aug-21	4 Sep-21	3 Oct-21	2 Nov-21	1 Dec-21	Cumulative LBR Savings
6	Monthly Residential kWh Savings		29,597	30,922	32,248	33,573	34,898	36,223	37,548	38,874	40,199	41,082	42,408	44,175	
7	Cumulative Residential kWh Savings	977,762	1,007,359	1,038,281	1,070,529	1,104,101	1,138,999	1,175,223	1,212,771	1,251,645	1,291,844	1,332,926	1,375,334	1,419,508	14,418,519
8	Average Residential Distribution Rate		0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	
9	Lost Residential Revenue		\$ 35,842	\$ 36,942	\$ 38,089	\$ 39,284	\$ 40,526	\$ 41,814	\$ 43,150	\$ 44,534	\$ 45,964	\$ 47,426	\$ 48,934	\$ 50,506	\$ 513,011
10	Monthly C&I kWh Savings (2017 & 2018)	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	
11	Average C&I Distribution Rate		0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	
12	Lost C&I Revenue		\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 408,978
13	Monthly C&I kWh Savings (2021)		52,950	55,321	57,692	60,063	62,434	64,805	67,176	69,546	71,917	73,498	75,869	79,030	
14	Cumulative C&I kWh Savings (2019 to present)	1,428,733	1,481,683	1,537,004	1,594,696	1,654,759	1,717,193	1,781,998	1,849,173	1,918,720	1,990,637	2,064,135	2,140,004	2,219,034	
15	Average C&I Distribution Rate (kWh)		0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	
16	Lost C&I Revenue		\$ 356	\$ 369	\$ 383	\$ 397	\$ 412	\$ 428	\$ 444	\$ 460	\$ 478	\$ 495	\$ 514	\$ 533	\$ 5,268
17	Monthly C&I kW Savings (2021)		30	30	30	30	30	30	30	30	30	30	30	30	
18	Cumulative C&I kW Savings (2019 to present)	2,242	2,272	2,332	2,392	2,452	2,512	2,572	2,632	2,692	2,752	2,812	2,872	2,932	
19	Average C&I Demand Rate		\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	
20	Lost C&I Demand Revenue		\$ 20,810	\$ 21,360	\$ 21,910	\$ 22,460	\$ 23,010	\$ 23,560	\$ 24,110	\$ 24,660	\$ 25,210	\$ 25,760	\$ 26,310	\$ 26,860	\$ 286,023
21	Total Lost C&I Revenue		\$ 55,247	\$ 55,811	\$ 56,374	\$ 56,939	\$ 57,504	\$ 58,069	\$ 58,636	\$ 59,202	\$ 59,770	\$ 60,337	\$ 60,905	\$ 61,474	\$ 700,269
22	Total Lost Revenue		\$ 91,089	\$ 92,753	\$ 94,464	\$ 96,223	\$ 98,029	\$ 99,884	\$ 101,786	\$ 103,736	\$ 105,733	\$ 107,763	\$ 109,840	\$ 111,980	\$ 1,213,280

Notes
Line 1: Company Estimate
Line 2: Estimated Savings per DE 20-092
Line 3: Estimated Savings per DE 20-092
Line 4: Line 2 + Line 3
Line 5: Estimated Savings per DE 20-092
Line 6: Line 2 / 12
Line 7: Prior Month Line 7 + Current Month Line 6. 2020 Cumulative savings from Page 5, Line 7, Col. N.
Line 8: Page 8, Line 1, Col. 5
Line 9: Line 7 x Line 8
Line 10: Prior Month Line 10. 12/31/18 Cumulative savings from Page 5, Line 10, Col. N.
Line 11: Page 8, line 2, column (b)
Line 12: Line 10 x Line 11
Line 13: Line 3/12
Line 14: Prior month Line 14 + current month Line 12. 2020 Cumulative savings from Page 5, Line 10, Col. N.
Line 15: Page 8 Line 4, Column (a)
Line 16: Line 14 x Line 15
Line 17: Line 5 / 2
Line 18: Prior month Lines 18 + Current month Line 17. 2020 Cumulative savings from Page 5, Line 18, Col. N + Page 5, Line 17, Col. N
Line 19: Page 8 Line 4 Column 6
Line 20: Line 18 x Line 19
Line 21: Line 12 + Line 16 + Line 20
Line 22: Line 9 + Line 21

1/2021	Forecast Jan-22	Forecast Feb-22	Forecast Mar-22	Forecast Apr-22	Forecast May-22	Forecast Jun-22	Forecast Jul-22	Forecast Aug-22	Forecast Sep-22	Forecast Oct-22	Forecast Nov-22	Forecast Dec-22	2022 Annual Savings
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
	6.70%	7.00%	7.30%	7.60%	7.90%	8.20%	8.50%	8.80%	9.10%	9.30%	9.60%	10.00%	
	337,058	352,150	367,242	382,335	397,427	412,519	427,611	442,703	457,795	467,857	482,949	503,072	5,030,719
	737,269	770,281	803,293	836,305	869,317	902,329	935,341	968,353	1,001,365	1,023,373	1,056,385	1,100,401	11,004,014
	1,074,327	1,122,431	1,170,535	1,218,640	1,266,744	1,314,848	1,362,952	1,411,056	1,459,161	1,491,230	1,539,334	1,603,473	16,034,732
	43	43	43	43	43	43	43	43	43	43	43	43	521
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Cumulative LBR Savings
	28,088	29,346	30,604	31,861	33,119	34,377	35,634	36,892	38,150	38,988	40,246	41,923	
419,508	1,447,597	1,476,942	1,507,546	1,539,407	1,572,526	1,606,903	1,642,537	1,679,429	1,717,578	1,756,567	1,796,812	1,838,735	19,582,579
	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	0.03558	
	\$ 51,505	\$ 52,550	\$ 53,638	\$ 54,772	\$ 55,950	\$ 57,174	\$ 58,441	\$ 59,754	\$ 61,111	\$ 62,499	\$ 63,931	\$ 65,422	\$ 696,748
1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	
	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	0.03217	
	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 408,978
2,219,034	61,439	64,190	66,941	69,692	72,443	75,194	77,945	80,696	83,447	85,281	88,032	91,700	
	2,280,473	2,344,663	2,411,604	2,481,296	2,553,740	2,628,934	2,706,879	2,787,575	2,871,022	2,956,303	3,044,335	3,136,035	
	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	
	\$ 547	\$ 563	\$ 579	\$ 596	\$ 613	\$ 631	\$ 650	\$ 669	\$ 689	\$ 710	\$ 731	\$ 753	\$ 7,729
2,962	22	22	22	22	22	22	22	22	22	22	22	22	
	2,984	3,027	3,071	3,114	3,158	3,201	3,244	3,288	3,331	3,374	3,418	3,461	
	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	\$ 9.16	
	\$ 27,334	\$ 27,731	\$ 28,129	\$ 28,526	\$ 28,923	\$ 29,321	\$ 29,718	\$ 30,115	\$ 30,513	\$ 30,910	\$ 31,308	\$ 31,705	\$ 354,233
	\$ 61,963	\$ 62,376	\$ 62,789	\$ 63,203	\$ 63,618	\$ 64,033	\$ 64,449	\$ 64,866	\$ 65,283	\$ 65,701	\$ 66,120	\$ 66,539	\$ 770,940
	\$ 113,468	\$ 114,925	\$ 116,427	\$ 117,975	\$ 119,568	\$ 121,207	\$ 122,891	\$ 124,620	\$ 126,395	\$ 128,200	\$ 130,050	\$ 131,961	\$ 1,467,688

Line 1: Company Estimate
Line 2: Estimated Savings per DE 20-092
Line 3: Estimated Savings per DE 20-092
Line 4: Line 2 + Line 3
Line 5: Estimated Savings per DE 20-092
Line 6: Line 2 / 12
Line 7: Prior Month Line 7 + Current Month Line 6. 2021 Cumulative savings from Page 5a, Line 7, Col. N.
Line 8: Page 8, Line 1, Col. 5
Line 9: Line 7 x Line 8
Line 10: Prior Month Line 10. 12/31/18 Cumulative savings from Page 5a, Line 10, Col. N.
Line 11: Page 8, line 2, column (b)
Line 12: Line 10 x Line 11
Line 13: Line 3/12
Line 14: Prior month Line 14 + current month Line 12. 2021 Cumulative savings from Page 5a, Line 10, Col. N.
Line 15: Page 8 Line 4, Column (a)
Line 16: Line 14 x Line 15
Line 17: Line 5 / 2
Line 18: Prior month Lines 18 + Current month Line 17. 2021 Cumulative savings from Page 5a, Line 18, Col. N + Page 5a, Line 17, Col. N.
Line 19: Page 8 Line 4 Column 6
Line 20: Line 18 x Line 19
Line 21: Line 12 + Line 16 + Line 20
Line 22: Line 9 + Line 21

Unitil Energy System, Inc.
 Estimated Monthly and Cumulative Savings (kWh& kW) and Lost Base Revenue
 January 1, 2023 to December 31, 2023

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
 Page 5c of 11

Line	Description	12/31/2022	Forecast Jan-23	Forecast Feb-23	Forecast Mar-23	Forecast Apr-23	Forecast May-23	Forecast Jun-23	Forecast Jul-23	Forecast Aug-23	Forecast Sep-23	Forecast Oct-23	Forecast Nov-23	Forecast Dec-23	2023 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	Monthly Savings Installation Assumption		6.70%	7.00%	7.30%	7.60%	7.90%	8.20%	8.50%	8.80%	9.10%	9.30%	9.60%	10.00%	
2	Residential Annualized Savings (2023)		388,549	405,947	423,345	440,743	458,140	475,538	492,936	510,333	527,731	539,330	556,727	579,924	5,799,244
3	C&I Annualized Savings (2023)		<u>876,850</u>	<u>916,112</u>	<u>955,374</u>	<u>994,636</u>	<u>1,033,898</u>	<u>1,073,160</u>	<u>1,112,422</u>	<u>1,151,684</u>	<u>1,190,946</u>	<u>1,217,121</u>	<u>1,256,383</u>	<u>1,308,732</u>	<u>13,087,321</u>
4	Total		1,265,400	1,322,060	1,378,719	1,435,379	1,492,039	1,548,698	1,605,358	1,662,018	1,718,677	1,756,451	1,813,110	1,888,657	18,886,565
5	C&I Annualized kW Savings (2023)		52	52	52	52	52	52	52	52	52	52	52	52	620
6	Monthly Residential kWh Savings		<u>32,379</u>	<u>33,829</u>	<u>35,279</u>	<u>36,729</u>	<u>38,178</u>	<u>39,628</u>	<u>41,078</u>	<u>42,528</u>	<u>43,978</u>	<u>44,944</u>	<u>46,394</u>	<u>48,327</u>	
7	Cumulative Residential kWh Savings	1,838,735	1,871,114	1,904,943	1,940,222	1,976,950	2,015,129	2,054,757	2,095,835	2,138,363	2,182,340	2,227,284	2,273,678	2,322,005	25,002,620
8	Average Residential Distribution Rate		<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	<u>0.03558</u>	
9	Lost Residential Revenue		\$ 66,574	\$ 67,778	\$ 69,033	\$ 70,340	\$ 71,698	\$ 73,108	\$ 74,570	\$ 76,083	\$ 77,648	\$ 79,247	\$ 80,897	\$ 82,617	\$ 889,593
10	Monthly C&I kWh Savings (2017 & 2018)	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	1,059,418	
11	Average C&I Distribution Rate		<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	<u>0.03217</u>	
12	Lost C&I Revenue		\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 34,081	\$ 408,978
13	Monthly C&I kWh Savings (2023)		73,071	76,343	79,615	82,886	86,158	89,430	92,702	95,974	99,246	101,427	104,699	109,061	
14	Cumulative C&I kWh Savings (2019 to present)	3,136,035	3,209,106	3,285,449	3,365,063	3,447,950	3,534,108	3,623,538	3,716,240	3,812,214	3,911,459	4,012,886	4,117,584	4,226,645	
15	Average C&I Distribution Rate (kWh)		<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	<u>0.00024</u>	
16	Lost C&I Revenue		\$ 770	\$ 789	\$ 808	\$ 828	\$ 848	\$ 870	\$ 892	\$ 915	\$ 939	\$ 963	\$ 988	\$ 1,014	\$ 10,623
17	Monthly C&I kW Savings (2023)		26	26	26	26	26	26	26	26	26	26	26	26	
18	Cumulative C&I kW Savings (2019 to present)	3,483	3,509	3,560	3,612	3,664	3,715	3,767	3,819	3,870	3,922	3,973	4,025	4,077	
19	Average C&I Demand Rate		<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	<u>\$ 9.16</u>	
20	Lost C&I Demand Revenue		\$ 32,140	\$ 32,613	\$ 33,086	\$ 33,559	\$ 34,032	\$ 34,505	\$ 34,978	\$ 35,451	\$ 35,923	\$ 36,396	\$ 36,869	\$ 37,342	\$ 416,894
21	Total Lost C&I Revenue		\$ 66,992	\$ 67,483	\$ 67,975	\$ 68,468	\$ 68,961	\$ 69,456	\$ 69,951	\$ 70,447	\$ 70,944	\$ 71,441	\$ 71,939	\$ 72,438	\$ 836,495
22	Total Lost Revenue		<u>\$ 133,566</u>	<u>\$ 135,261</u>	<u>\$ 137,008</u>	<u>\$ 138,808</u>	<u>\$ 140,660</u>	<u>\$ 142,564</u>	<u>\$ 144,521</u>	<u>\$ 146,530</u>	<u>\$ 148,591</u>	<u>\$ 150,688</u>	<u>\$ 152,837</u>	<u>\$ 155,055</u>	<u>1,726,088</u>

Notes
 Line 1: Company Estimate
 Line 2: Estimated Savings per DE 20-092
 Line 3: Estimated Savings per DE 20-092
 Line 4: Line 2 + Line 3
 Line 5: Estimated Savings per DE 20-092
 Line 6: Line 2 / 12
 Line 7: Prior Month Line 7 + Current Month Line 6. 2022 Cumulative savings from Page 5b, Line 7, Col. N.
 Line 8: Page 8, Line 1, Col. 5
 Line 9: Line 7 x Line 8
 Line 10: Prior Month Line 10, 12/31/18 Cumulative savings from Page 5b, Line 10, Col. N.
 Line 11: Page 8, line 2, column (b)
 Line 12: Line 10 x Line 11
 Line 13: Line 3/12
 Line 14: Prior month Line 14 + current month Line 12. 2022 Cumulative savings from Page 5b, Line 10, Col. N.
 Line 15: Page 8 Line 4, Column (a)
 Line 16: Line 14 x Line 15
 Line 17: Line 5 / 2
 Line 18: Prior month Lines 18 + Current month Line 17. 2022 Cumulative savings from Page 5b, Line 18, Col. N + Page 5b, Line 17, Col. N
 Line 19: Page 8 Line 4 Column 6
 Line 20: Line 18 x Line 19
 Line 21: Line 12 + Line 16 + Line 20
 Line 22: Line 9 + Line 21

Unitil Energy System, Inc.
 Lost Base Revenue Reconciliation
 January 1, 2020 to December 31, 2020

Line	Description	Recast Jan-20	Recast Feb-20	Recast Mar-20	Recast Apr-20	Recast May-20	Recast Jun-20	Estimate Jul-20	Estimate Aug-20	Estimate Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	2020 Total
Total		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	\$ 13,489	\$ 17,774	\$ 15,688	\$ 16,840	\$ 31,669	\$ 50,375	\$ 57,608	\$ 67,672	\$ 73,217	\$ 80,907	\$ 111,226	\$ 140,576	
2	Lost Revenues	\$ 70,988	\$ 72,511	\$ 74,063	\$ 75,644	\$ 77,255	\$ 78,895	\$ 80,564	\$ 82,262	\$ 83,990	\$ 85,737	\$ 87,513	\$ 89,328	\$ 958,749
REVENUE														
3	Revenue (\$)	\$ 66,767	\$ 74,660	\$ 72,976	\$ 60,910	\$ 58,713	\$ 71,871	\$ 70,673	\$ 76,910	\$ 76,505	\$ 55,682	\$ 58,497	\$ 70,525	\$ 814,689
4	Cumulative (Over)/Under Recovery	\$ 17,711	\$ 15,625	\$ 16,775	\$ 31,574	\$ 50,210	\$ 57,399	\$ 67,500	\$ 73,024	\$ 80,702	\$ 110,962	\$ 140,241	\$ 159,379	
INTEREST														
5	Average Monthly Balance	\$ 15,600	\$ 16,699	\$ 16,231	\$ 24,207	\$ 40,939	\$ 53,887	\$ 62,554	\$ 70,348	\$ 76,960	\$ 95,934	\$ 125,734	\$ 149,978	
6	Interest Rate	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
7	Days per Month	31	29	31	30	31	30	31	31	30	31	30	31	366
8	Computed Interest	\$ 63	\$ 63	\$ 65	\$ 94	\$ 165	\$ 210	\$ 172	\$ 194	\$ 205	\$ 264	\$ 335	\$ 413	\$ 2,242
9	Ending Balance (Over)/Under Recovery	\$ 17,774	\$ 15,688	\$ 16,840	\$ 31,669	\$ 50,375	\$ 57,608	\$ 67,672	\$ 73,217	\$ 80,907	\$ 111,226	\$ 140,576	\$ 159,792	
10	Class Sales (Residential inc. LI) -- kWh	47,877,662	43,447,320	41,788,394	36,919,734	34,845,155	43,074,211	42,464,449	49,044,653	47,171,852	31,371,125	34,379,732	44,937,859	497,322,147
11	Class Sales (C&I) -- kWh	57,648,909	57,361,500	56,685,607	45,265,444	44,359,715	53,888,841	53,039,214	54,887,862	56,213,703	43,874,345	44,670,644	50,365,956	618,261,740
12	Total Class Sales - kWh	105,526,571	100,808,820	98,474,001	82,185,178	79,204,870	96,963,052	95,503,664	103,932,515	103,385,555	75,245,470	79,050,376	95,303,816	1,115,583,887

Line 1: Prior period ending balance

Line 2: Page 5, Line 21

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 System, Inc.
 Lost Base Revenue Reconciliation
 January 1, 2021 to December 31, 2021

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
 Page 7 of 11

Line	Description	Estimate Jan-21	Estimate Feb-21	Estimate Mar-21	Estimate Apr-21	Estimate May-21	Estimate Jun-21	Estimate Jul-21	Estimate Aug-21	Estimate Sep-21	Estimate Oct-21	Estimate Nov-21	Estimate Dec-21	2021 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
Residential Sector														
1	Beginning Balance	\$ 71,235	\$ 51,055	\$ 34,236	\$ 19,940	\$ 16,267	\$ 17,274	\$ 15,149	\$ 8,313	\$ (7,689)	\$ (14,968)	\$ (6,289)	\$ 1,127	
2	Lost Revenues	\$ 35,842	\$ 36,942	\$ 38,089	\$ 39,284	\$ 40,526	\$ 41,814	\$ 43,150	\$ 44,534	\$ 45,964	\$ 47,426	\$ 48,934	\$ 50,506	\$ 513,011
REVENUE														
3	Revenue (\$)	\$ 56,190	\$ 53,867	\$ 52,460	\$ 43,005	\$ 39,565	\$ 43,983	\$ 50,019	\$ 60,536	\$ 53,213	\$ 38,717	\$ 41,512	\$ 53,881	\$ 586,947
4	Cumulative (Over)/Under Recovery	\$ 50,886	\$ 34,130	\$ 19,866	\$ 16,219	\$ 17,228	\$ 15,106	\$ 8,280	\$ (7,689)	\$ (14,938)	\$ (6,259)	\$ 1,134	\$ (2,248)	
INTEREST														
5	Average Monthly Balance	\$ 61,061	\$ 42,592	\$ 27,051	\$ 18,080	\$ 16,748	\$ 16,190	\$ 11,715	\$ 312	\$ (11,313)	\$ (10,614)	\$ (2,577)	\$ (560)	
6	Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ 169	\$ 106	\$ 75	\$ 48	\$ 46	\$ 43	\$ 32	\$ 1	\$ (30)	\$ (29)	\$ (7)	\$ (2)	\$ 452
9	Ending Balance (Over)/Under Recovery	\$ 51,055	\$ 34,236	\$ 19,940	\$ 16,267	\$ 17,274	\$ 15,149	\$ 8,313	\$ (7,689)	\$ (14,968)	\$ (6,289)	\$ 1,127	\$ (2,249)	
10	Class Sales (Residential inc. LI) -- kWh	46,825,059	44,889,222	43,716,625	35,837,589	32,970,684	36,652,577	41,682,485	50,446,340	44,344,475	32,263,800	34,593,108	44,900,799	489,122,763

Line	Description	Estimate Jan-21	Estimate Feb-21	Estimate Mar-21	Estimate Apr-21	Estimate May-21	Estimate Jun-21	Estimate Jul-21	Estimate Aug-21	Estimate Sep-21	Estimate Oct-21	Estimate Nov-21	Estimate Dec-21	2021 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
Commercial & Industrial Sector (C&I)														
1	Beginning Balance	\$ 88,558	\$ 81,983	\$ 74,690	\$ 61,842	\$ 58,270	\$ 55,612	\$ 48,692	\$ 36,981	\$ 19,870	\$ 8,105	\$ 7,473	\$ 7,667	
2	Lost Revenues	\$ 55,247	\$ 55,811	\$ 56,374	\$ 56,939	\$ 57,504	\$ 58,069	\$ 58,636	\$ 59,202	\$ 59,770	\$ 60,337	\$ 60,905	\$ 61,474	\$ 700,269
REVENUE														
3	Revenue (\$)	\$ 62,057	\$ 63,298	\$ 69,411	\$ 60,671	\$ 60,319	\$ 65,129	\$ 70,464	\$ 76,391	\$ 71,573	\$ 60,990	\$ 60,731	\$ 67,985	\$ 789,020
4	Cumulative (Over)/Under Recovery	\$ 81,748	\$ 74,495	\$ 61,654	\$ 58,110	\$ 55,455	\$ 48,553	\$ 36,863	\$ 19,792	\$ 8,067	\$ 7,451	\$ 7,647	\$ 1,156	
INTEREST														
5	Average Monthly Balance	\$ 85,153	\$ 78,239	\$ 68,172	\$ 59,976	\$ 56,863	\$ 52,083	\$ 42,777	\$ 28,387	\$ 13,969	\$ 7,778	\$ 7,560	\$ 4,412	
6	Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ 235	\$ 195	\$ 188	\$ 160	\$ 157	\$ 139	\$ 118	\$ 78	\$ 37	\$ 21	\$ 20	\$ 12	\$ 1,362
9	Ending Balance	\$ 81,983	\$ 74,690	\$ 61,842	\$ 58,270	\$ 55,612	\$ 48,692	\$ 36,981	\$ 19,870	\$ 8,105	\$ 7,473	\$ 7,667	\$ 1,168	
10	Class Sales (C&I) -- kWh	48,482,338	49,451,648	54,227,195	47,399,243	47,123,912	50,882,244	55,050,056	59,680,858	55,916,215	47,648,649	47,446,368	53,113,467	616,422,193

Line 1: Prior period ending balance allocated by sales %
 Line 2: Page 5, Line 5 & 9
 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 System, Inc.
Lost Base Revenue Reconciliation
January 1, 2022 to December 31, 2022

Line	Description	Estimate Jan-22	Estimate Feb-22	Estimate Mar-22	Estimate Apr-22	Estimate May-22	Estimate Jun-22	Estimate Jul-22	Estimate Aug-22	Estimate Sep-22	Estimate Oct-22	Estimate Nov-22	Estimate Dec-22	2022 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
Residential Sector														
1	Beginning Balance	\$ (2,249)	\$ (18,994)	\$ (30,857)	\$ (34,353)	\$ (32,715)	\$ (23,438)	\$ (17,947)	\$ (18,556)	\$ (31,521)	\$ (33,032)	\$ (18,347)	\$ (5,228)	
2	Lost Revenues	\$ 51,505	\$ 52,550	\$ 53,638	\$ 54,772	\$ 55,950	\$ 57,174	\$ 58,441	\$ 59,754	\$ 61,111	\$ 62,499	\$ 63,931	\$ 65,422	\$ 696,748
REVENUE														
3	Revenue (\$)	\$ 68,221	\$ 64,351	\$ 57,044	\$ 53,045	\$ 46,596	\$ 51,627	\$ 59,000	\$ 72,651	\$ 62,536	\$ 47,743	\$ 50,780	\$ 60,495	\$ 694,088
4	Cumulative (Over)/Under Recovery	\$ (18,965)	\$ (30,795)	\$ (34,263)	\$ (32,626)	\$ (23,360)	\$ (17,891)	\$ (18,505)	\$ (31,452)	\$ (32,946)	\$ (18,276)	\$ (5,196)	\$ (300)	
INTEREST														
5	Average Monthly Balance	\$ (10,607)	\$ (24,894)	\$ (32,560)	\$ (33,489)	\$ (28,038)	\$ (20,665)	\$ (18,226)	\$ (25,004)	\$ (32,233)	\$ (25,654)	\$ (11,772)	\$ (2,764)	
6	Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ (29)	\$ (62)	\$ (90)	\$ (89)	\$ (77)	\$ (55)	\$ (50)	\$ (69)	\$ (86)	\$ (71)	\$ (31)	\$ (8)	\$ (719)
9	Ending Balance (Over)/Under Recovery	\$ (18,994)	\$ (30,857)	\$ (34,353)	\$ (32,715)	\$ (23,438)	\$ (17,947)	\$ (18,556)	\$ (31,521)	\$ (33,032)	\$ (18,347)	\$ (5,228)	\$ (308)	
10	Class Sales (Residential inc. LI) -- kWh	47,375,528	44,688,111	39,613,993	36,836,779	32,358,184	35,852,218	40,972,370	50,451,757	43,427,926	33,154,827	35,263,723	42,010,402	482,005,817

Line	Description	Estimate Jan-22	Estimate Feb-22	Estimate Mar-22	Estimate Apr-22	Estimate May-22	Estimate Jun-22	Estimate Jul-22	Estimate Aug-22	Estimate Sep-22	Estimate Oct-22	Estimate Nov-22	Estimate Dec-22	2022 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
Commercial & Industrial Sector (C&I)														
1	Beginning Balance	\$ 1,168	\$ 1,027	\$ 1,048	\$ 1,510	\$ 3,043	\$ 7,928	\$ 8,755	\$ 4,538	\$ (6,356)	\$ (10,608)	\$ (7,013)	\$ (2,191)	
2	Lost Revenues	\$ 61,963	\$ 62,376	\$ 62,789	\$ 63,203	\$ 63,618	\$ 64,033	\$ 64,449	\$ 64,866	\$ 65,283	\$ 65,701	\$ 66,120	\$ 66,539	\$ 770,940
REVENUE														
3	Revenue (\$)	\$ 62,107	\$ 62,357	\$ 62,330	\$ 61,676	\$ 58,748	\$ 63,229	\$ 68,685	\$ 75,757	\$ 69,512	\$ 62,082	\$ 61,286	\$ 63,007	\$ 770,777
4	Cumulative (Over)/Under Recovery	\$ 1,024	\$ 1,046	\$ 1,507	\$ 3,037	\$ 7,913	\$ 8,733	\$ 4,519	\$ (6,354)	\$ (10,585)	\$ (6,988)	\$ (2,179)	\$ 1,340	
INTEREST														
5	Average Monthly Balance	\$ 1,096	\$ 1,036	\$ 1,277	\$ 2,274	\$ 5,478	\$ 8,331	\$ 6,637	\$ (908)	\$ (8,471)	\$ (8,798)	\$ (4,596)	\$ (426)	
6	Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ 3	\$ 3	\$ 4	\$ 6	\$ 15	\$ 22	\$ 18	\$ (3)	\$ (23)	\$ (24)	\$ (12)	\$ (1)	\$ 8
9	Ending Balance	\$ 1,027	\$ 1,048	\$ 1,510	\$ 3,043	\$ 7,928	\$ 8,755	\$ 4,538	\$ (6,356)	\$ (10,608)	\$ (7,013)	\$ (2,191)	\$ 1,339	
10	Class Sales (C&I) -- kWh	51,756,045	51,964,176	51,942,067	51,396,629	48,956,502	52,690,740	57,237,506	63,131,201	57,926,721	51,734,985	51,071,689	52,506,143	642,314,405

Line 1: Prior period ending balance
Line 2: Page 5, Line 5 & 9
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 System, Inc.
Lost Base Revenue Reconciliation
January 1, 2023 to December 31, 2023

Unitil Energy Systems, Inc.
NHPUC Docket No. DE 20-092
Settlement - Attachment H3
Page 7b of 11

Line	Description	Estimate Jan-23	Estimate Feb-23	Estimate Mar-23	Estimate Apr-23	Estimate May-23	Estimate Jun-23	Estimate Jul-23	Estimate Aug-23	Estimate Sep-23	Estimate Oct-23	Estimate Nov-23	Estimate Dec-23	2023 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
Residential Sector														
1	Beginning Balance	\$ (308)	\$ (20,830)	\$ (35,323)	\$ (39,279)	\$ (36,833)	\$ (24,796)	\$ (17,865)	\$ (19,044)	\$ (36,435)	\$ (39,305)	\$ (21,489)	\$ (5,968)	
2	Lost Revenues	\$ 66,574	\$ 67,778	\$ 69,033	\$ 70,340	\$ 71,698	\$ 73,108	\$ 74,570	\$ 76,083	\$ 77,648	\$ 79,247	\$ 80,897	\$ 82,617	\$ 889,593
REVENUE														
3	Revenue (\$)	\$ 87,067	\$ 82,201	\$ 72,886	\$ 67,793	\$ 59,576	\$ 66,120	\$ 75,699	\$ 93,397	\$ 80,416	\$ 61,347	\$ 65,340	\$ 78,000	\$ 889,843
4	Cumulative (Over)/Under Recovery	\$ (20,801)	\$ (35,253)	\$ (39,176)	\$ (36,732)	\$ (24,711)	\$ (17,808)	\$ (18,993)	\$ (36,359)	\$ (39,203)	\$ (21,405)	\$ (5,932)	\$ (1,351)	
INTEREST														
5	Average Monthly Balance	\$ (10,555)	\$ (28,042)	\$ (37,250)	\$ (38,005)	\$ (30,772)	\$ (21,302)	\$ (18,429)	\$ (27,701)	\$ (37,819)	\$ (30,355)	\$ (13,710)	\$ (3,660)	
6	Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ (29)	\$ (70)	\$ (103)	\$ (102)	\$ (85)	\$ (57)	\$ (51)	\$ (76)	\$ (101)	\$ (84)	\$ (37)	\$ (10)	\$ (804)
9	Ending Balance (Over)/Under Recovery	\$ (20,830)	\$ (35,323)	\$ (39,279)	\$ (36,833)	\$ (24,796)	\$ (17,865)	\$ (19,044)	\$ (36,435)	\$ (39,305)	\$ (21,489)	\$ (5,968)	\$ (1,361)	
10	Class Sales (Residential inc. LI) -- kWh	46,810,442	44,194,012	39,185,784	36,447,735	32,030,136	35,548,498	40,698,142	50,213,654	43,234,425	32,982,499	35,129,070	41,935,563	478,409,960

Line	Description	Estimate Jan-23	Estimate Feb-23	Estimate Mar-23	Estimate Apr-23	Estimate May-23	Estimate Jun-23	Estimate Jul-23	Estimate Aug-23	Estimate Sep-23	Estimate Oct-23	Estimate Nov-23	Estimate Dec-23	2023 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
Commercial & Industrial Sector (C&I)														
1	Beginning Balance	\$ 1,339	\$ (423)	\$ (1,705)	\$ (2,167)	\$ (1,085)	\$ 3,796	\$ 4,525	\$ 80	\$ (11,280)	\$ (15,063)	\$ (10,019)	\$ (3,334)	
2	Lost Revenues	\$ 66,992	\$ 67,483	\$ 67,975	\$ 68,468	\$ 68,961	\$ 69,456	\$ 69,951	\$ 70,447	\$ 70,944	\$ 71,441	\$ 71,939	\$ 72,438	\$ 836,495
REVENUE														
3	Revenue (\$)	\$ 68,755	\$ 68,762	\$ 68,432	\$ 67,381	\$ 64,084	\$ 68,738	\$ 74,403	\$ 81,791	\$ 74,691	\$ 66,363	\$ 65,236	\$ 66,805	\$ 835,442
4	Cumulative (Over)/Under Recovery	\$ (425)	\$ (1,702)	\$ (2,162)	\$ (1,081)	\$ 3,792	\$ 4,514	\$ 73	\$ (11,265)	\$ (15,027)	\$ (9,984)	\$ (3,316)	\$ 2,299	
INTEREST														
5	Average Monthly Balance	\$ 457	\$ (1,063)	\$ (1,933)	\$ (1,624)	\$ 1,354	\$ 4,155	\$ 2,299	\$ (5,592)	\$ (13,154)	\$ (12,523)	\$ (6,668)	\$ (518)	
6	Interest Rate	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
7	Days per Month	31	28	31	30	31	30	31	31	30	31	30	31	365
8	Computed Interest	\$ 1	\$ (3)	\$ (5)	\$ (4)	\$ 4	\$ 11	\$ 6	\$ (15)	\$ (35)	\$ (35)	\$ (18)	\$ (1)	\$ (94)
9	Ending Balance	\$ (423)	\$ (1,705)	\$ (2,167)	\$ (1,085)	\$ 3,796	\$ 4,525	\$ 80	\$ (11,280)	\$ (15,063)	\$ (10,019)	\$ (3,334)	\$ 2,297	
10	Class Sales (C&I) -- kWh	53,715,088	53,720,127	53,462,456	52,641,680	50,065,776	53,701,661	58,127,109	63,899,285	58,352,542	51,845,879	50,965,886	52,191,634	652,689,123

Line 1: Prior period ending balance
Line 2: Page 5, Line 5 & 9
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 2019 and Distribution Rates effective May 1, 2019

	(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^(a)</u>	<u>Average Distribution Rate \$/kWh^(b)</u>
1 Residential D	\$ -	\$ 17,218,197	\$ 17,218,197	-	483,929,101	N/A	N/A	\$ 0.03558
2 Regular General G2	\$ 13,817,475	\$ 162,786	\$ 13,980,261	1,316,550	342,782,066	10.50	\$ 0.00047	\$ 0.04078
3 Large General Service Rate G1	<u>\$ 7,590,823</u>	<u>\$ -</u>	<u>\$ 7,590,823</u>	<u>1,021,630</u>	<u>327,838,600</u>	<u>7.43</u>	<u>\$ -</u>	<u>\$ 0.02315</u>
4 Commercial and Industrial	\$ 21,408,298	\$ 162,786	\$ 21,571,084	2,338,180	670,620,666	\$ 9.16	\$ 0.00024	\$ 0.03217

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 & 2020 C&I Savings.

(b) For 2017 & 2018 C&I Savings (in 2020 calculation).

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
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Bill Impacts of Changes in System Benefits Charge - Unitil Energy Systems, Inc.

Rates Proposed for Effect January 1, 2021, January 1, 2022 & January 1, 2023

	2020	2021	2022	2023
System Benefits Charge (\$/kWh) Residential	\$ 0.00752	\$ 0.00885	\$ 0.01067	\$ 0.01165
System Benefits Charge (\$/kWh) C&I	\$ 0.00752	\$ 0.01145	\$ 0.01340	\$ 0.01611
<u>Bill per month, including UES Default Service Charge</u>				
Residential Rate R (625 kWh/month)	\$ 109.78	\$ 110.61	\$ 111.74	\$ 112.35
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)	\$ 1,479.39	\$ 1,518.70	\$ 1,538.21	\$ 1,565.32
<u>Change from previous rate level - \$ per month</u>				
Residential Rate R (625 kWh/month)		\$ 0.83	\$ 1.14	\$ 0.61
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		\$ 39.31	\$ 19.51	\$ 27.11
<u>Change from previous rate level - %</u>				
Residential Rate R (625 kWh/month)		0.8%	1.0%	0.5%
General Service Rate G, three-phase service (40 kW, 10,000 kWh/month)		2.7%	1.3%	1.8%

Unitil Energy Systems, Inc.
Calculation of Distribution Revenue at the Rate Level Effective January 1, 2019 - December 31, 2019
Based on Billing Determinants for the Twelve Months Ending December 31, 2018

Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
 Settlement - Attachment H3
 Page 10 of 11

Rate Class	Customer Group		(a)	(b)	(c) Calculated Revenue = (a) X (b)			
			5/1/2019 Monthly Distribution Charge	Jan - Dec Billing Determinants	Customer/ Meter/ Luminaire	Demand	kWh	Total
Residential Rate R	Standard Rate	Customer Charge	\$ 16.22	808,335	\$ 13,111,194			
		All kWh	\$ 0.03558	483,929,101			\$ 17,218,197	\$ 30,329,391
Total Rate R		Customers		808,335				
		Meters		n/a				
		KWH		483,929,101				
		Revenue			\$ 13,111,194	\$ -	\$ 17,218,197	\$ 30,329,391
General Rate G2	Standard Rate	Customer Charge	\$ 29.19	125,661	\$ 3,668,045			
		Demand charge (All KW)	\$ 10.51	1,316,550		\$ 13,836,941		
		All KWH	\$ -	337,338,818			\$ -	
		Transformer Ownership Credit, G2	\$ (0.50000)	38,931		\$ (19,466)		\$ 17,485,520
	G2 - kWh Meter	Customer Charge	\$ 18.38	4,726	\$ 86,864			
		All KWH	\$ 0.00883	500,439			\$ 4,419	\$ 91,283
QR Water Heating and/or Space Heat		Customer Charge	\$ 9.73	3,107	\$ 30,231			
		All KWH	\$ 0.03204	4,942,809			\$ 158,368	\$ 188,599
Total Rate G2		Customers		133,494				
		Meters		n/a				
		Billing demand		1,316,550				
		KWH		342,782,066				
		Revenue			\$ 3,785,140	\$ 13,817,475	\$ 162,786	\$ 17,765,401
Large General Rate G1	Standard Rate	Customer Charge Secondary Voltage	\$ 162.18	1,582	\$ 256,569			
		Customer Charge Primary Voltage	\$ 86.49	394	\$ 34,077			
		All kVA	\$ 7.60	1,021,630		\$ 7,764,388		
		All KWH	\$ -	327,838,600			\$ -	
		Transformer Ownership Credit, G1	\$ (0.50000)	347,131		\$ (173,566)		\$ 7,881,468
Total Rate G1		Customers Secondary Voltage		1,582				
		Customers Primary Voltage		394				
		Meters		n/a				
		Billing demand		1,021,630				
		KWH		327,838,600				
		Revenue			\$ 290,646	\$ 7,590,823	\$ -	\$ 7,881,468

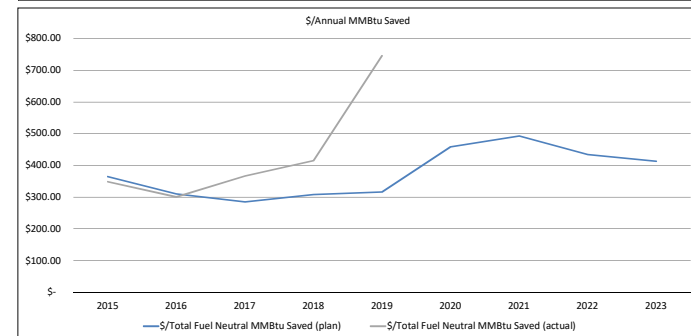
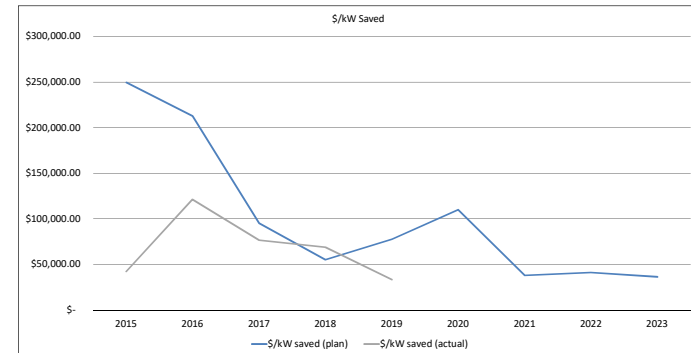
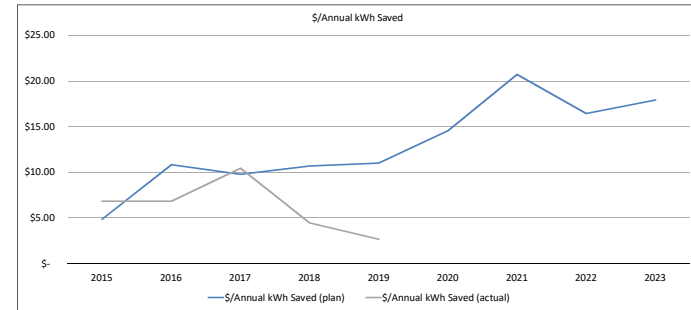
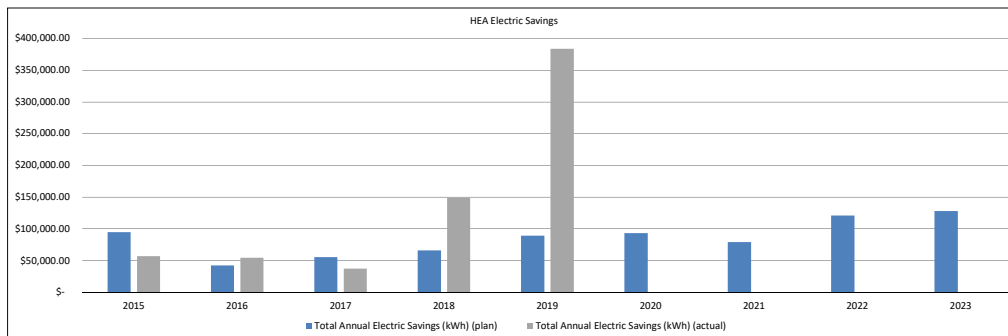
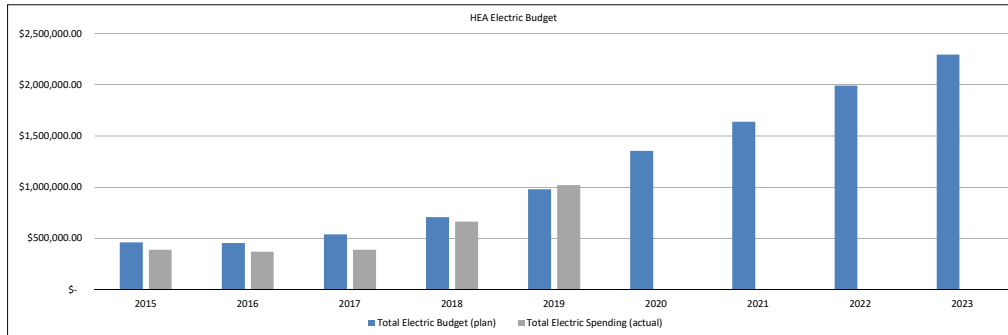
Unitil Energy Systems, Inc.
 NHPUC Docket No. DE 20-092
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Outdoor Lighting Rate OL	100	Mercury Vapor Street	\$13.28	10,729	\$	142,484				
	175	Mercury Vapor Street	\$15.75	545	\$	8,586				
	250	Mercury Vapor Street	\$17.85	576	\$	10,284				
	400	Mercury Vapor Street	\$21.25	1,061	\$	22,551				
	1000	Mercury Vapor Street	\$42.19	16	\$	675				
	250	Mercury Vapor Flood	\$19.02	488	\$	9,281				
	400	Mercury Vapor Flood	\$22.75	736	\$	16,753				
	1000	Mercury Vapor Flood	\$37.70	112	\$	4,227				
	100	Mercury Vapor Power Bracket	\$13.41	2,848	\$	38,195				
	175	Mercury Vapor Power Bracket	\$14.87	401	\$	5,968				
	50	Sodium Vapor Street	\$13.52	28,508	\$	385,424				
	100	Sodium Vapor Street	\$15.22	850	\$	12,944				
	150	Sodium Vapor Street	\$15.28	2,885	\$	44,076				
	250	Sodium Vapor Street	\$19.14	9,178	\$	175,658				
	400	Sodium Vapor Street	\$24.13	1,920	\$	46,328				
	1000	Sodium Vapor Street	\$41.66	1,089	\$	45,368				
	150	Sodium Vapor Flood	\$17.61	1,881	\$	33,127				
	250	Sodium Vapor Flood	\$20.76	2,576	\$	53,485				
	400	Sodium Vapor Flood	\$23.58	3,246	\$	76,536				
	1000	Sodium Vapor Flood	\$42.03	1,747	\$	73,444				
	50	Sodium Vapor Power Bracket	\$12.51	942	\$	11,779				
	100	Sodium Vapor Power Bracket	\$14.04	589	\$	8,264				
	175	Metal Halide Street	\$19.91	9	\$	169				
	250	Metal Halide Street	\$21.65	-	\$	-				
	400	Metal Halide Street	\$22.45	-	\$	-				
	175	Metal Halide Flood	\$23.00	-	\$	-				
	250	Metal Halide Flood	\$24.83	-	\$	-				
	400	Metal Halide Flood	\$24.88	-	\$	-				
	1000	Metal Halide Flood	\$32.22	-	\$	-				
	175	Metal Halide Power Bracket	\$18.63	-	\$	-				
	250	Metal Halide Power Bracket	\$19.81	-	\$	-				
	400	Metal Halide Power Bracket	\$21.17	296	\$	6,269				
	42	LED Area Light Fixture	\$13.16	-	\$	-				
	57	LED Area Light Fixture	\$13.21	-	\$	-				
	25	LED Cobra Head Fixture	\$13.11	-	\$	-				
	88	LED Cobra Head Fixture	\$13.30	-	\$	-				
	108	LED Cobra Head Fixture	\$13.36	-	\$	-				
	193	LED Cobra Head Fixture	\$13.62	-	\$	-				
	123	LED Flood Light Fixture	\$13.41	-	\$	-				
	194	LED Flood Light Fixture	\$13.62	-	\$	-				
	297	LED Flood Light Fixture	\$13.93	-	\$	-				
Total Rate OL				73,228						
	Luminaires									
	Customers	n/a								
	Meters	-								
	KWH	\$ -	7,942,212							
	Revenue			\$	1,231,875	\$	-	\$	1,231,875	
<hr/>										
Total Retail			943,411							
	Customers									
	Meters	n/a								
	Luminaires		73,228							
	Billing Demand		2,338,180							
	KWH		1,162,491,979							
	Revenue			\$	17,186,979	\$	22,640,172	\$	17,380,984	\$ 57,208,135

Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 459,624.42	\$ 455,327.00	\$ 538,873.80	\$ 706,636.00	\$ 980,094.04	\$ 1,353,130.64	\$ 1,637,475.76	\$ 1,991,184.16	\$ 2,293,499.04
	Total Annual Electric Savings (kWh) (plan)	\$ 94,642.13	\$ 42,000.00	\$ 55,000.00	\$ 66,000.00	\$ 89,000.00	\$ 93,000.00	\$ 79,000.00	\$ 121,000.00	\$ 128,000.00
	\$/Annual kWh Saved (plan)	\$ 4.86	\$ 10.84	\$ 9.80	\$ 10.71	\$ 11.01	\$ 14.55	\$ 20.73	\$ 16.46	\$ 17.92
2)	Total Electric Budget	\$ 459,624.42	\$ 455,327.00	\$ 538,873.80	\$ 706,636.00	\$ 980,094.04	\$ 1,353,130.64	\$ 1,637,475.76	\$ 1,991,184.16	\$ 2,293,499.04
	Total kW saved	\$ 1.84	\$ 2.14	\$ 5.65	\$ 12.81	\$ 12.61	\$ 12.29	\$ 42.98	\$ 48.50	\$ 63.04
	\$/kW saved (plan)	\$ 249,518.52	\$ 212,854.29	\$ 95,350.21	\$ 55,141.71	\$ 77,735.31	\$ 110,144.78	\$ 38,101.66	\$ 41,057.92	\$ 36,379.61
3)	Total Electric Budget	\$ 459,624.42	\$ 455,327.00	\$ 538,873.80	\$ 706,636.00	\$ 980,094.04	\$ 1,353,130.64	\$ 1,637,475.76	\$ 1,991,184.16	\$ 2,293,499.04
	Total Fuel Neutral MMBtu Saved	\$ 1,261.63	\$ 1,465.79	\$ 1,892.00	\$ 2,293.60	\$ 3,102.63	\$ 2,948.24	\$ 3,322.46	\$ 4,584.17	\$ 5,553.61
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 364.31	\$ 310.64	\$ 284.82	\$ 308.09	\$ 315.89	\$ 458.96	\$ 492.85	\$ 434.36	\$ 412.97

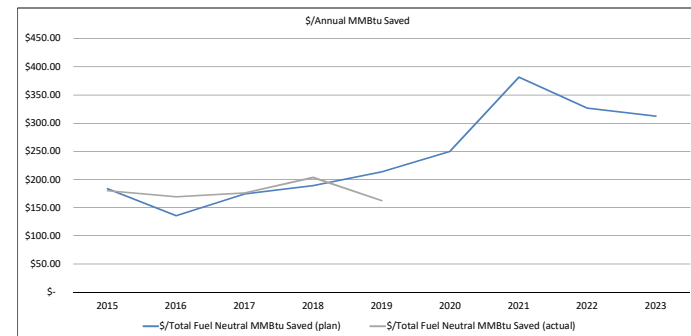
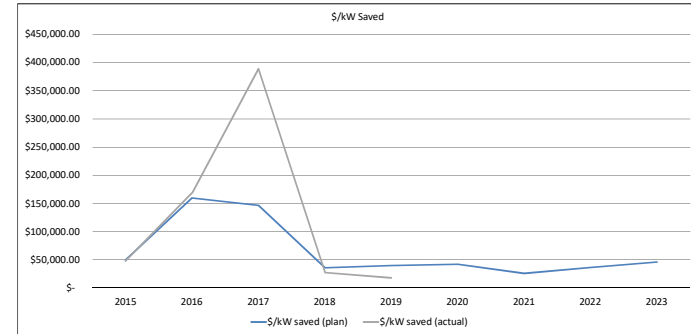
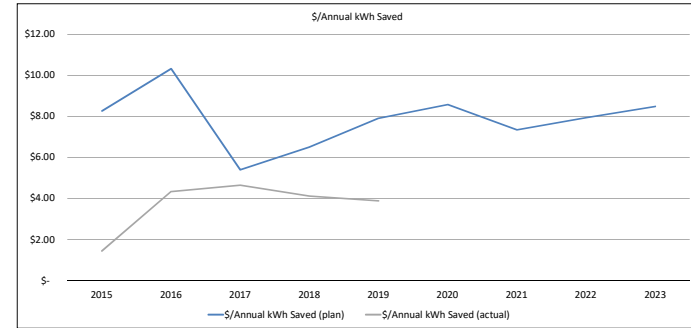
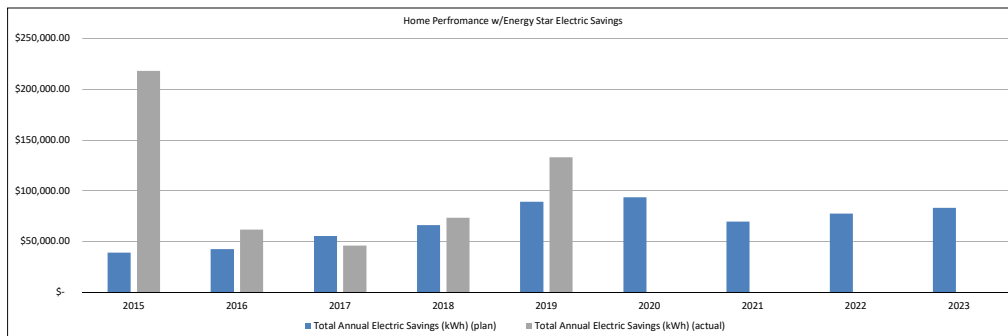
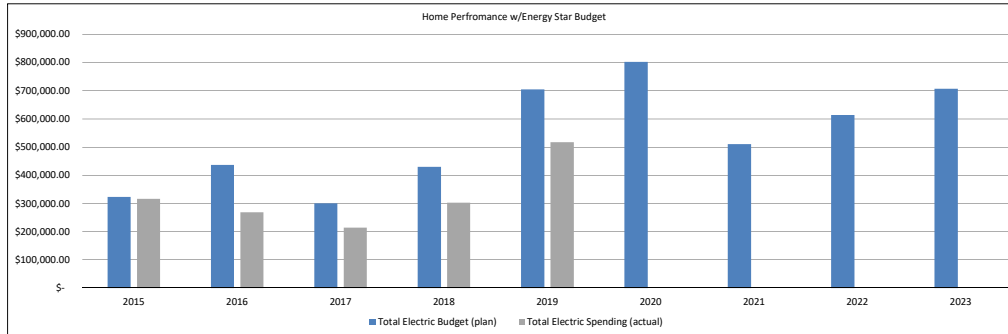
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 389,541.09	\$ 369,329.15	\$ 388,231.12	\$ 662,392.08	\$ 1,020,067.22
	Total Annual Electric Savings (kWh) (actual)	\$ 56,811.45	\$ 54,123.54	\$ 37,139.55	\$ 149,020.93	\$ 383,834.11
	\$/Annual kWh Saved (actual)	\$ 6.86	\$ 6.82	\$ 10.45	\$ 4.44	\$ 2.66
2)	Total Electric Spending	\$ 389,541.09	\$ 369,329.15	\$ 388,231.12	\$ 662,392.08	\$ 1,020,067.22
	Total kW saved	\$ 9.19	\$ 3.05	\$ 5.07	\$ 9.62	\$ 30.50
	\$/kW saved (actual)	\$ 42,400.58	\$ 121,244.48	\$ 76,538.42	\$ 68,882.77	\$ 33,448.34
3)	Total Electric Spending	\$ 389,541.09	\$ 369,329.15	\$ 388,231.12	\$ 662,392.08	\$ 1,020,067.22
	Total Fuel Neutral MMBtu Saved	\$ 1,118.95	\$ 1,228.97	\$ 1,058.07	\$ 1,595.98	\$ 1,367.60
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ 348.13	\$ 300.52	\$ 366.92	\$ 415.04	\$ 745.88



Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 322,989.57	\$ 436,630.68	\$ 299,999.99	\$ 429,999.86	\$ 704,299.65	\$ 801,804.38	\$ 510,435.00	\$ 614,062.95	\$ 706,308.88
	Total Annual Electric Savings (kWh) (plan)	\$ 39,052.59	\$ 42,288.52	\$ 55,484.65	\$ 66,052.08	\$ 89,008.00	\$ 93,440.33	\$ 69,407.54	\$ 77,282.06	\$ 83,227.27
	\$/Annual kWh Saved (plan)	\$ 8.27	\$ 10.33	\$ 5.41	\$ 6.51	\$ 7.91	\$ 8.58	\$ 7.35	\$ 7.95	\$ 8.49
2)	Total Electric Budget	\$ 322,989.57	\$ 436,630.68	\$ 299,999.99	\$ 429,999.86	\$ 704,299.65	\$ 801,804.38	\$ 510,435.00	\$ 614,062.95	\$ 706,308.88
	Total kW saved	\$ 6.53	\$ 2.73	\$ 2.05	\$ 11.94	\$ 17.60	\$ 19.01	\$ 19.68	\$ 16.87	\$ 15.30
	\$/kW saved (plan)	\$ 49,489.06	\$ 159,701.47	\$ 146,686.52	\$ 36,008.82	\$ 40,012.62	\$ 42,173.51	\$ 25,933.73	\$ 36,398.72	\$ 46,156.77
3)	Total Electric Budget	\$ 322,989.57	\$ 436,630.68	\$ 299,999.99	\$ 429,999.86	\$ 704,299.65	\$ 801,804.38	\$ 510,435.00	\$ 614,062.95	\$ 706,308.88
	Total Fuel Neutral MMBtu Saved	\$ 1,759.57	\$ 3,210.97	\$ 1,717.60	\$ 2,270.40	\$ 3,291.00	\$ 3,209.40	\$ 1,337.55	\$ 1,878.90	\$ 2,259.38
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 183.56	\$ 135.98	\$ 174.66	\$ 189.39	\$ 214.01	\$ 249.83	\$ 381.62	\$ 326.82	\$ 312.61

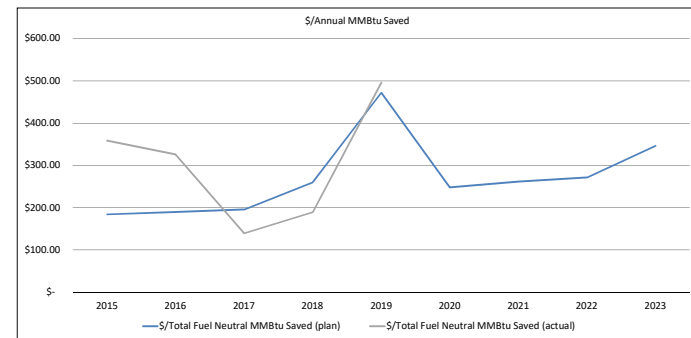
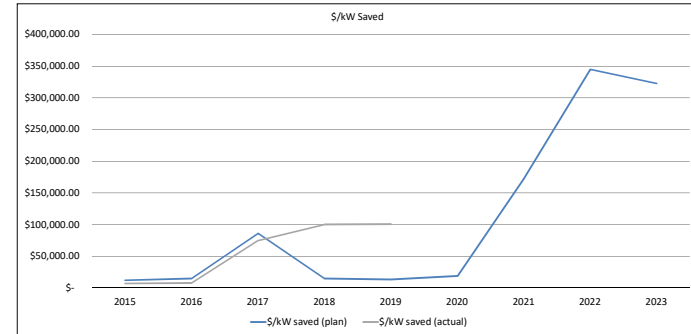
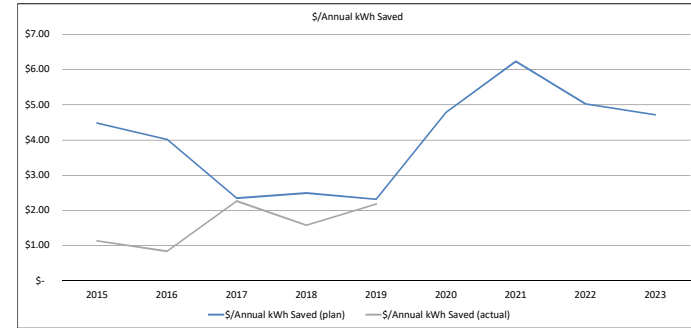
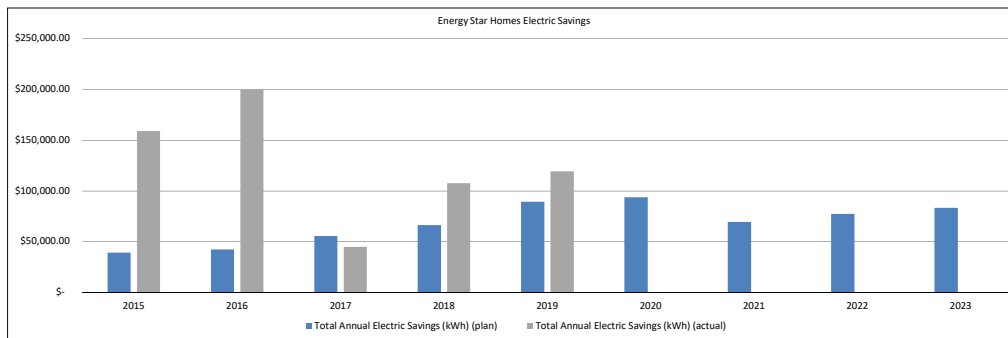
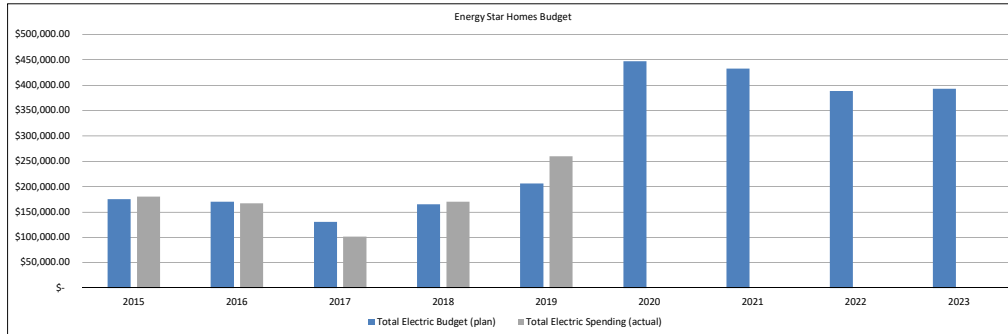
Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 316,628.56	\$ 268,193.38	\$ 213,461.99	\$ 302,725.58	\$ 517,027.72
	Total Annual Electric Savings (kWh) (actual)	\$ 218,041.56	\$ 61,812.00	\$ 45,885.13	\$ 73,424.52	\$ 132,836.00
	\$/Annual kWh Saved (actual)	\$ 1.45	\$ 4.34	\$ 4.65	\$ 4.12	\$ 3.89
2)	Total Electric Spending	\$ 316,628.56	\$ 268,193.38	\$ 213,461.99	\$ 302,725.58	\$ 517,027.72
	Total kW saved	\$ 6.63	\$ 1.59	\$ 0.55	\$ 11.07	\$ 28.69
	\$/kW saved (actual)	\$ 47,749.41	\$ 168,737.76	\$ 389,003.51	\$ 27,348.88	\$ 18,020.38
3)	Total Electric Spending	\$ 316,628.56	\$ 268,193.38	\$ 213,461.99	\$ 302,725.58	\$ 517,027.72
	Total Fuel Neutral MMBtu Saved	\$ 1,757.81	\$ 1,583.90	\$ 1,212.18	\$ 1,486.46	\$ 3,179.20
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ 180.13	\$ 169.32	\$ 176.10	\$ 203.66	\$ 162.63



Energy Star Homes

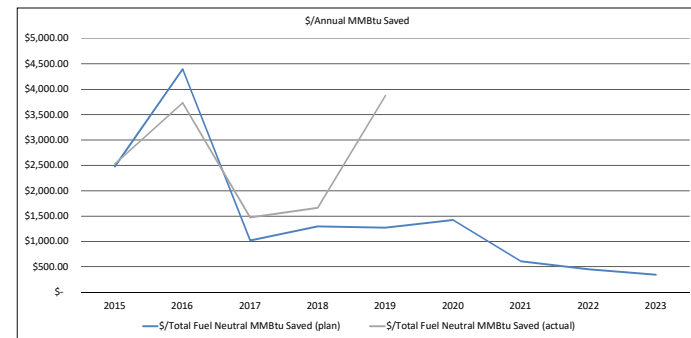
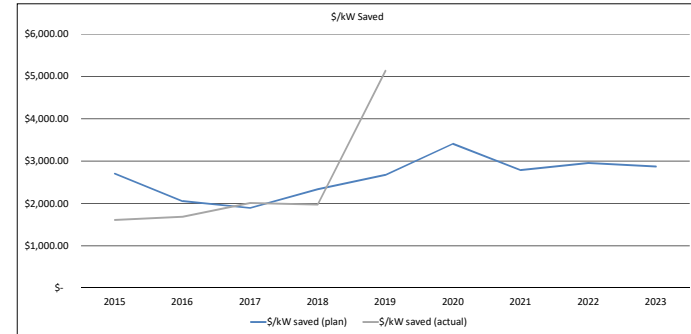
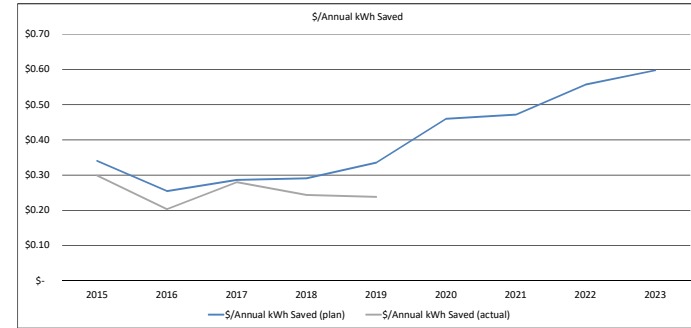
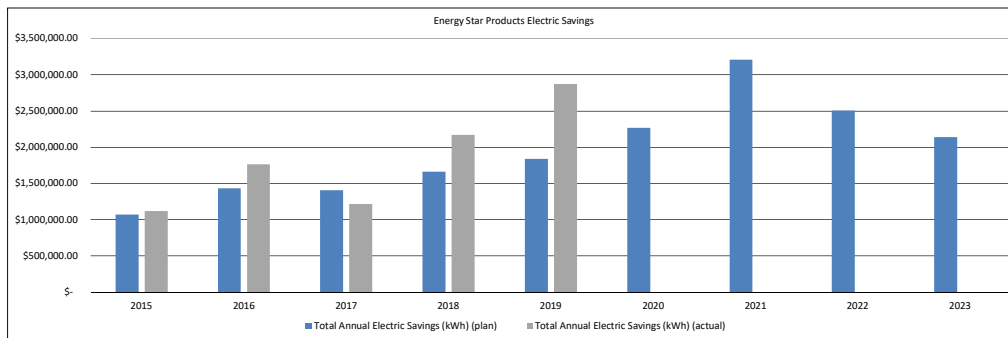
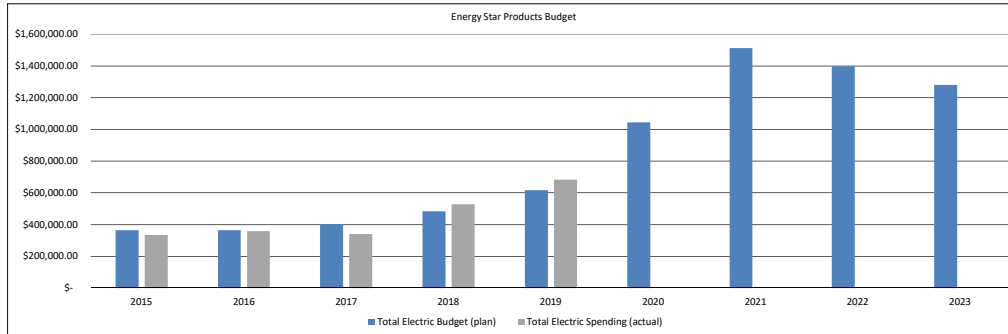
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 175,000.00	\$ 170,000.00	\$ 130,000.28	\$ 164,703.66	\$ 205,783.48	\$ 446,820.72	\$ 432,654.50	\$ 388,625.67	\$ 392,937.05
	Total Annual Electric Savings (kWh) (plan)	\$ 39,052.59	\$ 42,288.52	\$ 55,484.65	\$ 66,052.08	\$ 89,008.00	\$ 93,440.33	\$ 69,407.54	\$ 77,282.06	\$ 83,227.27
	\$/Annual kWh Saved (plan)	\$ 4.48	\$ 4.02	\$ 2.34	\$ 2.49	\$ 2.31	\$ 4.78	\$ 6.23	\$ 5.03	\$ 4.72
2)	Total Electric Budget	\$ 175,000.00	\$ 170,000.00	\$ 130,000.28	\$ 164,703.66	\$ 205,783.48	\$ 446,820.72	\$ 432,654.50	\$ 388,625.67	\$ 392,937.05
	Total kW saved	\$ 14.34	\$ 11.26	\$ 1.51	\$ 11.06	\$ 15.11	\$ 23.71	\$ 2.51	\$ 1.13	\$ 1.22
	\$/kW saved (plan)	\$ 12,206.20	\$ 15,096.93	\$ 85,871.19	\$ 14,896.90	\$ 13,620.32	\$ 18,842.58	\$ 172,516.36	\$ 344,695.19	\$ 322,685.29
3)	Total Electric Budget	\$ 175,000.00	\$ 170,000.00	\$ 130,000.28	\$ 164,703.66	\$ 205,783.48	\$ 446,820.72	\$ 432,654.50	\$ 388,625.67	\$ 392,937.05
	Total Fuel Neutral MMBtu Saved	\$ 951.23	\$ 894.92	\$ 665.27	\$ 632.42	\$ 436.04	\$ 1,800.00	\$ 1,654.00	\$ 1,432.50	\$ 1,133.50
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 183.97	\$ 189.96	\$ 195.41	\$ 260.43	\$ 471.94	\$ 248.23	\$ 261.58	\$ 271.29	\$ 346.66

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 180,414.15	\$ 167,126.28	\$ 101,427.40	\$ 169,803.30	\$ 259,859.59
	Total Annual Electric Savings (kWh) (actual)	\$ 159,006.65	\$ 199,654.84	\$ 44,813.33	\$ 107,316.03	\$ 119,010.64
	\$/Annual kWh Saved (actual)	\$ 1.13	\$ 0.84	\$ 2.26	\$ 1.58	\$ 2.18
2)	Total Electric Spending	\$ 180,414.15	\$ 167,126.28	\$ 101,427.40	\$ 169,803.30	\$ 259,859.59
	Total kW saved	\$ 25.18	\$ 21.15	\$ 1.35	\$ 1.69	\$ 2.58
	\$/kW saved (actual)	\$ 7,166.00	\$ 7,901.61	\$ 75,145.19	\$ 100,446.47	\$ 100,759.00
3)	Total Electric Spending	\$ 180,414.15	\$ 167,126.28	\$ 101,427.40	\$ 169,803.30	\$ 259,859.59
	Total Fuel Neutral MMBtu Saved	\$ 503.05	\$ 512.40	\$ 728.51	\$ 893.50	\$ 523.90
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ 358.64	\$ 326.16	\$ 139.23	\$ 190.04	\$ 496.01



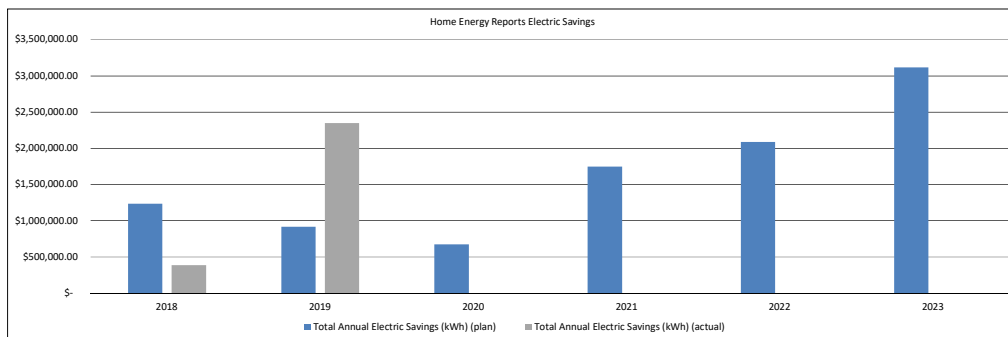
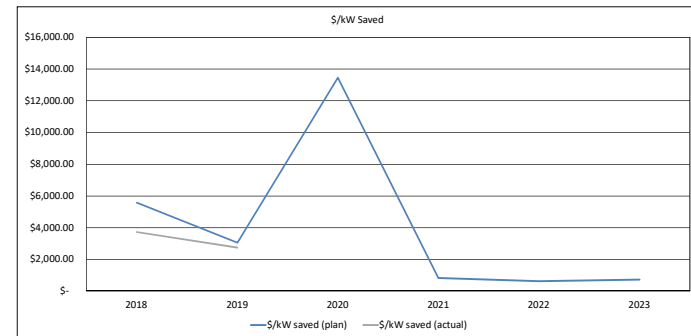
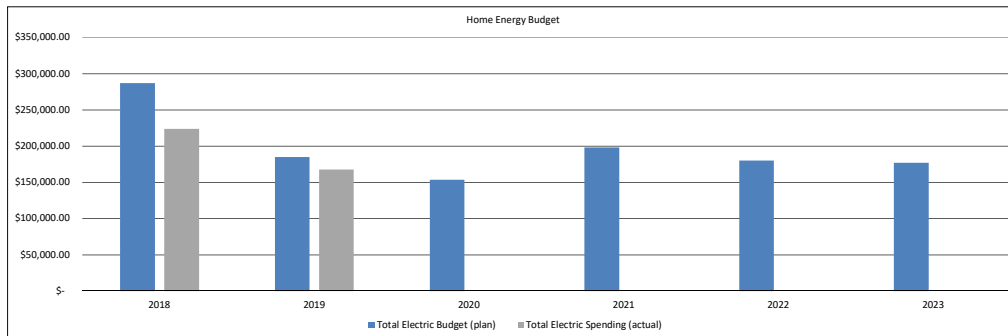
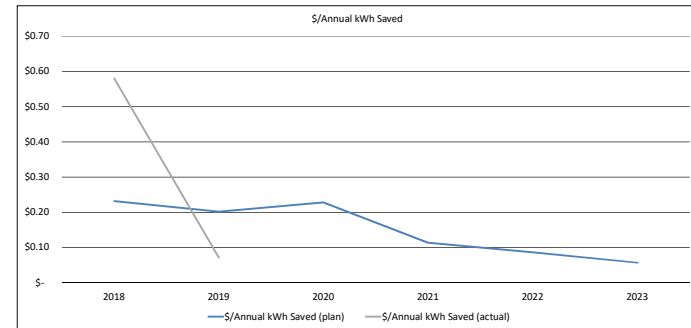
Energy Star Products

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 365,000.00	\$ 365,000.00	\$ 402,825.70	\$ 484,188.44	\$ 617,955.09	\$ 1,044,546.94	\$ 1,513,473.66	\$ 1,397,648.41	\$ 1,281,002.13
	Total Annual Electric Savings (kWh) (plan)	\$ 1,070,382.25	\$ 1,433,378.24	\$ 1,406,463.34	\$ 1,662,068.24	\$ 1,840,674.95	\$ 2,269,568.82	\$ 3,210,359.71	\$ 2,509,225.93	\$ 2,142,139.32
	\$/Annual kWh Saved (plan)	\$ 0.34	\$ 0.25	\$ 0.29	\$ 0.29	\$ 0.34	\$ 0.46	\$ 0.47	\$ 0.56	\$ 0.60
2)	Total Electric Budget	\$ 365,000.00	\$ 365,000.00	\$ 402,825.70	\$ 484,188.44	\$ 617,955.09	\$ 1,044,546.94	\$ 1,513,473.66	\$ 1,397,648.41	\$ 1,281,002.13
	Total kW saved	\$ 134.88	\$ 177.23	\$ 212.54	\$ 207.29	\$ 230.88	\$ 306.11	\$ 542.50	\$ 472.42	\$ 445.93
	\$/kW saved (plan)	\$ 2,706.16	\$ 2,059.49	\$ 1,895.31	\$ 2,335.76	\$ 2,676.48	\$ 3,412.34	\$ 2,789.82	\$ 2,958.46	\$ 2,872.66
3)	Total Electric Budget	\$ 365,000.00	\$ 365,000.00	\$ 402,825.70	\$ 484,188.44	\$ 617,955.09	\$ 1,044,546.94	\$ 1,513,473.66	\$ 1,397,648.41	\$ 1,281,002.13
	Total Fuel Neutral MMBtu Saved	\$ 147.48	\$ 82.97	\$ 394.63	\$ 373.88	\$ 485.14	\$ 733.65	\$ 2,484.40	\$ 3,105.50	\$ 3,726.60
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 2,474.94	\$ 4,399.03	\$ 1,020.76	\$ 1,295.04	\$ 1,273.77	\$ 1,423.77	\$ 609.19	\$ 450.06	\$ 343.75
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)	\$ 334,785.82	\$ 358,236.26	\$ 340,904.97	\$ 528,286.52	\$ 683,754.61				
	Total Annual Electric Savings (kWh) (actual)	\$ 1,120,563.80	\$ 1,764,104.40	\$ 1,216,379.86	\$ 2,172,620.76	\$ 2,874,060.02				
	\$/Annual kWh Saved (actual)	\$ 0.30	\$ 0.20	\$ 0.28	\$ 0.24	\$ 0.24				
2)	Total Electric Spending	\$ 334,785.82	\$ 358,236.26	\$ 340,904.97	\$ 528,286.52	\$ 683,754.61				
	Total kW saved	\$ 208.01	\$ 212.96	\$ 169.71	\$ 267.59	\$ 132.96				
	\$/kW saved (actual)	\$ 1,609.48	\$ 1,682.16	\$ 2,008.79	\$ 1,974.22	\$ 5,142.48				
3)	Total Electric Spending	\$ 334,785.82	\$ 358,236.26	\$ 340,904.97	\$ 528,286.52	\$ 683,754.61				
	Total Fuel Neutral MMBtu Saved	\$ 132.37	\$ 95.90	\$ 231.34	\$ 317.87	\$ 176.53				
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ 2,529.16	\$ 3,735.48	\$ 1,473.64	\$ 1,661.96	\$ 3,873.33				



Home Energy Reports

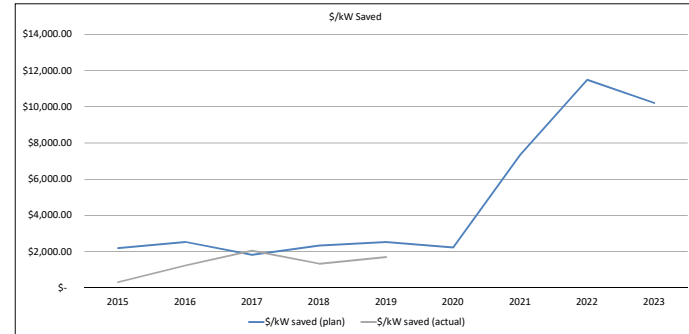
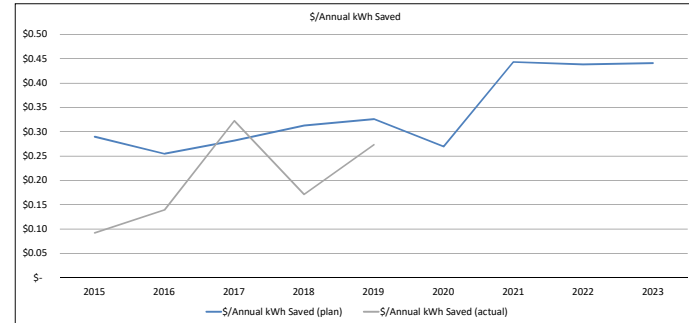
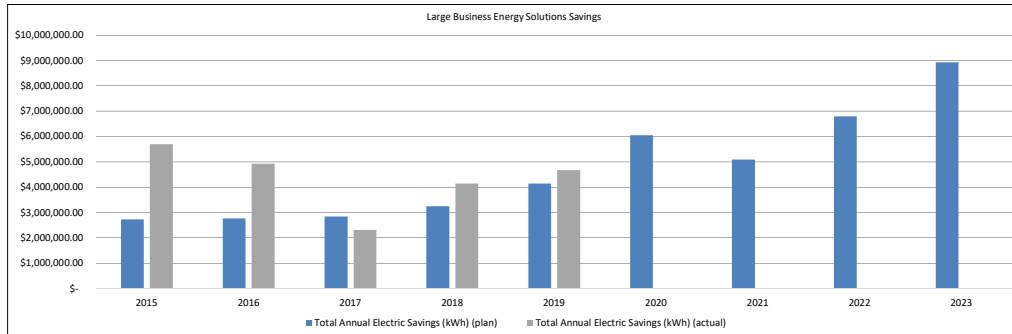
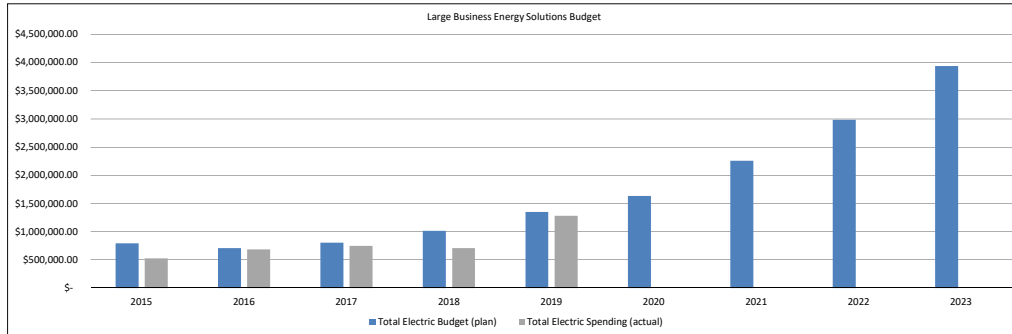
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ -	\$ -	\$ -	\$ 286,984.00	\$ 184,985.00	\$ 153,784.00	\$ 198,183.00	\$ 180,048.43	\$ 176,866.84
	Total Annual Electric Savings (kWh) (plan)	\$ -	\$ -	\$ -	\$ 1,237,012.99	\$ 917,000.00	\$ 675,000.00	\$ 1,749,000.00	\$ 2,087,000.00	\$ 3,116,000.00
	\$/Annual kWh Saved (plan)				\$ 0.23	\$ 0.20	\$ 0.23	\$ 0.11	\$ 0.09	\$ 0.06
2)	Total Electric Budget (plan)	\$ -	\$ -	\$ -	\$ 286,984.00	\$ 184,985.00	\$ 153,784.00	\$ 198,183.00	\$ 180,048.43	\$ 176,866.84
	Total kW saved	\$ -	\$ -	\$ -	\$ 51.54	\$ 60.71	\$ 11.43	\$ 243.55	\$ 290.61	\$ 243.55
	\$/kW saved (plan)				\$ 5,567.94	\$ 3,046.80	\$ 13,459.85	\$ 813.74	\$ 619.55	\$ 726.21
3)	Total Electric Budget	\$ -	\$ -	\$ -	\$ 286,984.00	\$ 184,985.00	\$ 153,784.00	\$ 198,183.00	\$ 180,048.43	\$ 176,866.84
	Total Fuel Neutral MMBtu Saved	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$/Total Fuel Neutral MMBtu Saved (plan)									
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)				\$ 223,784.50	\$ 167,701.02				
	Total Annual Electric Savings (kWh) (actual)				\$ 385,562.00	\$ 2,350,149.00				
	\$/Annual kWh Saved (actual)				\$ 0.58	\$ 0.07				
2)	Total Electric Spending				\$ 223,784.50	\$ 167,701.02				
	Total kW saved				\$ 60.15	\$ 61.26				
	\$/kW saved (actual)				\$ 3,720.49	\$ 2,737.36				
3)	Total Electric Spending				\$ 223,784.50	\$ 167,701.02				
	Total Fuel Neutral MMBtu Saved				\$ -	\$ -				
	\$/Total Fuel Neutral MMBtu Saved (actual)									



Large Business Energy Solutions

Planned	2015	2016	2017	2018	2019	2020	2021	2022	2023
1) Total Electric Budget (plan)	\$ 792,417.96	\$ 708,103.97	\$ 804,855.80	\$ 1,018,000.00	\$ 1,353,124.06	\$ 1,632,099.26	\$ 2,257,664.54	\$ 2,983,879.88	\$ 3,937,680.07
Total Annual Electric Savings (kWh) (plan)	\$ 2,733,709.43	\$ 2,778,532.48	\$ 2,851,063.83	\$ 3,251,317.98	\$ 4,148,221.09	\$ 6,050,964.32	\$ 5,091,201.81	\$ 6,803,251.41	\$ 8,930,831.97
\$/Annual kWh Saved (plan)	\$ 0.29	\$ 0.25	\$ 0.28	\$ 0.31	\$ 0.33	\$ 0.27	\$ 0.44	\$ 0.44	\$ 0.44
2) Total Electric Budget	\$ 792,417.96	\$ 708,103.97	\$ 804,855.80	\$ 1,018,000.00	\$ 1,353,124.06	\$ 1,632,099.26	\$ 2,257,664.54	\$ 2,983,879.88	\$ 3,937,680.07
Total kWh saved	\$ 360.05	\$ 279.38	\$ 439.10	\$ 432.43	\$ 632.63	\$ 725.53	\$ 307.14	\$ 259.57	\$ 385.40
\$/kW saved (plan)	\$ 2,200.88	\$ 2,534.56	\$ 1,832.96	\$ 2,354.16	\$ 2,540.48	\$ 2,249.54	\$ 7,350.53	\$ 11,495.60	\$ 10,217.05
3) Total Electric Budget	\$ 792,417.96	\$ 708,103.97	\$ 804,855.80	\$ 1,018,000.00	\$ 1,353,124.06	\$ 1,632,099.26	\$ 2,257,664.54	\$ 2,983,879.88	\$ 3,937,680.07
Total Fuel Neutral MMBtu Saved	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 107.42	\$ 123.94	\$ 165.26
\$/Total Fuel Neutral MMBtu Saved (plan)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,017.70	\$ 24,074.60	\$ 23,827.56

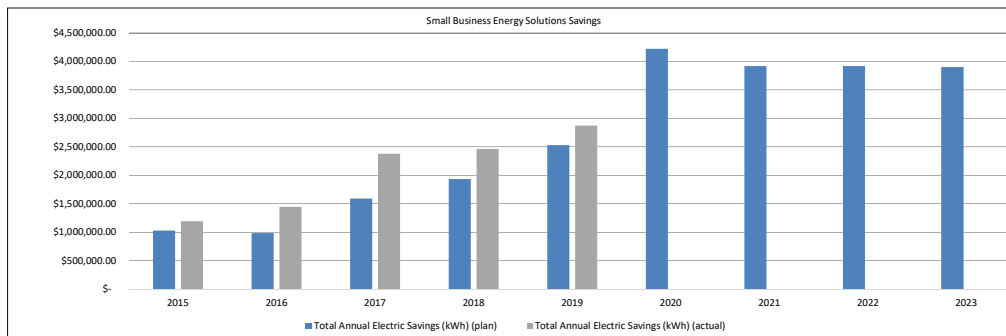
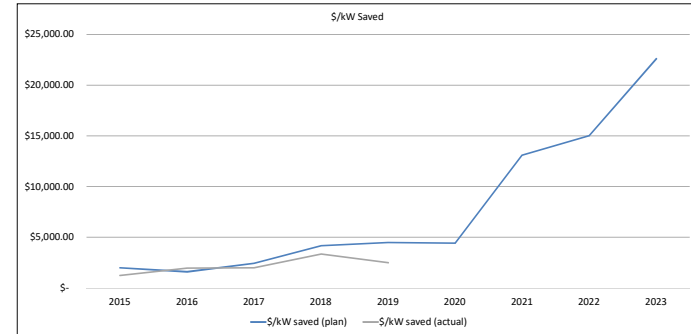
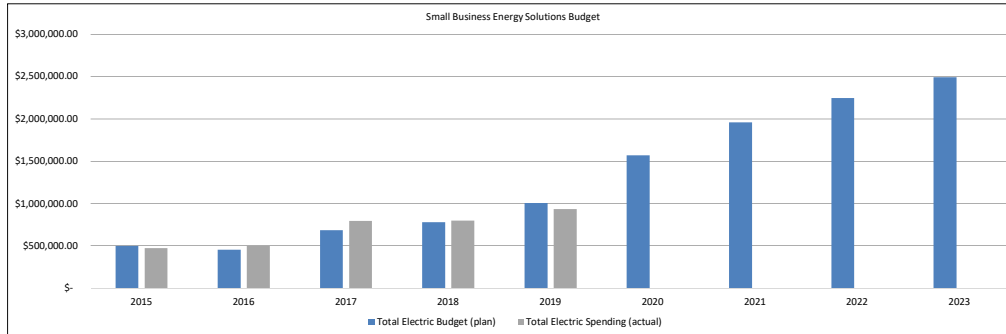
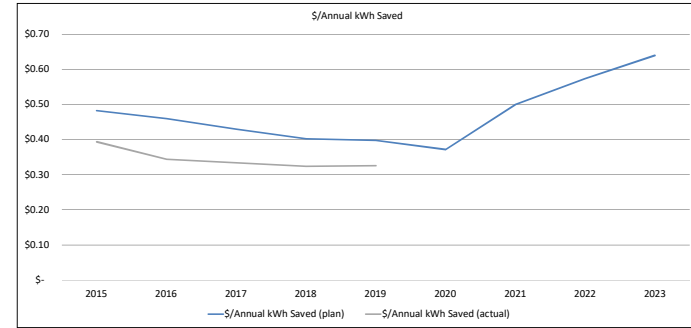
Actuals	2015	2016	2017	2018	2019
1) Total Electric Spending (actual)	\$ 527,212.31	\$ 688,316.04	\$ 748,208.39	\$ 711,153.65	\$ 1,280,014.05
Total Annual Electric Savings (kWh) (actual)	\$ 5,704,791.08	\$ 4,938,617.74	\$ 2,319,910.78	\$ 4,152,747.70	\$ 4,682,916.54
\$/Annual kWh Saved (actual)	\$ 0.09	\$ 0.14	\$ 0.32	\$ 0.17	\$ 0.27
2) Total Electric Spending	\$ 527,212.31	\$ 688,316.04	\$ 748,208.39	\$ 711,153.65	\$ 1,280,014.05
Total kWh saved	\$ 1,660.17	\$ 554.89	\$ 362.79	\$ 532.27	\$ 748.70
\$/kW saved (actual)	\$ 317.56	\$ 1,240.45	\$ 2,062.36	\$ 1,336.08	\$ 1,709.64
3) Total Electric Spending	\$ 527,212.31	\$ 688,316.04	\$ 748,208.39	\$ 711,153.65	\$ 1,280,014.05
Total Fuel Neutral MMBtu Saved	\$ 186.80	\$ 1,239.06	\$ -	\$ -	\$ -
\$/Total Fuel Neutral MMBtu Saved (actual)	\$ 2,822.34	\$ 555.51	\$ -	\$ -	\$ -



Small Business Energy Solutions

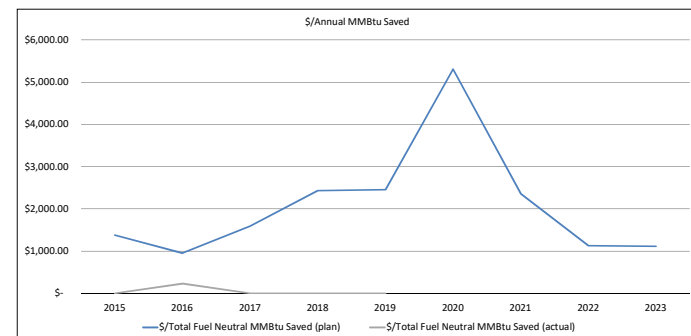
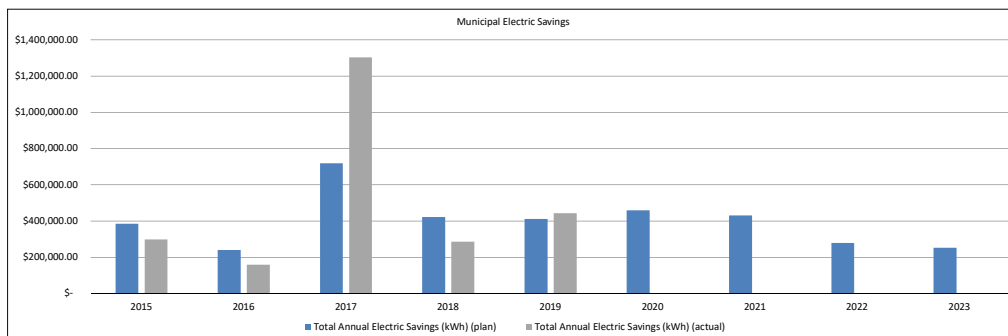
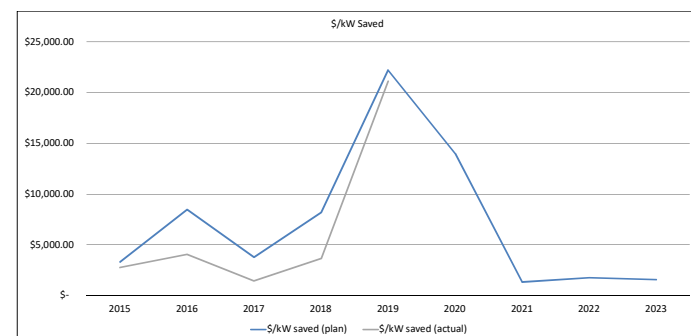
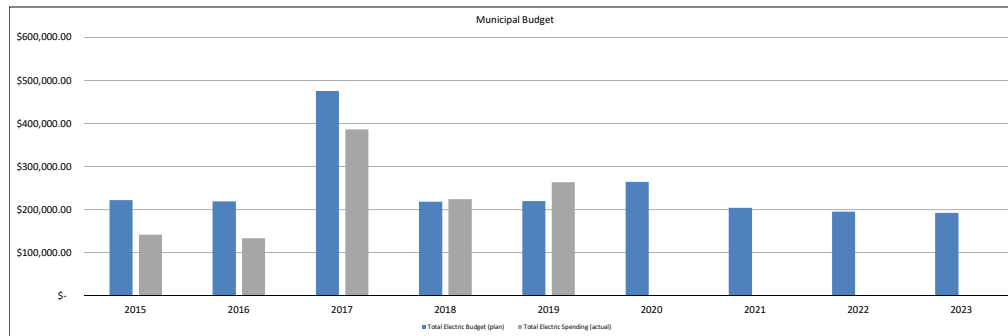
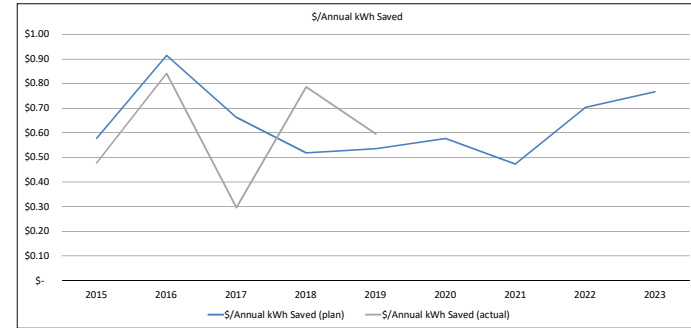
Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 500,000.00	\$ 455,000.50	\$ 686,088.31	\$ 779,755.65	\$ 1,008,202.87	\$ 1,570,429.81	\$ 1,959,838.23	\$ 2,248,248.82	\$ 2,496,226.90
	Total Annual Electric Savings (kWh) (plan)	\$ 1,037,376.46	\$ 990,500.00	\$ 1,597,407.41	\$ 1,941,463.22	\$ 2,535,529.86	\$ 4,224,432.59	\$ 3,921,762.10	\$ 3,921,762.10	\$ 3,904,488.89
	\$/Annual kWh Saved (plan)	\$ 0.48	\$ 0.46	\$ 0.43	\$ 0.40	\$ 0.40	\$ 0.37	\$ 0.50	\$ 0.57	\$ 0.64
2)	Total Electric Budget	\$ 500,000.00	\$ 455,000.50	\$ 686,088.31	\$ 779,755.65	\$ 1,008,202.87	\$ 1,570,429.81	\$ 1,959,838.23	\$ 2,248,248.82	\$ 2,496,226.90
	Total kW saved	\$ 250.94	\$ 284.84	\$ 282.22	\$ 187.90	\$ 224.44	\$ 356.84	\$ 149.81	\$ 149.81	\$ 110.38
	\$/kW saved (plan)	\$ 1,992.54	\$ 1,597.39	\$ 2,431.07	\$ 4,149.95	\$ 4,492.02	\$ 4,400.97	\$ 13,081.89	\$ 15,007.02	\$ 22,614.29
3)	Total Electric Budget	\$ 500,000.00	\$ 455,000.50	\$ 686,088.31	\$ 779,755.65	\$ 1,008,202.87	\$ 1,570,429.81	\$ 1,959,838.23	\$ 2,248,248.82	\$ 2,496,226.90
	Total Fuel Neutral MMBtu Saved	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Actuals		2015	2016	2017	2018	2019
1)	Total Electric Spending (actual)	\$ 471,603.35	\$ 499,144.45	\$ 794,502.64	\$ 799,496.85	\$ 935,895.34
	Total Annual Electric Savings (kWh) (actual)	\$ 1,198,433.94	\$ 1,451,929.00	\$ 2,381,724.69	\$ 2,469,440.00	\$ 2,879,216.42
	\$/Annual kWh Saved (actual)	\$ 0.39	\$ 0.34	\$ 0.33	\$ 0.32	\$ 0.33
2)	Total Electric Spending	\$ 471,603.35	\$ 499,144.45	\$ 794,502.64	\$ 799,496.85	\$ 935,895.34
	Total kW saved	\$ 379.92	\$ 253.82	\$ 398.49	\$ 238.83	\$ 377.59
	\$/kW saved (actual)	\$ 1,241.32	\$ 1,966.51	\$ 1,993.77	\$ 3,347.58	\$ 2,478.60
3)	Total Electric Spending	\$ 471,603.35	\$ 499,144.45	\$ 794,502.64	\$ 799,496.85	\$ 935,895.34
	Total Fuel Neutral MMBtu Saved	\$ -	\$ -	\$ -	\$ -	\$ -
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ -	\$ -	\$ -	\$ -	\$ -



Municipal

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Electric Budget (plan)	\$ 222,573.69	\$ 219,875.76	\$ 476,528.53	\$ 218,878.38	\$ 220,642.18	\$ 265,229.65	\$ 204,700.00	\$ 196,125.91	\$ 193,235.58
	Total Annual Electric Savings (kWh) (plan)	\$ 385,143.71	\$ 240,506.33	\$ 718,947.37	\$ 422,166.66	\$ 411,529.39	\$ 459,247.22	\$ 432,097.71	\$ 279,000.00	\$ 252,000.00
	\$/Annual kWh Saved (plan)	\$ 0.58	\$ 0.91	\$ 0.66	\$ 0.52	\$ 0.54	\$ 0.58	\$ 0.47	\$ 0.70	\$ 0.77
2)	Total Electric Budget	\$ 222,573.69	\$ 219,875.76	\$ 476,528.53	\$ 218,878.38	\$ 220,642.18	\$ 265,229.65	\$ 204,700.00	\$ 196,125.91	\$ 193,235.58
	Total kW saved	\$ 67.76	\$ 26.00	\$ 126.85	\$ 26.69	\$ 9.93	\$ 18.98	\$ 154.63	\$ 111.17	\$ 123.78
	\$/kW saved (plan)	\$ 3,284.93	\$ 8,458.38	\$ 3,756.54	\$ 8,200.67	\$ 22,229.35	\$ 13,976.44	\$ 1,323.80	\$ 1,764.17	\$ 1,561.17
3)	Total Electric Budget	\$ 222,573.69	\$ 219,875.76	\$ 476,528.53	\$ 218,878.38	\$ 220,642.18	\$ 265,229.65	\$ 204,700.00	\$ 196,125.91	\$ 193,235.58
	Total Fuel Neutral MMBtu Saved	\$ 161.40	\$ 231.00	\$ 300.00	\$ 90.00	\$ 90.00	\$ 50.00	\$ 87.00	\$ 174.00	\$ 174.00
	\$/Total Fuel Neutral MMBtu Saved (plan)	\$ 1,379.02	\$ 951.84	\$ 1,588.43	\$ 2,431.98	\$ 2,451.58	\$ 5,304.59	\$ 2,352.87	\$ 1,127.16	\$ 1,110.55
Actuals		2015	2016	2017	2018	2019				
1)	Total Electric Spending (actual)	\$ 142,709.48	\$ 134,368.59	\$ 386,763.00	\$ 224,879.42	\$ 264,183.17				
	Total Annual Electric Savings (kWh) (actual)	\$ 298,503.00	\$ 159,791.00	\$ 1,303,245.00	\$ 285,855.00	\$ 443,486.44				
	\$/Annual kWh Saved (actual)	\$ 0.48	\$ 0.84	\$ 0.30	\$ 0.79	\$ 0.60				
2)	Total Electric Spending	\$ 142,709.48	\$ 134,368.59	\$ 386,763.00	\$ 224,879.42	\$ 264,183.17				
	Total kW saved	\$ 51.68	\$ 33.15	\$ 269.98	\$ 61.96	\$ 12.51				
	\$/kW saved (actual)	\$ 2,761.20	\$ 4,053.33	\$ 1,432.55	\$ 3,629.30	\$ 21,118.97				
3)	Total Electric Spending	\$ 142,709.48	\$ 134,368.59	\$ 386,763.00	\$ 224,879.42	\$ 264,183.17				
	Total Fuel Neutral MMBtu Saved	\$ -	\$ 579.10	\$ -	\$ -	\$ -				
	\$/Total Fuel Neutral MMBtu Saved (actual)	\$ -	\$ 232.03	\$ -	\$ -	\$ -				



Program Cost-Effectiveness - 2021 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.85	0.86	1.85	2,820.3	1,311.0	2,820.3	1,523.6	-	-	-	-	-	369	7,107.8	152,082.3
A1 - Energy Star Homes	1.07	0.91	0.74	1,110.1	945.4	1,251.9	1,039.3	642.3	-	-	-	-	98	4,469.6	111,685.0
A2 - Home Performance with Energy Star	1.70	1.47	1.74	2,052.9	1,773.3	2,328.6	1,205.8	133.5	6.4	142.1	-	3.5	768	11,064.2	199,885.5
A3 - Energy Star Products	2.12	1.85	1.32	2,067.9	1,807.5	2,350.2	975.8	803.6	13.0	210.0	4.9	(0.3)	1,623	12,389.4	209,793.1
A4 - Home Energy Reports	0.76	0.70	0.86	140.0	130.1	159.5	185.0	-	-	-	-	-	30,000	13,169.1	13,169.1
A6c - Res Education	-	-	-	-	-	-	60.2	-	-	-	-	-	-	-	-
A7 - Aerial Infrared Mapping	0.12	0.11	0.13	53.2	49.4	60.6	460.3	-	-	-	-	-	33,000	5,000.0	5,000.0
Sub-Total Residential	1.51	1.10	1.28	8,244.4	6,016.7	8,971.2	5,449.9	1,579.4	19.4	352.1	4.9	3.2	98,858	53,200.0	691,615.1
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	3.92	3.44	2.13	7,119.9	6,259.7	8,058.8	1,818.5	1,959.8	-	-	-	-	210	65,412.7	783,596.5
C2 - Small Business Energy Solutions	2.36	1.96	1.57	3,846.3	3,201.3	4,335.3	1,633.1	1,122.3	9.5	152.2	1.9	1.7	485	23,339.8	422,955.1
C6c - C&I Education	-	-	-	-	-	-	60.6	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	3.12	2.69	1.88	10,966.1	9,461.0	12,394.2	3,512.3	3,082.0	9.5	152.2	1.9	1.7	695	88,752.5	1,206,551.6
Total	2.14	1.73	1.57	19,210.6	15,477.7	21,365.3	8,962.2	4,661.5	28.9	504.3	6.9	4.9	99,552	141,952.5	1,898,166.7

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

2) Utility and Customer Costs Expressed in 2022 Dollars										
		Annual kWh Savings	28,917	0.1%	kWh < 55%	Lifetime kWh Savings		504,251	0.1%	kWh < 55%
		Annual MMBTU Savings (in kWh)	41,602,177	99.9%		Lifetime MMBTU Savings (in kWh)		556,297,772	99.9%	
			41,631,094	100.0%				556,802,023	100.0%	
Annual Savings as a % of 2019 Sales		0.81%				Spending per Customer				
						Low-Income		\$	283.40	
						Residential		\$	44.12	
						C&I		\$	240.27	

Present Value Benefits - 2021 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					ENERGY				Electric		Non-Electric						Total Resource Benefits
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits	Total Non-Resource Benefits		
Residential Programs																					
B1 - Home Energy Assistance	\$ 2,820	\$ 1,311	\$ 2,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,311	\$ 8	\$ 1,319	\$ 207	\$ 1,294	\$ 1,501	\$ -
A1 - Energy Star Homes	\$ 1,110	\$ 945	\$ 1,252	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 945	\$ 3	\$ 948	\$ 162	\$ 142	\$ 304	\$ -
A2 - Home Performance with Energy Star	\$ 2,053	\$ 1,773	\$ 2,329	\$ 7	\$ -	\$ 7	\$ 6	\$ -	\$ 1	\$ 0	\$ 4	\$ 3	\$ 0	\$ 29	\$ 1,773	\$ 4	\$ 1,806	\$ 247	\$ 270	\$ 517	\$ 5
A3 - Energy Star Products	\$ 2,068	\$ 1,807	\$ 2,350	\$ (0)	\$ -	\$ (0)	\$ (0)	\$ -	\$ 7	\$ 9	\$ (1)	\$ (1)	\$ 1	\$ 15	\$ 1,807	\$ -	\$ 1,822	\$ 246	\$ 273	\$ 519	\$ 9
A4 - Home Energy Reports	\$ 140	\$ 130	\$ 160	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 130	\$ -	\$ 130	\$ 10	\$ 20	\$ 29	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A7 - Aerial Infrared Mapping	\$ 53	\$ 49	\$ 61	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 49	\$ -	\$ 49	\$ 4	\$ 7	\$ 11	\$ -
Sub-Total Residential	\$ 8,244	\$ 6,017	\$ 8,971	\$ 7	\$ -	\$ 6	\$ 5	\$ -	\$ 8	\$ 10	\$ 3	\$ 3	\$ 1	\$ 43	\$ 6,017	\$ 15	\$ 6,075	\$ 876	\$ 2,006	\$ 2,882	\$ 14
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 7,120	\$ 6,260	\$ 8,059	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,260	\$ -	\$ 6,260	\$ 860	\$ 939	\$ 1,799	\$ -
C2 - Small Business Energy Solutions	\$ 3,846	\$ 3,201	\$ 4,335	\$ 2	\$ -	\$ 2	\$ 2	\$ -	\$ 4	\$ 4	\$ 1	\$ 1	\$ 1	\$ 17	\$ 3,201	\$ 102	\$ 3,320	\$ 526	\$ 483	\$ 1,009	\$ 6
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 10,966	\$ 9,461	\$ 12,394	\$ 2	\$ -	\$ 2	\$ 2	\$ -	\$ 4	\$ 4	\$ 1	\$ 1	\$ 1	\$ 17	\$ 9,461	\$ 102	\$ 9,579	\$ 1,387	\$ 1,422	\$ 2,808	\$ 6
Total	\$ 19,211	\$ 15,478	\$ 21,365	\$ 9	\$ -	\$ 8	\$ 7	\$ -	\$ 11	\$ 14	\$ 5	\$ 4	\$ 2	\$ 60	\$ 15,478	\$ 117	\$ 15,654	\$ 2,263	\$ 3,428	\$ 5,690	\$ 21

Portfolio Planned Versus Actual Performance - 2021										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	1,898,167	1,233,808		-	2.475%	-	\$ 221,813	\$ 277,267	\$ -	Program Cost Effectiveness (Page 1 of 3)
2 Annual MMBtu Savings	141,953	92,269		-	1.100%	-	\$ 98,584	\$ 123,230	\$ -	Program Cost Effectiveness (Page 1 of 3)
3 Total Resource Benefits	\$ 15,654,402			-						Present Value Benefits (Page 2 of 3)
4 Total Utility Costs ¹	\$ 8,962,156			-						Program Cost Effectiveness (Page 1 of 3)
5 Net Benefits	\$ 6,692,246	\$ 4,349,960	\$ -	-	1.925%	-	\$ 172,522	\$ 215,652	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 492,919	\$ 616,148	\$ -	Sum of Rows 1, 2 & 5

Granite State Test			Source
	Planned	Actual	
7 Total Benefits	\$ 19,210,562		Present Value Benefits (Page 2 of 3)
8 Performance Incentive	\$ 492,919	\$ -	Row 6
9 Total Utility Costs	\$ 8,962,156	\$ -	Row 4
10 Portfolio GST BCR	2.03	-	Row 7 Divided by Rows 8+9

Costs, Benefits, and PI Expressed in 2021 Dollars.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2022 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.94	0.90	1.94	3,055.2	1,421.8	3,055.2	1,576.2	-	-	-	-	-	385	7,520.7	161,479.9
A1 - Energy Star Homes	1.24	1.05	0.89	1,406.0	1,186.9	1,584.0	1,131.8	646.4	-	-	-	-	116	5,493.1	137,257.7
A2 - Home Performance with Energy Star	1.81	1.56	1.85	2,296.8	1,969.4	2,602.9	1,266.2	142.3	6.9	153.0	-	3.8	802	12,031.8	217,226.7
A3 - Energy Star Products	2.26	1.96	1.40	2,300.9	1,995.2	2,613.4	1,017.6	846.8	15.2	246.1	5.7	(0.3)	1,743	13,362.0	226,569.5
A4 - Home Energy Reports	1.04	0.97	1.19	187.0	173.0	212.9	179.2	-	-	-	-	-	30,000	17,325.4	17,325.4
A6c - Res Education	-	-	-	-	-	-	65.1	-	-	-	-	-	-	-	-
A7 - Aerial Infrared Mapping	1.10	1.02	1.25	299.0	276.5	340.4	271.4	-	-	-	-	-	33,000	27,700.0	27,700.0
Sub-Total Residential	1.73	1.28	1.46	9,544.8	7,022.8	10,408.9	5,507.5	1,635.5	22.1	399.1	5.7	3.5	66,046	83,433.0	787,559.3
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	4.19	3.65	2.30	8,088.2	7,046.5	9,145.2	1,930.9	2,045.4	-	-	-	-	221	69,921.1	863,252.6
C2 - Small Business Energy Solutions	2.45	2.03	1.65	4,329.6	3,581.1	4,876.0	1,768.0	1,194.2	9.7	155.6	2.0	1.7	518	25,515.2	463,429.7
C6c - C&I Education	-	-	-	-	-	-	65.2	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	3.30	2.82	2.00	12,417.8	10,627.6	14,021.2	3,764.1	3,239.6	9.7	155.6	2.0	1.7	739	95,436.2	1,326,682.2
Total	2.37	1.90	1.73	21,962.7	17,650.4	24,430.1	9,271.6	4,875.1	31.8	554.7	7.6	5.2	66,785	178,869.2	2,114,241.5

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

Annual kWh Savings		31,767	0.1%	kWh < 55%	Lifetime kWh Savings		554,687	0.1%	kWh < 55%
Annual MMBTU Savings (in kWh)		52,421,403	99.9%		Lifetime MMBTU Savings (in kWh)		619,623,043	99.9%	
		52,453,170	100.0%				620,177,730	100.0%	

Annual Savings as a % of 2019 Sales		1.02%	Spending per Customer		Low-Income	\$	293.19
					Residential	\$	44.17
					C&I	\$	257.50

Present Value Benefits - 2022 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)		
				CAPACITY					ENERGY				Electric		Non-Electric						Total Resource Benefits	
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Total Resource Benefits	Fossil Emissions	Other Non-Resource Benefits		Total Non-Resource Benefits	
Residential Programs																						
B1 - Home Energy Assistance	\$ 3,055	\$ 1,422	\$ 3,055	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,422	\$ 9	\$ 1,431	\$ 239	\$ 1,386	\$ 1,624	\$ -	
A1 - Energy Star Homes	\$ 1,406	\$ 1,187	\$ 1,584	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,187	\$ 3	\$ 1,190	\$ 216	\$ 178	\$ 394	\$ -	
A2 - Home Performance with Energy Star	\$ 2,297	\$ 1,969	\$ 2,603	\$ 8	\$ -	\$ -	\$ 7	\$ 6	\$ -	\$ 1	\$ 0	\$ 5	\$ 4	\$ 0	\$ 32	\$ 1,969	\$ 4	\$ 2,006	\$ 291	\$ 300	\$ 591	\$ 6
A3 - Energy Star Products	\$ 2,301	\$ 1,995	\$ 2,613	\$ (1)	\$ -	\$ (1)	\$ (0)	\$ -	\$ 9	\$ 11	\$ (1)	\$ (1)	\$ 1	\$ 17	\$ 1,995	\$ -	\$ 2,013	\$ 288	\$ 302	\$ 590	\$ 11	
A4 - Home Energy Reports	\$ 187	\$ 173	\$ 213	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 173	\$ -	\$ 173	\$ 14	\$ 26	\$ 40	\$ -	
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
A7 - Aerial Infrared Mapping	\$ 299	\$ 277	\$ 340	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 277	\$ -	\$ 277	\$ 22	\$ 41	\$ 64	\$ -	
Sub-Total Residential	\$ 9,545	\$ 7,023	\$ 10,409	\$ 8	\$ -	\$ 7	\$ 6	\$ -	\$ 9	\$ 11	\$ 4	\$ 3	\$ 1	\$ 50	\$ 7,023	\$ 17	\$ 7,090	\$ 1,070	\$ 2,233	\$ 3,303	\$ 16	
Commercial/Industrial Programs																						
C1 - Large Business Energy Solutions	\$ 8,088	\$ 7,047	\$ 9,145	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,047	\$ -	\$ 7,047	\$ 1,042	\$ 1,057	\$ 2,099	\$ -	
C2 - Small Business Energy Solutions	\$ 4,330	\$ 3,581	\$ 4,876	\$ 2	\$ -	\$ 2	\$ 2	\$ -	\$ 4	\$ 4	\$ 1	\$ 1	\$ 1	\$ 18	\$ 3,581	\$ 105	\$ 3,704	\$ 626	\$ 540	\$ 1,166	\$ 7	
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Commercial & Industrial	\$ 12,418	\$ 10,628	\$ 14,021	\$ 2	\$ -	\$ 2	\$ 2	\$ -	\$ 4	\$ 4	\$ 1	\$ 1	\$ 1	\$ 18	\$ 10,628	\$ 105	\$ 10,750	\$ 1,668	\$ 1,597	\$ 3,264	\$ 7	
Total	\$ 21,963	\$ 17,650	\$ 24,430	\$ 10	\$ -	\$ 9	\$ 8	\$ -	\$ 13	\$ 16	\$ 5	\$ 4	\$ 2	\$ 67	\$ 17,650	\$ 122	\$ 17,840	\$ 2,737	\$ 3,830	\$ 6,567	\$ 23	

Portfolio Planned Versus Actual Performance - 2022										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	2,114,242	1,374,257		-	2.475%	-	\$ 229,472	\$ 286,840	\$ -	Program Cost Effectiveness (Page 1 of 3)
2 Annual MMBtu Savings	178,869	116,265		-	1.100%	-	\$ 101,988	\$ 127,484	\$ -	Program Cost Effectiveness (Page 1 of 3)
3 Total Resource Benefits	\$ 17,839,786			-						Present Value Benefits (Page 2 of 3)
4 Total Utility Costs ¹	\$ 9,271,591			-						Program Cost Effectiveness (Page 1 of 3)
5 Net Benefits	\$ 8,568,195	\$ 5,569,327	\$ -	-	1.925%	-	\$ 178,478	\$ 223,098	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 509,938	\$ 637,422	\$ -	Sum of Rows 1, 2 & 5

	Granite State Test		Source
	Planned	Actual	
7 Total Benefits	\$ 21,962,658		Present Value Benefits (Page 2 of 3)
8 Performance Incentive	\$ 509,938	\$ -	Row 6
9 Total Utility Costs	\$ 9,271,591	\$ -	Row 4
10 Portfolio GST BCR	2.25	-	Row 7 Divided by Rows 8+9

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2022\$) is \$526,510.49.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	2.03	0.94	2.03	3,409.9	1,582.0	3,409.9	1,683.1	-	-	-	-	-	410	8,138.1	175,871.9
A1 - Energy Star Homes	1.65	1.38	1.16	1,972.1	1,656.2	2,220.5	1,196.2	715.9	-	-	-	-	126	7,900.6	188,198.5
A2 - Home Performance with Energy Star	1.91	1.63	1.94	2,626.2	2,233.1	2,973.5	1,373.8	158.9	7.7	172.4	-	4.3	843	13,319.0	240,952.7
A3 - Energy Star Products	2.37	2.04	1.47	2,440.2	2,098.9	2,769.6	1,028.1	858.4	16.5	267.9	6.0	(0.3)	1,779	13,728.0	233,093.1
A4 - Home Energy Reports	1.81	1.67	2.06	313.9	289.1	357.2	173.5	-	-	-	-	-	30,000	28,410.0	28,410.0
A6c - Res Education	-	-	-	-	-	-	71.0	-	-	-	-	-	-	-	-
A7 - Aerial Infrared Mapping	1.16	1.07	1.32	306.0	281.9	348.3	262.9	-	-	-	-	-	33,000	27,700.0	27,700.0
Sub-Total Residential	1.91	1.41	1.61	11,068.3	8,141.2	12,079.1	5,788.7	1,733.2	24.2	440.3	6.0	4.0	66,158	99,195.7	894,226.3
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	4.43	3.83	2.45	9,182.3	7,941.1	10,373.4	2,073.2	2,169.0	-	-	-	-	237	77,782.0	949,217.5
C2 - Small Business Energy Solutions	2.53	2.08	1.73	4,979.8	4,085.0	5,602.1	1,967.9	1,269.1	9.9	159.3	2.0	1.7	569	28,406.8	517,191.8
C6c - C&I Education	-	-	-	-	-	-	70.6	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	3.44	2.92	2.12	14,162.0	12,026.1	15,975.5	4,111.7	3,438.1	9.9	159.3	2.0	1.7	806	106,188.8	1,466,409.3
Total	2.55	2.04	1.86	25,230.3	20,167.3	28,054.6	9,900.4	5,171.3	34.1	599.7	8.0	5.7	66,964	205,384.5	2,360,635.6

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

12) Utility and Customer Costs Expressed in 2022 Dollars											
		Annual kWh Savings		34,122	0.1%	kWh < 55%	Lifetime kWh Savings		599,680	0.1%	kWh < 55%
		Annual MMBTU Savings (in kWh)		60,192,255	99.9%		Lifetime MMBTU Savings (in kWh)		691,834,021	99.9%	
				60,226,377	100.0%				692,433,701	100.0%	
Annual Savings as a % of 2019 Sales				1.17%							

Present Value Benefits - 2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)																Non-Resource Benefits (\$000)			Environ- mental Benefits (\$000)
				CAPACITY					ENERGY				Electric		Non-Electric								
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit	Other Fuels	Water Benefit	Total Resource Benefits	Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits			
Residential Programs																							
B1 - Home Energy Assistance	\$ 3,410	\$ 1,582	\$ 3,410	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,582	\$ 10	\$ 1,592	\$ 282	\$ 1,535	\$ 1,817	\$ -		
A1 - Energy Star Homes	\$ 1,972	\$ 1,656	\$ 2,221	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,656	\$ 4	\$ 1,660	\$ 312	\$ 248	\$ 560	\$ -		
A2 - Home Performance with Energy Star	\$ 2,626	\$ 2,233	\$ 2,973	\$ 10	\$ -	\$ 8	\$ 7	\$ -	\$ 1	\$ 0	\$ 6	\$ 4	\$ 0	\$ 38	\$ 2,233	\$ 5	\$ 2,276	\$ 350	\$ 341	\$ 691	\$ 7		
A3 - Energy Star Products	\$ 2,440	\$ 2,099	\$ 2,770	\$ (1)	\$ -	\$ (0)	\$ (0)	\$ -	\$ 10	\$ 12	\$ (1)	\$ (1)	\$ 1	\$ 20	\$ 2,099	\$ -	\$ 2,118	\$ 322	\$ 318	\$ 640	\$ 12		
A4 - Home Energy Reports	\$ 314	\$ 289	\$ 357	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 289	\$ -	\$ 289	\$ 25	\$ 43	\$ 68	\$ -		
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
A7 - Aerial Infrared Mapping	\$ 306	\$ 282	\$ 348	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 282	\$ -	\$ 282	\$ 24	\$ 42	\$ 66	\$ -		
Sub-Total Residential	\$ 11,068	\$ 8,141	\$ 12,079	\$ 10	\$ -	\$ 8	\$ 7	\$ -	\$ 10	\$ 13	\$ 5	\$ 4	\$ 2	\$ 58	\$ 8,141	\$ 19	\$ 8,218	\$ 1,315	\$ 2,528	\$ 3,843	\$ 18		
Commercial/Industrial Programs																							
C1 - Large Business Energy Solutions	\$ 9,182	\$ 7,941	\$ 10,373	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,941	\$ -	\$ 7,941	\$ 1,241	\$ 1,191	\$ 2,432	\$ -		
C2 - Small Business Energy Solutions	\$ 4,980	\$ 4,085	\$ 5,602	\$ 3	\$ -	\$ 2	\$ 2	\$ -	\$ 4	\$ 4	\$ 1	\$ 1	\$ 1	\$ 19	\$ 4,085	\$ 117	\$ 4,221	\$ 759	\$ 616	\$ 1,375	\$ 7		
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Sub-Total Commercial & Industrial	\$ 14,162	\$ 12,026	\$ 15,976	\$ 3	\$ -	\$ 2	\$ 2	\$ -	\$ 4	\$ 4	\$ 1	\$ 1	\$ 1	\$ 19	\$ 12,026	\$ 117	\$ 12,162	\$ 2,000	\$ 1,807	\$ 3,807	\$ 7		
Total	\$ 25,230	\$ 20,167	\$ 28,055	\$ 12	\$ -	\$ 10	\$ 9	\$ -	\$ 15	\$ 17	\$ 6	\$ 5	\$ 2	\$ 76	\$ 20,167	\$ 136	\$ 20,380	\$ 3,315	\$ 4,335	\$ 7,650	\$ 25		

Portfolio Planned Versus Actual Performance - 2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	2,360,636	1,534,413		-	2.475%	-	\$ 245,035	\$ 306,294	\$ -	Program Cost Effectiveness (Page 1 of 3)
2 Annual MMBtu Savings	205,384	133,500		-	1.100%	-	\$ 108,905	\$ 136,131	\$ -	Program Cost Effectiveness (Page 1 of 3)
3 Total Resource Benefits	\$ 20,379,903			-						Present Value Benefits (Page 2 of 3)
4 Total Utility Costs ¹	\$ 9,900,418			-						Program Cost Effectiveness (Page 1 of 3)
5 Net Benefits	\$ 10,479,484	\$ 6,811,665	\$ -	-	1.925%	-	\$ 190,583	\$ 238,229	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 544,523	\$ 680,654	\$ -	Sum of Rows 1, 2 & 5

	Granite State Test			Source
	Planned	Actual		
7 Total Benefits	\$ 25,230,341			Present Value Benefits (Page 2 of 3)
8 Performance Incentive	\$ 544,523	\$ -		Row 6
9 Total Utility Costs	\$ 9,900,418	\$ -		Row 4
10 Portfolio GST BCR	2.42	-		Row 7 Divided by Rows 8+9

Costs, Benefits, and PI Expressed in 2021 Dollars. Nominal PI (2023\$) is \$580,492.17.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2021-2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.94	0.90	1.94	9,285.5	4,314.9	9,285.5	4,782.8	-	-	-	-	-	1,165	22,766.5	489,434.2
A1 - Energy Star Homes	1.33	1.13	0.94	4,488.2	3,788.4	5,056.4	3,367.3	2,004.6	-	-	-	-	340	17,863.4	437,141.2
A2 - Home Performance with Energy Star	1.81	1.55	1.85	6,975.9	5,975.7	7,905.1	3,845.8	434.7	21.0	467.6	-	11.6	2,412	36,414.9	658,065.0
A3 - Energy Star Products	2.25	1.95	1.40	6,808.9	5,901.6	7,733.2	3,021.5	2,508.8	44.7	724.0	16.6	(0.9)	5,144	39,479.4	669,455.7
A4 - Home Energy Reports	1.19	1.10	1.36	640.9	592.2	729.7	537.7	-	-	-	-	-	90,000	58,904.5	58,904.5
A6c - Res Education	-	-	-	-	-	-	196.3	-	-	-	-	-	-	-	-
A7 - Aerial Infrared Mapping	0.66	0.61	0.75	658.2	607.8	749.3	994.6	-	-	-	-	-	99,000	60,400.0	60,400.0
Sub-Total Residential	1.72	1.26	1.45	28,857.6	21,180.7	31,459.2	16,746.1	4,948.1	65.7	1,191.5	16.6	10.7	198,061	235,828.7	2,373,400.6
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	4.19	3.65	2.30	24,390.3	21,247.3	27,577.4	5,822.7	6,174.2	-	-	-	-	668	213,115.8	2,596,066.5
C2 - Small Business Energy Solutions	2.45	2.02	1.65	13,155.7	10,867.4	14,813.4	5,369.1	3,585.6	29.1	467.1	5.9	5.0	1,572	77,261.7	1,403,576.7
C6c - C&I Education	-	-	-	-	-	-	196.4	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	3.30	2.82	2.00	37,546.0	32,114.7	42,390.8	11,388.1	9,759.8	29.1	467.1	5.9	5.0	2,240	290,377.5	3,999,643.2
Total	2.36	1.89	1.72	66,403.6	53,295.4	73,850.0	28,134.2	14,707.9	94.8	1,658.6	22.5	15.7	200,301	526,206.3	6,373,043.8

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs Expressed in 2021 Dollars

		Annual kWh Savings		94,807	0.1%	kWh < 55%	Lifetime kWh Savings		1,658,618	0.1%	kWh < 55%	
		Annual MMBTU Savings (in kWh)		154,215,835	99.9%		Lifetime MMBTU Savings (in kWh)		1,867,754,836	99.9%		
				154,310,642	100.0%				1,869,413,454	100.0%		
Cumulative Savings as a % of 2019 Sales		3.00%	3.22%				Spending per Customer					
							Low-Income		\$	889.66		
							Residential		\$	134.42		
							C&I		\$	779.05		

Present Value Benefits - 2021-2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)													Non-Resource Benefits (\$000)			Environmental Benefits (\$000)	
				CAPACITY					Electric				Non-Electric		Total Resource Benefits						
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Summer Generation	Winter Generation	Transmission	Distribution	Reliability	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Total Electric Benefit		Other Fuels	Water Benefit	Fossil Emissions	Other Non-Resource Benefits		Total Non-Resource Benefits
Residential Programs																					
B1 - Home Energy Assistance	\$ 9,285	\$ 4,315	\$ 9,285	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,315	\$ 28	\$ 4,343	\$ 728	\$ 4,214	\$ 4,942	\$ -
A1 - Energy Star Homes	\$ 4,488	\$ 3,788	\$ 5,056	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,788	\$ 10	\$ 3,799	\$ 690	\$ 568	\$ 1,258	\$ -	
A2 - Home Performance with Energy Star	\$ 6,976	\$ 5,976	\$ 7,905	\$ 26	\$ -	\$ 22	\$ 19	\$ -	\$ 2	\$ 1	\$ 15	\$ 11	\$ 1	\$ 99	\$ 5,976	\$ 13	\$ 6,088	\$ 888	\$ 911	\$ 1,799	\$ 18
A3 - Energy Star Products	\$ 6,809	\$ 5,902	\$ 7,733	\$ (2)	\$ -	\$ (1)	\$ (1)	\$ -	\$ 25	\$ 33	\$ (3)	\$ (2)	\$ 3	\$ 51	\$ 5,902	\$ -	\$ 5,953	\$ 856	\$ 893	\$ 1,749	\$ 31
A4 - Home Energy Reports	\$ 641	\$ 592	\$ 730	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 592	\$ -	\$ 592	\$ 49	\$ 89	\$ 138	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A7 - Aerial Infrared Mapping	\$ 658	\$ 608	\$ 745	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 608	\$ -	\$ 608	\$ 50	\$ 91	\$ 143	\$ -
Sub-Total Residential	\$ 28,858	\$ 21,181	\$ 31,459	\$ 24	\$ -	\$ 21	\$ 18	\$ -	\$ 28	\$ 34	\$ 12	\$ 9	\$ 4	\$ 150	\$ 21,181	\$ 51	\$ 21,383	\$ 3,261	\$ 6,767	\$ 10,027	\$ 49
Commercial/Industrial Programs																					
C1 - Large Business Energy Solutions	\$ 24,390	\$ 21,247	\$ 27,577	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,247	\$ -	\$ 21,247	\$ 3,143	\$ 3,187	\$ 6,330	\$ -
C2 - Small Business Energy Solutions	\$ 13,156	\$ 10,867	\$ 14,813	\$ 7	\$ -	\$ 7	\$ 6	\$ -	\$ 11	\$ 13	\$ 4	\$ 3	\$ 2	\$ 53	\$ 10,867	\$ 324	\$ 11,244	\$ 1,911	\$ 1,638	\$ 3,549	\$ 20
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 37,546	\$ 32,115	\$ 42,391	\$ 7	\$ -	\$ 7	\$ 6	\$ -	\$ 11	\$ 13	\$ 4	\$ 3	\$ 2	\$ 53	\$ 32,115	\$ 324	\$ 32,492	\$ 5,054	\$ 4,825	\$ 9,880	\$ 20
Total	\$ 66,404	\$ 53,295	\$ 73,850	\$ 31	\$ -	\$ 28	\$ 24	\$ -	\$ 39	\$ 46	\$ 16	\$ 13	\$ 6	\$ 203	\$ 53,295	\$ 375	\$ 53,874	\$ 8,315	\$ 11,592	\$ 19,907	\$ 69

Portfolio Planned Versus Actual Performance - 2021-2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	6,373,044	4,142,478		-	2.475%	-	\$ 696,321	\$ 870,401	\$ -	Program Cost Effectiveness (Page 1 of 3)
2 Annual MMBtu Savings	526,206	342,034		-	1.100%	-	\$ 309,476	\$ 386,845	\$ -	Program Cost Effectiveness (Page 1 of 3)
3 Total Resource Benefits	\$ 53,874,092			-						Present Value Benefits (Page 2 of 3)
4 Total Utility Costs ¹	\$ 28,134,166			-						Program Cost Effectiveness (Page 1 of 3)
5 Net Benefits	\$ 25,739,926	\$ 16,730,952	\$ -	-	1.925%	-	\$ 541,583	\$ 676,978	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 1,547,379	\$ 1,934,224	\$ -	Sum of Rows 1, 2 & 5

	Granite State Test		Source
	Planned	Actual	
7 Total Benefits	\$ 66,403,561		Present Value Benefits (Page 2 of 3)
8 Performance Incentive	\$ 1,547,379	\$ -	Row 6
9 Total Utility Costs	\$ 28,134,166	\$ -	Row 4
10 Portfolio GST BCR	2.24	-	Row 7 Divided by Rows 8+9

Costs, Benefits, and PI Expressed in 2021 Dollars. Three-year nominal PI is \$1,599,921.24.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

[illegible]

000610

Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023			
Aza - HPwES (Weatherization)	Air Sealing, Gas	G21A2a001	56	60	68	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	0.6	0.6	0.7	8.3	9.1	10.1	-	-	-	0.3	0.3	0.4	804.5	866.4	976.4	12,068.0	13,242.1	14,646.4
Aza - HPwES (Weatherization)	Faucet Aerator, Gas	G21A2a002	1	1	1	7	7	7	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2	0.2	1.3	1.4	1.6
Aza - HPwES (Weatherization)	Hand Held Showerhead, Gas	G21A2a003	56	60	68	7	7	7	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	35.0	37.6	42.4	244.6	253.3	297.1	
Aza - HPwES (Weatherization)	Insulation, Gas	G21A2a004	116	127	143	23	23	23	100%	100%	100%	99%	99%	99%	100%	100%	100%	5.8	6.3	7.1	133.8	143.9	162.4	-	-	-	3.2	3.5	3.9	4,299.6	4,614.2	5,206.0	98,536.6	105,987.3	119,561.9
Aza - HPwES (Weatherization)	LED Bulb, General Service Lamps	G21A2a005	1	-	7	5	5	5	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aza - HPwES (Weatherization)	LED Bulb, Linear	G21A2a006	-	-	-	-	-	-	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aza - HPwES (Weatherization)	LED Bulb, Other Specialty	G21A2a007	1	1	1	5	5	5	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aza - HPwES (Weatherization)	LED Bulb, Reflector	G21A2a008	1	1	1	5	5	5	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aza - HPwES (Weatherization)	LED Fixture	G21A2a009	-	-	-	-	-	-	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aza - HPwES (Weatherization)	Low Flow Showerhead, Gas	G21A2a010	2	3	3	7	7	7	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	1.5	1.6	1.8	10.6	11.4	12.9	
Aza - HPwES (Weatherization)	Pipe Insulation - Hot Water, Gas	G21A2a011	7	8	9	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	4.8	5.1	5.8	71.3	76.7	86.6	
Aza - HPwES (Weatherization)	Baseload Audit - Electric Savings	G21A2a012	650	675	700	5	5	5	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aza - HPwES (Weatherization)	Baseload Audit - Thermal Savings	G21A2a013	650	675	700	12	12	12	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aza - HPwES (Weatherization)	Visual Audit MR Savings	G21A2a014	-	-	-	1	1	1	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azb - HPwES (HVAC Systems)	Boiler Replacement, Gas	G21A2b001	-	-	-	19	19	19	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azb - HPwES (HVAC Systems)	Furnace Replacement, Gas	G21A2b002	-	-	-	17	17	17	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azb - HPwES (HVAC Systems)	Programmable Thermostat, Gas	G21A2b003	51	52	53	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	175.4	179.7	182.6	2,630.6	2,695.1	2,738.4	
Azb - HPwES (HVAC Systems)	Wifi Thermostat, Gas	G21A2b004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,742.9	6,316.2	6,899.4	86,130.0	94,743.0	103,395.9	
Home Performance with Energy Star Subtotal																		6.4	6.9	7.7	142.1	153.0	172.4	-	-	-	3.5	3.8	4.3	11,064.2	12,031.8	13,319.0	199,865.1	217,226.7	249,952.7

000612

Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A4a - Home Energy Reports	Home Energy Reports	621A4a01	30,000	30,000	30,000	1	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	2,033.7	2,124.8	2,153.7	2,189.6	2,025.4	2,027.1	2,028.5	2,020.4	2,021.4	2,022.4	13,168.1	17,245.4	28,410.3	13,168.1	17,302.4	28,410.3
Residential Behavior Subtotal																																			

Subprogram	Measure												Measure ID												2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Large Business Energy Solutions Subtotal

Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2a - SCI Retrofit	Custom Small Hot Water Retro	G21C2a001	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Custom Small HVAC Retro	G21C2a002	22	23	24	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Custom Small Other Retro	G21C2a003	-	1	1	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Custom Small Process Retro	G21C2a004	22	23	24	17	17	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Faucet Aerator, Gas	G21C2a005	-	-	-	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Low Flow Showerhead With Thermostatic Valve, Gas	G21C2a006	-	-	-	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Low Flow Showerhead, Gas	G21C2a007	-	-	-	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Pipe Wrap - Hot Water, Gas	G21C2a008	-	-	-	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Pre Rinse Spray Valve, Gas	G21C2a009	-	-	-	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Boiler Reset Controls, Gas	G21C2a010	-	-	-	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Boiler Tune-Up	G21C2a011	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Energy Management System, Gas	G21C2a012	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Pipe Insulation - Heating, Gas	G21C2a013	-	-	-	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Steam Trap, Gas	G21C2a014	-	-	-	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	Programmable Thermostat, Gas	G21C2a015	323	330	337	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2a - SCI Retrofit	WFI Thermostat (Heating & Cooling)	G21C2a016	254	255	257	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Custom Small Hot Water New	G21C2b001	24	26	29	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Custom Small HVAC New	G21C2b002	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Custom Small Other New	G21C2b003	29	33	36	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Custom Small Process New	G21C2b004	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Boiler 1701 to 2000 MBH 90 AFUE, Gas	G21C2b005	7	7	8	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Boiler 1000 to 1700 MBH 90 AFUE, Gas	G21C2b006	4	5	6	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Boiler 500 to 999 MBH 90 AFUE, Gas	G21C2b007	16	18	22	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Boiler 301 to 499 MBH 90 AFUE, Gas	G21C2b008	17	18	22	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Boiler to 300 MBH 90 AFUE, Gas	G21C2b009	18	18	22	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Boiler to 300 MBH 85 AFUE, Gas	G21C2b010	40	40	57	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Combo Condensing Boiler / Water Heater, Gas	G21C2b011	6	7	8	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Combo Furnace / Water Heater, Gas	G21C2b012	-	-	-	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Condensing Unit Heater, Gas	G21C2b013	7	7	7	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Furnace w/ ECM 95 AFUE, Gas	G21C2b014	17	18	19	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Furnace w/ ECM 97 AFUE, Gas	G21C2b015	2	2	2	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Infrared Heater, Gas	G21C2b016	47	48	51	17	17	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Faucet Aerator, Gas	G21C2b017	130	132	134	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Low Flow Showerhead With Thermostatic Valve, Gas	G21C2b018	-	-	-	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2.9	3.0	3.2	51.4	54.4	57.5	0.8	0.9	0.9	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Low Flow Showerhead, Gas	G21C2b019	47	48	49	10	10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0.3	0.3	0.3	6.0	6.0	6.0	0.1	0.1	0.1	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Pre Rinse Spray Valve, Gas	G21C2b020	-	-	-	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C2b - SCI New Equipment and Construction	Combination Oven, Gas	G21C2b021	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Convection Oven, Gas	G21C2b022	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Conveyor Oven, Gas	G21C2b023	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Fryer, Gas	G21C2b024	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Griddle, Gas	G21C2b025	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Rack Oven, Gas	G21C2b026	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	Steam Cooker, Gas	G21C2b027	-	-	-	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2b - SCI New Equipment and Construction	CMI Small New Construction Code Compliance	G21C2b028	1	1	1	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	36%	36%	36%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Combination Oven, Gas	G21C2c001	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Convection Oven, Gas	G21C2c002	10	13	16	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Conveyor Oven, Gas	G21C2c003	1	1	2	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer, Gas	G21C2c004	12	16	22	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Griddle, Gas	G21C2c005	1	1	2	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Pre Rinse Spray Valve, Gas	G21C2c006	-	-	-	8	8	8	83%	83%	83%	100%	100%	100%	100%	100%	100%	-																	



Catherine A. McNamara
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November 13, 2020

Via ERF

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

**Re: DE 14-216 Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
2015-2016 CORE NH Electric & Gas Energy Efficiency Programs
September 2020 Energy Efficiency Monthly Expense**

Dear Ms. Howland:

Enclosed for filing please find Liberty Utilities' monthly report of collections, expenditures, incentive, interest, and therm sales associated with the implementation and cost recovery of its energy efficiency programs through September 2020. This report updates the forecasted energy efficiency program expenditures consistent with Liberty Utilities 2015-2016 CORE Electric Energy Efficiency and Gas Energy Efficiency Programs approved by the Commission in Order No. 25,747 (December 31, 2014) in Docket DG 14-216 and the DSM Rate per therm approved by the Commission in Order No. 26,187 (November 02, 2018) in Docket DG 17-048.

This report has been filed via the Commission's Electronic Report Filing system. Thank you for your attention to this matter. Please do not hesitate to call if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "C. McNamara", enclosed within a hand-drawn oval.

Catherine A. McNamara

Enclosure

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Liberty Utilities (EnergyNorth Natural Gas) Corp d/b/a Liberty Utilities
Energy Efficiency Programs
For Residential Heating (R-3) and Non-Heating (R-1) Classes
January 1, 2016 - September 30, 2020 actuals per General Ledger

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Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections (a)	Adjust (b)	Forecasted DSM Expenditures	DSM Expenditures Residential	DSM Expenditures Low-Income	DSM Expenditures Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Monthly Federal Prime Rate	Interest @ Federal Reserve Prime Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Therm Sales	Actual Therm Sales	# of Days
January 16	Actual	(55,684)	(\$0.0585)	(462,266)	0	243,235	115,790	2,750	14,589	(384,821)	(220,252)	3.50%	(628)	(385,448)	10,059,056	7,903,951	31
February 16	Actual	(385,448)	(\$0.0585)	(564,847)	10	243,235	141,893	2,838	14,589	(790,966)	(588,207)	3.50%	(1,506)	(792,472)	10,754,770	9,667,816	29
October 18	Actual	(1,643,802)	(\$0.0516)	(84,785)	0	250,275	164,809	41,783	12,775	(1,509,220)	(1,576,511)	5.25%	(2,601)	(1,511,821)	1,693,533	1,647,633	31
November 18	Actual	(1,511,821)	(\$0.0287)	(149,217)	0	250,275	175,634	15,203	(32,954)	(1,503,155)	(1,507,488)	5.25%	(5,035)	(1,508,190)	4,324,268	4,587,083	30
December 18	Actual	(1,508,190)	(\$0.0287)	(259,329)	0	250,275	717,388	116,988	12,775	(920,369)	(1,214,280)	5.50%	(4,516)	(924,885)	7,903,914	8,987,494	31
January 19	Actual	(924,885)	(\$0.0287)	(296,434)	0	404,158	216,542	27,594	13,751	(963,431)	(944,158)	5.50%	(1,988)	(965,420)	11,256,284	10,327,081	31
February 19	Actual	(965,420)	(\$0.0287)	(328,883)	0	404,158	231,499	26,268	13,751	(1,022,784)	(994,102)	5.50%	(4,265)	(1,027,050)	12,157,335	11,462,368	28
March 19	Actual	(1,027,050)	(\$0.0287)	(293,891)	0	404,158	401,147	25,374	13,751	(880,668)	(953,859)	5.50%	(4,804)	(885,472)	10,337,327	10,321,013	31
April 19	Actual	(885,472)	(\$0.0287)	(207,533)	0	404,158	125,635	18,174	13,751	(935,444)	(910,458)	5.50%	(2,486)	(937,930)	7,042,089	7,251,410	30
May 19	Actual	(937,930)	(\$0.0287)	(120,310)	0	404,158	321,246	134,621	13,751	(588,621)	(763,275)	5.50%	(4,694)	(593,315)	4,095,234	4,213,465	31
June 19	Actual	(593,315)	(\$0.0287)	(65,711)	0	404,158	138,113	13,713	13,751	(493,449)	(543,382)	5.50%	(4,097)	(497,546)	1,981,666	2,303,736	30
July 19	Actual	(497,546)	(\$0.0287)	(36,994)	0	404,158	199,864	21,026	13,751	(299,898)	(398,722)	5.25%	(1,893)	(301,791)	1,120,055	1,372,431	31
August 19	Actual	(301,791)	(\$0.0287)	(31,923)	0	404,158	165,212	83,931	13,751	(70,821)	(186,306)	5.25%	(2,888)	(73,709)	1,085,379	1,124,579	31
September 19	Actual	(73,709)	(\$0.0287)	(32,988)	0	404,158	152,548	37,762	13,751	97,365	11,828	5.00%	(1,294)	96,071	1,610,929	1,160,981	30
October 19	Actual	96,071	(\$0.0287)	(48,088)	0	404,158	184,669	104,327	13,751	350,731	223,401	5.00%	(154)	350,576	2,852,473	1,688,420	31
November 19	Actual	350,576	(\$0.0640)	(166,863)	0	404,158	303,789	90,595	13,751	591,849	471,213	4.75%	126	591,975	4,282,009	3,833,253	30
December 19	Actual	591,975	(\$0.0640)	(562,172)	0	404,158	235,952	13,585	119,857	399,197	495,586	4.75%	325	399,522	7,823,717	8,718,898	31
January 20	Actual	399,522	(\$0.0640)	(674,634)	0	404,158	247,715	62,392	15,562	50,558	225,040	4.75%	12	50,569	11,145,128	10,546,269	31
February 20	Actual	50,569	(\$0.0640)	(614,595)	0	404,158	426,709	304,914	15,562	183,158	116,864	4.75%	0	183,158	12,045,301	9,606,139	29
March 20	Actual	183,158	(\$0.0640)	(563,522)	0	404,158	303,534	119,979	15,562	58,710	120,934	4.75%	(465)	58,245	10,245,231	8,805,434	31
April 20	Actual	58,245	(\$0.0640)	(426,840)	0	404,158	229,910	13,847	15,562	(109,276)	(25,516)	3.25%	(756)	(110,032)	6,986,726	6,670,059	30
May 20	Actual	(110,032)	(\$0.0640)	(308,762)	0	404,158	109,664	57,347	15,562	(236,221)	(173,126)	3.25%	(1,204)	(237,425)	4,066,455	4,824,165	31
June 20	Actual	(237,425)	(\$0.0640)	(140,008)	0	404,158	229,611	9,424	15,562	(122,836)	(180,131)	3.25%	(1,207)	(124,043)	1,969,131	2,187,747	30
July 20	Actual	(124,043)	(\$0.0640)	(84,310)	0	404,158	188,564	93,185	15,562	88,957	(17,543)	3.25%	(906)	88,051	1,112,870	1,317,519	31
August 20	Actual	88,051	(\$0.0640)	(67,580)	0	404,158	174,281	10,147	15,562	220,461	154,256	3.25%	(489)	219,972	1,077,949	1,056,003	31
September 20	Actual	219,972	(\$0.0640)	(74,046)	0	404,158	235,085	10,933	15,562	407,506	313,739	3.25%	0	407,506	1,597,614	1,157,364	30

- (a) Collections include adjustments to reconcile to actual collections as reported in the Company's general ledger
(b) Adjustments - See page 3 of 3 for adjustment detail
(c) Adjusted volumes for iNAT Gas November 2017 - January 2018 in the March 2018 EE report filed April 2018. iNAT Gas is a special contract and exempt from LDAC charges.
(d) Therm Sales for November were corrected in the December 2018 filing. December sales were used in the original November 2018 filing
(e) Added Keene sales volumes and revenues for May-March 2018 in April 2018 filing
(f) Forcaded DSM expenditures for January 2017 - June 2019 were updated in July 2019.

Liberty Utilities (EnergyNorth Natural Gas) Corp d/b/a Liberty Utilities
Energy Efficiency Programs
For Commercial/Industrial Classes
January 1, 2016 - September 30, 2020 actuals per General Ledger

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Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections (a)	Adjust (b)	Forecasted DSM Expenditures	Com-Ind	Actual DSM Expenditures Revenues	Low-Income	Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Monthly Federal Prime Rate	Interest @ Federal Reserve Prime Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Therm Sales	Actual Therm Sales	# of Days
January 16	Actual	(51,607)	(\$0.0256)	(315,105)	0	225,250	27,923	1	3,646	13,520	(321,622)	(186,614)	3.50%	(582)	(322,203)	14,736,267	12,312,941	31
February 16	Actual	(322,203)	(\$0.0256)	(363,672)	9	225,250	72,142	1	3,762	13,520	(596,442)	(459,323)	3.50%	(1,396)	(597,838)	15,694,927	14,232,015	29
March 16	Actual	(597,838)	(\$0.0256)	(326,629)	7	225,250	73,766	2	3,938	13,520	(833,236)	(715,537)	3.50%	(2,467)	(835,703)	13,700,246	12,766,768	31
April 16	Actual	(835,703)	(\$0.0256)	(254,974)	7	225,250	33,233	2	6,890	13,520	(1,037,026)	(936,364)	3.50%	(3,199)	(1,040,225)	9,956,715	9,959,922	30
May 16	Actual	(1,040,225)	(\$0.0256)	(197,623)	44	225,250	243,803	2	115,391	64,764	(813,845)	(927,035)	3.50%	(3,340)	(817,185)	6,537,363	7,720,335	31
June 16	Actual	(817,185)	(\$0.0256)	(122,823)	28	225,250	264,637	2	5,524	13,520	(656,299)	(736,742)	3.50%	(2,788)	(659,088)	5,092,563	4,791,008	30
July 16	Actual	(659,088)	(\$0.0256)	(112,364)	45	225,250	95,719	3	107,712	13,520	(554,455)	(606,771)	3.50%	(2,530)	(556,985)	4,008,754	4,308,679	31
August 16	Actual	(556,985)	(\$0.0256)	(96,027)	17	225,250	264,882	4	95,514	13,520	(279,078)	(418,032)	3.50%	(2,013)	(281,091)	3,851,567	3,752,313	31
September 16	Actual	(281,091)	(\$0.0256)	(105,117)	0	225,250	50,225	5	50,414	44,398	(241,171)	(261,131)	3.50%	(1,443)	(242,614)	4,156,413	4,103,262	30
October 16	Actual	(242,614)	(\$0.0256)	(123,143)	0	225,250	196,998	5	3,345	13,520	(151,893)	(197,253)	3.50%	(1,301)	(153,194)	4,987,864	4,810,021	31
November 16	Actual	(153,194)	(\$0.0219)	(191,369)	4	225,250	105,616	5	105,285	13,520	(120,138)	(136,666)	3.50%	(1,170)	(121,309)	7,058,014	7,289,759	30
December 16	Actual	(121,309)	(\$0.0219)	(244,460)	0	225,250	620,098	5	70,254	13,520	338,105	108,398	3.50%	(802)	337,302	10,740,036	11,098,366	31
January 17	Actual	337,302	(\$0.0219)	(310,621)	(0)	318,174	31,500	5	20,257	9,778	88,217	212,759	3.75%	(1,146)	87,070	14,736,267	14,197,899	31
February 17	Actual	87,070	(\$0.0219)	(309,881)	0	318,174	210,221	5	51,784	9,778	48,972	68,021	3.75%	(1,305)	47,667	15,694,927	13,936,147	28
March 17	Actual	47,667	(\$0.0219)	(289,454)	(11)	318,174	53,201	5	37,307	9,778	(141,512)	(46,922)	4.00%	(1,888)	(143,400)	13,700,246	13,413,018	31
April 17	Actual	(143,400)	(\$0.0219)	(279,147)	248	318,174	46,164	6	26,927	9,778	(339,429)	(241,414)	4.00%	(1,455)	(340,884)	9,956,715	12,647,374	30
May 17	Actual	(340,884)	(\$0.0219)	(158,067)	1	318,174	106,016	7	43,216	9,778	(339,940)	(340,412)	4.00%	(2,822)	(342,762)	6,537,363	7,299,008	31
June 17	Actual	(342,762)	(\$0.0219)	(131,661)	0	318,174	198,094	8	13,943	9,778	(252,608)	(297,685)	4.25%	(2,424)	(255,031)	5,092,563	6,011,635	30
July 17	Actual	(255,031)	(\$0.0219)	(91,758)	0	318,174	78,201	9	57,585	9,778	(201,226)	(228,129)	4.25%	(1,161)	(202,388)	4,008,754	4,189,738	31
August 17	Actual	(202,388)	(\$0.0219)	(92,681)	0	318,174	264,468	10	41,571	9,778	20,748	(90,820)	4.25%	(2,054)	18,694	3,851,567	4,232,764	31
September 17	Actual	18,694	(\$0.0219)	(99,470)	0	318,174	71,580	11	31,589	39,112	61,505	40,100	4.25%	(1,649)	59,857	4,156,413	4,542,128	30
October 17	Actual	59,857	(\$0.0219)	(100,870)	0	318,174	139,086	11	101,675	61,136	260,883	160,370	4.25%	(270)	260,613	4,987,864	4,605,672	31
November 17	Actual	260,613	(\$0.0332)	(183,245)	0	318,174	330,431	11	17,750	13,037	438,587	349,600	4.25%	(414)	438,173	7,058,014	6,627,806	30
December 17	Actual	438,173	(\$0.0332)	(402,602)	0	318,174	366,794	11	21,460	13,037	436,863	437,518	4.50%	(445)	436,418	10,740,036	12,155,212	31
January 18	Actual	436,418	(\$0.0332)	(586,053)	0	379,259	106,414	11	15,773	11,840	(15,608)	210,405	4.50%	(1,187)	(16,794)	14,736,267	17,652,762	31
February 18	Actual	(16,794)	(\$0.0332)	(528,576)	0	379,259	229,198	11	8,860	11,840	(295,474)	(156,134)	4.50%	(2,515)	(297,988)	15,694,927	15,921,957	28
March 18	Actual	(297,988)	(\$0.0332)	(421,037)	0	379,259	44,271	11	3,923	11,840	(658,992)	(478,490)	4.75%	(4,100)	(663,091)	13,700,246	12,682,437	31
April 18	Actual	(663,091)	(\$0.0332)	(413,129)	0	379,259	262,594	11	41,820	11,840	(759,967)	(711,529)	4.75%	(2,868)	(762,835)	9,956,715	12,443,785	30
May 18	Actual	(762,835)	(\$0.0332)	(274,571)	0	379,259	83,213	11	47,482	11,840	(894,872)	(828,853)	4.75%	(5,772)	(900,644)	6,537,363	8,321,674	31
June 18	Actual	(900,644)	(\$0.0332)	(169,232)	0	379,259	136,096	11	43,186	11,840	(878,755)	(889,699)	4.75%	(5,811)	(884,565)	5,092,563	5,096,631	30
July 18	Actual	(884,565)	(\$0.0332)	(147,839)	0	379,259	69,691	11	10,977	11,840	(939,897)	(912,231)	5.00%	(3,108)	(943,005)	4,008,754	4,451,214	31
August 18	Actual	(943,005)	(\$0.0332)	(131,172)	0	379,259	122,617	11	94,737	11,840	(844,984)	(893,994)	5.00%	(5,863)	(850,847)	3,851,567	3,949,785	31
September 18	Actual	(850,847)	(\$0.0332)	(137,008)	0	379,259	116,664	11	46,233	11,840	(813,118)	(831,983)	5.25%	(4,898)	(818,016)	4,156,413	4,233,904	30
October 18	Actual	(818,016)	(\$0.0332)	(165,236)	0	379,259	177,353	11	55,387	11,840	(738,672)	(778,344)	5.25%	(2,411)	(741,082)	4,987,864	4,983,469	31
November 18	Actual	(741,082)	(\$0.0387)	(359,627)	0	379,259	370,437	11	20,153	(30,541)	(740,661)	(740,872)	5.25%	(4,667)	(745,328)	9,336,113	8,871,973	30
December 18	Actual	(745,328)	(\$0.0387)	(535,315)	0	379,259	384,679	11	155,077	11,840	(729,047)	(737,187)	5.50%	(4,185)	(733,232)	12,917,493	13,799,181	31
January 19	Actual	(733,232)	(\$0.0387)	(596,255)	0	455,607	525,164	11	36,578	12,745	(755,001)	(744,117)	5.50%	(1,843)	(756,844)	16,858,514	15,405,989	31
February 19	Actual	(756,844)	(\$0.0387)	(652,110)	0	455,607	203,110	11	34,821	12,745	(1,158,278)	(957,561)	5.50%	(3,953)	(1,162,231)	17,620,148	16,852,474	28
March 19	Actual	(1,162,231)	(\$0.0387)	(608,022)	0	455,607	830,559	11	33,636	12,745	(893,314)	(1,027,773)	5.50%	(4,452)	(897,766)	15,427,575	15,766,772	31
April 19	Actual	(897,766)	(\$0.0387)	(472,685)	0	455,607	150,149	11	24,092	12,745	(1,183,466)	(1,040,616)	5.50%	(2,304)	(1,185,770)	12,192,278	12,228,043	30
May 19	Actual	(1,185,770)	(\$0.0387)	(312,013)	0	455,607	146,152	11	178,452	12,745	(1,160,434)	(1,173,102)	5.50%	(4,351)	(1,164,785)	8,160,862	8,077,113	31
June 19	Actual	(1,164,785)	(\$0.0387)	(230,093)	0	455,607	113,008	11	18,177	12,745	(1,250,948)	(1,207,866)	5.50%	(3,797)	(1,254,744)	5,670,771	5,955,271	30
July 19	Actual	(1,254,744)	(\$0.0387)	(175,710)	0	455,607	127,827	11	27,872	12,745	(1,262,010)	(1,258,377)	5.25%	(1,755)	(1,263,765)	4,307,455	4,597,661	31
August 19	Actual	(1,263,765)	(\$0.0387)	(171,991)	0	455,607	572,325	11	111,257	12,745	(739,429)	(1,001,597)	5.25%	(2,677)	(742,106)	4,189,336	4,452,647	31
September 19	Actual	(742,106)	(\$0.0387)	(166,181)	0	455,607	286,524	11	50,057	12,745	(558,961)	(650,533)	5.00%	(1,200)	(560,161)	4,604,642	4,302,022	30
October 19	Actual	(560,161)	(\$0.0387)	(197,610)	0	455,607	118,476	11	138,294	12,745	(488,257)	(524,209)	5.00%	(143)	(488,400)	6,151,371	5,115,071	31
November 19	Actual	(488,400)	(\$0.0426)	(298,486)	0	455,607	324,463	11	120,091	12,745	(329,587)	(408,993)	4.75%	117	(329,470)	9,446,293	7,549,210	30
December 19	Actual	(329,470)	(\$0.0426)	(561,360)	0	455,607	501,417	11	18,008	111,081	(260,324)	(294,897)	4.75%	301	(260,022)	13,175,385	13,086,909	31
January 20	Actual	(260,022)	(\$0.0426)	(687,255)	0	455,607	671,181	11	82,706	14,422	(178,967)	(219,495)	4.75%	11	(178,956)	17,286,173	16,139,863	31
February 20	Actual	(178,956)	(\$0.0426)	(621,086)	0	455,607	213,500	11	404,188	14,422	(167,932)	(173,444)	4.75%	0	(167,932)	18,155,769	13,683,933	29
March 20	Actual	(167,932)	(\$0.0426)	(582,273)	0	455,607	163,092	11	159,041	14,422	(413,649)	(290,790)	4.75%	(431)	(414,081)	15,896,601	13,668,933	31
April 20	Actual	(414,081)	(\$0.0426)	(447,209)	0	455,607	200,369	11	18,355	14,422	(628,143)	(521,112)	3.25%	(700)	(628,844)	12,548,537	10,498,835	30
May 20	Actual	(628,844)	(\$0.0426)	(349,588)	0	455,607	177,056	11	76,019	14,422	(710,935)	(669,889)	3.25%	(1,116)	(712,051)	8,443,740	8,205,951	31
June 20	Actual	(712,051)	(\$0.0426)	(216,372)	0	455,607	227,076	11	12,493	14,422	(692,823)	(670,733)	3.25%	(1,119)	(674,851)	5,816,016	5,079,339	30
July 20	Actual	(674,851)	(\$0.0426)	(156,544)	0	455,607	134,993	11	123,524	14,422	(558,455)	(616,653)	3.25%	(840)	(559,295)	4,386,444	3,674,969	31
August 20	Actual	(559,295)	(\$0.0426)	(173,688)	0	455,607	271,301	11	13,451	14,422	(434,809)	(496,552)	3.25%	(453)	(434,262)	4,284,366	4,077,282	31
September 20	Actual	(434,262)	(\$0.0426)	(175,755)	0	455,607	415,267	11	14,493	14,422	(165,835)	(300,049)	3.25%	0	(165,835)	4,746,144	4,126,263	30

(a) Collections include adjustments to reconcile to actual collections as reported in the Company's general ledger
(b) Adjustments - See page 3 of 3 for adjustment detail
(c) Adjusted volumes for INAT Gas November 2017 - January 2018 in the April EE Report. INAT Gas is a special contract and exempt from LDAC charges.
(d) Therm Sales for November were corrected in the December 2018 filing. December sales were used in the original November 2018 filing
(e) Added Keene sales volumes and revenues for May-March 2018 in April 2018 filing
(f) Forecasted DSM expenditures for January 2017 - June 2019 were updated in July 2019.

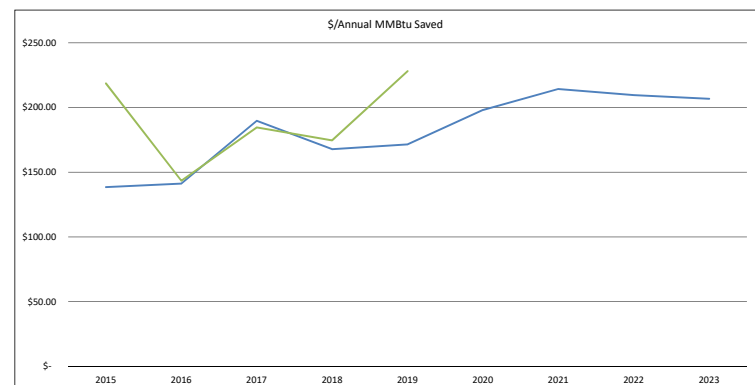
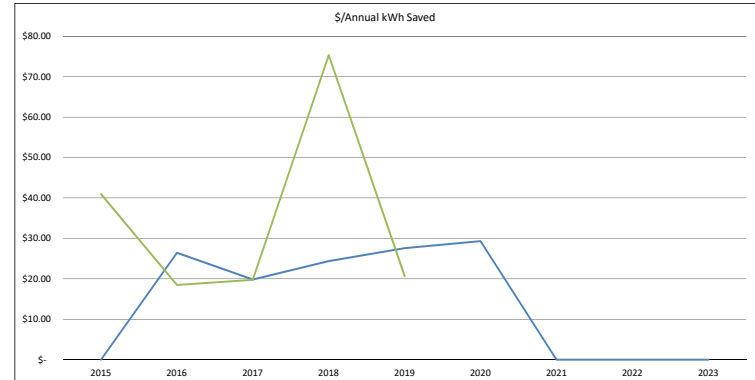
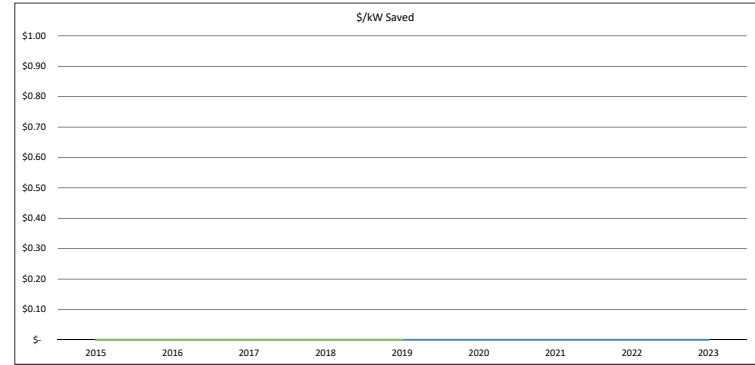
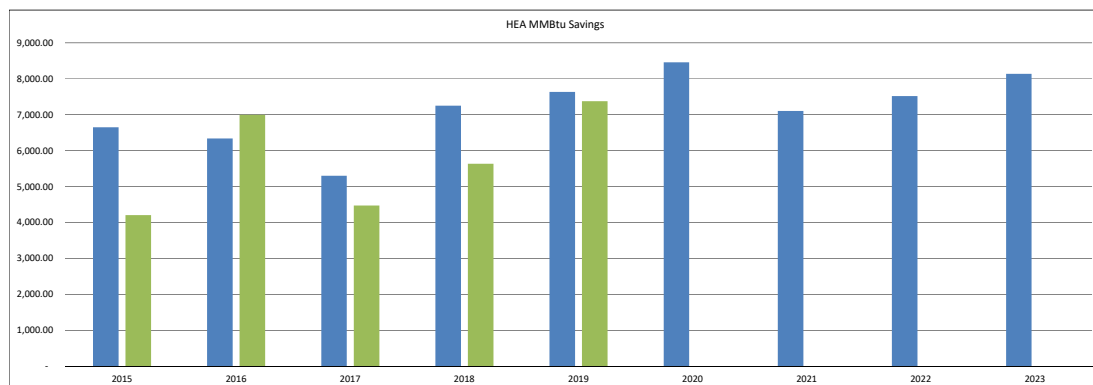
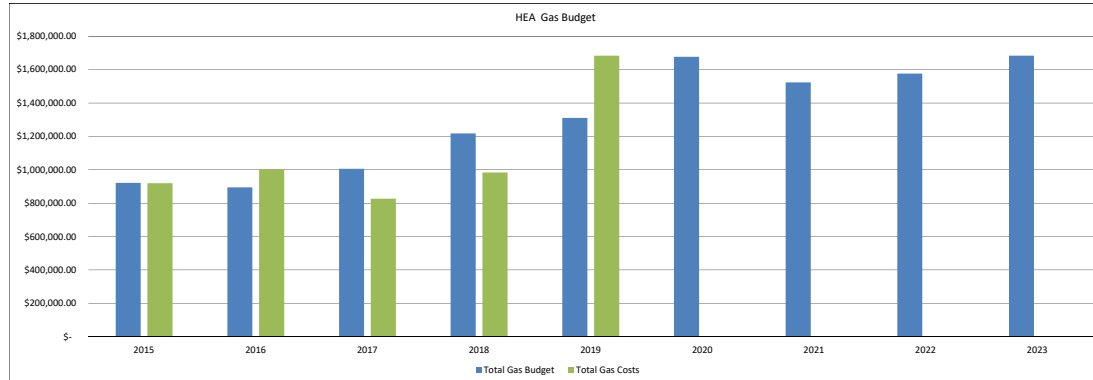
Liberty Utilities (EnergyNorth Natural Gas) Corp d/b/a Liberty Utilities
 Energy Efficiency Programs
 For Residential (R-1 & R-3) and Commercial/Industrial Classes
 January 1, 2016 - September 30, 2020 actuals per General Ledger

Page 3 of 3

Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections (a)	Adjust (b)	Forecasted DSM Expenditures	Residential	Actual DSM Expenditures	Com-Ind	Low-Income	Total	Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Monthly Federal Prime Rate	Interest @ Federal Reserve Prime Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Therm Sales	Actual Therm Sales	# of Days
January 16	Actual	(107,290)	n/a	(777,371)	0	468,485	115,790	27,923	6,396	150,110	28,109	(706,442)	(406,866)	3.50%	(1,209)	(707,652)	24,795,322	20,216,892	31	
February 16	Actual	(707,652)	n/a	(928,519)	19	468,485	141,893	72,142	6,600	220,635	28,109	(1,387,407)	(1,047,530)	3.50%	(2,902)	(1,390,309)	26,449,698	23,899,831	29	
March 16	Actual	(1,390,309)	n/a	(828,294)	14	468,485	39,875	73,766	6,909	120,550	28,109	(2,069,931)	(1,730,120)	3.50%	(5,129)	(2,075,060)	22,969,193	21,345,924	31	
April 16	Actual	(2,075,060)	n/a	(634,062)	14	468,485	74,397	33,233	12,089	119,718	28,109	(2,561,280)	(2,318,170)	3.50%	(6,650)	(2,567,931)	16,210,423	16,440,049	30	
May 16	Actual	(2,567,931)	n/a	(429,882)	92	468,485	302,108	243,803	202,441	748,352	134,645	(2,114,724)	(2,341,328)	3.50%	(6,944)	(2,121,668)	9,886,997	11,690,908	31	
June 16	Actual	(2,121,668)	n/a	(234,642)	57	468,485	134,280	264,637	9,690	408,607	28,109	(1,919,537)	(2,020,602)	3.50%	(5,797)	(1,925,334)	7,077,460	6,699,259	30	
July 16	Actual	(1,925,334)	n/a	(189,038)	94	468,485	178,022	95,719	188,968	462,709	28,109	(1,623,460)	(1,774,397)	3.50%	(5,260)	(1,628,720)	5,261,414	5,581,325	31	
August 16	Actual	(1,628,720)	n/a	(157,529)	35	468,485	218,221	264,882	167,569	650,672	28,109	(1,107,433)	(1,368,076)	3.50%	(4,185)	(1,111,618)	4,908,241	4,804,245	31	
September 16	Actual	(1,111,618)	n/a	(167,808)	0	468,485	69,279	50,225	88,446	207,950	92,304	(979,172)	(1,045,395)	3.50%	(2,999)	(982,171)	5,299,526	5,173,547	30	
October 16	Actual	(982,171)	n/a	(217,301)	0	468,485	125,642	196,998	5,869	328,508	28,109	(842,855)	(912,513)	3.50%	(2,705)	(845,560)	6,681,398	6,419,450	31	
November 16	Actual	(845,560)	n/a	(368,860)	7	468,485	99,868	105,616	184,710	390,194	28,109	(796,110)	(820,835)	3.50%	(2,433)	(798,543)	10,836,421	10,853,467	30	
December 16	Actual	(798,543)	n/a	(533,608)	0	468,485	233,825	620,098	123,253	977,176	28,109	(326,866)	(562,705)	3.50%	(1,668)	(328,534)	17,686,256	18,253,381	31	
January 17	Actual	(328,534)	n/a	(711,728)	(0)	519,914	113,707	31,500	35,539	180,747	20,328	(839,187)	(583,860)	3.75%	(2,383)	(841,570)	24,795,322	24,184,090	31	
February 17	Actual	(841,570)	n/a	(691,011)	0	519,914	166,993	210,221	90,849	468,063	20,328	(1,044,190)	(942,880)	3.75%	(2,712)	(1,046,902)	26,449,698	23,291,390	28	
March 17	Actual	(1,046,902)	n/a	(639,331)	(23)	519,914	129,609	53,201	65,450	248,260	20,328	(1,417,667)	(1,232,285)	4.00%	(3,925)	(1,421,592)	22,969,193	22,231,603	31	
April 17	Actual	(1,421,592)	n/a	(611,160)	516	519,914	78,519	46,164	47,241	171,924	20,328	(1,839,983)	(1,630,788)	4.00%	(3,025)	(1,843,008)	16,210,423	20,846,166	30	
May 17	Actual	(1,843,008)	n/a	(301,192)	2	519,914	331,161	106,016	75,818	512,995	20,328	(1,610,876)	(1,726,942)	4.00%	(5,867)	(1,616,743)	9,886,997	10,907,162	31	
June 17	Actual	(1,616,743)	n/a	(227,701)	0	519,914	152,820	198,094	24,461	375,375	20,328	(1,448,740)	(1,532,741)	4.25%	(5,039)	(1,453,779)	7,077,460	8,400,536	30	
July 17	Actual	(1,453,779)	n/a	(143,530)	0	519,914	59,825	78,201	101,026	239,052	20,328	(1,337,929)	(1,395,854)	4.25%	(2,415)	(1,340,344)	5,261,414	5,477,505	31	
August 17	Actual	(1,340,344)	n/a	(140,281)	0	519,914	97,613	264,468	72,931	435,013	20,328	(1,025,284)	(1,182,814)	4.25%	(4,269)	(1,029,554)	4,908,241	5,417,274	31	
September 17	Actual	(1,029,554)	n/a	(148,989)	0	519,914	98,236	71,580	55,419	225,235	81,314	(871,994)	(950,774)	4.25%	(3,428)	(875,422)	5,299,526	5,774,030	30	
October 17	Actual	(875,422)	n/a	(155,397)	0	519,914	213,911	139,086	178,378	531,375	127,101	(372,343)	(623,883)	4.25%	(562)	(372,905)	6,681,398	5,961,899	31	
November 17	Actual	(372,905)	n/a	(293,578)	0	519,914	157,854	330,431	31,140	519,425	27,105	(119,953)	(246,429)	4.25%	(861)	(120,814)	10,836,421	9,535,532	30	
December 17	Actual	(120,814)	n/a	(794,497)	0	519,914	92,129	366,794	37,650	496,573	27,105	(931,633)	(256,224)	4.50%	(925)	(328,534)	17,686,256	19,769,975	31	
January 18	Actual	(392,558)	n/a	(1,215,019)	0	629,534	105,425	106,414	27,672	239,511	24,615	(1,343,451)	(868,005)	4.50%	(2,467)	(1,345,918)	24,795,322	29,842,427	31	
February 18	Actual	(1,345,918)	n/a	(1,068,504)	0	629,534	283,081	229,198	15,543	527,822	24,615	(1,861,528)	(1,603,724)	4.50%	(5,229)	(1,866,757)	26,449,698	26,377,511	28	
March 18	Actual	(1,866,757)	n/a	(859,592)	0	629,534	57,171	44,271	6,882	108,324	24,615	(2,593,411)	(2,230,084)	4.75%	(8,523)	(2,601,934)	22,969,193	21,182,000	31	
April 18	Actual	(2,601,934)	n/a	(831,833)	0	629,534	75,918	262,594	73,368	411,880	24,615	(2,997,273)	(2,739,604)	4.75%	(5,962)	(3,003,235)	6,253,708	7,701,394	30	
May 18	Actual	(3,003,235)	n/a	(501,069)	0	629,534	169,251	83,213	83,301	335,765	24,615	(3,143,925)	(3,073,580)	4.75%	(12,000)	(3,155,925)	3,349,634	4,425,216	31	
June 18	Actual	(3,155,925)	n/a	(261,947)	0	629,534	148,594	136,096	75,765	360,455	24,615	(3,032,803)	(3,094,364)	4.75%	(12,081)	(3,044,884)	1,984,898	6,892,929	30	
July 18	Actual	(3,044,884)	n/a	(213,128)	0	629,534	101,545	69,691	19,257	190,493	24,615	(3,042,904)	(3,043,894)	5.00%	(6,461)	(3,049,365)	1,252,661	5,715,281	31	
August 18	Actual	(3,049,365)	n/a	(185,334)	0	629,534	229,645	122,617	166,205	518,466	24,615	(2,691,618)	(2,870,491)	5.00%	(12,190)	(2,703,808)	1,056,675	4,998,633	31	
September 18	Actual	(2,703,808)	n/a	(190,599)	0	629,534	220,383	116,664	81,110	418,157	24,615	(2,451,635)	(2,577,722)	5.25%	(10,182)	(2,461,818)	1,143,113	5,346,899	30	
October 18	Actual	(2,461,818)	n/a	(250,021)	0	629,534	164,809	177,353	97,170	439,332	24,615	(2,247,891)	(2,354,855)	5.25%	(5,012)	(2,252,903)	1,693,533	6,631,102	31	
November 18	Actual	(2,252,903)	n/a	(508,844)	0	629,534	175,634	370,437	35,356	581,427	(63,496)	(2,343,816)	(2,248,360)	5.25%	(9,702)	(2,253,518)	13,660,381	13,459,056	30	
December 18	Actual	(2,253,518)	n/a	(794,644)	0	629,534	717,388	384,679	272,065	1,374,131	24,615	(1,649,416)	(1,951,467)	5.50%	(8,701)	(1,658,118)	20,821,407	22,786,675	31	
January 19	Actual	(1,658,118)	n/a	(892,689)	0	859,765	216,542	525,164	64,172	805,879	26,496	(1,718,432)	(1,688,275)	5.50%	(3,831)	(1,722,263)	28,114,798	25,733,070	31	
February 19	Actual	(1,722,263)	n/a	(980,993)	0	859,765	231,499	203,110	61,089	495,698	26,496	(2,181,063)	(1,951,663)	5.50%	(8,218)	(2,189,281)	29,777,483	28,314,842	28	
March 19	Actual	(2,189,281)	n/a	(901,913)	0	859,765	401,147	830,559	59,010	1,290,716	26,496	(1,773,982)	(1,981,632)	5.50%	(9,257)	(1,783,238)	25,764,902	26,087,785	31	
April 19	Actual	(1,783,238)	n/a	(680,218)	0	859,765	125,635	150,149	42,266	318,050	26,496	(2,118,910)	(1,951,075)	5.50%	(4,789)	(2,123,700)	19,234,367	19,479,453	30	
May 19	Actual	(2,123,700)	n/a	(432,323)	0	859,765	321,246	146,152	313,073	780,472	26,496	(1,749,055)	(1,936,377)	5.50%	(9,045)	(1,758,100)	12,256,096	12,290,578	31	
June 19	Actual	(1,758,100)	n/a	(295,804)	0	859,765	138,113	113,008	31,890	283,011	26,496	(1,744,397)	(1,751,247)	5.50%	(7,893)	(1,752,291)	7,652,437	8,259,007	30	
July 19	Actual	(1,752,291)	n/a	(212,703)	0	859,765	199,864	127,827	48,899	376,590	26,496	(1,561,908)	(1,657,098)	5.25%	(3,648)	(1,565,556)	5,427,510	5,970,092	31	
August 19	Actual	(1,565,556)	n/a	(203,914)	0	859,765	165,212	572,325	195,187	932,724	26,496	(810,250)	(1,187,901)	5.25%	(5,565)	(815,814)	5,274,715	5,577,226	31	
September 19	Actual	(815,814)	n/a	(199,169)	0	859,765	152,548	286,524	87,819	526,892	26,496	(461,596)	(638,703)	5.00%	(2,494)	(464,090)	6,215,571	5,463,003	30	
October 19	Actual	(464,090)	n/a	(245,698)	0	859,765	184,669	118,476	242,621	545,766	26,496	(137,526)	(300,806)	5.00%	(297)	(137,823)	9,003,844	6,803,491	31	
November 19	Actual	(137,823)	n/a	(465,349)	0	859,765	303,789	324,463	210,686	838,939	26,496	262,263	62,221	4.75%	243	262,506	13,728,303	11,382,463	30	
December 19	Actual	262,506	n/a	(1,123,532)	0	859,765	235,952	501,417	31,593	768,962	230,938	138,874	200,690	4.75%	626	139,500	20,999,102	21,805,807	31	
January 20	Actual	139,500	n/a	(1,361,888)	0	859,765	247,715	671,181	145,099	1,063,995	29,984	(128,409)	5,545	4.75%	22	(128,387)	28,431,301	26,686,132	31	
February 20	Actual	(128,387)	n/a	(1,235,682)	0	859,765	426,709	213,500	709,102	1,349,311	29,984	15,227	(56,581)	4.75%	0	15,227	30,201,070	24,189,924	29	
March 20	Actual	15,227	n/a	(1,145,795)	0	859,765	303,534	163,092	279,020	745,645	29,984	(354,939)	(169,857)	4.75%	(897)	(355,836)	26,141,832	22,474,367	31	
April 20	Actual	(355,836)	n/a	(874,049)	0	859,765	229,910	200,369	32,202	462,482	29,984	(737,419)	(546,627)	3.25%	(1,456)	(738,875)	19,535,263	17,168,894	30	
May 20	Actual	(738,875)	n/a	(658,351)	0	859,765	109,664	177,056	133,366	420,086	29,984	(947,156)	(843,014)	3.25%	(2,321)	(949,477)	12,510,195	13,030,116	31	
June 20	Actual	(949,477)	n/a	(356,380)	0	859,765	229,611	227,776	21,917	479,305	29,984	(796,568)	(87							

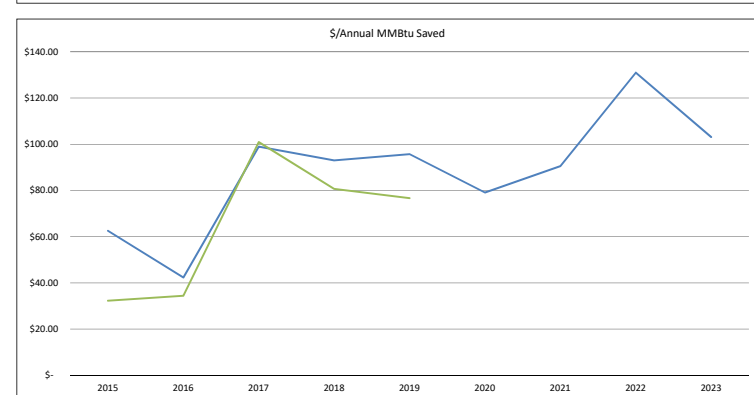
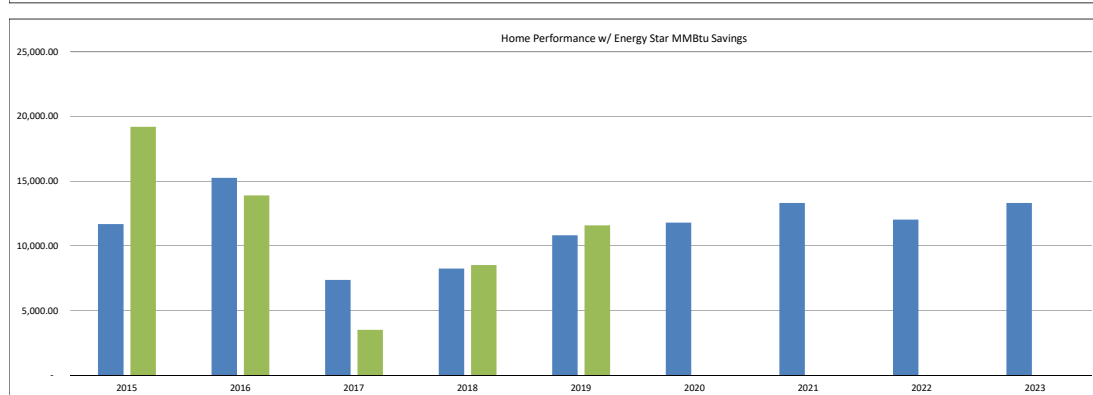
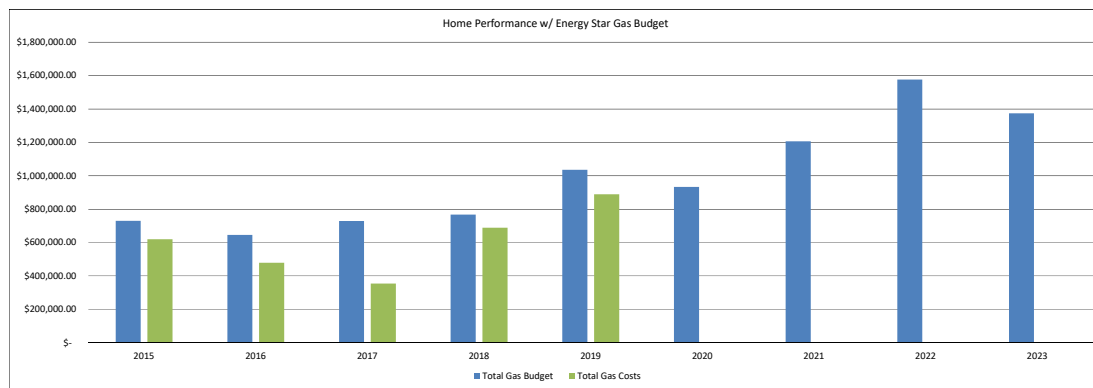
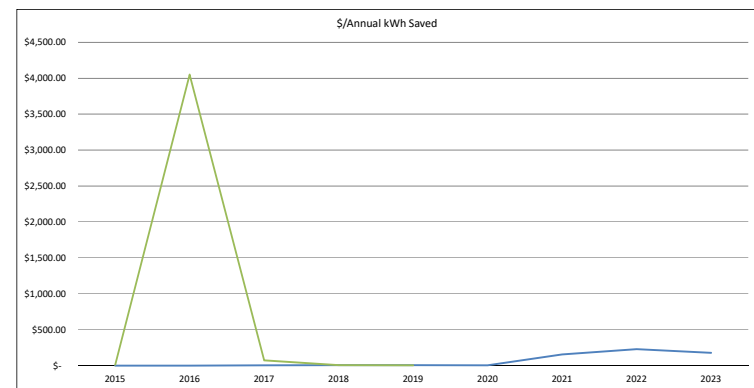
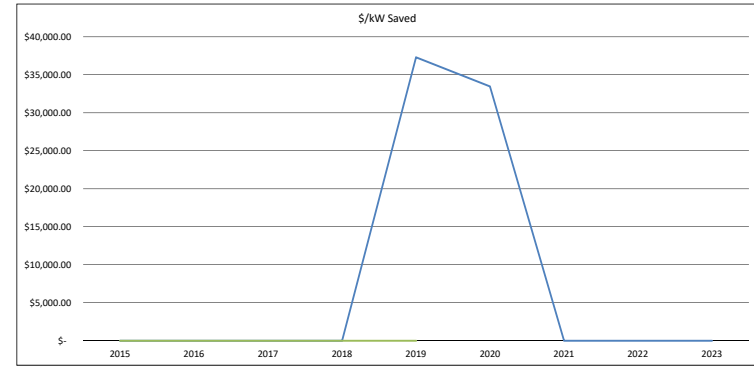
Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 921,250.00	\$ 895,000.00	\$ 1,005,700.00	\$ 1,217,300.00	\$ 1,310,342.19	\$ 1,676,441.36	\$ 1,523,570.00	\$ 1,576,174.33	\$ 1,683,072.54
	Annual Electric Savings Plan (kWh)	\$ -	\$ 33,878.44	\$ 50,719.26	\$ 49,935.01	\$ 47,538.87	\$ 57,178.54	\$ -	\$ -	\$ -
	\$/Annual kWh Plan	\$ -	\$ 26.42	\$ 19.83	\$ 24.38	\$ 27.56	\$ 29.32	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ 921,250.00	\$ 895,000.00	\$ 1,005,700.00	\$ 1,217,300.00	\$ 1,310,342.19	\$ 1,676,441.36	\$ 1,523,570.00	\$ 1,576,174.33	\$ 1,683,072.54
	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	\$ 1,676,441.36	\$ 1,523,570.00	\$ 1,576,174.33	\$ 1,683,072.54
	Total Annual MMBtu Plan	6,650.66	6,338.51	5,302.03	7,252.46	7,636.96	8,460.12	7,107.75	7,520.70	8,138.08
	\$/Annual MMBtu Plan	\$ 138.52	\$ 141.20	\$ 189.68	\$ 167.85	\$ 171.58	\$ 198.16	\$ 214.35	\$ 209.58	\$ 206.81
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 919,750.53	\$ 1,003,642.21	\$ 826,371.23	\$ 984,076.99	\$ 1,683,151.63				
	Annual Electric Savings Actual (kWh)	22,452.20	54,303.44	41,805.90	13,069.01	81,247.30				
	\$/Annual kWh Actual	\$ 40.96	\$ 18.48	\$ 19.77	\$ 75.30	\$ 20.72				
2)	Total Gas Costs	\$ 919,750.53	\$ 1,003,642.21	\$ 826,371.23	\$ 984,076.99	\$ 1,683,151.63				
	Total summer peak kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
3)	Total Gas Costs	\$ 919,750.53	\$ 1,003,642.21	\$ 826,371.23	\$ 984,076.99	\$ 1,683,151.63				
	Total Annual MMBtu Actual	4,206.13	6,997.88	4,476.14	5,636.02	7,377.76				
	\$/Annual MMBtu Actual	\$ 218.67	\$ 143.42	\$ 184.62	\$ 174.60	\$ 228.14				



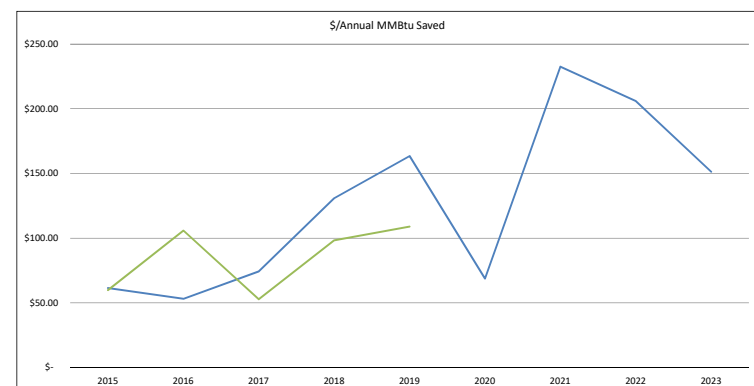
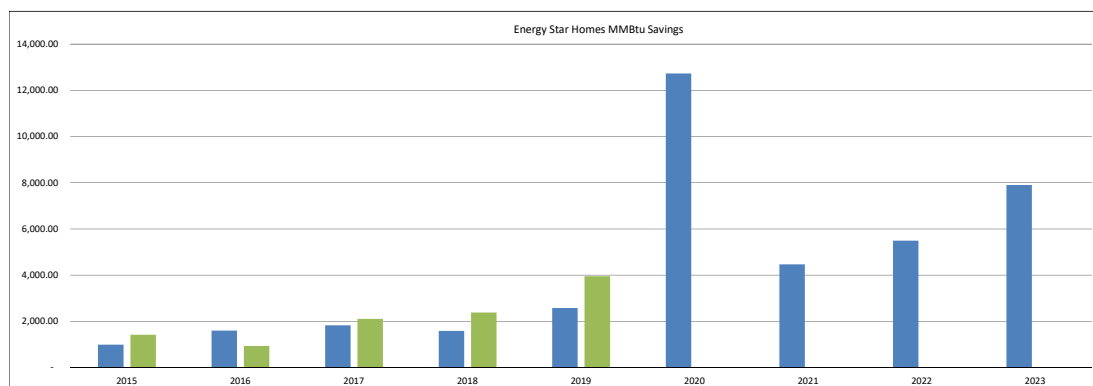
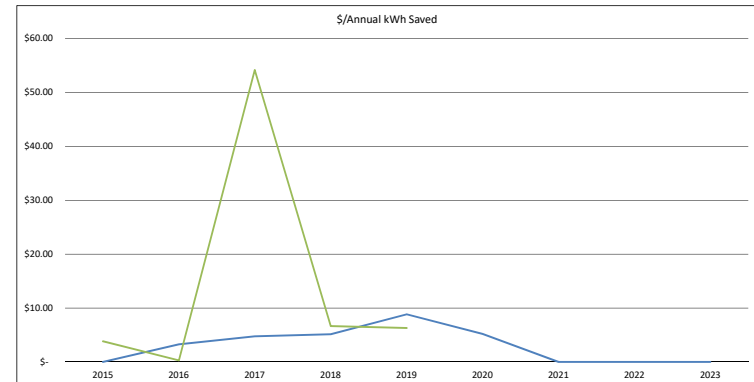
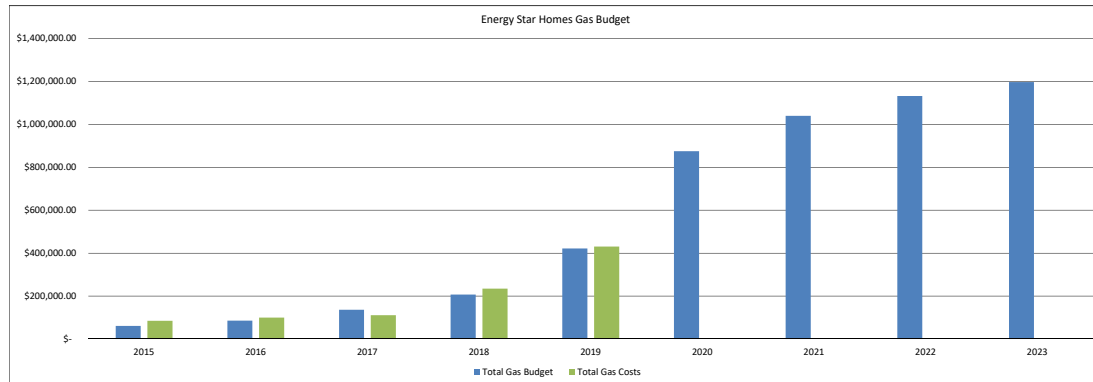
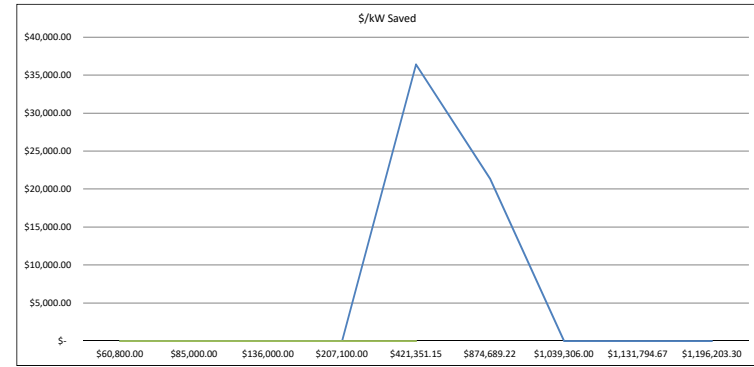
Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 730,157.00	\$ 645,815.00	\$ 729,200.00	\$ 767,160.00	\$ 1,035,751.28	\$ 933,161.78	\$ 1,205,798.00	\$ 1,576,174.33	\$ 1,373,780.23
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ 185,369.92	\$ 119,725.12	\$ 177,985.24	\$ 178,695.06	\$ 7,740.04	\$ 6,860.12	\$ 7,740.04
	\$/Annual kWh Plan	\$ -	\$ -	\$ 3.93	\$ 6.41	\$ 5.82	\$ 5.22	\$ 155.79	\$ 229.76	\$ 177.49
2)	Total Gas Budget	\$ 730,157.00	\$ 645,815.00	\$ 729,200.00	\$ 767,160.00	\$ 1,035,751.28	\$ 933,161.78	\$ 1,205,798.00	\$ 1,576,174.33	\$ 1,373,780.23
	Total summer peak kW Plan	\$ -	\$ -	\$ -	\$ -	\$ 27.77	\$ 27.88	\$ -	\$ -	\$ -
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ 37,302.35	\$ 33,474.12	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 730,157.00	\$ 645,815.00	\$ 729,200.00	\$ 767,160.00	\$ 1,035,751.28	\$ 933,161.78	\$ 1,205,798.00	\$ 1,576,174.33	\$ 1,373,780.23
	Total Annual MMBtu Plan	\$ 11,681.19	\$ 15,257.70	\$ 7,369.27	\$ 8,247.88	\$ 10,825.20	\$ 11,796.09	\$ 13,318.97	\$ 12,031.80	\$ 13,318.97
	\$/Annual MMBtu Plan	\$ 62.51	\$ 42.33	\$ 98.95	\$ 93.01	\$ 95.68	\$ 79.11	\$ 90.53	\$ 131.00	\$ 103.14
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 619,872.77	\$ 478,819.12	\$ 354,067.20	\$ 688,212.32	\$ 888,594.74				
	Annual Electric Savings Actual (kWh)	\$ 45,640.00	\$ 118.28	\$ 4,817.00	\$ 116,260.00	\$ 192,555.62				
	\$/Annual kWh Actual	\$ 13.58	\$ 4,048.30	\$ 73.50	\$ 5.92	\$ 4.61				
2)	Total Gas Costs	\$ 619,872.77	\$ 478,819.12	\$ 354,067.20	\$ 688,212.32	\$ 888,594.74				
	Total summer peak kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
3)	Total Gas Costs	\$ 619,872.77	\$ 478,819.12	\$ 354,067.20	\$ 688,212.32	\$ 888,594.74				
	Total Annual MMBtu Actual	\$ 19,203.20	\$ 13,900.99	\$ 3,507.99	\$ 8,527.40	\$ 11,592.83				
	\$/Annual MMBtu Actual	\$ 32.28	\$ 34.44	\$ 100.93	\$ 80.71	\$ 76.65				



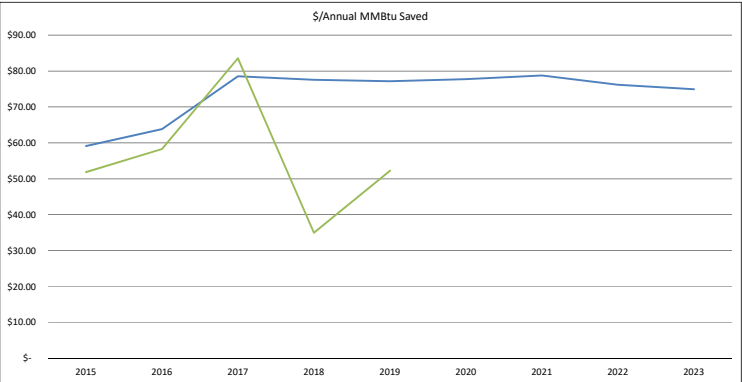
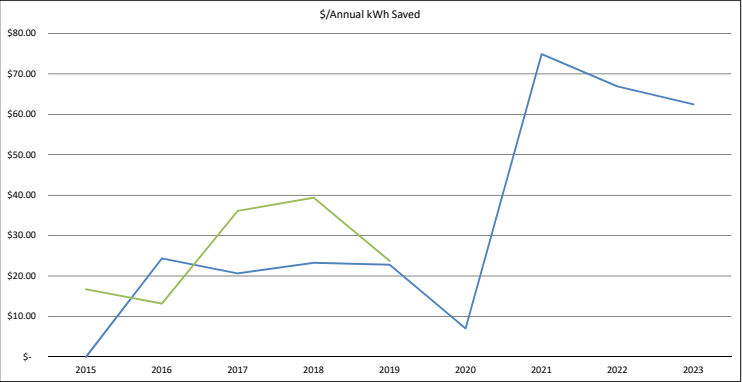
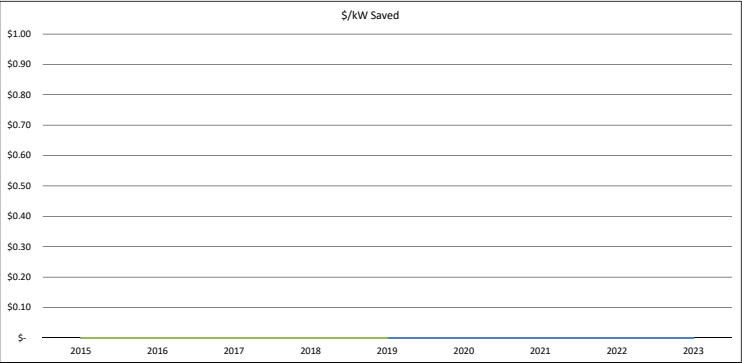
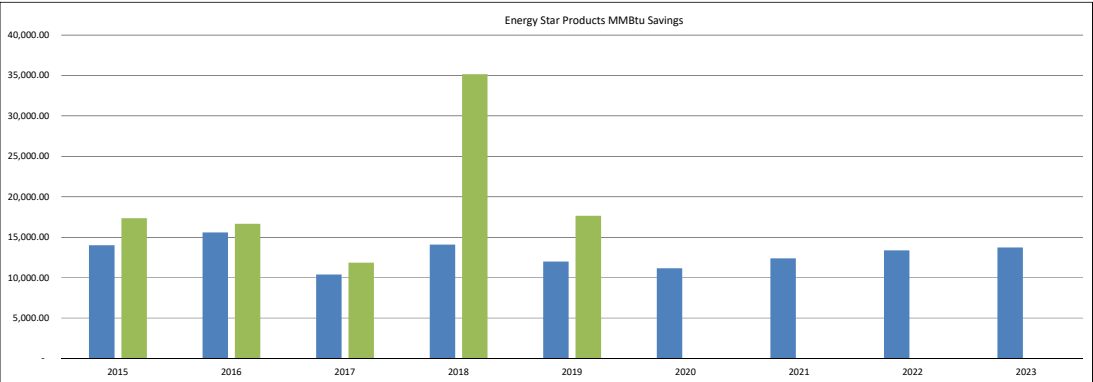
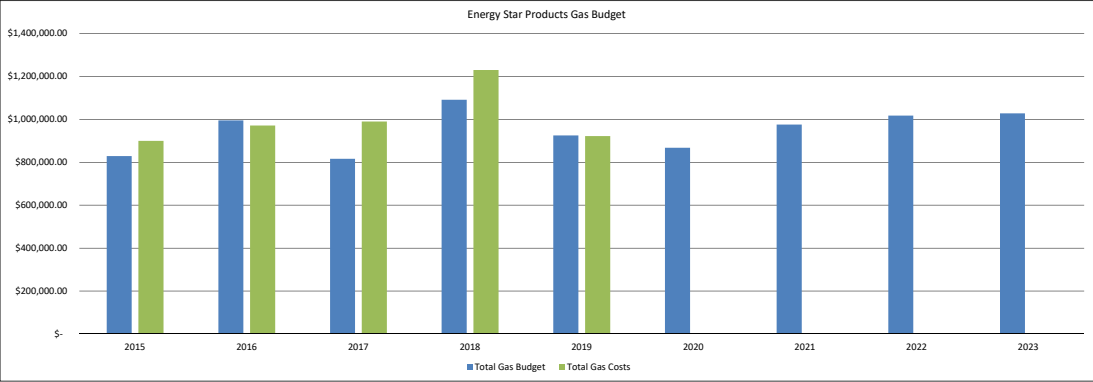
Energy Star Homes

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 60,800.00	\$ 85,000.00	\$ 136,000.00	\$ 207,100.00	\$ 421,351.15	\$ 874,689.22	\$ 1,039,306.00	\$ 1,131,794.67	\$ 1,196,203.30
	Annual Electric Savings Plan (kWh)	-	26,098.44	28,722.49	40,277.27	47,700.96	168,486.15	-	-	-
	\$/Annual kWh Plan	-	3.26	4.73	5.14	8.83	5.19	-	-	-
2)	Total Gas Budget	\$ 60,800.00	\$ 85,000.00	\$ 136,000.00	\$ 207,100.00	\$ 421,351.15	\$ 874,689.22	\$ 1,039,306.00	\$ 1,131,794.67	\$ 1,196,203.30
	Total summer peak kW Plan	-	-	-	-	11.57	40.88	-	-	-
	\$/kW Plan	-	-	-	-	36,404.46	21,395.73	-	-	-
3)	Total Gas Budget	\$ 60,800.00	\$ 85,000.00	\$ 136,000.00	\$ 207,100.00	\$ 421,351.15	\$ 874,689.22	\$ 1,039,306.00	\$ 1,131,794.67	\$ 1,196,203.30
	Total Annual MMBtu Plan	989.66	1,599.35	1,828.65	1,582.72	2,576.78	12,724.41	4,469.59	5,493.13	7,900.63
	\$/Annual MMBtu Plan	61.44	53.15	74.37	130.85	163.52	68.74	232.53	206.04	151.41
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 84,958.18	\$ 99,239.80	\$ 111,025.37	\$ 234,317.20	\$ 430,693.18				
	Annual Electric Savings Actual (kWh)	22,296.00	348,784.00	2,050.64	35,232.50	68,607.90				
	\$/Annual kWh Actual	3.81	0.28	54.14	6.65	6.28				
2)	Total Gas Costs	\$ 84,958.18	\$ 99,239.80	\$ 111,025.37	\$ 234,317.20	\$ 430,693.18				
	Total summer peak kW Actual	-	-	-	-	-				
	\$/kW Actual	-	-	-	-	-				
3)	Total Gas Costs	\$ 84,958.18	\$ 99,239.80	\$ 111,025.37	\$ 234,317.20	\$ 430,693.18				
	Total Annual MMBtu Actual	1,419.50	937.50	2,103.50	2,384.90	3,952.99				
	\$/Annual MMBtu Actual	59.85	105.86	52.78	98.25	108.95				



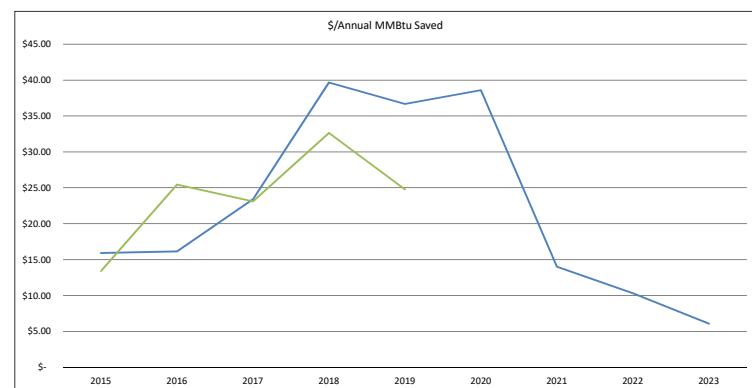
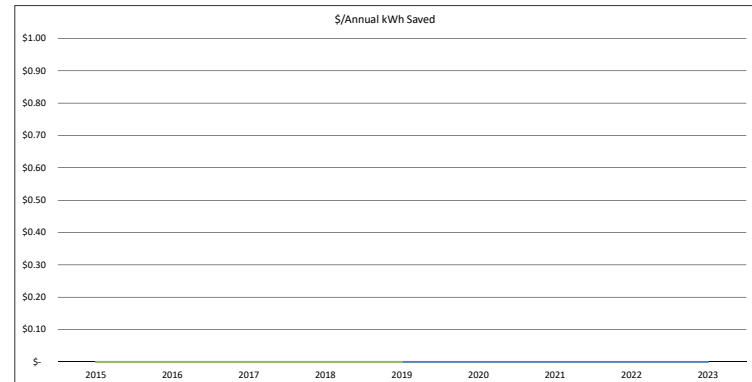
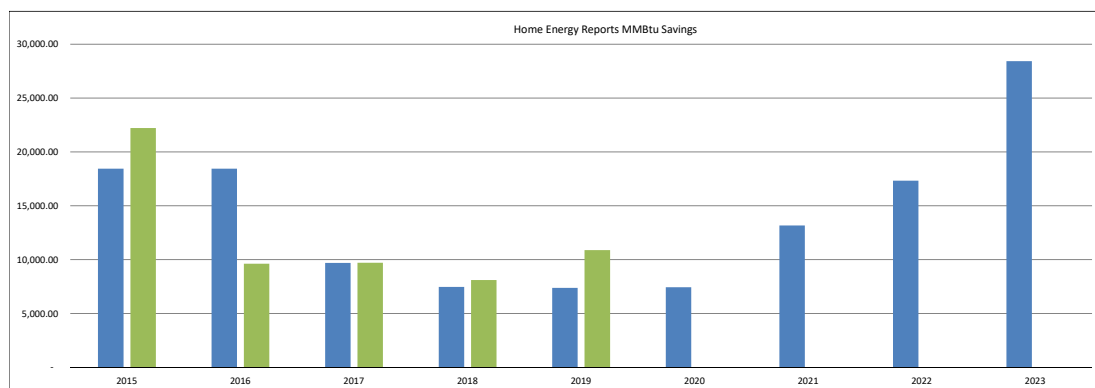
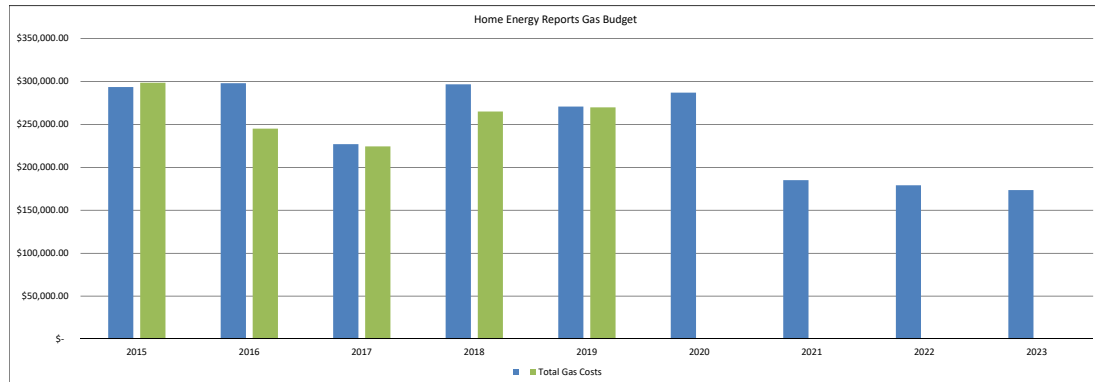
Energy Star Products

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 828,043.00	\$ 995,000.00	\$ 815,220.00	\$ 1,091,674.00	\$ 925,001.00	\$ 867,569.00	\$ 975,798.00	\$ 1,017,591.28	\$ 1,028,147.44
	Annual Electric Savings Plan (kWh)	\$ -	\$ 40,875.38	\$ 39,480.00	\$ 46,959.26	\$ 40,628.00	\$ 123,094.00	\$ 13,033.00	\$ 15,208.00	\$ 16,465.00
	\$/Annual kWh Plan	\$ -	\$ 24.34	\$ 20.65	\$ 23.25	\$ 22.77	\$ 7.05	\$ 74.87	\$ 66.91	\$ 62.44
2)	Total Gas Budget	\$ 828,043.00	\$ 995,000.00	\$ 815,220.00	\$ 1,091,674.00	\$ 925,001.00	\$ 867,569.00	\$ 975,798.00	\$ 1,017,591.28	\$ 1,028,147.44
	Total summer peak kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.28)	\$ (0.30)	\$ (0.29)
	\$/kW Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3)	Total Gas Budget	\$ 828,043.00	\$ 995,000.00	\$ 815,220.00	\$ 1,091,674.00	\$ 925,001.00	\$ 867,569.00	\$ 975,798.00	\$ 1,017,591.28	\$ 1,028,147.44
	Total Annual MMBtu Plan	\$ 14,005.99	\$ 15,590.22	\$ 10,383.60	\$ 14,078.80	\$ 11,989.98	\$ 11,161.38	\$ 12,389.38	\$ 13,361.99	\$ 13,728.04
	\$/Annual MMBtu Plan	\$ 59.12	\$ 63.82	\$ 78.51	\$ 77.54	\$ 77.15	\$ 77.73	\$ 78.76	\$ 76.16	\$ 74.89
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 899,813.80	\$ 970,998.20	\$ 989,619.28	\$ 1,230,077.32	\$ 921,922.15				
	Annual Electric Savings Actual (kWh)	\$ 53,802.80	\$ 73,636.72	\$ 27,419.00	\$ 31,248.00	\$ 38,843.00				
	\$/Annual kWh Actual	\$ 16.72	\$ 13.19	\$ 36.09	\$ 39.36	\$ 23.73				
2)	Total Gas Costs	\$ 899,813.80	\$ 970,998.20	\$ 989,619.28	\$ 1,230,077.32	\$ 921,922.15				
	Total summer peak kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
3)	Total Gas Costs	\$ 899,813.80	\$ 970,998.20	\$ 989,619.28	\$ 1,230,077.32	\$ 921,922.15				
	Total Annual MMBtu Actual	\$ 17,351.10	\$ 16,657.70	\$ 11,845.70	\$ 35,151.30	\$ 17,650.50				
	\$/Annual MMBtu Actual	\$ 51.86	\$ 58.29	\$ 83.54	\$ 34.99	\$ 52.23				



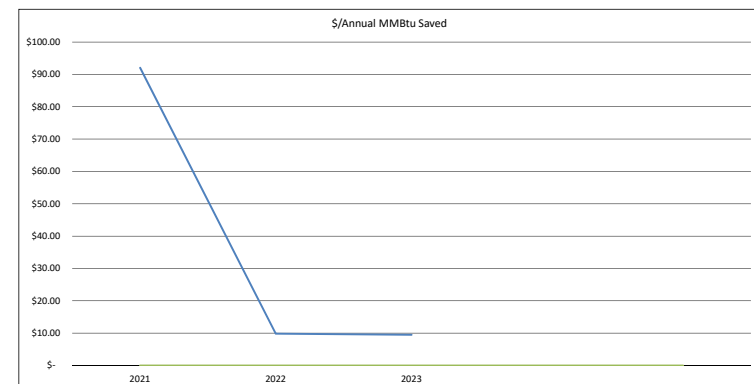
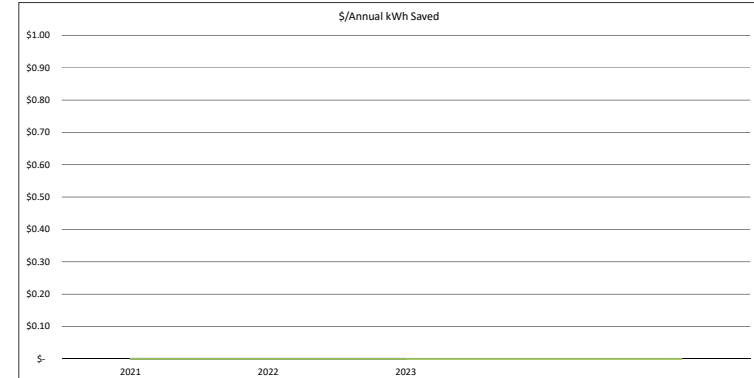
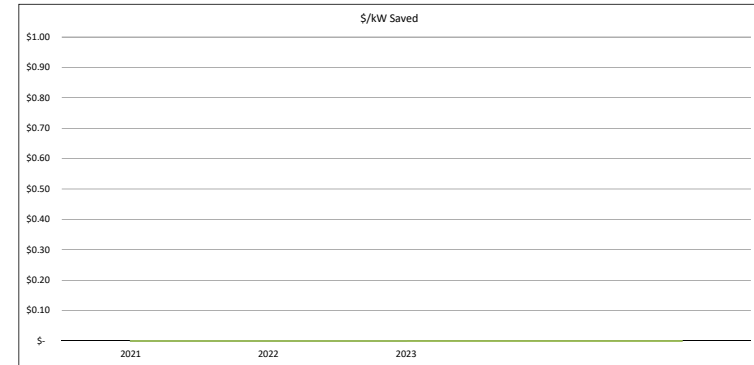
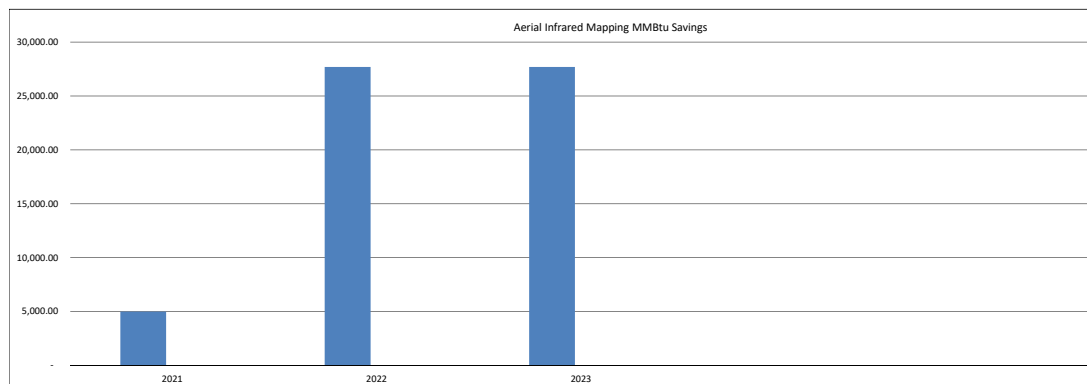
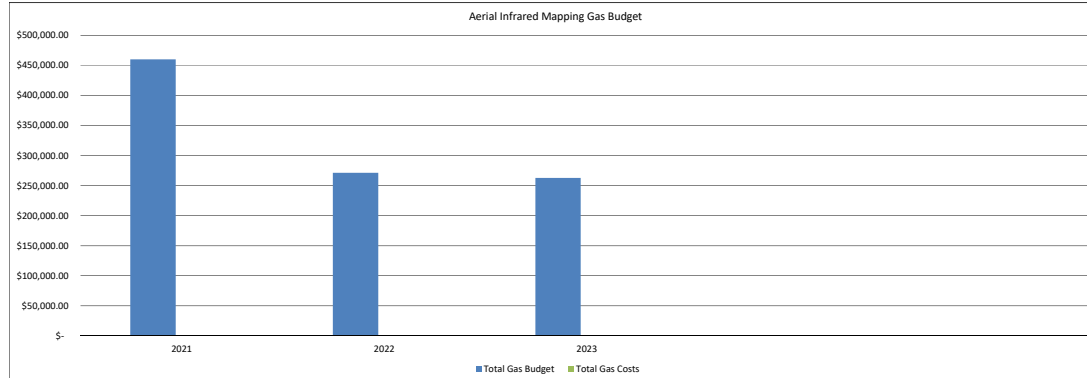
Home Energy Reports

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 293,550.00	\$ 298,000.00	\$ 227,000.00	\$ 296,600.00	\$ 270,764.00	\$ 286,994.54	\$ 185,000.00	\$ 179,176.76	\$ 173,536.81
	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	\$ 185,000.00	\$ 179,176.76	\$ 173,536.81
	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	\$ 185,000.00	\$ 179,176.76	\$ 173,536.81
	Total Annual MMBtu Plan	18,440.10	18,440.10	9,700.00	7,480.00	7,384.00	7,438.20	13,169.10	17,325.42	28,410.00
	\$/Annual MMBtu Plan	\$ 15.92	\$ 16.16	\$ 23.40	\$ 39.65	\$ 36.67	\$ 38.58	\$ 14.05	\$ 10.34	\$ 6.11
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 298,541.76	\$ 245,049.37	\$ 224,349.60	\$ 264,913.58	\$ 269,754.70				
	Annual Electric Savings Actual (kWh)	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/Annual kWh Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
2)	Total Gas Costs	\$ 298,541.76	\$ 245,049.37	\$ 224,349.60	\$ 264,913.58	\$ 269,754.70				
	Total summer peak kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
3)	Total Gas Costs	\$ 298,541.76	\$ 245,049.37	\$ 224,349.60	\$ 264,913.58	\$ 269,754.70				
	Total Annual MMBtu Actual	22,213.10	9,622.40	9,708.30	8,115.51	10,883.50				
	\$/Annual MMBtu Actual	\$ 13.44	\$ 25.47	\$ 23.11	\$ 32.64	\$ 24.79				



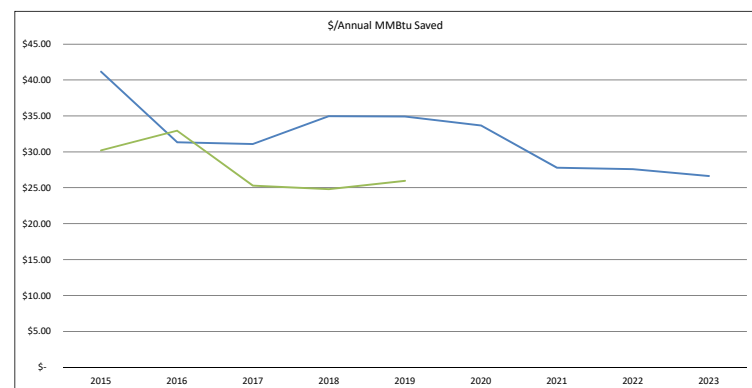
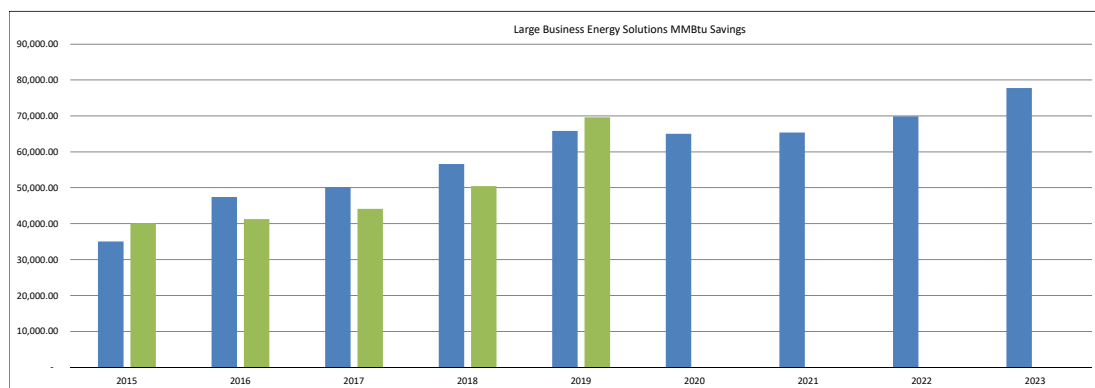
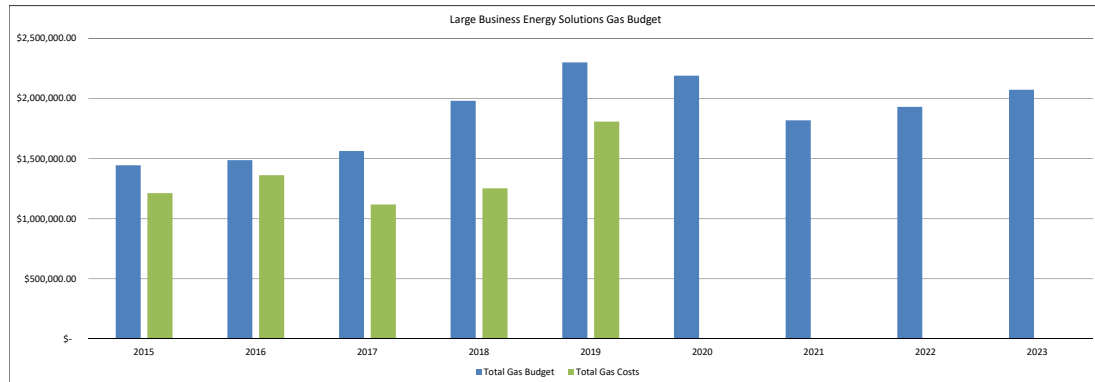
Aerial Infrared Mapping

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	n/a	n/a	n/a	n/a	n/a	n/a	\$ 460,250.00	\$ 271,428.57	\$ 262,884.81
	Annual Electric Savings Plan (kWh)	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-
	\$/Annual kWh Plan	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-
2)	Total Gas Budget	n/a	n/a	n/a	n/a	n/a	n/a	\$ 460,250.00	\$ 271,428.57	\$ 262,884.81
	Total summer peak kW Plan	n/a	n/a	n/a	n/a	n/a	n/a	5.01	-	-
	\$/kW Plan	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-
3)	Total Gas Budget	n/a	n/a	n/a	n/a	n/a	n/a	\$ 460,250.00	\$ 271,428.57	\$ 262,884.81
	Total Annual MMBtu Plan	n/a	n/a	n/a	n/a	n/a	n/a	5,000.00	27,700.00	27,700.00
	\$/Annual MMBtu Plan	n/a	n/a	n/a	n/a	n/a	n/a	\$ 92.05	\$ 9.80	\$ 9.49
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	n/a	n/a	n/a	n/a	n/a				
	Annual Electric Savings Actual (kWh)	n/a	n/a	n/a	n/a	n/a				
	\$/Annual kWh Actual	n/a	n/a	n/a	n/a	n/a				
2)	Total Gas Costs	n/a	n/a	n/a	n/a	n/a				
	Total summer peak kW Actual	n/a	n/a	n/a	n/a	n/a				
	\$/kW Actual	n/a	n/a	n/a	n/a	n/a				
3)	Total Gas Costs	n/a	n/a	n/a	n/a	n/a				
	Total Annual MMBtu Actual	n/a	n/a	n/a	n/a	n/a				
	\$/Annual MMBtu Actual	n/a	n/a	n/a	n/a	n/a				



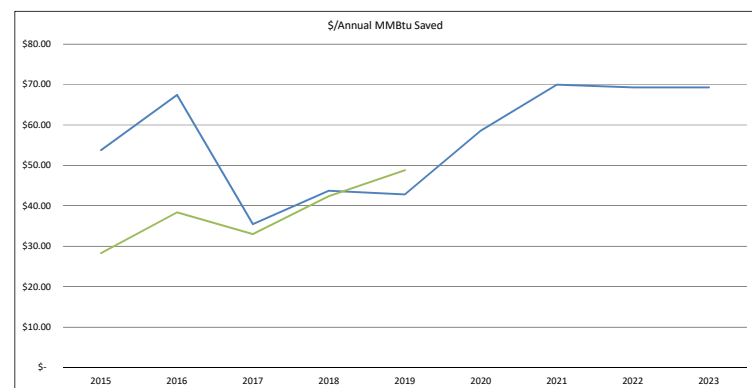
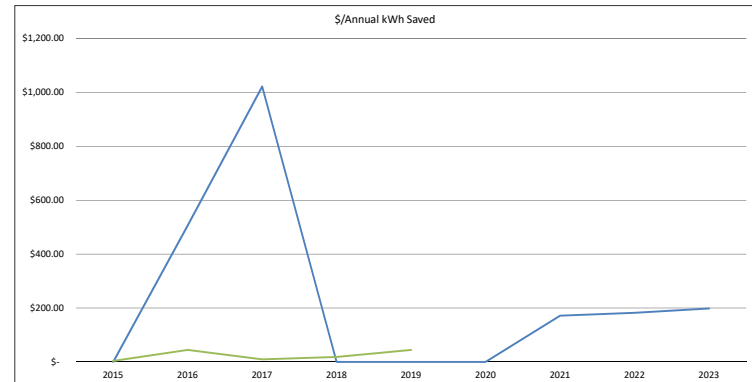
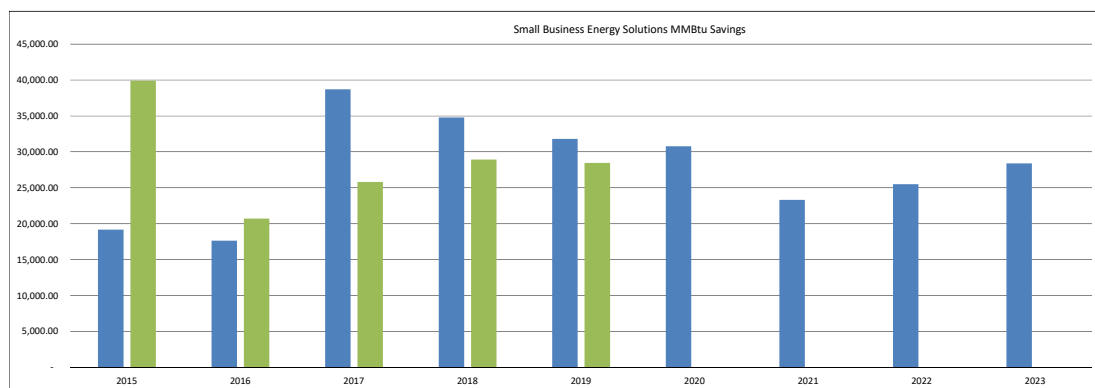
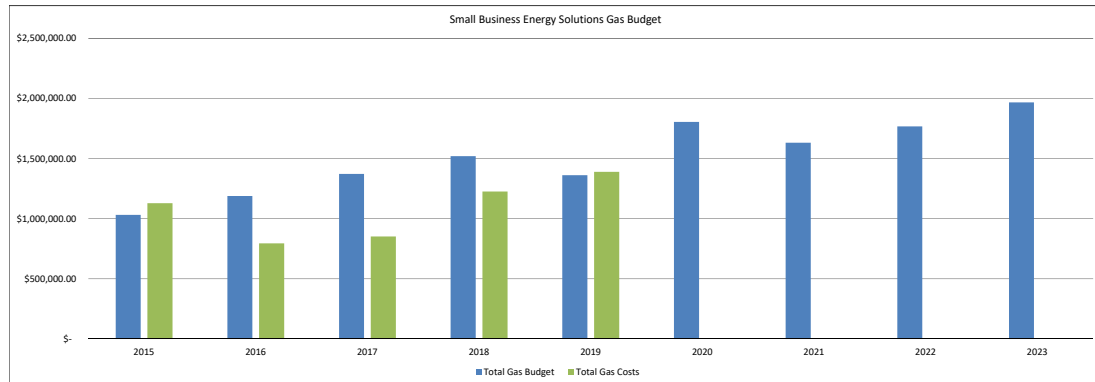
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 1,445,300.00	\$ 1,488,000.00	\$ 1,563,100.00	\$ 1,981,418.00	\$ 2,300,303.00	\$ 2,190,676.00	\$ 1,818,540.00	\$ 1,930,920.10	\$ 2,073,193.60
	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	\$ 2,190,676.00	\$ 1,818,540.00	\$ 1,930,920.10	\$ 2,073,193.60
	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	\$ 2,190,676.00	\$ 1,818,540.00	\$ 1,930,920.10	\$ 2,073,193.60
	Total Annual MMBtu Plan	35,112.28	47,470.90	50,253.00	56,640.57	65,862.90	65,052.48	65,412.75	69,921.05	77,781.99
	\$/Annual MMBtu Plan	\$ 41.16	\$ 31.35	\$ 31.10	\$ 34.98	\$ 34.93	\$ 33.68	\$ 27.80	\$ 27.62	\$ 26.65
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 1,213,707.03	\$ 1,362,062.88	\$ 1,118,669.97	\$ 1,253,657.27	\$ 1,808,918.19				
	Annual Electric Savings Actual (kWh)	376,025.00	730,766.77	59,599.14	62,399.00	217,971.00				
	\$/Annual kWh Actual	\$ 3.23	\$ 1.86	\$ 18.77	\$ 20.09	\$ 8.30				
2)	Total Gas Costs	\$ 1,213,707.03	\$ 1,362,062.88	\$ 1,118,669.97	\$ 1,253,657.27	\$ 1,808,918.19				
	Total summer peak kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
3)	Total Gas Costs	\$ 1,213,707.03	\$ 1,362,062.88	\$ 1,118,669.97	\$ 1,253,657.27	\$ 1,808,918.19				
	Total Annual MMBtu Actual	40,175.50	41,329.60	44,189.10	50,500.29	69,643.09				
	\$/Annual MMBtu Actual	\$ 30.21	\$ 32.96	\$ 25.32	\$ 24.82	\$ 25.97				



Small Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 1,032,710.00	\$ 1,190,000.00	\$ 1,373,000.00	\$ 1,521,323.00	\$ 1,361,981.00	\$ 1,805,139.00	\$ 1,633,120.00	\$ 1,768,008.72	\$ 1,967,937.43
	Annual Electric Savings Plan (kWh)	\$ -	\$ 2,352.00	\$ 1,344.00	\$ -	\$ -	\$ -	\$ 9,506.44	\$ 9,699.30	\$ 9,917.02
	\$/Annual kWh Plan	\$ -	\$ 505.95	\$ 1,021.58	\$ -	\$ -	\$ -	\$ 171.79	\$ 182.28	\$ 198.44
2)	Total Gas Budget	\$ 1,032,710.00	\$ 1,190,000.00	\$ 1,373,000.00	\$ 1,521,323.00	\$ 1,361,981.00	\$ 1,805,139.00	\$ 1,633,120.00	\$ 1,768,008.72	\$ 1,967,937.43
	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	\$ 1,805,139.00	\$ 1,633,120.00	\$ 1,768,008.72	\$ 1,967,937.43
	Total Annual MMBtu Plan	\$ 19,194.68	\$ 17,647.10	\$ 38,717.41	\$ 34,789.57	\$ 31,804.20	\$ 30,789.02	\$ 23,339.78	\$ 25,515.15	\$ 28,406.79
	\$/Annual MMBtu Plan	\$ 53.80	\$ 67.43	\$ 35.46	\$ 43.73	\$ 42.82	\$ 58.63	\$ 69.97	\$ 69.29	\$ 69.28
Home Energy Assistance										
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 1,129,097.52	\$ 795,988.77	\$ 852,560.30	\$ 1,226,552.32	\$ 1,389,859.77				
	Annual Electric Savings Actual (kWh)	316,732.00	17,924.79	90,646.55	66,362.00	31,344.00				
	\$/Annual kWh Actual	\$ 3.56	\$ 44.41	\$ 9.41	\$ 18.48	\$ 44.34				
2)	Total Gas Costs	\$ 1,129,097.52	\$ 795,988.77	\$ 852,560.30	\$ 1,226,552.32	\$ 1,389,859.77				
	Total summer peak kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
	\$/kW Actual	\$ -	\$ -	\$ -	\$ -	\$ -				
3)	Total Gas Costs	\$ 1,129,097.52	\$ 795,988.77	\$ 852,560.30	\$ 1,226,552.32	\$ 1,389,859.77				
	Total Annual MMBtu Actual	\$ 39,916.08	\$ 20,731.54	\$ 25,814.51	\$ 28,935.00	\$ 28,467.30				
	\$/Annual MMBtu Actual	\$ 28.29	\$ 38.40	\$ 33.03	\$ 42.39	\$ 48.82				



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

Docket No. DG 20-XXX

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Winter 2020/2021 Cost of Gas
Summer 2021 Cost of Gas

DIRECT TESTIMONY

OF

DAVID B. SIMEK

AND

CATHERINE A. MCNAMARA

September 1, 2020

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 have testified on multiple occasions before the Commission.

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

16 A. The purpose of our testimony is to explain the Company’s proposed firm sales cost of gas
17 rates for the 2020/2021 Winter (Peak) Period and the Company’s proposed 2020/2021
18 Local Delivery Adjustment Clause, both effective November 1, 2020. Our testimony
19 also explains the Company’s proposed firm sales cost of gas rates for the 2021 Summer
20 (Off-Peak) Period.

1 **II. WINTER 2020/2021 COST OF GAS FACTOR**

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

3 A. The Company proposes a firm sales cost of gas rate of \$0.5571 per therm for residential
4 customers, \$0.5552 per therm for commercial/industrial high winter use customers, and
5 \$0.5660 per therm for commercial/industrial low winter use customers as shown on
6 Proposed Eleventh Revised Page 92 (Bates 047). The Company proposes a firm
7 transportation cost of gas rate of \$0.0001 per therm as shown on Proposed Fourth
8 Revised Page 94 (Bates 049).

9 **Q. Please explain tariff page and Proposed Eleventh Revised Page 92 (Bates 047).**

10 A. Proposed Eleventh Revised Page 92 contains the calculation of the 2020/2021 Winter
11 Period Cost of Gas Rate and summarize the Company's forecast of firm gas costs and
12 firm gas sales. As shown on Page 92, the proposed 2020/2021 Average Cost of Gas of
13 \$0.5571 per therm is derived by adding the Direct Cost of Gas Rate of \$0.5319 per therm
14 to the Indirect Cost of Gas Rate of \$0.0252 per therm. The estimated total Anticipated
15 Direct Cost of Gas, derived on Page 92, is \$46,922,854. The estimated Indirect Cost of
16 Gas, also derived on Page 92, is \$2,220,114. The Direct Cost of Gas Rate of \$0.5319 and
17 the Indirect Cost of Gas Rate of \$0.0252 are determined by dividing each of these total
18 cost figures by the projected winter period firm sales volumes of 88,213,529 therms.

19 To calculate the total Anticipated Direct Cost of Gas, the Company adds a list of
20 allowable adjustments from deferred gas cost accounts to the projected demand and
21 commodity costs for the winter period supply portfolio. These allowable adjustments,
22 shown on Page 92.1, total \$1,012,447. These adjustments are added to the Unadjusted

Anticipated Cost of Gas of \$45,910,407 to determine the Total Anticipated Direct Cost of Gas of \$46,922,854.

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

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

1. Purchased Gas Demand Costs	\$12,022,922
2. Purchased Gas Commodity Costs	28,276,980
3. Storage Demand and Capacity Costs	955,766
4. Storage Commodity Costs	3,064,149
5. Produced Gas Cost	<u>1,590,589</u>
Total	**\$45,910,406

**Slightly off due to rounding

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

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

1. Deferred Gas Cost Prior Period Under Collection	\$2,227,421
2. Interest	72,812
3. Fuel Inventory Revenue Requirement	441,037
4. Broker Revenues	(32,725)
5. Transportation COG Revenue	(4,516)
6. Capacity Release Margin	(1,736,581)
7. Fixed Price Administrative Cost	<u>45,000</u>

Total Adjustments ****\$1,012,448**

**Slightly off due to rounding

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

4 **Q. How does the proposed average cost of gas rate in this filing compare to the average**
5 **cost of gas rate approved by the Commission in Docket No. DG 19-145 for the**
6 **2019/2020 winter period?**

7 A. The average cost of gas rate proposed in this filing of \$0.5571 per therm is \$0.0632 per
8 therm less than the initial rate of \$0.6203 per therm approved by the Commission in
9 Order No. 26,306 (October 31, 2019) in Docket No. DG 19-145. The \$0.0632 per therm
10 decrease in the rate reflects a \$6,025,265 decrease in the Total Unadjusted Direct Cost of
11 Gas.

12 **Q. How does the proposed firm transportation winter cost of gas rate compare to the**
13 **rate approved by the Commission for the 2019/2020 winter period?**

14 A. The proposed firm transportation winter cost of gas rate is \$0.0001 per therm. The rate
15 approved in Docket No. DG 19-145 was \$0.0009 per therm. The decrease in the rate
16 relates primarily to an estimated \$29,483 decrease in commodity costs and the difference
17 between the winter season 2019/2020 beginning balance of \$29,161 (an over-collection)
18 and the winter season 2020/2021 beginning balance of \$40,053 (an over-collection).

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

3 A. No. The Company used, for pressure support purposes, a rate of 8.7% based on the
4 marginal cost study used for the rate design approved in Docket No. DG 17-048.

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

7 A. Yes (Bates 198). The Company is proposing to collect \$441,037 in fuel inventory
8 revenue requirement consistent with Order No. 26,156 (July 10, 2018) in Docket No. DG
9 17-048. The impact of this amount to the overall Cost of Gas rate is \$0.0050 per therm
10 which is determined by dividing the \$441,037 by the estimated November 2019 through
11 October 2020 COG sales volumes of 87,788,508 therms.

12 **Q. How was the statutory tax rate of 27.08% calculated (Bates 198)?**

13 A. The statutory rate of 27.08% was calculated by using a 21% federal tax rate and a 7.7%
14 tax rate for the State of New Hampshire $(0.21 + 0.077 - (0.21 \times 0.077) = 0.27083)$.

15 **Q. How was the common equity pre-tax rate of 6.280% calculated (Bates 198)?**

16 A. The common equity pre-tax rate of 6.280% was calculated by dividing the 9.30% rate of
17 return on common equity, approved in Docket No. DG 17-048, by 0.72917 $(1 - 0.27083)$
18 [statutory tax rate – see previous question]) and multiplied by 49.20% (equity component
19 of the capital structure approved in DG 17-048) $[0.093 / 0.72917 \times 0.4920 = 0.0628]$.

1 **Q. Has the bad debt percentage in this filing of 1.11% changed from the bad debt**
2 **percentage calculated in the Winter 2019/2020 Cost of Gas Reconciliation?**

3 A. No. The bad debt percentage of 1.11% used in this filing is the calculated rate for the
4 period of May 2019–April 2020.

5 **Q. What was the actual weighted average firm sales cost of gas rate for the 2019/2020**
6 **winter period?**

7 A. The weighted average cost of gas rate was \$0.4632 per therm (Bates 085 Line 54). This
8 was calculated by applying the actual monthly cost of gas rates for November 2019
9 through April 2020 to the monthly therm usage of an average residential heating
10 customer using 667 therms for the six winter period months.

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

12 **Q. Please explain the prior period under collection of \$1,863,956.**

13 A. The prior period under-collection is detailed in the 2019/2020 winter period
14 reconciliation that was filed with the Commission on July 31, 2020. The \$1,863,956
15 under-collection is the sum of the deferred gas cost, bad debt, and working capital over-
16 and under-collection balances as of April 30, 2020. The under-collection was driven
17 mainly by the lag in the timing of monthly cost of gas rate adjustments as compared to
18 changes in the underlying costs.

1 **IV. FIXED PRICE OPTION**

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

4 A. Yes. Pursuant to Order No. 24,515 in Docket No. DG 05-127, the Fixed Price Option
5 Program (“FPO”) rates are set at \$0.0200 per therm higher than the initial proposed COG
6 rate. Proposed Third Revised Page 91 (Bates 046) contains the FPO rate for the
7 2020/2021 winter period, which is \$0.5771 per therm for residential customers. This
8 compares to the FPO rate approved for the 2019/2020 winter period of \$0.6403 per therm
9 for residential customers. This represents a \$0.0632 per therm or 9.87% decrease in the
10 residential FPO rate. The total bill impact on the winter period bills for an average FPO
11 heating customer using 667 therms is a decrease of approximately \$34.21 or 3.67%
12 compared to last winter. The total bill impact reflects the overall rates in effect following
13 implementation of the increases approved in Docket No. DG 20-049, effective July 1,
14 2020, relating to the cast iron/bare steel main replacement program. The estimated
15 winter period bill for an average residential heating customer opting for the FPO would
16 be approximately \$13.32 (or 1.51%) higher than the bill under the proposed cost of gas
17 rates, assuming no monthly adjustments to the COG rate during the course of the winter.
18 Schedule 23 (Bates 195) contains the historical results of the FPO program.

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

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

21 A. As shown on Proposed Third Revised Page 97 (Bates 052), the Company is submitting
22 for approval an LDAC of \$0.0603 per therm for the residential non-heating class and

1 residential heating class, and \$0.0549 per therm for the commercial/industrial bundled
2 sales classes, effective November 1, 2020. The surcharges proposed to be billed under
3 the LDAC are the Energy Efficiency Charge, the Revenue Decoupling Adjustment
4 Factor, the Environmental Surcharge for Manufactured Gas Plant (“MGP”) remediation,
5 the Residential Gas Assistance Program charge, and the rate case expense reconciliation
6 surcharge from Docket No. DG 17-048.

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

8 A. All EnergyNorth customers including those in Keene are billed an LDAC charge. When
9 calculating the LDAC charge, the November 1, 2020, through October 31, 2021,
10 forecasted Keene therm sales of 1,442,013 are added to the EnergyNorth therm sales
11 forecast of 178,132,666 for a total therm sales forecast of 179,574,679.

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

13 A. The Energy Efficiency Charge is designed to recover the projected expenses associated
14 with the Company’s energy efficiency programs for the November 2020–October 2021
15 period that will be filed with the Commission in the near future. In the calculation of the
16 Energy Efficiency Charge, the Company has also included the projected prior period
17 under-recovery of the Company’s residential and commercial energy efficiency programs
18 as of October 2020. As shown on Schedule 19 Energy Efficiency (Bates 124-126), the
19 proposed Energy Efficiency charge is \$0.0831 per therm for Residential customers and
20 \$0.0441 per therm for commercial and industrial customers.

1 **Q. Please explain the Revenue Decoupling Adjustment Factor (“RDAF”).**

2 A. The purpose of the RDAF is to recover or refund, on an annual basis, the difference
3 between the Actual Base Revenue per Customer and the Benchmark Base Revenue per
4 Customer. Schedule 19 RDAF (Bates 109-123) shows the proposed Actual Base
5 Revenue per Customer and the Benchmark Base Revenue per Customer calculation of a
6 total over-collection of \$4,965,947 effective November 1, 2020, through October 31,
7 2021. Schedule 19 RDAF also includes a proposed September 2019 through August
8 2020 reconciliation. The reconciliation is new to this filing and calculates a remaining
9 refund of \$1,010,099 effective November 1, 2020, through October 31, 2021.

10 **Q. What is the proposed Residential Gas Assistance Program charge?**

11 A. As shown on Schedule 19 Gas Assistance (Bates 127-128), the proposed Residential Gas
12 Assistance charge is \$0.0121 per therm. It is designed to recover administrative costs,
13 revenue shortfall, and the prior period reconciliation adjustment relating to this program.
14 For the 2020/2021 winter period, the Company is providing a 45% base rate and cost of
15 gas discount, consistent with the settlement agreement approved by the Commission in
16 Order No. 26,397 (August 27, 2020) in Docket No. DG 20-013. The proposed
17 Residential Gas Assistance charge is designed to recover \$2,165,954, of which
18 \$1,689,200 is for the revenue shortfall resulting from 4,880 customers receiving a 45%
19 discount off their base and cost of gas rates, and \$476,754 for the prior year reconciling
20 adjustment.

21 **Q. In Order No. 24,824 (Feb. 29, 2008) in Docket No. DG 06-122 relating to short-term**
22 **debt issues, the Company agreed to adjust its short-term debt limits each year as**

1 **part of the Company's Winter Period Cost of Gas filing. Did the Company**
2 **calculate the short-term debt limit for fuel and non-fuel purposes in accordance**
3 **with this settlement?**

4 A. Yes, the Company included in Schedule 24 (Bates 196) the short-term debt limit for fuel
5 and non-fuel purposes for the 2020/2021 winter period. As shown, the short-term debt
6 limit for fuel inventory financing for the period November 1, 2020, through October 31,
7 2021, is calculated to be \$14,702,768 and the limit for non-fuel purposes is calculated to
8 be \$105,567,204.

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

10 A. Yes, it has. The costs submitted for recovery through the MGP remediation cost recovery
11 mechanism, as well as the third party recoveries, are included in the Environmental Cost
12 Summary in Schedule 20 (Bates 130) of this filing. The environmental investigation and
13 remediation costs that underlie these expenses are the result of efforts by the Company to
14 respond to its legal obligations with regard to these sites, as described by Ms. Casey in
15 her pre-filed direct testimony in this proceeding and as set forth in the MGP site
16 summaries included in this filing under Schedule 20. The Summary included in Schedule
17 20 shows the remediation cost pools for the Concord Pond, Concord MGP, Manchester,
18 Nashua, and Laconia sites, and a General Pool for costs that cannot be directly assigned
19 to a specific site.

20 A summary sheet and detailed backup spreadsheets that support the 2019/2020 costs are
21 provided in Schedule 20 of this filing. Ms. Casey's testimony describes the Company's
22 activities with regard to all five sites.

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

3 A. The proposed Manufactured Gas Plant Remediation surcharge for the period beginning
4 November 1, 2020, and ending October 31, 2021, is \$0.0197 per therm. Consistent with
5 filings made over the past few years, this surcharge will recover a total of \$2,864,179 in
6 amortized remediation costs. New to this filing are amortized actual to forecast true-up
7 recovery costs through June 2019 of \$341,389 (total amount is \$1,024,167 which is
8 proposed to be amortized over three years). The \$1,024,167 is the recommended amount
9 provided by Audit Staff in the DG 19-145 Final Audit Report dated April 9, 2020. Also,
10 new to this filing are actual to forecast true-up recovery cost for the period July 2019
11 through June 2020 of \$338,564. The costs submitted for recovery are shown in the
12 Environmental Cost Summary included in Schedule 20 of this filing.

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

14 A. Yes. As shown on Schedule 19 RCE (Bates 107-108), the Company is proposing to
15 collect \$44,619 in uncollected rate case expense consistent with Order No. 26,122 (April
16 27, 2018) in Docket No. DG 17-048. The RCE rate of \$0.0002 per therm is determined
17 by dividing the \$44,619 by the estimated November 2020 through October 2021 sales
18 volumes of 179,574,679 therms.

1 **Q. Has the Company also updated its Company Allowance percentage for the period**
2 **November 2020 through October 2021 in accordance with Section 8 of the**
3 **Company's Delivery Terms and Condition?**

4 A. Yes, in Schedule 25 (Bates 197) the Company has recalculated its Company Allowance
5 for the period November 2020 through October 2021. The Company calculated the
6 Company Allowance of 1.61% based on sendout and throughput data for the twelve-
7 month period ending June 2020. The Company proposes to apply this recalculated
8 Company Allowance to all supplier deliveries beginning in November 2020.

9 **VI. CUSTOMER BILL IMPACTS**

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

13 A. The bill impact analysis is presented in Schedule 8 (Bates 085) of this filing. These bill
14 impacts reflect the implementation of the increases approved in Docket No. DG 20-049
15 effective July 1, 2020, relating to the cast iron/bare steel main replacement program. The
16 total bill impact over the winter period for an average residential heating customer is an
17 increase of approximately \$91.21 or 11.51%. The total bill impact over the winter period
18 for an average commercial/industrial G-41 customer is an increase of approximately
19 \$223.46, or 11.0% (Bates 086). Schedule 8 of this filing provides more detail of the
20 impact of the proposed rate adjustments on heating customers.

VII. OTHER TARIFF CHANGES

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

A. Yes. The Company is submitting Proposed Third Revised Page 147 (Bates 053) relating to Supplier Balancing and Peaking Demand Charges and Proposed Third Revised Page 148 (Bates 054) relating to Capacity Allocation.

Q. Please describe the changes to tariff Page 147.

A. In Proposed Third Revised Page 147, the Company is updating the Peaking Demand Charge from \$18.12 per MMBtu of Peak MDQ to \$17.32 per MMBtu of Peak MDQ. This calculation is also presented in Schedule 21 (Bates 178-188).

Q. Please describe the changes to tariff Page 148.

A. Proposed Second Revised Page 148 updates the Capacity Allocator percentages used to allocate pipeline, storage, and local peaking capacity to high and low load factor customers under the mandatory capacity assignment requirement for firm transportation service. Schedule 22 (Bates 189-194) contains the six-page worksheet that backs up the calculations for the updated allocators.

VIII. SUMMER 2020 COST OF GAS FACTOR

Q. What are the proposed 2020 summer firm sales cost of gas rates?

A. The Company proposes a firm sales cost of gas rate of \$0.3148 per therm for residential customers, \$0.3109 per therm for commercial/industrial high winter use customers, and \$0.3199 per therm for commercial/industrial low winter use customers as shown on Proposed Eighth Revised Page 89 (Bates 207).

1 **Q. Please explain tariff pages Proposed Third Revised Page 88 and Proposed**
2 **Thirteenth Revised Page 89.**

3 A. Proposed Third Revised Page 88 (Bates 206) and Proposed Thirteenth Revised Page 89
4 (Bates 207) contain the calculation of the 2020 Summer Period Cost of Gas Rate and
5 summarize the Company's forecast of firm gas sales, firm gas sendout, and gas costs. On
6 Proposed Thirteenth Revised Page 89, the 2021 Average Cost of Gas of \$0.3148 per
7 therm is derived by adding the Direct Cost of Gas Rate of \$0.3257 per therm to the
8 Indirect Cost of Gas Rate of (\$0.0109) per therm. The estimated total Anticipated Direct
9 Cost of gas is \$7,386,965 and the estimated Indirect Cost of Gas is (\$246,190). The
10 Direct Cost of Gas Rate and the Indirect Cost of Gas Rates are determined by dividing
11 each of these total cost figures by the projected Summer firm sales volumes of
12 22,681,422 therms. Proposed Thirteenth Revised Page 89 further shows that the
13 Residential Cost of Gas Rate of \$0.3148 per therm is equal to the Average Cost of Gas
14 for all firm sales customers. It also shows the calculation of the Commercial/Industrial
15 High Winter Use Cost of Gas Rate of \$0.3109 per therm and the Commercial/Industrial
16 Low Winter Use Cost of Gas Rate of \$0.3199 per therm.

17 The calculation of the Anticipated Direct Cost of Gas is shown on Proposed Third
18 Revised Page 88. To derive the total Anticipated Direct Cost of Gas of \$7,386,965, the
19 Company starts with the Unadjusted Anticipated Cost of Gas of \$7,284,571 and adds the
20 Net Adjustment totaling \$102,394.

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

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

1. Purchased Gas Demand Costs	\$2,868,280
2. Purchased Gas Supply Costs	4,387,278
3. Produced Gas Costs	<u>29,014</u>
Total Unadjusted Anticipated Cost of Gas	<u>**\$7,284,572</u>

**Slightly off due to rounding

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

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

1. Prior Period (Over)/Under Collection	\$105,886
2. Interest	<u>\$(3,492)</u>
Total Adjustments	<u>\$102,394</u>

Q. How does the proposed average Residential Summer cost of gas rate in this filing compare to the initial cost of gas rate approved by the Commission for the 2020 Summer Period?

A. The cost of gas rate proposed in this filing is \$0.1372 per therm lower than the initial rate approved by the Commission for the 2019 Summer Period (\$0.4520 vs. \$0.3148) (Schedule 8, Bates 229). This decrease is primarily due to a \$1,779,560 lower estimated under-collection compared to the under-collection from the prior summer period.

Q. Does this conclude your testimony?

A. Yes, it does.

Program Cost-Effectiveness - 2021 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.69	0.83	1.56	918.8	449.7	847.9	542.7	-	-	-	-	-	84	2,433.6	52,028.6
A1 - Energy Star Homes	2.17	1.85	1.63	665.8	569.6	655.0	307.4	93.8	-	-	-	-	100	2,748.5	66,927.5
A2 - Home Performance with Energy	1.29	1.06	1.07	311.8	256.9	313.7	242.3	51.4	2.4	55.4	-	1.3	75	1,407.8	29,706.1
A3 - Energy Star Products	2.33	2.07	1.24	1,138.0	1,007.8	1,150.1	488.0	436.1	(4.4)	(84.0)	(0.3)	(0.2)	9,593	6,875.8	115,934.5
A4 - Residential Behavior	1.09	1.02	1.17	34.3	31.8	36.6	31.3	-	-	-	-	-	9,100	3,221.6	3,221.6
A6c - Res Education	-	-	-	-	-	-	26.8	-	-	-	-	-	-	-	-
A6e - Res Financing	-	-	-	-	-	-	7.5	-	-	-	-	-	-	-	-
Sub-Total Residential	1.86	1.41	1.35	3,068.6	2,315.8	3,003.4	1,646.1	581.3	(2.0)	(28.5)	(0.3)	1.1	18,952	16,687.4	267,818.3
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.59	2.22	1.77	2,248.9	1,926.8	2,257.6	867.1	409.8	-	-	-	-	84	17,906.2	250,837.4
C2 - Small Business Energy Solutions	1.95	1.62	1.33	1,050.2	872.1	1,050.6	537.5	254.4	0.5	7.5	0.1	0.1	131	7,705.5	113,428.8
C6c - C&I Education	-	-	-	-	-	-	25.6	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.31	1.96	1.58	3,299.2	2,798.9	3,308.2	1,430.2	664.2	0.5	7.5	0.1	0.1	215	25,611.7	364,266.2
Total	2.07	1.66	1.46	6,367.8	5,114.7	6,311.6	3,076.3	1,245.5	(1.5)	(21.1)	(0.2)	1.3	19,167	42,299.1	632,084.5

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars

Annual Savings as a % of 2018 Sales		0.56%
Spending per Customer		Low-Income \$ 428.68
		Residential \$ 43.38
		C&I \$ 203.94

Present Value Benefits - 2021 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)								Non-Resource Benefits (\$000)			Environ- mental Benefits (\$000)
				Electric	Gas Benefit			Other Benefit		Total Resource Benefits	Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits		
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Total Electric Benefit	Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Water Benefit						
Residential Programs															
B1 - Home Energy Assistance	\$ 919	\$ 450	\$ 848	\$ -	\$ 438	\$ 12	\$ 450	\$ 450	\$ 3	\$ 453	\$ 71	\$ 395	\$ 466	\$ -	
A1 - Energy Star Homes	\$ 666	\$ 570	\$ 655	\$ -	\$ 556	\$ 14	\$ 570	\$ 570	\$ -	\$ 570	\$ 96	\$ 85	\$ 182	\$ -	
A2 - Home Performance with Energy Star	\$ 312	\$ 257	\$ 314	\$ 11	\$ 250	\$ 7	\$ 257	\$ 257	\$ 3	\$ 271	\$ 40	\$ 40	\$ 81	\$ 2	
A3 - Energy Star Products	\$ 1,138	\$ 1,008	\$ 1,150	\$ (5)	\$ 976	\$ 32	\$ 1,008	\$ 1,008	\$ -	\$ 1,002	\$ 136	\$ 150	\$ 286	\$ (3)	
A4 - Residential Behavior	\$ 34	\$ 32	\$ 37	\$ -	\$ 30	\$ 2	\$ 32	\$ 32	\$ -	\$ 32	\$ 2	\$ 5	\$ 7	\$ -	
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Residential	\$ 3,069	\$ 2,316	\$ 3,003	\$ 6	\$ 2,250	\$ 66	\$ 2,316	\$ 2,316	\$ 6	\$ 2,328	\$ 345	\$ 676	\$ 1,021	\$ (1)	
Commercial/Industrial Programs															
C1 - Large Business Energy Solutions	\$ 2,249	\$ 1,927	\$ 2,258	\$ -	\$ 1,852	\$ 75	\$ 1,927	\$ 1,927	\$ 42	\$ 1,969	\$ 280	\$ 289	\$ 569	\$ -	
C2 - Small Business Energy Solutions	\$ 1,050	\$ 872	\$ 1,051	\$ 1	\$ 841	\$ 31	\$ 872	\$ 872	\$ 46	\$ 919	\$ 131	\$ 131	\$ 262	\$ 0	
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Sub-Total Commercial & Industrial	\$ 3,299	\$ 2,799	\$ 3,308	\$ 1	\$ 2,693	\$ 106	\$ 2,799	\$ 2,799	\$ 88	\$ 2,888	\$ 411	\$ 420	\$ 831	\$ 0	
Total	\$ 6,368	\$ 5,115	\$ 6,312	\$ 7	\$ 4,943	\$ 172	\$ 5,115	\$ 5,115	\$ 94	\$ 5,216	\$ 757	\$ 1,096	\$ 1,853	\$ (0)	

Portfolio Planned Versus Actual Performance - 2021										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	632,085	410,855		-	2.475%	-	\$ 76,139	\$ 95,174	\$ -	Planned and Actual from Cost Eff Tab
2 Annual MMBtu Savings	42,299	27,494		-	1.100%	-	\$ 33,840	\$ 42,300	\$ -	Planned and Actual from Cost Eff Tab
3 Total Resource Benefits	\$ 5,216,013			-						Planned and Actual from Benefits Tab
4 Total Utility Costs ¹	3,076,331			-						Planned and Actual from Cost Eff Tab
5 Net Benefits	\$ 2,139,682	\$ 1,390,793	\$ -	-	1.925%	-	\$ 59,219	\$ 74,024	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 169,198	\$ 211,498	\$ -	

Granite State Test			Source
	Planned	Actual	
7 Total Benefits (GST)	\$ 6,367,770		Planned and Actual from Cost Eff Tab
8 Performance Incentive	\$ 169,198	\$ -	from row 6 above
9 Total Utility Costs	\$ 3,076,331	\$ -	from row 4 above
10 Portfolio GST BCR	1.96	-	Row 7 Divided by Rows 8+9

Utility Costs expressed in 2021 dollars.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2022 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.63	0.82	1.49	1,150.4	580.7	1,053.5	705.7	-	-	-	-	-	105	3,074.3	65,711.8
A1 - Energy Star Homes	2.33	1.98	1.74	955.3	810.3	931.9	410.1	124.9	-	-	-	-	140	3,825.0	93,175.0
A2 - Home Performance with Energy	1.24	1.01	1.04	352.9	287.6	353.2	284.2	56.9	7.0	68.8	3.2	3.5	85	1,552.5	32,524.4
A3 - Energy Star Products	2.53	2.22	1.34	1,428.0	1,255.7	1,433.9	565.5	508.1	(4.9)	(94.0)	(0.4)	(0.2)	11,187	8,445.4	141,211.0
A4 - Residential Behavior	1.44	1.34	1.54	45.1	41.7	48.0	31.2	-	-	-	-	-	9,100	4,177.5	4,177.5
A6c - Res Education	-	-	-	-	-	-	26.9	-	-	-	-	-	-	-	-
A6e - Res Financing	-	-	-	-	-	-	8.0	-	-	-	-	-	-	-	-
Sub-Total Residential	1.94	1.46	1.40	3,931.7	2,976.0	3,820.5	2,031.7	689.9	2.1	(25.2)	2.9	3.3	20,617	21,074.7	336,799.6
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.78	2.35	1.85	3,608.4	3,057.4	3,603.4	1,298.6	648.1	-	-	-	-	167	28,239.8	387,168.5
C2 - Small Business Energy Solutions	2.06	1.70	1.38	1,325.9	1,095.4	1,317.2	644.0	312.5	0.6	9.3	0.1	0.2	160	9,391.1	138,813.8
C6c - C&I Education	-	-	-	-	-	-	29.1	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.50	2.11	1.68	4,934.2	4,152.8	4,920.5	1,971.6	960.6	0.6	9.3	0.1	0.2	327	37,630.9	525,982.3
Total	2.21	1.78	1.55	8,866.0	7,128.8	8,741.0	4,003.3	1,650.6	2.8	(15.9)	3.0	3.5	20,943	58,705.7	862,782.0

Notes:
 (1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.
 (2) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs and Performance Incentive tabs.

Annual Savings as a % of 2018 Sales		0.78%	Spending per Customer		Low-Income	\$	557.44
					Residential	\$	52.14
					C&I	\$	281.13

Present Value Benefits - 2022 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)							Non-Resource Benefits (\$000)			Environ- mental Benefits (\$000)
				Electric	Gas Benefit			Non-Electric		Total Resource Benefits	Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits	
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Electric Benefit	Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Water Benefit					
Residential Programs														
B1 - Home Energy Assistance	\$ 1,150	\$ 581	\$ 1,053	\$ -	\$ 565	\$ 16	\$ 581	\$ 581	\$ 3	\$ 584	\$ 97	\$ 469	\$ 566	\$ -
A1 - Energy Star Homes	\$ 955	\$ 810	\$ 932	\$ -	\$ 791	\$ 19	\$ 810	\$ 810	\$ -	\$ 810	\$ 145	\$ 122	\$ 267	\$ -
A2 - Home Performance with Energy Star	\$ 353	\$ 288	\$ 353	\$ 14	\$ 280	\$ 8	\$ 288	\$ 288	\$ 4	\$ 305	\$ 48	\$ 45	\$ 93	\$ 3
A3 - Energy Star Products	\$ 1,428	\$ 1,256	\$ 1,434	\$ (6)	\$ 1,216	\$ 40	\$ 1,256	\$ 1,256	\$ -	\$ 1,249	\$ 179	\$ 187	\$ 366	\$ (3)
A4 - Residential Behavior	\$ 45	\$ 42	\$ 48	\$ -	\$ 40	\$ 2	\$ 42	\$ 42	\$ -	\$ 42	\$ 3	\$ 6	\$ 10	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 3,932	\$ 2,976	\$ 3,820	\$ 8	\$ 2,891	\$ 85	\$ 2,976	\$ 2,976	\$ 7	\$ 2,991	\$ 471	\$ 830	\$ 1,301	\$ (0)
Commercial/Industrial Programs														
C1 - Large Business Energy Solutions	\$ 3,608	\$ 3,057	\$ 3,603	\$ -	\$ 2,937	\$ 120	\$ 3,057	\$ 3,057	\$ 87	\$ 3,145	\$ 464	\$ 459	\$ 922	\$ -
C2 - Small Business Energy Solutions	\$ 1,326	\$ 1,095	\$ 1,317	\$ 1	\$ 1,056	\$ 39	\$ 1,095	\$ 1,095	\$ 56	\$ 1,152	\$ 174	\$ 165	\$ 338	\$ 0
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 4,934	\$ 4,153	\$ 4,921	\$ 1	\$ 3,994	\$ 159	\$ 4,153	\$ 4,153	\$ 143	\$ 4,297	\$ 637	\$ 623	\$ 1,260	\$ 0
Total	\$ 8,866	\$ 7,129	\$ 8,741	\$ 9	\$ 6,885	\$ 244	\$ 7,129	\$ 7,129	\$ 150	\$ 7,288	\$ 1,109	\$ 1,453	\$ 2,562	\$ 0

Portfolio Planned Versus Actual Performance - 2022										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	862,782	560,808		-	2.475%	-	\$ 99,083	\$ 123,853	\$ -	Planned and Actual from Cost Eff Tab
2 Annual MMBtu Savings	58,706	38,159		-	1.100%	-	\$ 44,037	\$ 55,046	\$ -	Planned and Actual from Cost Eff Tab
3 Total Resource Benefits	\$ 7,287,949			-						Planned and Actual from Benefits Tab
4 Total Utility Costs ¹	\$ 4,003,345			-						Planned and Actual from Cost Eff Tab
5 Net Benefits	\$ 3,284,604	\$ 2,134,992	\$ -	-	1.925%	-	\$ 77,064	\$ 96,330	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 220,184	\$ 275,230	\$ -	

Granite State Test			Source
	Planned	Actual	
7 Total Benefits (GST)	\$ 8,865,962		Planned and Actual from Cost Eff Tab
8 Performance Incentive	\$ 220,184	\$ -	from row 6 above
9 Total Utility Costs	\$ 4,003,345	\$ -	from row 4 above
10 Portfolio GST BCR	2.10	-	Row 7 Divided by Rows 8+9

Costs, Benefits and PI Expressed in 2021 dollars. Nominal PI (2022\$) is \$227,339.96.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - 2023 PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ² Customer Costs (\$000 - 2021\$) ²		Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.70	0.87	1.55	1,465.9	747.8	1,335.1	862.6	-	1.2	20.8	0.4	-	130	3,877.1	82,693.3
A1 - Energy Star Homes	2.70	2.28	2.04	1,389.6	1,169.9	1,345.3	514.1	144.4	-	-	-	-	180	5,524.4	131,913.3
A2 - Home Performance with Energy	1.28	1.04	0.73	393.3	319.1	390.0	306.7	230.2	2.8	64.4	-	1.5	104	1,693.7	35,275.5
A3 - Energy Star Products	2.57	2.24	1.44	1,717.1	1,498.9	1,712.1	668.2	519.9	(4.3)	(81.7)	(0.4)	(0.2)	11,453	9,894.2	164,719.7
A4 - Residential Behavior	2.30	2.12	2.44	71.8	66.1	76.1	31.2	-	-	-	-	-	9,100	6,500.0	6,500.0
A6c - Res Education	-	-	-	-	-	-	18.6	-	-	-	-	-	-	-	-
A6e - Res Financing	-	-	-	-	-	-	8.0	-	-	-	-	-	-	-	-
Sub-Total Residential	2.09	1.58	1.47	5,037.8	3,801.8	4,858.5	2,409.4	894.6	(0.3)	3.4	(0.0)	1.3	20,967	27,489.4	421,101.8
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.92	2.47	2.09	5,295.3	4,477.2	5,250.9	1,810.8	695.8	-	-	-	-	200	39,988.2	550,899.9
C2 - Small Business Energy Solutions	1.68	1.38	1.49	1,657.9	1,363.3	1,633.1	986.4	112.4	-	-	-	-	189	11,376.7	168,676.7
C6c - C&I Education	-	-	-	-	-	-	30.5	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.46	2.07	1.89	6,953.3	5,840.5	6,884.0	2,827.7	808.2	-	-	-	-	389	51,364.9	719,576.5
Total	2.29	1.84	1.69	11,991.1	9,642.3	11,742.6	5,237.1	1,702.8	(0.3)	3.4	(0.0)	1.3	21,356	78,854.3	1,140,678.3

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs and Performance Incentive tabs.

Annual Savings as a % of 2018 Sales		1.04%
Spending per Customer		Low-Income \$ 681.35
		Residential \$ 60.82
		C&I \$ 403.21

Present Value Benefits - 2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)							Non-Resource Benefits (\$000)			Environ- mental Benefits (\$000)
				Electric	Gas Benefit			Non-Electric		Total Resource Benefits	Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits	
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Electric Benefit	Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Water Benefit					
Residential Programs														
B1 - Home Energy Assistance	\$ 1,466	\$ 748	\$ 1,335	\$ 2	\$ 728	\$ 20	\$ 748	\$ 748	\$ 4	\$ 753	\$ 132	\$ 581	\$ 713	\$ 1
A1 - Energy Star Homes	\$ 1,390	\$ 1,170	\$ 1,345	\$ -	\$ 1,142	\$ 28	\$ 1,170	\$ 1,170	\$ -	\$ 1,170	\$ 220	\$ 175	\$ 395	\$ -
A2 - Home Performance with Energy Star	\$ 393	\$ 319	\$ 390	\$ 14	\$ 310	\$ 9	\$ 319	\$ 319	\$ 4	\$ 338	\$ 56	\$ 50	\$ 106	\$ 2
A3 - Energy Star Products	\$ 1,717	\$ 1,499	\$ 1,712	\$ (7)	\$ 1,452	\$ 47	\$ 1,499	\$ 1,499	\$ -	\$ 1,492	\$ 225	\$ 224	\$ 449	\$ (3)
A4 - Residential Behavior	\$ 72	\$ 66	\$ 76	\$ -	\$ 63	\$ 3	\$ 66	\$ 66	\$ -	\$ 66	\$ 6	\$ 10	\$ 16	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 5,038	\$ 3,802	\$ 4,859	\$ 9	\$ 3,694	\$ 108	\$ 3,802	\$ 3,802	\$ 8	\$ 3,818	\$ 638	\$ 1,040	\$ 1,679	\$ (0)
Commercial/Industrial Programs														
C1 - Large Business Energy Solutions	\$ 5,295	\$ 4,477	\$ 5,251	\$ -	\$ 4,301	\$ 176	\$ 4,477	\$ 4,477	\$ 102	\$ 4,579	\$ 716	\$ 672	\$ 1,388	\$ -
C2 - Small Business Energy Solutions	\$ 1,658	\$ 1,363	\$ 1,633	\$ -	\$ 1,315	\$ 48	\$ 1,363	\$ 1,363	\$ 65	\$ 1,429	\$ 229	\$ 204	\$ 434	\$ -
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 6,953	\$ 5,840	\$ 6,884	\$ -	\$ 5,616	\$ 225	\$ 5,840	\$ 5,840	\$ 167	\$ 6,008	\$ 945	\$ 876	\$ 1,821	\$ -
Total	\$ 11,991	\$ 9,642	\$ 11,743	\$ 9	\$ 9,310	\$ 332	\$ 9,642	\$ 9,642	\$ 175	\$ 9,826	\$ 1,584	\$ 1,916	\$ 3,500	\$ (0)

Portfolio Planned Versus Actual Performance - 2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	1,140,678	741,441		-	2.475%	-	\$ 129,617	\$ 162,022	\$ -	Planned and Actual from Cost Eff Tab
2 Annual MMBtu Savings	78,854	51,255		-	1.100%	-	\$ 57,608	\$ 72,010	\$ -	Planned and Actual from Cost Eff Tab
3 Total Resource Benefits	\$ 9,826,243			-						Planned and Actual from Benefits Tab
4 Total Utility Costs ¹	\$ 5,237,061			-						Planned and Actual from Cost Eff Tab
5 Net Benefits	\$ 4,589,182	\$ 2,982,968	\$ -	-	1.925%	-	\$ 100,813	\$ 126,017	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 288,038	\$ 360,048	\$ -	

Granite State Test			Source
	Planned	Actual	
7 Total Benefits (GST)	\$ 11,991,055		Planned and Actual from Cost Eff Tab
8 Performance Incentive	\$ 288,038	\$ -	from row 8 above
9 Total Utility Costs	\$ 5,237,061	\$ -	from row 6 above
10 Portfolio GST BCR	2.17	-	Row 7 Divided by Rows 8+9

Costs, Benefits and PI Expressed in 2021 dollars. Nominal PI (2023\$) is \$307,065.07.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Cost-Effectiveness - TERM PLAN

	Benefit/Cost Ratios			Benefits (\$000)			Utility Costs (\$000 - 2021\$) ²	Customer Costs (\$000 - 2021\$) ²	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Granite State Test	Utility Cost Test	Secondary Granite State Test ¹									
Residential Programs															
B1 - Home Energy Assistance	1.67	0.84	1.53	3,535.1	1,778.2	3,236.5	2,111.005	-	1.2	20.8	0.4	-	319	9,385.0	200,433.7
A1 - Energy Star Homes	2.44	2.07	1.84	3,010.6	2,549.8	2,932.2	1,231.678	363.1	-	-	-	-	420	12,097.9	292,015.8
A2 - Home Performance with Energy	1.27	1.04	0.90	1,058.1	863.5	1,057.0	833.290	338.6	12.2	188.6	3.2	6.3	264	4,654.0	97,506.0
A3 - Energy Star Products	2.49	2.19	1.35	4,283.1	3,762.4	4,296.1	1,721.646	1,464.1	(13.6)	(259.7)	(1.1)	(0.6)	32,232	25,215.5	421,865.1
A4 - Residential Behavior	1.61	1.49	1.71	151.154	139.7	160.6	93.771	-	-	-	-	-	9,100	13,899.1	13,899.1
A6c - Res Education	-	-	-	-	-	-	72.298	-	-	-	-	-	-	-	-
Sub-Total Residential	1.98	1.49	1.42	12,038.1	9,093.6	11,682.4	6,087.199	2,165.8	(0.2)	(50.3)	2.5	5.8	42,335	65,251.5	1,025,719.7
Commercial, Industrial & Municipal															
C1 - Large Business Energy Solutions	2.80	2.38	1.94	11,152.7	9,461.4	11,111.9	3,976.533	1,753.7	-	-	-	-	451	86,134.2	1,188,905.8
C2 - Small Business Energy Solutions	1.86	1.54	1.41	4,034.1	3,330.8	4,000.9	2,167.914	679.3	1.1	16.8	0.2	0.3	480	28,473.3	420,919.3
C6c - C&I Education	-	-	-	-	-	-	85.092	-	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	2.44	2.05	1.74	15,186.7	12,792.2	15,112.8	6,229.538	2,433.0	1.1	16.8	0.2	0.3	931	114,607.6	1,609,825.1
Total	2.21	1.78	1.58	27,224.8	21,885.8	26,795.2	12,316.737	4,598.8	1.0	(33.5)	2.7	6.0	43,266	179,859.1	2,635,544.8

Notes:

(1) For the Secondary Granite State Test a 10% NEI adder is applied to total benefits excluding water.

(2) Utility and Customer Costs in 2021 Dollars and will not equal the nominal costs presented in the Costs and Performance Incentive tabs.

Cumulative Savings as a % of 2019 Sales	2.38%	Spending per Customer	Low-Income	\$	1,667.46
			Residential	\$	156.34
			C&I	\$	888.28

Present Value Benefits - 2021-2023 PLAN

	Total Benefits (\$000)			Resource Benefits (\$000)							Non-Resource Benefits (\$000)			Environ- mental Benefits (\$000)
				Electric	Gas Benefit			Non-Electric		Total Resource Benefits	Fossil Emissions	Other Non- Resource Benefits	Total Non- Resource Benefits	
	Granite State Test	Utility Cost Test	Secondary Granite State Test	Total Electric Benefit	Gas Benefit	Gas DRIPE	Total Gas Benefit	Other Fuels	Water Benefit					
Residential Programs														
B1 - Home Energy Assistance	\$ 3,535	\$ 1,778	\$ 3,236	\$ 2	\$ 1,730	\$ 48	\$ 1,778	\$ 1,778	\$ 10	\$ 1,790	\$ 300	\$ 1,446	\$ 1,745	\$ 1
A1 - Energy Star Homes	\$ 3,011	\$ 2,550	\$ 2,932	\$ -	\$ 2,489	\$ 61	\$ 2,550	\$ 2,550	\$ -	\$ 2,550	\$ 461	\$ 382	\$ 843	\$ -
A2 - Home Performance with Energy Star	\$ 1,058	\$ 864	\$ 1,057	\$ 40	\$ 840	\$ 24	\$ 864	\$ 864	\$ 11	\$ 914	\$ 144	\$ 135	\$ 279	\$ 7
A3 - Energy Star Products	\$ 4,283	\$ 3,762	\$ 4,296	\$ (19)	\$ 3,644	\$ 118	\$ 3,762	\$ 3,762	\$ -	\$ 3,744	\$ 540	\$ 562	\$ 1,101	\$ (9)
A4 - Residential Behavior	\$ 151	\$ 140	\$ 161	\$ -	\$ 133	\$ 7	\$ 140	\$ 140	\$ -	\$ 140	\$ 11	\$ 21	\$ 32	\$ -
A6c - Res Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Residential	\$ 12,038	\$ 9,094	\$ 11,682	\$ 22	\$ 8,835	\$ 258	\$ 9,094	\$ 9,094	\$ 21	\$ 9,137	\$ 1,455	\$ 2,546	\$ 4,001	\$ (1)
Commercial/Industrial Programs														
C1 - Large Business Energy Solutions	\$ 11,153	\$ 9,461	\$ 11,112	\$ -	\$ 9,090	\$ 371	\$ 9,461	\$ 9,461	\$ 231	\$ 9,693	\$ 1,460	\$ 1,419	\$ 2,879	\$ -
C2 - Small Business Energy Solutions	\$ 4,034	\$ 3,331	\$ 4,001	\$ 2	\$ 3,212	\$ 119	\$ 3,331	\$ 3,331	\$ 167	\$ 3,500	\$ 534	\$ 500	\$ 1,034	\$ 1
C6c - C&I Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Commercial & Industrial	\$ 15,187	\$ 12,792	\$ 15,113	\$ 2	\$ 12,302	\$ 490	\$ 12,792	\$ 12,792	\$ 398	\$ 13,193	\$ 1,994	\$ 1,919	\$ 3,913	\$ 1
Total	\$ 27,225	\$ 21,886	\$ 26,795	\$ 25	\$ 21,138	\$ 748	\$ 21,886	\$ 21,886	\$ 420	\$ 22,330	\$ 3,449	\$ 4,465	\$ 7,914	\$ (0)

Portfolio Planned Versus Actual Performance - 2021-2023										
Portfolio	Planned	Threshold	Actual	% of Plan	Design Coefficient	Actual Coefficient	Planned PI	125% of Planned PI	Actual PI	Source
1 Lifetime MMBtu Savings	2,635,545	1,713,104		-	2.475%	-	\$ 304,839	\$ 381,049	\$ -	Planned and Actual from Cost Eff Tab
2 Annual MMBtu Savings	179,859	116,908		-	1.100%	-	\$ 135,484	\$ 169,355	\$ -	Planned and Actual from Cost Eff Tab
3 Total Resource Benefits	\$ 22,330,205			-						Planned and Actual from Benefits Tab
4 Total Utility Costs ¹	\$ 12,316,737			-						Planned and Actual from Cost Eff Tab
5 Net Benefits	10,013,468	\$ 6,508,754	\$ -	-	1.925%	-	\$ 237,097	\$ 296,371	\$ -	Line 5 minus line 6
6 Total					5.500%	-	\$ 677,421	\$ 846,776	\$ -	

	Granite State Test		Source
	Planned	Actual	
7 Total Benefits (GST)	\$ 27,224,787		Planned and Actual from Cost Eff Tab
8 Performance Incentive	\$ 677,421	\$ -	from row 8 above
9 Total Utility Costs	\$ 12,316,737	\$ -	from row 6 above
10 Portfolio GST BCR	2.10	-	Row 7 Divided by Rows 8+9

Costs, Benefits and PI Expressed in 2021 dollars. Nominal PI is \$703,603.26.

¹ Note that in order to avoid a circular reference in the calculation of performance incentive, "Total Utility Costs" does not include the value of PI.

Program Summary - 2021 - 2023 PLAN

Home Energy Assistance			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
B1a - HEA (Weatherization)	Air Sealing, Gas	G21B1a001	67	84	104	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%	610	764	946	9,146	11,466	14,196
B1a - HEA (Weatherization)	Faucet Aerator, Gas	G21B1a002	100	110	115	7	7	7	100%	100%	100%	100%	100%	100%	91%	91%	91%	14	16	16	99	109	114
B1a - HEA (Weatherization)	Hand Held Showerhead, Gas	G21B1a003	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	Insulation, Gas	G21B1a004	67	84	104	25	25	25	100%	100%	100%	100%	100%	100%	91%	91%	91%	1,524	1,911	2,366	38,106	47,775	59,150
B1a - HEA (Weatherization)	LED Bulb, General Service Lamps	G21B1a005	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Linear	G21B1a006	-	-	-	10	10	10	100%	100%	100%	98%	98%	98%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Other Specialty	G21B1a007	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Bulb, Reflector	G21B1a008	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	LED Fixture	G21B1a009	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	Low Flow Showerhead, Gas	G21B1a010	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	Pipe Insulation - Hot Water, Gas	G21B1a011	34	40	45	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%	93	109	123	1,392	1,638	1,843
B1a - HEA (Weatherization)	Visual Audit	G21B1a012	-	-	-	1	1	1	100%	100%	100%	100%	100%	100%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	Baseload Audit - SF	G21B1a013	50	60	70	1	1	1	100%	100%	100%	100%	100%	100%	91%	91%	91%	-	-	-	-	-	-
B1a - HEA (Weatherization)	Baseload Audit - MF	G21B1a014	-	-	-	1	1	1	100%	100%	100%	100%	100%	100%	91%	91%	91%	-	-	-	-	-	-
B1b - HEA (HVAC Systems)	Boiler Replacement, Gas	G21B1b001	4	6	10	19	19	19	100%	100%	100%	100%	100%	100%	91%	91%	91%	71	106	177	1,342	2,013	3,354
B1b - HEA (HVAC Systems)	Furnace Replacement, Gas	G21B1b002	3	5	8	17	17	17	100%	100%	100%	100%	100%	100%	91%	91%	91%	57	94	151	961	1,601	2,562
B1b - HEA (HVAC Systems)	Programmable Thermostat, Gas	G21B1b003	3	5	6	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%	13	16	19	191	239	287
B1b - HEA (HVAC Systems)	WiFi Thermostat, Gas	G21B1b004	10	11	15	15	15	15	100%	100%	100%	100%	100%	100%	91%	91%	91%	53	58	79	792	871	1,188
Home Energy Assistance Subtotal			2,434	3,074	3,877	52,029	65,712	82,693															

Energy Star Homes			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A1a - ES Homes	Cooling, Electric, SF	G21A1a001	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, SF	G21A1a002	35	40	50	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	945	1,080	1,350	23,625	27,000	33,750
A1a - ES Homes	Hot Water, Gas, SF	G21A1a003	18	20	25	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	63	70	88	945	1,050	1,313
A1a - ES Homes	Cooling, Electric, MF	G21A1a002	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
A1a - ES Homes	Heating, Gas, MF	G21A1a005	65	100	130	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	1,625	2,500	3,250	40,625	62,500	81,250
A1a - ES Homes	Hot Water, Gas, MF	G21A1a006	33	50	65	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	116	175	228	1,733	2,625	3,413
A1a - ES Homes	LED Bulb	G21A1a007	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
A1a - ES Homes	LED Fixture	G21A1a008	-	-	-	5	5	5	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
A1a - ES Homes	Clothes Washer	G21A1a009	-	-	-	14	14	14	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
A1a - ES Homes	Residential New Construction Code Com	G21A1a010	1	1	1	20	20	20	100%	100%	100%	100%	100%	100%	35%	100%	35%	-	-	609	-	-	12,188
Energy Star Homes Subtotal																		2,749	3,825	5,524	66,928	93,175	131,913

Home Performance with Energy Star			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A2a - HPwES (Weatherization)	Air Sealing, Gas	G21A2a001	40	45	50	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	317	356	396	4,752	5,346	5,940
A2a - HPwES (Weatherization)	Faucet Aerator, Gas	G21A2a002	100	100	120	7	7	7	100%	100%	100%	99%	99%	99%	100%	104%	100%	15	16	19	108	112	130
A2a - HPwES (Weatherization)	Hand Held Showerhead, Gas	G21A2a003	-	-	-	7	7	7	100%	100%	100%	99%	99%	99%	100%	104%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	Insulation, Gas	G21A2a004	40	43	46	25	25	25	100%	100%	100%	99%	99%	99%	100%	100%	100%	871	937	1,002	21,780	23,414	25,047
A2a - HPwES (Weatherization)	LED Bulb, General Service Lamps	G21A2a005	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	LED Bulb, Linear	G21A2a006	-	-	-	10	10	10	100%	100%	100%	98%	98%	98%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	LED Bulb, Other Specialty	G21A2a007	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	LED Bulb, Reflector	G21A2a008	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	LED Fixture	G21A2a009	-	-	-	2	2	2	100%	100%	100%	98%	98%	98%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	Low Flow Showerhead, Gas	G21A2a010	-	-	-	7	7	7	100%	100%	100%	99%	99%	99%	100%	104%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	Pipe Insulation - Hot Water, Gas	G21A2a011	20	23	25	15	15	15	100%	100%	100%	99%	99%	99%	100%	104%	100%	59	69	74	891	1,042	1,114
A2a - HPwES (Weatherization)	Baseload Audit - Electric Savings	G21A2a012	-	-	-	1	1	1	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	Baseload Audit - Thermal Savings	G21A2a013	-	-	-	1	1	1	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-
A2a - HPwES (Weatherization)	Visual Audit	G21A2a014	35	40	54	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-
A2b - HPwES (HVAC Systems)	Boiler Replacement, Gas	G21A2b001	-	-	-	19	19	19	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-
A2b - HPwES (HVAC Systems)	Furnace Replacement, Gas	G21A2b002	-	-	-	17	17	17	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-
A2b - HPwES (HVAC Systems)	Programmable Thermostat, Gas	G21A2b003	-	-	-	15	15	15	100%	100%	100%	99%	99%	99%	100%	100%	100%	-	-	-	-	-	-
A2b - HPwES (HVAC Systems)	Wifi Thermostat, Gas	G21A2b004	25	30	35	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	145	174	203	2,175	2,610	3,045
Home Performance with Energy Star Subtotal																		1,408	1,552	1,694	29,706	32,524	35,275

Energy Start Appliances			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A3b - ES Appliances	Early Replacement Boiler, FHW - EE 90	G21A3b001	-	-	-	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Early Replacement Boiler, FHW - Retire	G21A3b002	-	-	-	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Early Replacement Boiler, Steam - EE: 8	G21A3b003	-	-	-	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Early Replacement Boiler, Steam - Retire	G21A3b004	-	-	-	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Boiler Reset Controls	G21A3b005	4	6	10	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	20	31	51	306	459	765
A3b - ES Appliances	Condensing Boiler >= 90% AFUE (Up to	G21A3b006	15	18	20	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	182	218	242	3,449	4,138	4,598
A3b - ES Appliances	Condensing Boiler >= 95% AFUE (Up to	G21A3b007	65	75	80	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	962	1,110	1,184	18,278	21,090	22,496
A3b - ES Appliances	Furnace 95+ AFUE (<150) w/ECM Motor	G21A3b008	60	77	85	17	17	17	100%	100%	100%	100%	100%	100%	100%	100%	100%	588	755	830	9,996	12,828	14,111
A3b - ES Appliances	Furnace 97+ AFUE (<150) w/ECM Motor	G21A3b009	50	20	22	17	17	17	100%	100%	100%	100%	100%	100%	100%	100%	100%	515	204	224	8,755	3,467	3,814
A3b - ES Appliances	Heat Recovery Ventilator (-133 kWh per)	G21A3b010	7	8	8	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	54	59	65	1,078	1,186	1,304
A3b - ES Appliances	Programmable Thermostat	G21A3b011	50	80	100	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	175	280	350	2,625	4,200	5,250
A3b - ES Appliances	Indirect Water Heater (attached to ES FH	G21A3b012	15	22	24	20	20	20	100%	100%	100%	100%	100%	100%	100%	100%	100%	60	88	97	1,200	1,760	1,936
A3b - ES Appliances	Integrated Water Heater w/Condensing B	G21A3b013	5	6	6	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	42	46	51	798	878	966
A3b - ES Appliances	Integrated Water Heater w/Condensing B	G21A3b014	80	100	120	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	880	1,100	1,320	16,720	20,900	25,080
A3b - ES Appliances	Condensing Water Heater (EF 0.95)	G21A3b015	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Stand Alone Storage Tank Water Heater	G21A3b016	-	-	-	13	13	13	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Tankless On-Demand Water Heater, >=	G21A3b017	-	-	-	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
A3b - ES Appliances	Tankless On-Demand Water Heater, >=	G21A3b018	80	90	100	19	19	19	100%	100%	100%	100%	100%	100%	100%	100%	100%	440	495	550	8,360	9,405	10,450
A3b - ES Appliances	WiFi Thermostat (Heating Only)	G21A3b019	510	700	850	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	2,958	4,060	4,930	44,370	60,900	73,950
A3b - ES Appliances	WiFi Thermostat (Heating & Cooling)	G21A3b020	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-			
Energy Star Appliances Subtotal																		6,876	8,445	9,894	115,935	141,211	164,720

Home Energy Reports			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
A4a - Residential Behavior	Home Energy Reports	G21A4a001	9,100	9,100	9,100	1	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	3,222	4,178	6,500	3,222	4,178	6,500
Home Energy Reports Subtotal																		3,222	4,178	6,500	3,222	4,178	6,500

Large Commercial and Industrial			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C1a - LCI Retrofit	Custom Large Hot Water Retro	G21C1a001	4	5	6	10	10	10	100%	100%	100%	100%	100%	100%	87%	87%	87%	1,392	1,653	1,984	13,920	16,530	19,836
C1a - LCI Retrofit	Custom Large HVAC Retro	G21C1a002	4	6	8	20	20	20	100%	100%	100%	100%	100%	100%	87%	87%	87%	2,320	3,306	4,408	46,400	66,120	88,160
C1a - LCI Retrofit	Custom Large Other Retro	G21C1a003	6	10	17	13	13	13	100%	100%	100%	100%	100%	100%	87%	87%	87%	4,675	7,401	12,583	60,770	96,219	163,573
C1a - LCI Retrofit	Custom Large Process Retro	G21C1a004	3	4	6	13	13	13	100%	100%	100%	100%	100%	100%	87%	87%	87%	1,566	1,984	2,975	20,358	25,787	38,680
C1a - LCI Retrofit	Faucet Aerator, Gas	G21C1a005	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Low Flow Showerhead With Thermostat	G21C1a006	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Low Flow Showerhead, Gas	G21C1a007	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Pipe Wrap - Hot Water, Gas	G21C1a008	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Pre Rinse Spray Valve, Gas	G21C1a009	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Boiler Reset Controls, Gas	G21C1a010	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Boiler Tune-Ups	G21C1a011	-	-	-	1	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Energy Management System, Gas	G21C1a012	-	1	2	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	750	1,500	11,250	22,500	-
C1a - LCI Retrofit	Pipe Insulation - Heating, Gas	G21C1a013	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	Steam Trap, Gas	G21C1a014	30	35	45	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%	1,068	1,246	1,602	6,408	7,476	9,612
C1a - LCI Retrofit	Programmable Thermostat, Gas	G21C1a015	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1a - LCI Retrofit	WiFi Thermostat (Heating & Cooling)	G21C1a016	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Custom Large Hot Water New	G21C1b001	1	4	5	10	10	10	100%	100%	100%	100%	100%	100%	87%	87%	87%	522	1,984	2,480	5,220	19,836	24,795
C1b - LCI New Equipment and Con	Custom Large HVAC New	G21C1b002	2	3	4	18	18	18	100%	100%	100%	100%	100%	100%	87%	87%	87%	1,044	1,488	1,984	18,792	26,779	35,705
C1b - LCI New Equipment and Con	Custom Large Other New	G21C1b003	2	4	5	13	13	13	100%	100%	100%	100%	100%	100%	87%	87%	87%	1,044	1,984	2,480	13,572	25,787	32,234
C1b - LCI New Equipment and Con	Custom Large Process New	G21C1b004	-	-	-	13	13	13	100%	100%	100%	100%	100%	100%	87%	87%	87%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Boiler 1701 to 2000 MBH 90 AFUE, Gas	G21C1b005	1	1	2	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	165	165	331	4,133	4,133	8,265
C1b - LCI New Equipment and Con	Boiler 1000 to 1700 MBH 90 AFUE, Gas	G21C1b006	2	2	2	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	189	208	229	4,725	5,198	5,717
C1b - LCI New Equipment and Con	Boiler 500 to 999 MBH 90 AFUE, Gas	G21C1b007	4	4	6	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	206	226	308	5,140	5,654	7,710
C1b - LCI New Equipment and Con	Boiler 301 to 499 MBH 90 AFUE, Gas	G21C1b008	8	8	10	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	224	224	280	5,600	5,600	7,000
C1b - LCI New Equipment and Con	Boiler to 300 MBH 90 AFUE, Gas	G21C1b009	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Boiler to 300 MBH 95 AFUE, Gas	G21C1b010	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Combo Condensing Boiler / Water Heater	G21C1b011	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Combo Furnace / Water Heater, Gas	G21C1b012	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Condensing Unit Heater, Gas	G21C1b013	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Furnace w/ ECM 95 AFUE, Gas	G21C1b014	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Furnace w/ ECM 97 AFUE, Gas	G21C1b015	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Infrared Heater, Gas	G21C1b016	8	9	10	17	17	17	100%	100%	100%	100%	100%	100%	100%	100%	100%	96	106	116	1,632	1,795	1,975
C1b - LCI New Equipment and Con	Faucet Aerator, Gas	G21C1b017	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Low Flow Showerhead With Thermostat	G21C1b018	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Low Flow Showerhead, Gas	G21C1b019	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Pre Rinse Spray Valve, Gas	G21C1b020	-	55	61	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	627	690	5,016	5,518	-
C1b - LCI New Equipment and Con	Combination Oven, Gas	G21C1b021	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Convection Oven, Gas	G21C1b022	2	2	1	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	68	68	34	811	811	406
C1b - LCI New Equipment and Con	Conveyor Oven, Gas	G21C1b023	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Fryer, Gas	G21C1b024	4	4	4	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	313	313	313	3,758	3,758	3,758
C1b - LCI New Equipment and Con	Griddle, Gas	G21C1b025	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Rack Oven, Gas	G21C1b026	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	Steam Cooker, Gas	G21C1b027	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1b - LCI New Equipment and Con	C&I Large New Construction Code Comp	G21C1b028	1	1	1	20	20	20	100%	100%	100%	100%	100%	100%	36%	100%	36%	-	-	42	-	-	839
C1c - LCI Midstream	Midstream Water Heater, Condensing Ga	G21C1c012	6	8	10	20	20	20	30%	30%	30%	100%	100%	100%	100%	0%	100%	54	-	90	1,084	-	1,806
C1c - LCI Midstream	Midstream Combination Oven, Gas	G21C1c001	8	12	14	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	747	1,104	1,307	8,964	13,245	15,688
C1c - LCI Midstream	Midstream Convection Oven, Gas	G21C1c002	6	9	10	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	169	250	282	2,027	2,995	3,379
C1c - LCI Midstream	Midstream Conveyor Oven, Gas	G21C1c003	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	257	-	-	3,085
C1c - LCI Midstream	Midstream Fryer, Gas	G21C1c004	18	20	22	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	1,174	1,285	1,435	14,088	15,419	17,219
C1c - LCI Midstream	Midstream Griddle, Gas	G21C1c005	-	2	2	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	62	63	746	758	-
C1c - LCI Midstream	Midstream Pre-Rinse Spray Valve, Gas	G21C1c006	-	-	-	8	8	8	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Rack Oven, Gas	G21C1c007	-	1	2	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	173	352	2,080	4,224	-
C1c - LCI Midstream	Midstream Steam Cooker, Gas	G21C1c008	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C1c - LCI Midstream	Midstream Indirect Water Heater, Gas	G21C1c009	6	9	10	15	15	15	30%	30%	30%	100%	100%	100%	100%	100%	100%	34	49	55	513	741	828
C1c - LCI Midstream	Midstream On Demand Tankless Water	G21C1c010	14	16	18	20	20	20	60%	60%	60%	100%	100%	100%	100%	100%	100%	75	84	96	1,495	1,683	1,922
C1c - LCI Midstream	Midstream Volume Water Heater, Gas	G21C1c011	4	8	9	15	15	15	60%	60%	60%	100%	100%	100%	100%	100%	100%	762	1,501	1,714	11,426	22,510	25,709
Large Commercial & Industrial Subtotal			4	8	9	15	15	15	60%	60%	60%	100%	100%	100%	100%	100%	100%	17,906	28,240	39,988	250,837	387,169	550,900

Small Commercial and Industrial			Quantity			Measure Life			Net to Gross			In Service Rate			Non-Electric Realization Rate			Net Annual MMBtu Savings			Net Lifetime MMBtu Savings		
Subprogram	Measure	Measure ID	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
C2a - SCI Retrofit	Custom Small Hot Water Retro	G21C2a001	4	3	6	10	10	10	100%	100%	100%	100%	100%	100%	87%	87%	87%	402	286	542	4,015	2,861	5,421
C2a - SCI Retrofit	Custom Small HVAC Retro	G21C2a002	6	9	12	15	15	15	100%	100%	100%	100%	100%	100%	87%	87%	87%	1,305	1,860	2,349	19,575	27,894	35,235
C2a - SCI Retrofit	Custom Small Other Retro	G21C2a003	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	87%	87%	87%	-	-	-	-	-	-
C2a - SCI Retrofit	Custom Small Process Retro	G21C2a004	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	87%	87%	87%	-	-	-	-	-	-
C2a - SCI Retrofit	Faucet Aerator, Gas	G21C2a005	-	-	-	-	-	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Low Flow Showerhead With Thermostat	G21C2a006	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Low Flow Showerhead, Gas	G21C2a007	35	40	45	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	93	106	119	649	742	835
C2a - SCI Retrofit	Pipe Wrap - Hot Water, Gas	G21C2a008	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Pre Rinse Spray Valve, Gas	G21C2a009	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Boiler Reset Controls, Gas	G21C2a010	12	15	18	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	426	533	639	6,390	7,988	9,585
C2a - SCI Retrofit	Boiler Tune-Ups	G21C2a011	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Energy Management System, Gas	G21C2a012	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Pipe Insulation - Heating, Gas	G21C2a013	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	Steam Trap, Gas	G21C2a014	35	39	42	6	6	6	100%	100%	100%	100%	100%	100%	100%	100%	100%	294	323	356	1,764	1,940	2,134
C2a - SCI Retrofit	Programmable Thermostat, Gas	G21C2a015	-	-	-	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2a - SCI Retrofit	WiFi Thermostat (Heating & Cooling)	G21C2a016	20	25	30	15	15	15	100%	100%	100%	100%	100%	100%	100%	100%	100%	62	78	93	933	1,166	1,400
C2b - SCI New Equipment and Con	Custom Small Hot Water New	G21C2b001	20	28	35	12	12	12	100%	100%	100%	100%	100%	100%	87%	87%	87%	928	1,234	1,462	11,136	14,811	17,539
C2b - SCI New Equipment and Con	Custom Small HVAC New	G21C2b002	3	4	5	15	15	15	100%	100%	100%	100%	100%	100%	87%	87%	87%	914	1,157	1,370	13,703	17,357	20,554
C2b - SCI New Equipment and Con	Custom Small Other New	G21C2b003	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	87%	87%	87%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Custom Small Process New	G21C2b004	-	-	-	-	-	-	100%	100%	100%	100%	100%	100%	87%	87%	87%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Boiler 1701 to 2000 MBH 90 AFUE, Gas	G21C2b005	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Boiler 1000 to 1700 MBH 90 AFUE, Gas	G21C2b006	3	3	5	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	284	312	473	7,088	7,796	11,813
C2b - SCI New Equipment and Con	Boiler 500 to 999 MBH 90 AFUE, Gas	G21C2b007	8	9	10	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	411	452	498	10,280	11,308	12,439
C2b - SCI New Equipment and Con	Boiler 301 to 499 MBH 90 AFUE, Gas	G21C2b008	4	4	5	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	112	123	136	2,800	3,080	3,388
C2b - SCI New Equipment and Con	Boiler to 300 MBH 95 AFUE, Gas	G21C2b009	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Boiler to 300 MBH 95 AFUE, Gas	G21C2b010	15	20	25	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	266	354	443	6,638	8,850	11,063
C2b - SCI New Equipment and Con	Combo Condensing Boiler / Water Heater	G21C2b011	-	-	-	25	25	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Combo Furnace / Water Heater, Gas	G21C2b012	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Condensing Unit Heater, Gas	G21C2b013	4	4	5	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	164	180	198	2,945	3,239	3,563
C2b - SCI New Equipment and Con	Furnace w/ ECM 95 AFUE, Gas	G21C2b014	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Furnace w/ ECM 97 AFUE, Gas	G21C2b015	-	-	-	18	18	18	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Infrared Heater, Gas	G21C2b016	15	18	20	17	17	17	100%	100%	100%	100%	100%	100%	100%	100%	100%	180	216	240	3,060	3,672	4,080
C2b - SCI New Equipment and Con	Faucet Aerator, Gas	G21C2b017	100	120	140	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	170	204	238	1,190	1,428	1,666
C2b - SCI New Equipment and Con	Low Flow Showerhead With Thermostat	G21C2b018	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Low Flow Showerhead, Gas	G21C2b019	-	-	-	7	7	7	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Pre Rinse Spray Valve, Gas	G21C2b020	-	-	-	8	8	8	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Combination Oven, Gas	G21C2b021	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Convection Oven, Gas	G21C2b022	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Conveyor Oven, Gas	G21C2b023	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Fryer, Gas	G21C2b024	1	2	3	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	78	157	235	940	1,879	2,819
C2b - SCI New Equipment and Con	Griddle, Gas	G21C2b025	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Rack Oven, Gas	G21C2b026	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	Steam Cooker, Gas	G21C2b027	-	-	-	12	12	12	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2b - SCI New Equipment and Con	C&I Small New Construction Code Comp	G21C2b028	1	1	1	20	20	20	100%	100%	100%	100%	100%	100%	36%	100%	36%	-	-	23	-	-	452
C2c - SCI Midstream	Midstream Combination Oven, Gas	G21C2c001	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Convection Oven, Gas	G21C2c002	8	9	10	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	225	248	273	2,703	2,973	3,271
C2c - SCI Midstream	Midstream Conveyor Oven, Gas	G21C2c003	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Fryer, Gas	G21C2c004	15	17	18	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	978	1,109	1,184	11,740	13,306	14,206
C2c - SCI Midstream	Midstream Griddle, Gas	G21C2c005	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Pre-Rinse Spray Valve, Gas	G21C2c006	-	-	-	8	8	8	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Rack Oven, Gas	G21C2c007	1	1	1	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	176	194	213	2,112	2,323	2,556
C2c - SCI Midstream	Midstream Steam Cooker, Gas	G21C2c008	-	-	-	12	12	12	83%	83%	83%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2c - SCI Midstream	Midstream Indirect Water Heater, Gas	G21C2c009	-	-	-	15	15	15	30%	30%	30%	100%	100%	100%	100%	100%	100%	-	-	-	-	-	-
C2c - SCI Midstream	Midstream On Demand Tankless Water	G21C2c010	7	8	8	20	20	20	60%	60%	60%	100%	100%	100%	100%	100%	100%	37	41	45	748	822	905
C2c - SCI Midstream	Midstream Volume Water Heater, Gas	G21C2c011	3	3	4	15	15	15	60%	60%	60%	100%	100%	100%	100%	100%	100%	147	162	178	2,209	2,429	2,672
C2c - SCI Midstream	Midstream Water Heater, Condensing Ga	G21C2c012	6	7	8	15	15	15	30%	30%	30%	100%	100%	100%	100%	100%	100%	54	63	72	813	948	1,084
Small Commercial & Industrial Subtotal																		7,706	9,391	11,377	113,429	138,814	168,677

Northern Utilities, Inc. -- New Hampshire Division

EEC Budget

	Residential	Low-Income	Gen Service	Total
July-20	\$51,728	\$9,161	\$58,020	\$118,909
August-20	\$59,199	\$33,463	\$66,401	\$159,063
September-20	\$66,096	\$37,362	\$80,013	\$183,471
October-20	\$73,568	\$41,585	\$82,518	\$197,671
November-20	\$81,040	\$45,809	\$90,898	\$217,747
December-20	\$88,512	\$50,032	\$105,155	\$243,699
January-21	\$33,101	\$16,281	\$57,210	\$106,592
February-21	\$55,169	\$27,135	\$57,210	\$139,514
March-21	\$66,203	\$32,562	\$85,815	\$184,580
April-21	\$77,237	\$37,989	\$100,117	\$215,343
May-21	\$77,237	\$37,989	\$57,210	\$172,436
June-21	\$132,406	\$65,125	\$71,512	\$269,043
July-21	\$143,440	\$70,552	\$100,117	\$314,108
August-21	\$77,237	\$37,989	\$157,327	\$272,553
September-21	\$154,473	\$75,979	\$171,629	\$402,082
October-21	\$110,338	\$54,271	\$185,932	\$350,541
Total	\$1,346,983	\$673,283	\$1,527,084	\$3,547,351

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

	Residential	Low-Income	Gen Service	Total
July-20	\$56,539	0	\$62,370	\$118,909
August-20	\$63,760	0	\$95,304	\$159,063
September-20	\$71,689	0	\$111,782	\$183,471
October-20	\$80,185	0	\$117,486	\$197,671
November-20	\$92,872	0	\$124,875	\$217,747
December-20	\$104,446	0	\$139,252	\$243,699
January-21	\$38,314	0	\$68,279	\$106,592
February-21	\$64,133	0	\$75,381	\$139,514
March-21	\$76,417	0	\$108,163	\$184,580
April-21	\$88,503	0	\$126,840	\$215,343
May-21	\$86,905	0	\$85,531	\$172,436
June-21	\$145,513	0	\$123,530	\$269,043
July-21	\$154,320	0	\$159,788	\$314,108
August-21	\$82,237	0	\$190,316	\$272,553
September-21	\$165,211	0	\$236,870	\$402,082
October-21	\$118,650	0	\$231,891	\$350,541
Total	\$1,489,693	\$0	\$2,057,658	\$3,547,351

EEC Charge Factor Calculation

EEC Charge Factors for Residential Customers

	November 1, 2020	Effective November 1, 2021	November 1, 2022	
EEC Reconciliation Adjustment	\$276,963	(\$7,185)	\$0	Attachment J3 Page 3 Nov '20 Beginning Balance; Oct '21 Ending Balance
EEC Costs	\$1,096,392	\$1,326,609	\$1,604,183	Attachment J3 Page 3 Nov '20 - Oct '21 Totals; Company Budget
EEC Performance Incentive	\$56,430	\$72,866	\$88,127	Attachment J3 Page 3 Nov '20 - Oct '21 Totals; Company Budget-
EEC Low-Income Costs	\$121,129	\$147,759	\$189,074	Attachment J3 Page 3 Nov '20 - Oct '21 Totals; Company Budget-
EEC Allocated Low-Income Performance Incentive	\$6,532	\$8,943	\$11,401	Attachment J3 Page 3 Nov '20 - Oct '21 Totals; Company Budget-
Total	\$1,557,446	\$1,548,992	\$1,892,786	
Forecasted Annual Throughput Volumes for Residential Customers	20,133,234	20,341,869	20,727,239	Attachment J3 Page 3 Nov '20 - Oct '21 Totals; Company Forecast
Energy Efficiency Charge Factor for Residential Customers	\$0.0774	\$0.0761	\$0.0913	

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

EEC Reconciliation Adjustment	(\$60,459)	(\$10,794)	\$0	Attachment J3 Page 4 Nov '20 Beginning Balance; Oct '21 Ending Balance
EEC Costs	\$1,240,133	\$1,872,209	\$2,750,204	Attachment J3 Page 4 Nov '20 - Oct '21 Totals; Company Budget
EEC Performance Incentive	\$73,557	\$106,412	\$156,824	Attachment J3 Page 4 Nov '20 - Oct '21 Totals; Company Budget
EEC Low-Income Costs	\$430,584	\$551,139	\$699,944	Attachment J3 Page 4 Nov '20 - Oct '21 Totals; Company Budget
EEC Allocated Low-Income Performance Incentive	\$21,181	\$29,428	\$37,425	Attachment J3 Page 4 Nov '20 - Oct '21 Totals; Company Budget
Total	\$1,704,995	\$2,548,396	\$3,644,397	
Forecasted Annual Throughput Volumes for C&I Customers	52,446,711	54,440,281	55,734,520	Attachment J3 Page 4 Nov '20 - Oct '21 Totals; Company Forecast
Energy Efficiency Charge Factor for C&I Customers	\$0.0337	\$0.0470	\$0.0654	

Northern Utilities, Inc. New Hampshire Division Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge To Be Effective November 1, 2020 through October 31, 2021 Residential Customers															
		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income Costs	Allocated Low Income 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-19	Actual	\$107,098	\$0.0501	\$16,801	\$37,242	\$3,633	\$1,184	\$69	\$132,424	\$119,761	5.50%	\$559.430	\$132,983	335,427	31
September-19	Actual	\$132,983	\$0.0501	\$16,810	\$21,383	\$3,633	\$11,591	\$675	\$153,455	\$143,219	5.50%	\$647.430	\$154,102	335,597	30
October-19	Actual	\$154,102	\$0.0501	\$30,568	\$57,526	\$3,633	\$1,339	\$78	\$186,110	\$170,106	5.25%	\$758.490	\$186,868	610,233	31
November-19	Actual	\$186,868	\$0.0499	\$68,678	\$20,599	\$3,633	\$20,128	\$1,171	\$163,721	\$175,295	5.25%	\$1,262.240	\$164,984	1,373,589	30
December-19	Actual	\$164,984	\$0.0499	\$137,485	\$32,245	\$3,633	\$4,023	\$234	\$67,634	\$116,309	5.25%	\$518.610	\$68,152	2,755,471	31
January-20	Actual	\$68,152	\$0.0499	\$154,006	\$19,025	\$3,906	\$3,272	\$190	(\$59,461)	\$4,346	4.75%	\$17.480	(\$59,444)	3,086,303	31
February-20	Actual	\$556	\$0.0499	\$156,856	\$111,389	\$3,906	\$7,729	\$450	(\$32,826)	(\$16,135)	4.75%	\$3,668.730	(\$29,158)	3,143,380	29
March-20	Actual	\$45,842	\$0.0499	\$133,675	\$132,910	\$15,890	\$25,651	\$1,493	\$88,111	\$66,977	4.75%	\$1,674.790	\$89,786	2,678,854	31
April-20	Actual	\$89,786	\$0.0499	\$93,387	\$84,604	\$3,906	\$11,124	\$647	\$96,680	\$93,233	4.75%	\$413.570	\$97,093	1,871,517	30
May-20	Actual	\$97,093	\$0.0499	\$66,832	\$18,542	(\$976)	\$3,996	\$233	\$52,056	\$74,575	4.75%	\$300.030	\$52,356	1,339,252	31
June-20	Actual	\$52,356	\$0.0499	\$28,689	\$43,423	\$2,929	\$1,527	\$89	\$71,635	\$61,996	4.75%	\$241.380	\$71,877	574,945	30
July-20	Forecast	\$71,877	\$0.0499	\$20,894	\$51,728	\$2,929	\$4,811	\$234	\$110,685	\$91,281	3.25%	\$251.270	\$110,936	418,711	31
August-20	Forecast	\$110,936	\$0.0499	\$16,527	\$59,199	\$2,929	\$4,560	\$193	\$161,292	\$136,114	3.25%	\$374.690	\$161,666	331,195	31
September-20	Forecast	\$161,666	\$0.0499	\$18,846	\$66,096	\$2,929	\$5,592	\$212	\$217,651	\$189,659	3.25%	\$505.240	\$218,156	377,676	30
October-20	Forecast	\$218,156	\$0.0499	\$25,214	\$73,568	\$2,929	\$6,617	\$226	\$276,283	\$247,219	3.25%	\$680.530	\$276,963	505,288	31
November-20	Forecast	\$276,963	\$0.0774	\$115,178	\$81,040	\$2,929	\$11,832	\$367	\$257,953	\$267,458	3.25%	\$712.490	\$258,665	1,488,092	30
December-20	Forecast	\$258,665	\$0.0774	\$212,948	\$88,512	\$2,929	\$15,935	\$452	\$153,546	\$206,105	3.25%	\$567.350	\$154,113	2,751,261	31
January-21	Forecast	\$154,113	\$0.0774	\$261,213	\$33,101	\$5,057	\$5,212	\$796	(\$62,933)	\$45,590	3.25%	\$125.840	(\$62,807)	3,374,845	31
February-21	Forecast	(\$62,807)	\$0.0774	\$291,762	\$55,169	\$5,057	\$8,964	\$822	(\$284,557)	(\$173,682)	3.25%	(\$433.020)	(\$284,990)	3,769,530	28
March-21	Forecast	(\$284,990)	\$0.0774	\$245,174	\$66,203	\$5,057	\$10,214	\$780	(\$447,910)	(\$366,450)	3.25%	(\$1,011.500)	(\$448,921)	3,167,624	31
April-21	Forecast	(\$448,921)	\$0.0774	\$165,238	\$77,237	\$5,057	\$11,267	\$738	(\$519,861)	(\$484,391)	3.25%	(\$1,293.920)	(\$521,155)	2,134,862	30
May-21	Forecast	(\$521,155)	\$0.0774	\$93,796	\$77,237	\$5,057	\$9,668	\$633	(\$522,357)	(\$521,756)	3.25%	(\$1,440.190)	(\$523,797)	1,211,836	31
June-21	Forecast	(\$523,797)	\$0.0774	\$48,120	\$132,406	\$5,057	\$13,107	\$501	(\$420,846)	(\$472,321)	3.25%	(\$1,261.680)	(\$422,108)	621,702	30
July-21	Forecast	(\$422,108)	\$0.0774	\$30,763	\$143,440	\$5,057	\$10,880	\$384	(\$293,110)	(\$357,609)	3.25%	(\$987.100)	(\$294,097)	397,455	31
August-21	Forecast	(\$294,097)	\$0.0774	\$26,040	\$77,237	\$5,057	\$5,000	\$327	(\$232,516)	(\$263,306)	3.25%	(\$726.800)	(\$233,243)	336,440	31
September-21	Forecast	(\$233,243)	\$0.0774	\$28,829	\$154,473	\$5,057	\$10,738	\$352	(\$91,451)	(\$162,347)	3.25%	(\$433.670)	(\$91,885)	372,462	30
October-21	Forecast	(\$91,885)	\$0.0774	\$39,252	\$110,338	\$5,057	\$8,312	\$381	(\$7,049)	(\$49,467)	3.25%	(\$136.540)	(\$7,185)	507,126	31
Nov 20 thru Oct 21 Totals					\$1,558,312	\$1,096,392	\$56,430	\$121,129	\$6,532					20,133,234	

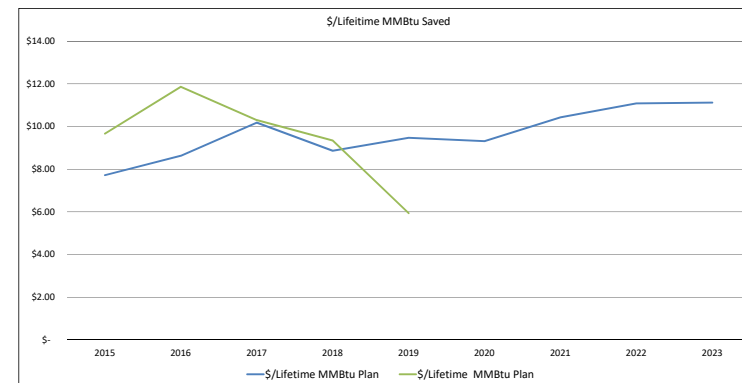
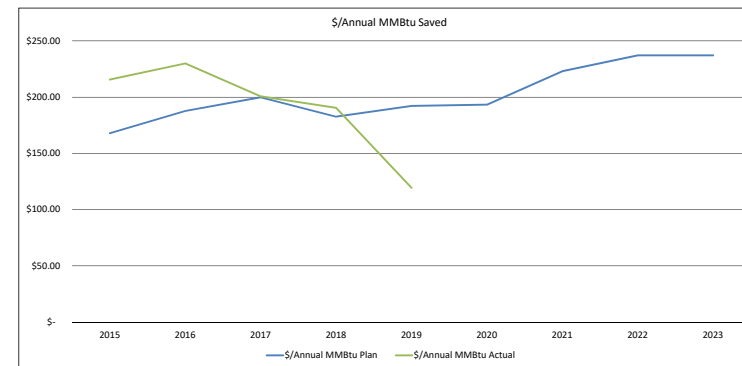
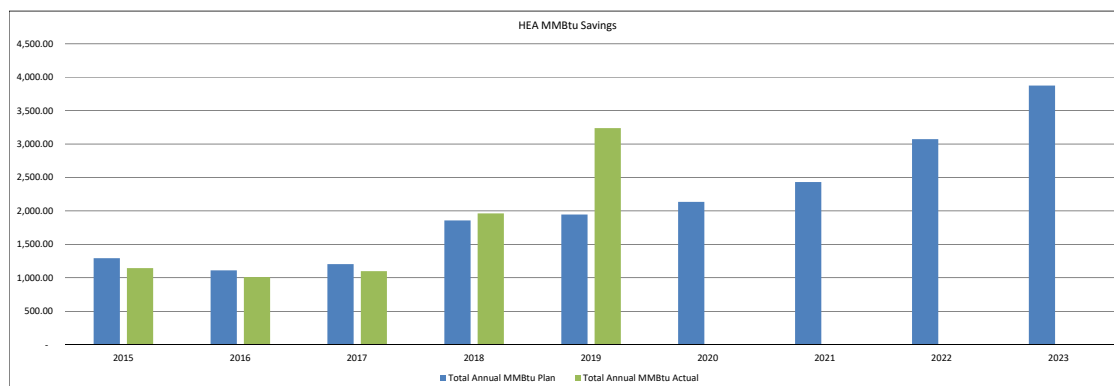
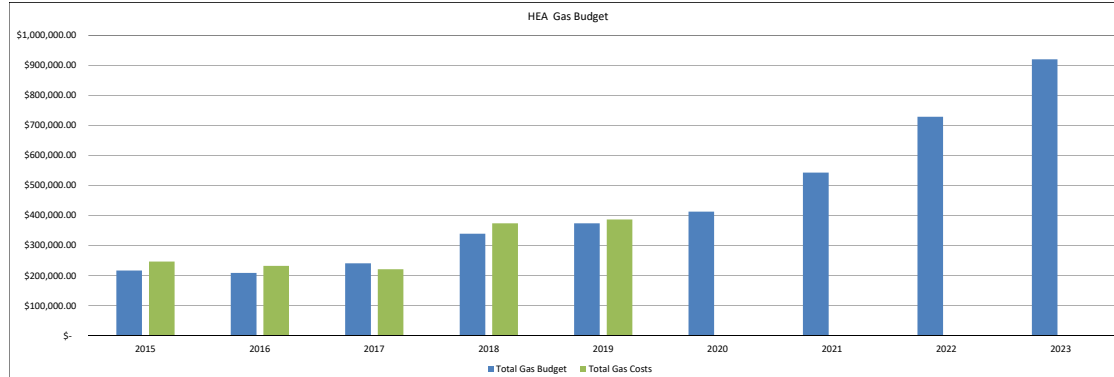
Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 2 of 3, filed on September 17, 2019 in the Cost of Gas Docket.
 Actual Performance Incentives includes reconciliations from prior year(s).
 footnote transfers

Northern Utilities, Inc. New Hampshire Division Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge To Be Effective November 1, 2020 through October 31, 2021 General Service Customers															
		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income Costs	Allocated Low Income 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-19	Actual	(\$704,375)	\$0.0264	\$63,986	\$29,331	\$4,684	\$8,553	\$498	(\$725,295)	(\$714,835)	5.50%	(\$3,339.16)	(\$728,634)	2,423,706	31
September-19	Actual	(\$728,634)	\$0.0264	\$62,483	\$110,426	\$4,684	\$81,746	\$4,758	(\$589,503)	(\$659,069)	5.50%	(\$2,979.35)	(\$592,483)	2,366,753	30
October-19	Actual	(\$592,483)	\$0.0264	\$83,920	\$220,316	\$4,684	\$6,982	\$406	(\$444,015)	(\$518,249)	5.25%	(\$2,310.82)	(\$446,326)	3,182,362	31
November-19	Actual	(\$446,326)	\$0.0247	\$114,869	\$248,775	\$4,684	\$66,982	\$3,898	(\$236,854)	(\$341,590)	5.25%	(\$1,458.61)	(\$238,312)	4,571,040	30
December-19	Actual	(\$238,312)	\$0.0247	\$158,016	\$190,099	\$4,684	\$9,339	\$544	(\$191,662)	(\$214,987)	5.25%	(\$958.61)	(\$192,621)	6,397,368	31
January-20	Actual	(\$192,621)	\$0.0247	\$177,242	\$53,455	\$5,336	\$7,606	\$443	(\$303,024)	(\$247,822)	4.75%	(\$997.04)	(\$304,021)	7,174,996	31
February-20	Actual	(\$198,021)	\$0.0247	\$177,778	\$72,005	\$5,336	\$17,680	\$1,029	(\$279,749)	(\$238,885)	4.75%	\$4,653.65	(\$275,096)	7,197,470	29
March-20	Actual	(\$125,096)	\$0.0247	\$155,281	\$54,638	(\$3,397)	\$60,197	\$3,504	(\$165,435)	(\$145,265)	4.75%	\$564.14	(\$164,871)	6,286,658	31
April-20	Actual	(\$164,871)	\$0.0247	\$112,351	\$30,445	\$5,336	\$27,036	\$1,574	(\$212,832)	(\$188,852)	4.75%	(\$735.28)	(\$213,567)	4,548,589	30
May-20	Actual	(\$213,567)	\$0.0247	\$87,004	\$71,762	(\$1,334)	\$10,511	\$612	(\$219,021)	(\$216,294)	4.75%	(\$870.20)	(\$219,891)	3,522,410	31
June-20	Actual	(\$219,891)	\$0.0247	\$60,861	\$41,870	\$4,002	\$6,546	\$381	(\$227,954)	(\$223,923)	4.75%	(\$871.83)	(\$228,826)	2,463,920	30
July-20	Forecast	(\$228,826)	\$0.0247	\$65,835	\$58,020	\$4,002	\$4,350	\$253	(\$228,035)	(\$228,431)	3.25%	(\$628.81)	(\$228,664)	2,125,963	31
August-20	Forecast	(\$228,664)	\$0.0247	\$51,849	\$66,401	\$4,002	\$28,903	\$1,226	(\$179,981)	(\$204,323)	3.25%	(\$562.45)	(\$180,544)	2,099,142	31
September-20	Forecast	(\$180,544)	\$0.0247	\$52,996	\$80,013	\$4,002	\$31,769	\$1,207	(\$116,548)	(\$148,546)	3.25%	(\$395.72)	(\$116,944)	2,145,572	30
October-20	Forecast	(\$116,944)	\$0.0247	\$65,953	\$82,518	\$4,002	\$34,968	\$1,194	(\$60,216)	(\$88,580)	3.25%	(\$243.84)	(\$60,459)	2,670,168	31
November-20	Forecast	(\$60,459)	\$0.0325	\$138,874	\$90,898	\$4,002	\$33,976	\$1,053	(\$69,404)	(\$64,932)	3.25%	(\$172.97)	(\$69,577)	4,273,046	30
December-20	Forecast	(\$69,577)	\$0.0325	\$191,330	\$105,155	\$4,002	\$34,097	\$968	(\$116,685)	(\$93,131)	3.25%	(\$256.36)	(\$116,941)	5,887,088	31
January-21	Forecast	(\$116,941)	\$0.0325	\$232,929	\$57,210	\$6,555	\$11,069	\$1,691	(\$273,345)	(\$195,143)	3.25%	(\$538.65)	(\$273,884)	7,167,043	31
February-21	Forecast	(\$273,884)	\$0.0325	\$248,358	\$57,210	\$6,555	\$18,172	\$1,666	(\$438,639)	(\$356,262)	3.25%	(\$888.21)	(\$439,528)	7,641,797	28
March-21	Forecast	(\$439,528)	\$0.0325	\$225,235	\$85,815	\$6,555	\$22,348	\$1,707	(\$548,338)	(\$493,933)	3.25%	(\$1,363.39)	(\$549,701)	6,930,321	31
April-21	Forecast	(\$549,701)	\$0.0325	\$164,566	\$100,117	\$6,555	\$26,723	\$1,750	(\$579,122)	(\$564,412)	3.25%	(\$1,507.68)	(\$580,630)	5,063,577	30
May-21	Forecast	(\$580,630)	\$0.0325	\$115,374	\$57,210	\$6,555	\$28,321	\$1,854	(\$602,063)	(\$591,346)	3.25%	(\$1,632.28)	(\$603,695)	3,549,981	31
June-21	Forecast	(\$603,695)	\$0.0325	\$80,188	\$71,512	\$6,555	\$52,018	\$1,987	(\$551,811)	(\$577,753)	3.25%	(\$1,543.31)	(\$553,354)	2,467,336	30
July-21	Forecast	(\$553,354)	\$0.0325	\$70,840	\$100,117	\$6,555	\$59,671	\$2,104	(\$455,747)	(\$504,551)	3.25%	(\$1,392.70)	(\$457,140)	2,179,685	31
August-21	Forecast	(\$457,140)	\$0.0325	\$72,143	\$157,327	\$6,555	\$32,989	\$2,160	(\$330,251)	(\$393,695)	3.25%	(\$1,086.71)	(\$331,338)	2,219,780	31
September-21	Forecast	(\$331,338)	\$0.0325	\$73,543	\$171,629	\$6,555	\$65,241	\$2,136	(\$159,320)	(\$245,329)	3.25%	(\$655.33)	(\$159,975)	2,262,857	30
October-21	Forecast	(\$159,975)	\$0.0325	\$91,136	\$185,932	\$6,555	\$45,959	\$2,106	(\$10,558)	(\$85,267)	3.25%	(\$235.36)	(\$10,794)	2,804,200	31
Nov 20 thru Oct 21 Totals				\$1,704,516	\$1,240,133	\$73,557	\$430,584	\$21,181						52,446,710	

Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 2 of 3, filed on September 17, 2019 in the Cost of Gas Docket. Does not include Special Contracts.
 Actual Performance Incentives includes reconciliations from prior year(s).

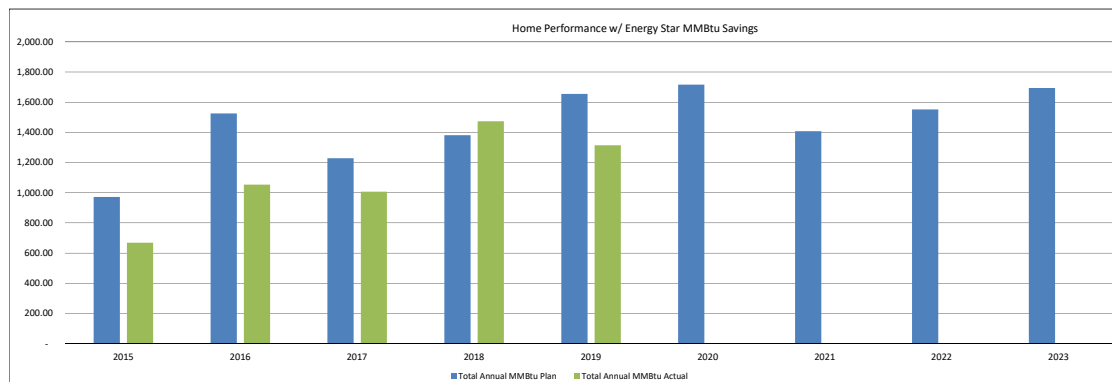
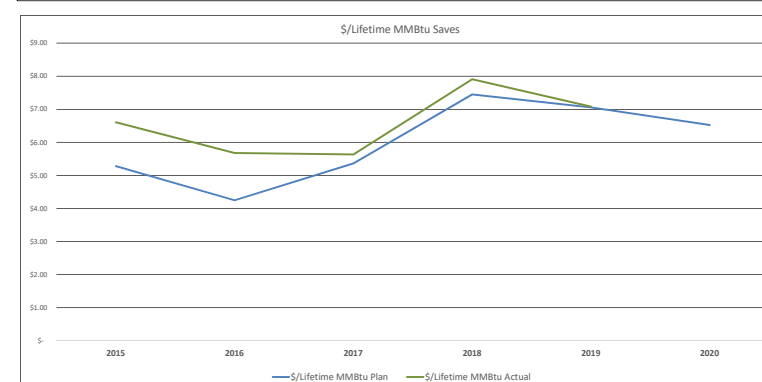
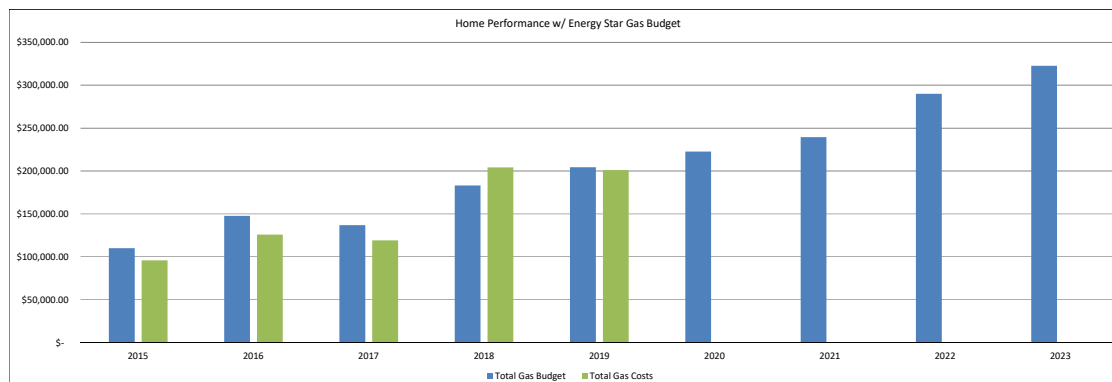
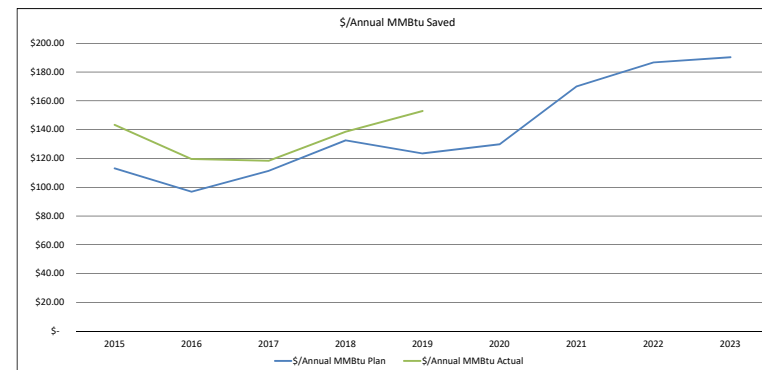
Home Energy Assistance

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 217,299.34	\$ 208,884.45	\$ 241,100.00	\$ 339,500.00	\$ 374,026.00	\$ 413,000.00	\$ 542,705.00	\$ 728,650.00	\$ 919,565.00
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ 19,500.00	\$ 19,100.00	\$ 11,828.83	\$ 12,266.80	\$ -	\$ -	\$ 1,223.04
2)	Total Gas Budget	\$ 217,299.34	\$ 208,884.45	\$ 241,100.00	\$ 339,500.00	\$ 374,026.00	\$ 413,000.00	\$ 542,705.00	\$ 728,650.00	\$ 919,565.00
	Total Lifetime MMBtu Plan	\$ 28,134.50	\$ 24,183.30	\$ 23,672.00	\$ 38,285.30	\$ 39,469.68	\$ 44,343.14	\$ 52,028.61	\$ 65,711.76	\$ 82,693.32
	\$/Lifetime MMBtu Plan	\$ 7.72	\$ 8.64	\$ 10.19	\$ 8.87	\$ 9.48	\$ 9.31	\$ 10.43	\$ 11.09	\$ 11.12
3)	Total Gas Budget	\$ 217,299.34	\$ 208,884.45	\$ 241,100.00	\$ 339,500.00	\$ 374,026.00	\$ 413,000.00	\$ 542,705.00	\$ 728,650.00	\$ 919,565.00
	Total Annual MMBtu Plan	\$ 1,294.23	\$ 1,112.44	\$ 1,206.60	\$ 1,859.40	\$ 1,947.41	\$ 2,136.81	\$ 2,433.61	\$ 3,074.31	\$ 3,877.09
	\$/Annual MMBtu Plan	\$ 167.90	\$ 187.77	\$ 199.82	\$ 182.59	\$ 192.06	\$ 193.28	\$ 223.00	\$ 237.01	\$ 237.18
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 246,875.44	\$ 232,458.52	\$ 221,117.77	\$ 374,000.00	\$ 386,835.96				
	Annual Electric Savings Actual (kWh)	\$ -	\$ -	\$ 4.01	\$ 16.90	\$ 4.28				
2)	Total Gas Costs	\$ 246,875.44	\$ 232,458.52	\$ 221,117.77	\$ 374,000.00	\$ 386,835.96				
	Total Lifetime MMBtu Actual	\$ 25,542.87	\$ 19,593.06	\$ 21,454.20	\$ 40,000.90	\$ 65,090.20				
	\$/Lifetime MMBtu Plan	\$ 9.67	\$ 11.86	\$ 10.31	\$ 9.35	\$ 5.94				
3)	Total Gas Costs	\$ 246,875.44	\$ 232,458.52	\$ 221,117.77	\$ 374,000.00	\$ 386,835.96				
	Total Annual MMBtu Actual	\$ 1,145.08	\$ 1,010.97	\$ 1,101.86	\$ 1,964.60	\$ 3,239.38				
	\$/Annual MMBtu Actual	\$ 215.60	\$ 229.94	\$ 200.68	\$ 190.37	\$ 119.42				



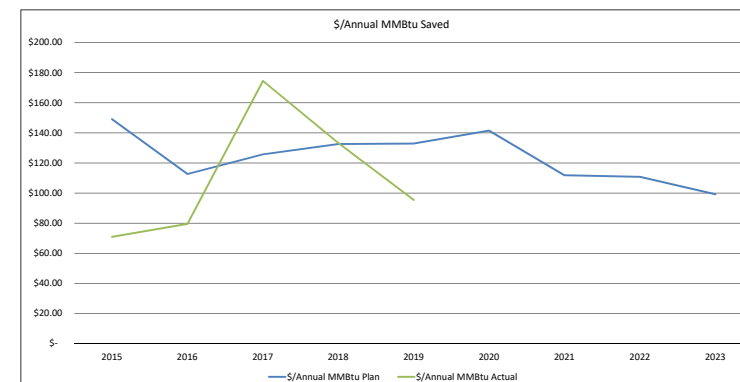
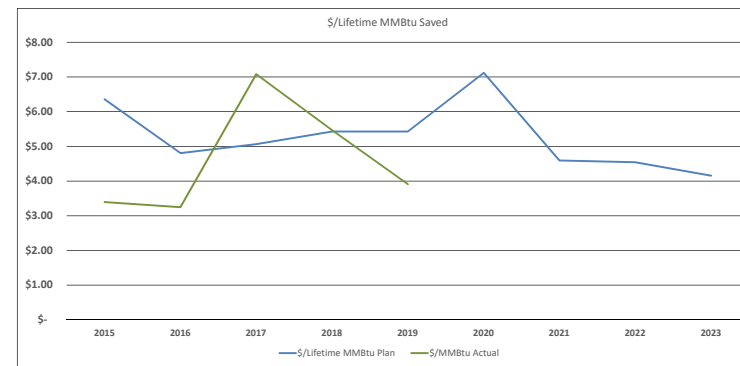
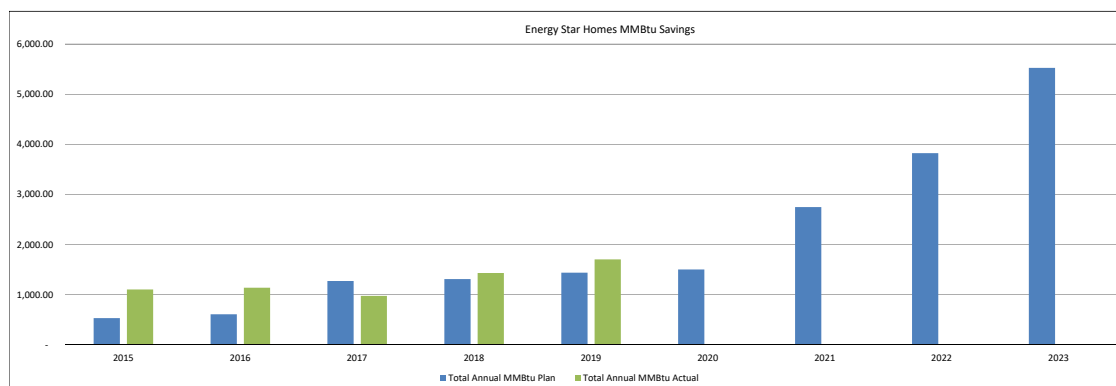
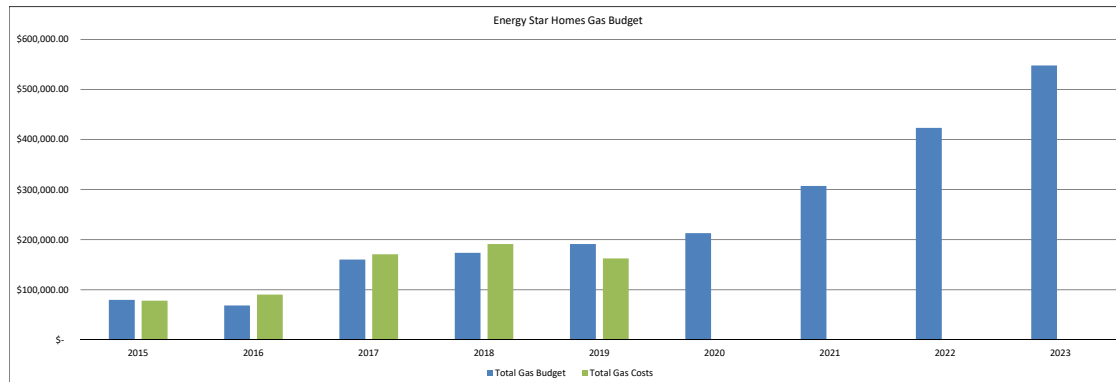
Home Performance w/Energy Star

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 110,000.00	\$ 147,740.00	\$ 136,800.00	\$ 183,000.00	\$ 204,236.93	\$ 222,642.42	\$ 239,330.00	\$ 289,874.25	\$ 322,364.00
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ 10,800.00	\$ 23,300.00	\$ 24,354.00	\$ 20,591.60	\$ 2,376.00	\$ 7,036.63	\$ 2,772.00
2)	Total Gas Budget	\$ 110,000.00	\$ 147,740.00	\$ 136,800.00	\$ 183,000.00	\$ 204,236.93	\$ 222,642.42	\$ 239,330.00	\$ 289,874.25	\$ 322,364.00
	Total Lifetime MMBtu Plan	20,824.99	34,783.42	25,504.00	24,573.30	28,946.40	34,137.18	29,706.11	32,524.40	35,275.48
	\$/Lifetime MMBtu Plan	\$ 5.28	\$ 4.25	\$ 5.36	\$ 7.45	\$ 7.06	\$ 6.52	\$ 8.06	\$ 8.91	\$ -
3)	Total Gas Budget	\$ 110,000.00	\$ 147,740.00	\$ 136,800.00	\$ 183,000.00	\$ 204,236.93	\$ 222,642.42	\$ 239,330.00	\$ 289,874.25	\$ 322,364.00
	Total Annual MMBtu Plan	972.51	1,525.46	1,228.80	1,381.30	1,655.20	1,716.46	1,407.84	1,552.50	1,693.66
	\$/Annual MMBtu Plan	\$ 113.11	\$ 96.85	\$ 111.33	\$ 132.48	\$ 123.39	\$ 129.71	\$ 170.00	\$ 186.71	\$ 190.34
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 95,886.98	\$ 125,902.87	\$ 119,165.42	\$ 204,200.00	\$ 201,021.15				
	Annual Electric Savings Actual (kWh)	-	-	3.27	19.40	17.21				
2)	Total Gas Costs	\$ 95,886.98	\$ 125,902.87	\$ 119,165.42	\$ 204,200.00	\$ 201,021.15				
	Total Lifetime MMBtu Actual	14,511.75	22,180.00	21,156.43	25,814.40	28,383.14				
	\$/Lifetime MMBtu Actual	\$ 6.61	\$ 5.68	\$ 5.63	\$ 7.91	\$ 7.08				
3)	Total Gas Costs	\$ 95,886.98	\$ 125,902.87	\$ 119,165.42	\$ 204,200.00	\$ 201,021.15				
	Total Annual MMBtu Actual	668.83	1,053.80	1,007.09	1,473.70	1,314.25				
	\$/Annual MMBtu Actual	\$ 143.37	\$ 119.48	\$ 118.33	\$ 138.56	\$ 152.96				



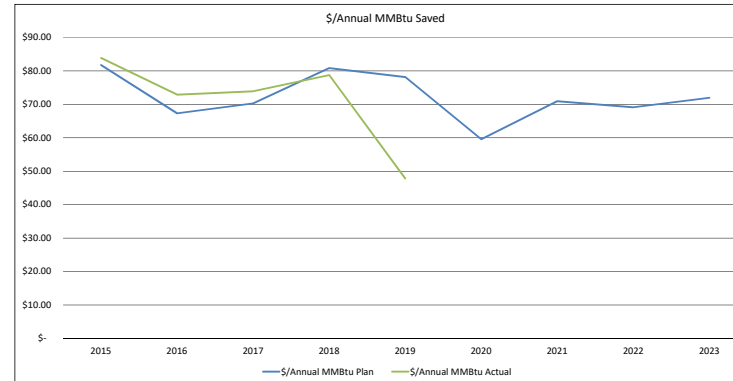
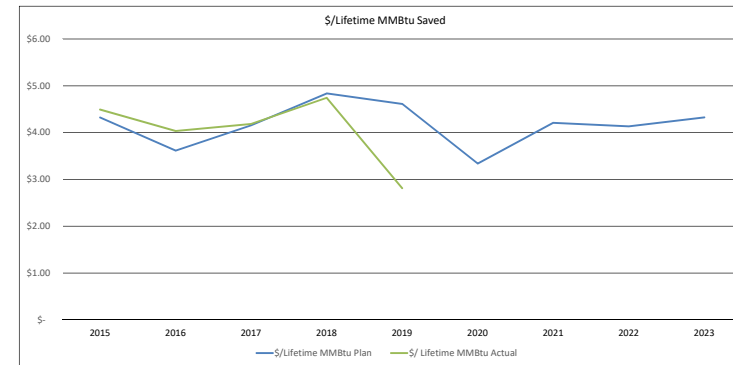
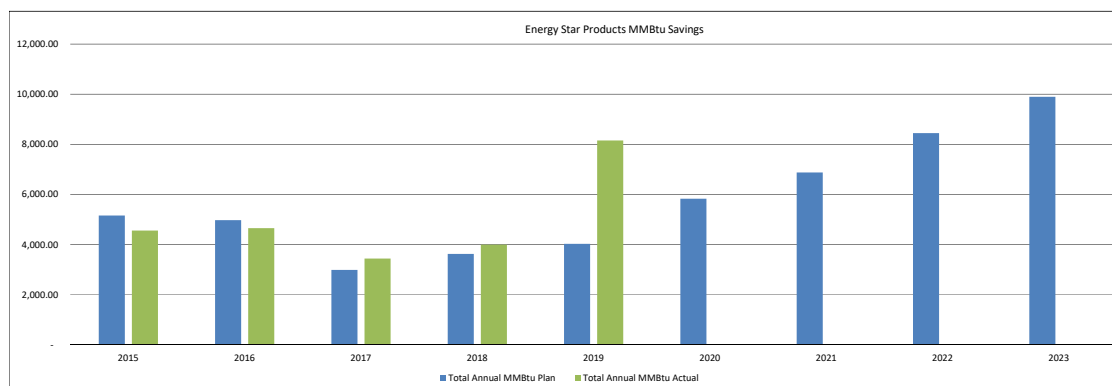
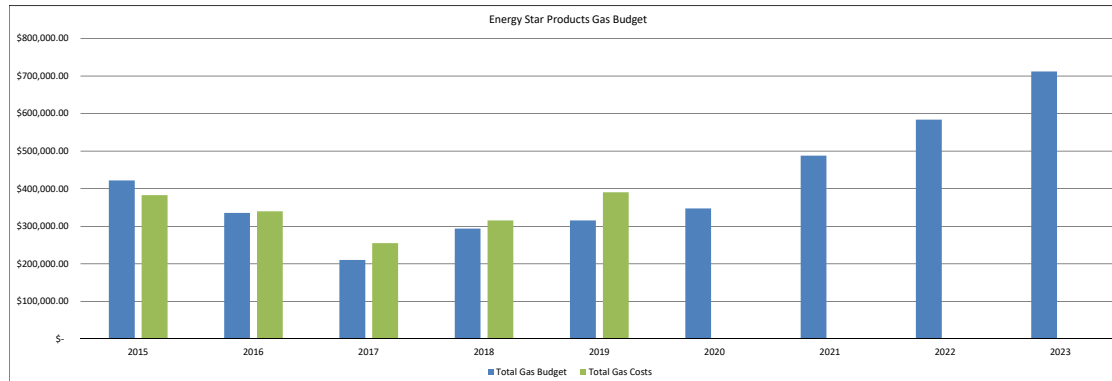
Energy Star Homes

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 80,000.00	\$ 68,750.00	\$ 160,500.00	\$ 174,000.00	\$ 191,400.00	\$ 213,187.00	\$ 307,438.00	\$ 423,477.00	\$ 548,051.55
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ 42,500.00	\$ 7,200.00	\$ 5,443.00	\$ 10,119.24	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ 80,000.00	\$ 68,750.00	\$ 160,500.00	\$ 174,000.00	\$ 191,400.00	\$ 213,187.00	\$ 307,438.00	\$ 423,477.00	\$ 548,051.55
	Total Lifetime MMBtu Plan	12,588.69	14,308.80	31,681.50	32,046.00	35,260.00	29,950.00	66,927.50	93,175.00	131,913.33
	\$/Lifetime MMBtu Plan	\$ 6.35	\$ 4.80	\$ 5.07	\$ 5.43	\$ 5.43	\$ 7.12	\$ 4.59	\$ 4.54	\$ 4.15
3)	Total Gas Budget	\$ 80,000.00	\$ 68,750.00	\$ 160,500.00	\$ 174,000.00	\$ 191,400.00	\$ 213,187.00	\$ 307,438.00	\$ 423,477.00	\$ 548,051.55
	Total Annual MMBtu Plan	536.48	610.00	1,276.50	1,312.50	1,440.50	1,506.50	2,748.50	3,825.00	5,524.42
	\$/Annual MMBtu Plan	\$ 149.12	\$ 112.70	\$ 125.73	\$ 132.57	\$ 132.87	\$ 141.51	\$ 111.86	\$ 110.71	\$ 99.21
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 78,324.02	\$ 90,656.30	\$ 170,911.27	\$ 191,400.00	\$ 162,869.30				
	Annual Electric Savings Actual (kWh)	-	-	65.33	9.20	27.45				
2)	Total Gas Costs	\$ 78,324.02	\$ 90,656.30	\$ 170,911.27	\$ 191,400.00	\$ 162,869.30				
	Total Lifetime MMBtu Actual	23,054.30	27,939.00	24,140.00	35,031.00	41,663.42				
	\$/MMBtu Actual	\$ 3.40	\$ 3.24	\$ 7.08	\$ 5.46	\$ 3.91				
3)	Total Gas Costs	\$ 78,324.02	\$ 90,656.30	\$ 170,911.27	\$ 191,400.00	\$ 162,869.30				
	Total Annual MMBtu Actual	1,104.98	1,141.00	979.00	1,436.10	1,706.18				
	\$/Annual MMBtu Actual	\$ 70.88	\$ 79.45	\$ 174.58	\$ 133.28	\$ 95.46				



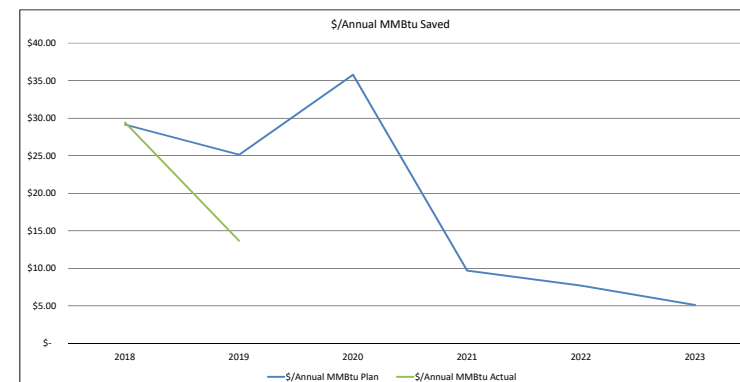
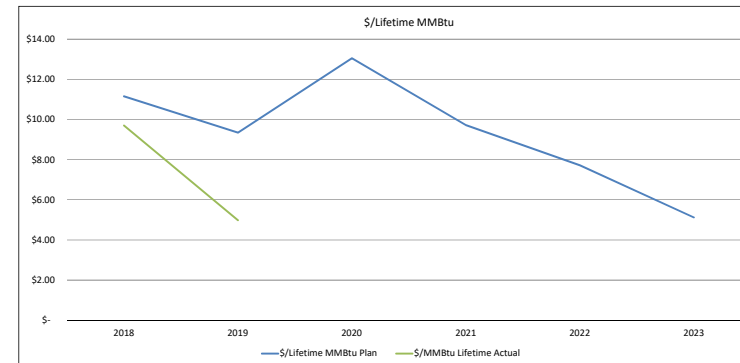
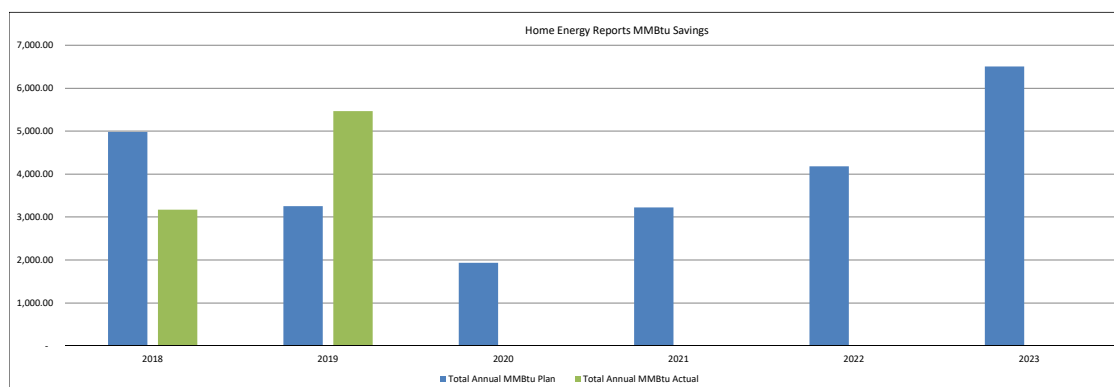
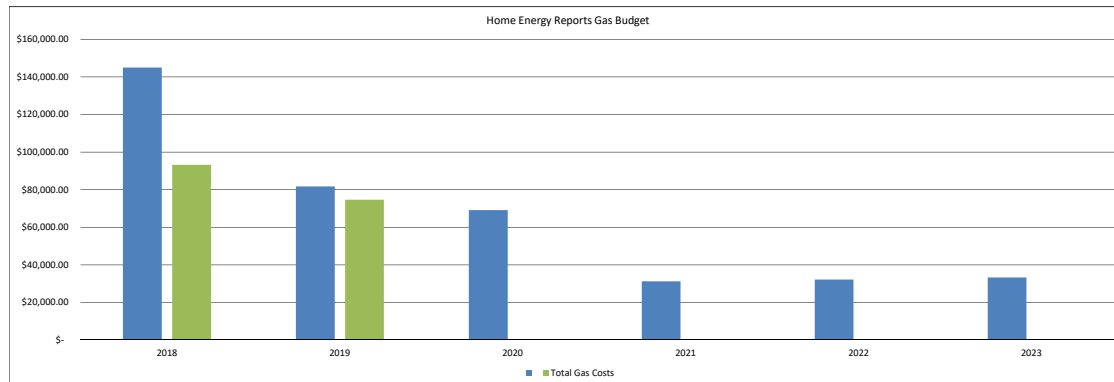
Energy Star Products

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 421,694.96	\$ 335,242.65	\$ 210,000.00	\$ 293,600.00	\$ 315,235.70	\$ 347,114.00	\$ 488,013.00	\$ 583,827.00	\$ 712,320.00
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ 18,500.00	\$ 17,000.00	\$ 22,628.00	\$ 12,455.00	\$ (4,371.00)	\$ (4,894.10)	\$ (4,300.00)
2)	Total Gas Budget	\$ 421,694.96	\$ 335,242.65	\$ 210,000.00	\$ 293,600.00	\$ 315,235.70	\$ 347,114.00	\$ 488,013.00	\$ 583,827.00	\$ 712,320.00
	Total Lifetime MMBtu Plan	\$ 97,573.24	\$ 92,742.44	\$ 50,524.90	\$ 60,691.60	\$ 68,316.20	\$ 103,963.60	\$ 115,934.50	\$ 141,210.98	\$ 164,719.66
	\$/Lifetime MMBtu Plan	\$ 4.32	\$ 3.61	\$ 4.16	\$ 4.84	\$ 4.61	\$ 3.34	\$ 4.21	\$ 4.13	\$ 4.32
3)	Total Gas Budget	\$ 421,694.96	\$ 335,242.65	\$ 210,000.00	\$ 293,600.00	\$ 315,235.70	\$ 347,114.00	\$ 488,013.00	\$ 583,827.00	\$ 712,320.00
	Total Annual MMBtu Plan	\$ 5,157.75	\$ 4,977.47	\$ 2,987.70	\$ 3,629.40	\$ 4,032.40	\$ 5,826.80	\$ 6,875.80	\$ 8,445.43	\$ 9,894.23
	\$/Annual MMBtu Plan	\$ 81.76	\$ 67.35	\$ 70.29	\$ 80.89	\$ 78.18	\$ 59.57	\$ 70.98	\$ 69.13	\$ 71.99
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 382,505.12	\$ 339,472.62	\$ 254,638.91	\$ 315,200.00	\$ 390,115.90				
	Annual Electric Savings Actual (kWh)	\$ -	\$ -	\$ -	\$ -	\$ -				
2)	Total Gas Costs	\$ 382,505.12	\$ 339,472.62	\$ 254,638.91	\$ 315,200.00	\$ 390,115.90				
	Total Lifetime MMBtu Actual	\$ 85,116.50	\$ 84,115.20	\$ 60,838.90	\$ 66,448.60	\$ 138,776.10				
	\$/Lifetime MMBtu Actual	\$ 4.49	\$ 4.04	\$ 4.19	\$ 4.74	\$ 2.81				
3)	Total Gas Costs	\$ 382,505.12	\$ 339,472.62	\$ 254,638.91	\$ 315,200.00	\$ 390,115.90				
	Total Annual MMBtu Actual	\$ 4,559.70	\$ 4,655.70	\$ 3,444.20	\$ 4,000.80	\$ 8,154.30				
	\$/Annual MMBtu Actual	\$ 83.89	\$ 72.92	\$ 73.93	\$ 78.78	\$ 47.84				



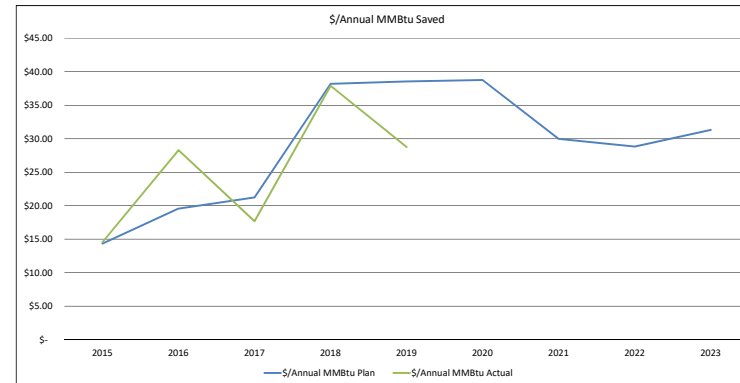
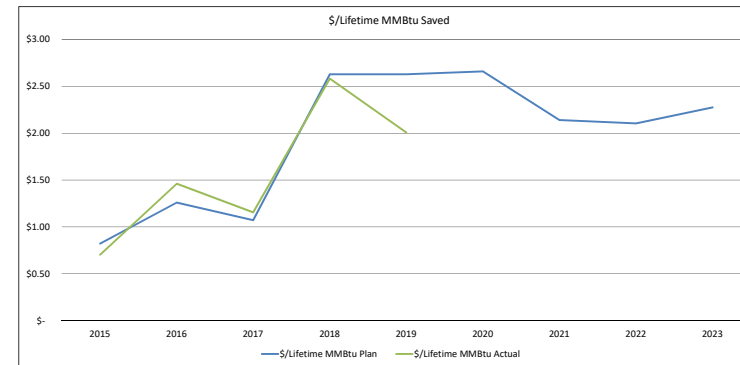
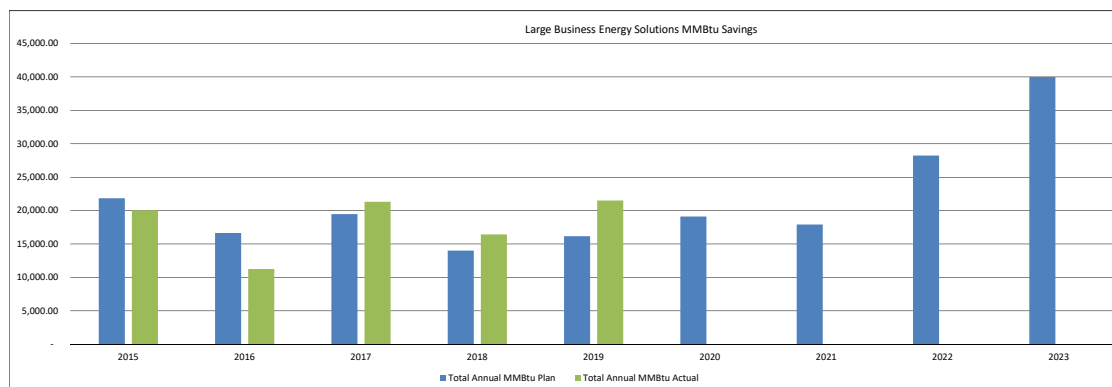
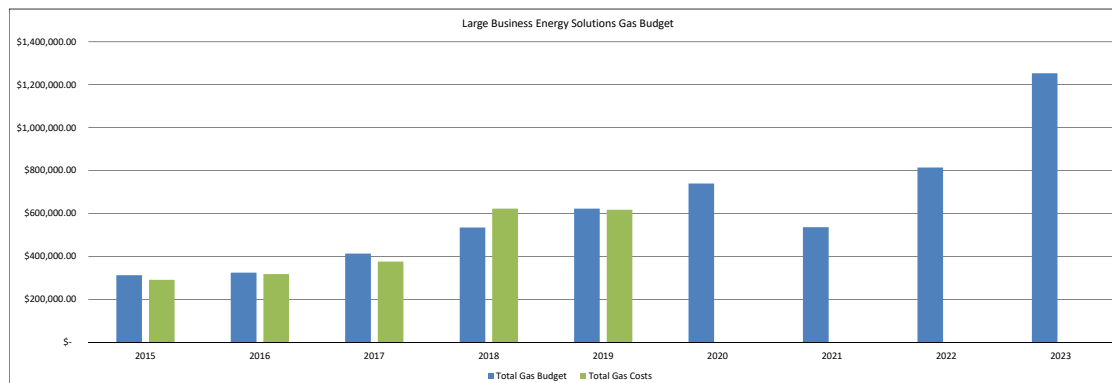
Home Energy Reports

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ -	\$ -	\$ -	\$ 145,100.00	\$ 81,756.00	\$ 69,206.00	\$ 31,300.00	\$ 32,250.00	\$ 33,300.00
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ -	\$ -	\$ -	\$ 145,100.00	\$ 81,756.00	\$ 69,206.00	\$ 31,300.00	\$ 32,250.00	\$ 33,300.00
	Total Lifetime MMBtu Plan	-	-	-	13,010.00	8,745.59	5,304.47	3,221.60	4,177.50	6,500.00
	\$/Lifetime MMBtu Plan	-	-	-	11.15	9.35	13.05	9.72	7.72	5.12
3)	Total Gas Budget	\$ -	\$ -	\$ -	\$ 145,100.00	\$ 81,756.00	\$ 69,206.00	\$ 31,300.00	\$ 32,250.00	\$ 33,300.00
	Total Annual MMBtu Plan	-	-	-	4,980.00	3,252.00	1,934.00	3,221.60	4,177.50	6,500.00
	\$/Annual MMBtu Plan	-	-	-	29.14	25.14	35.78	9.72	7.72	5.12
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ -	\$ -	\$ -	\$ 93,300.00	\$ 74,676.41				
	Annual Electric Savings Actual (kWh)	-	-	-	-	-				
2)	Total Gas Costs	\$ -	\$ -	\$ -	\$ 93,300.00	\$ 74,676.41				
	Total Lifetime MMBtu Actual	-	-	-	9,620.00	14,978.10				
	\$/MMBtu Lifetime Actual	-	-	-	9.70	4.99				
3)	Total Gas Costs	\$ -	\$ -	\$ -	\$ 93,300.00	\$ 74,676.41				
	Total Annual MMBtu Actual	-	-	-	3,170.00	5,461.00				
	\$/Annual MMBtu Actual	-	-	-	29.43	13.67				



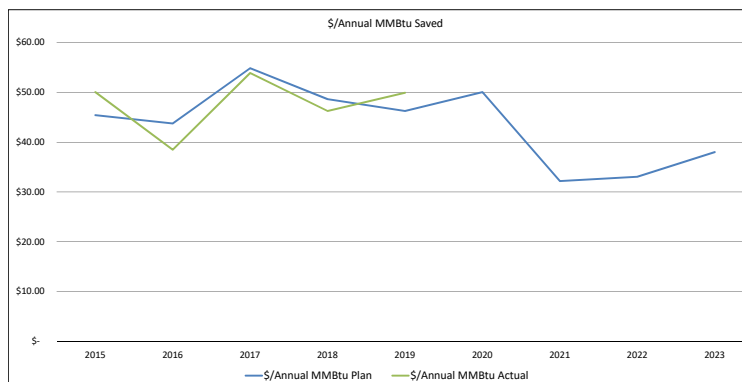
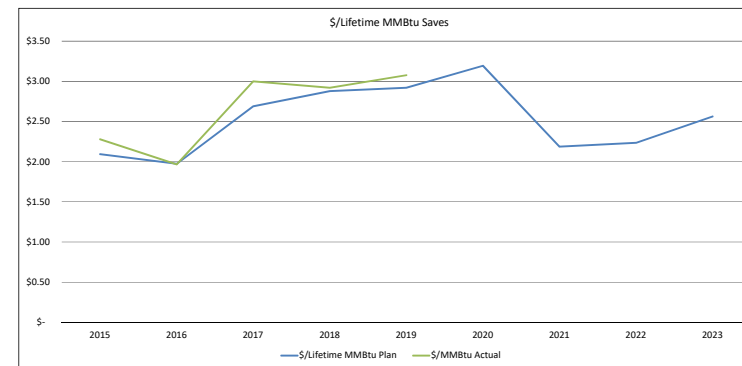
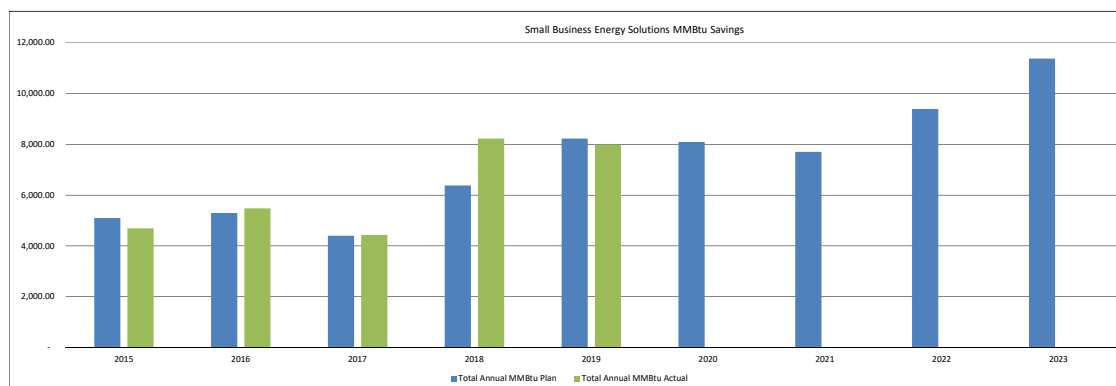
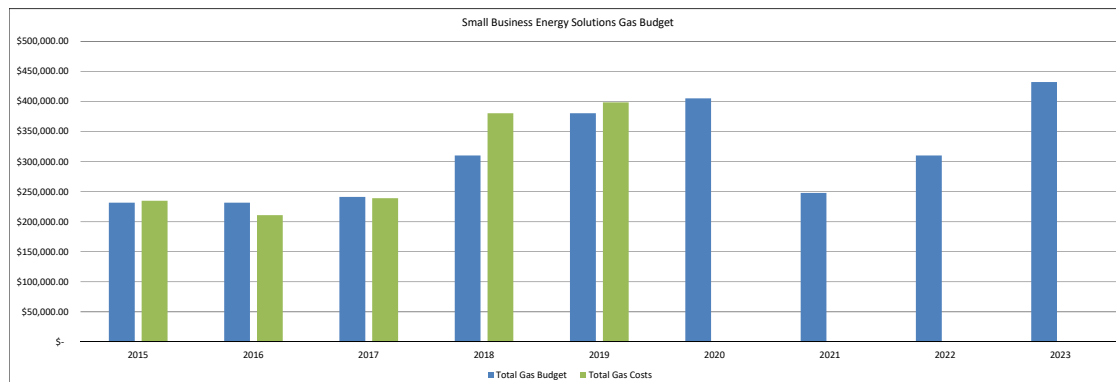
Large Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 313,214.41	\$ 325,307.89	\$ 413,800.00	\$ 535,000.00	\$ 623,034.90	\$ 740,393.00	\$ 536,980.60	\$ 814,979.80	\$ 1,253,396.00
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2)	Total Gas Budget	\$ 313,214.41	\$ 325,307.89	\$ 413,800.00	\$ 535,000.00	\$ 623,034.90	\$ 740,393.00	\$ 536,980.60	\$ 814,979.80	\$ 1,253,396.00
	Total Lifetime MMBtu Plan	\$ 381,065.08	\$ 258,334.09	\$ 385,820.20	\$ 209,586.70	\$ 236,973.53	\$ 278,343.20	\$ 250,837.41	\$ 387,168.52	\$ 550,899.87
	\$/Lifetime MMBtu Plan	\$ 0.82	\$ 1.26	\$ 1.07	\$ 2.63	\$ 2.63	\$ 2.66	\$ 2.14	\$ 2.10	\$ 2.28
3)	Total Gas Budget	\$ 313,214.41	\$ 325,307.89	\$ 413,800.00	\$ 535,000.00	\$ 623,034.90	\$ 740,393.00	\$ 536,980.60	\$ 814,979.80	\$ 1,253,396.00
	Total Annual MMBtu Plan	\$ 21,825.29	\$ 16,625.84	\$ 19,472.30	\$ 14,000.20	\$ 16,150.29	\$ 19,094.24	\$ 17,906.22	\$ 28,239.80	\$ 39,988.22
	\$/Annual MMBtu Plan	\$ 14.35	\$ 19.57	\$ 21.25	\$ 38.21	\$ 38.58	\$ 38.78	\$ 29.99	\$ 28.86	\$ 31.34
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 291,699.33	\$ 318,457.75	\$ 376,625.30	\$ 623,000.00	\$ 618,081.86				
	Annual Electric Savings Actual (kWh)	\$ -	\$ -	\$ -	\$ -	\$ -				
2)	Total Gas Costs	\$ 291,699.33	\$ 318,457.75	\$ 376,625.30	\$ 623,000.00	\$ 618,081.86				
	Total Lifetime MMBtu Actual	\$ 414,162.70	\$ 218,055.92	\$ 325,854.48	\$ 241,209.70	\$ 307,893.58				
	\$/Lifetime MMBtu Actual	\$ 0.70	\$ 1.46	\$ 1.16	\$ 2.58	\$ 2.01				
3)	Total Gas Costs	\$ 291,699.33	\$ 318,457.75	\$ 376,625.30	\$ 623,000.00	\$ 618,081.86				
	Total Annual MMBtu Actual	\$ 20,038.00	\$ 11,251.91	\$ 21,305.39	\$ 16,432.70	\$ 21,486.38				
	\$/Annual MMBtu Actual	\$ 14.56	\$ 28.30	\$ 17.68	\$ 37.91	\$ 28.77				



Small Business Energy Solutions

Planned		2015	2016	2017	2018	2019	2020	2021	2022	2023
1)	Total Gas Budget	\$ 231,722.47	\$ 231,722.47	\$ 241,500.00	\$ 310,300.00	\$ 380,546.00	\$ 405,248.00	\$ 248,024.80	\$ 310,213.00	\$ 432,392.25
	Annual Electric Savings Plan (kWh)	\$ -	\$ -	\$ -	\$ 1,500.00	\$ 1,512.00	\$ 1,905.96	\$ 497.20	\$ 621.50	\$ -
2)	Total Gas Budget	\$ 231,722.47	\$ 231,722.47	\$ 241,500.00	\$ 310,300.00	\$ 380,546.00	\$ 405,248.00	\$ 248,024.80	\$ 310,213.00	\$ 432,392.25
	Total Lifetime MMBtu Plan	110,728.17	117,452.34	89,832.30	107,870.90	130,383.66	126,923.40	113,428.81	138,813.82	168,676.66
	\$/Lifetime MMBtu Plan	\$ 2.09	\$ 1.97	\$ 2.69	\$ 2.88	\$ 2.92	\$ 3.19	\$ 2.19	\$ 2.23	\$ 2.56
3)	Total Gas Budget	\$ 231,722.47	\$ 231,722.47	\$ 241,500.00	\$ 310,300.00	\$ 380,546.00	\$ 405,248.00	\$ 248,024.80	\$ 310,213.00	\$ 432,392.25
	Total Annual MMBtu Plan	5,102.50	5,296.72	4,403.60	6,380.90	8,229.14	8,096.40	7,705.50	9,391.12	11,376.70
	\$/Annual MMBtu Plan	\$ 45.41	\$ 43.75	\$ 54.84	\$ 48.63	\$ 46.24	\$ 50.05	\$ 32.19	\$ 33.03	\$ 38.01
Actuals		2015	2016	2017	2018	2019				
1)	Total Gas Costs	\$ 234,948.98	\$ 210,948.60	\$ 239,187.58	\$ 380,500.00	\$ 398,639.86				
	Annual Electric Savings Actual (kWh)	-	-	-	-	-				
2)	Total Gas Costs	\$ 234,948.98	\$ 210,948.60	\$ 239,187.58	\$ 380,500.00	\$ 398,639.86				
	Total Lifetime MMBtu Actual	103,109.60	107,297.74	79,748.31	130,383.70	129,608.20				
	\$/MMBtu Actual	\$ 2.28	\$ 1.97	\$ 3.00	\$ 2.92	\$ 3.08				
3)	Total Gas Costs	\$ 234,948.98	\$ 210,948.60	\$ 239,187.58	\$ 380,500.00	\$ 398,639.86				
	Total Annual MMBtu Actual	4,694.80	5,482.74	4,439.84	8,229.10	7,988.66				
	\$/Annual MMBtu Actual	\$ 50.04	\$ 38.48	\$ 53.87	\$ 46.24	\$ 49.90				



Northern Utilities, Inc. Calculation of Lost Revenue Rate (LRR)					
Line	Sector	Effective			Reference
		November 1, 2020	November 1, 2021	November 1, 2022	
Residential Classes- R5, R6, R10, R11					
1	Sector Ending Balance-October 31	\$ 98,805	\$ 431	\$ 809	Page 2, Ln 2
2	Lost Distribution Revenue-November through October	345,400	462,632	612,432	Page 2, Ln 4, Total
3	Interest- November through October	(842)	(2,528)	(3,339)	Page 2, Ln 17, Total
4	Total to be recovered	\$ 443,362	\$ 460,535	\$ 609,902	Line 1 + Line 2 + Line 3
5	Sector Sales - Therms- November through October	<u>20,133,234</u>	<u>20,341,869</u>	<u>20,727,239</u>	Page 2, Line 7
6	Lost Revenue Rate (\$ per therm)	\$0.0220	\$0.0226	\$0.0294	Line 4 / Line 5
Commercial & Industrial Classes-G40/T40, G50/T50, G41/T41, G51/T51, G42/T42, G-52/T52					
7	Sector Ending Balance-October 31	(5,831)	(1,934)	(2,482)	Page 2, Ln 21
8	Lost Distribution Revenue-November through October	\$ 161,633	\$ 206,762	\$ 271,334	Page 2, Ln 24, Total
9	Interest- November through October	\$ (396)	\$ (436)	\$ (524)	Page 2, Ln 37, Total
10	Total to be recovered	\$ 155,406	\$ 204,391	\$ 268,328	Line 7 + Line 8 + Line 9
11	Sector Sales - Therms- November through October	<u>52,446,710</u>	<u>54,440,281</u>	<u>55,734,520</u>	Page 2, Line 27
12	Lost Revenue Rate (\$ per therm)	\$0.0030	\$0.0038	\$0.0048	Line 10 / Line 11

Northern Utilities, Inc.
Lost Revenue Reconciliation
2020

Line	Sector / Description	Unit	Actual Nov-19	Actual Dec-19	Estimate Jan-20	Estimate Feb-20	Estimate Mar-20	Estimate Apr-20	Estimate May-20	Estimate Jun-20	Estimate Jul-20	Estimate Aug-20	Estimate Sep-20	Estimate Oct-20	Total
1	RESIDENTIAL														
2	Beginning Balance - (Over)/Under	\$'s	\$ 51,276	\$ 58,859	\$ 47,805	\$ 33,086	\$ 18,072	\$ 8,767	\$ 9,173	\$ 13,589	\$ 27,557	\$ 44,192	\$ 62,340	\$ 80,938	
3	COSTS														
4	Lost Distribution Revenue	\$'s	\$ 20,120	\$ 20,120	\$ 20,348	\$ 20,726	\$ 21,180	\$ 21,709	\$ 19,640	\$ 20,442	\$ 21,310	\$ 21,777	\$ 22,712	\$ 23,380	\$ 253,465
5															
6	REVENUE														
7	Sector Sales	Therms	1,373,589	2,755,471	3,086,303	3,143,380	2,678,854	1,871,517	1,339,252	574,945	418,712	331,195	377,676	505,288	18,456,181
8	Lost Revenue Rate	\$/Therm	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	<u>\$0.0114</u>	
9	Revenue	\$'s	\$ 12,774	\$ 31,411	\$ 35,229	\$ 35,836	\$ 30,539	\$ 21,338	\$ 15,270	\$ 6,554	\$ 4,773	\$ 3,776	\$ 4,306	\$ 5,760	\$ 207,566
10															
11	(Over)/Under-Recovery (Exc interest)		\$ 58,622	\$ 47,568	\$ 32,924	\$ 17,976	\$ 8,713	\$ 9,138	\$ 13,543	\$ 27,477	\$ 44,093	\$ 62,194	\$ 80,747	\$ 98,558	
12															
13	INTEREST														
14	Average Monthly Balance		\$ 54,949	\$ 53,213	\$ 40,364	\$ 25,531	\$ 13,393	\$ 8,952	\$ 11,358	\$ 20,533	\$ 35,825	\$ 53,193	\$ 71,544	\$ 89,748	
15	Interest Rate-WSJ Prime Rate	Annual %	5.25%	5.25%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	3.25%	3.25%	3.25%	3.25%	
16	Days per Month		<u>30</u>	<u>31</u>	<u>31</u>	<u>29</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>31</u>	<u>31</u>	<u>30</u>	366
17	Computed Interest	\$'s	\$ 237	\$ 237	\$ 162	\$ 96	\$ 54	\$ 35	\$ 46	\$ 80	\$ 99	\$ 146	\$ 191	\$ 247	\$ 1,630
18															
19	Ending Balance	\$'s	\$ 58,859	\$ 47,805	\$ 33,086	\$ 18,072	\$ 8,767	\$ 9,173	\$ 13,589	\$ 27,557	\$ 44,192	\$ 62,340	\$ 80,938	\$ 98,805	
20	COMMERCIAL & INDUSTRIAL														
21	Beginning Balance - (Over)/Under	\$'s	\$ (27,418)	\$ (24,343)	\$ (25,195)	\$ (27,303)	\$ (29,281)	\$ (29,268)	\$ (25,626)	\$ (24,861)	\$ (21,939)	\$ (18,150)	\$ (13,999)	\$ (9,598)	
22															
23	COSTS														
24	Lost Distribution Revenue	\$'s	\$ 11,295	\$ 11,413	\$ 11,624	\$ 11,804	\$ 12,075	\$ 12,391	\$ 7,558	\$ 7,694	\$ 7,884	\$ 8,183	\$ 8,509	\$ 8,862	\$ 119,293
25															
26	REVENUE														
27	Sector Sales	Therms	4,571,040	6,397,368	7,174,996	7,197,471	6,286,658	4,548,589	3,522,410	2,463,920	2,125,963	2,099,142	2,145,572	2,670,168	51,203,298
28	Lost Revenue Rate	\$/Therm	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	<u>\$0.0019</u>	
29	Revenue	\$'s	\$ 8,108	\$ 12,155	\$ 13,627	\$ 13,675	\$ 11,945	\$ 8,643	\$ 6,692	\$ 4,682	\$ 4,039	\$ 3,988	\$ 4,077	\$ 5,073	\$ 96,704
30															
31	(Over)/Under-Recovery (Exc interest)	\$'s	\$ (24,231)	\$ (25,084)	\$ (27,198)	\$ (29,175)	\$ (29,151)	\$ (25,519)	\$ (24,760)	\$ (21,849)	\$ (18,095)	\$ (13,955)	\$ (9,567)	\$ (5,810)	
32															
33	INTEREST														
34	Average Monthly Balance		\$ (25,825)	\$ (24,714)	\$ (26,196)	\$ (28,239)	\$ (29,216)	\$ (27,394)	\$ (25,193)	\$ (23,355)	\$ (20,017)	\$ (16,052)	\$ (11,783)	\$ (7,704)	
35	Interest Rate-WSJ Prime Rate	Annual %	5.25%	5.25%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	3.25%	3.25%	3.25%	3.25%	
36	Days per Month		<u>30</u>	<u>31</u>	<u>31</u>	<u>29</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>31</u>	<u>30</u>	<u>31</u>	366
37	Computed Interest	\$'s	\$ (111)	\$ (110)	\$ (105)	\$ (106)	\$ (118)	\$ (107)	\$ (101)	\$ (91)	\$ (55)	\$ (44)	\$ (31)	\$ (21)	\$ (1,002)
38															
39	Ending Balance	\$'s	\$ (24,343)	\$ (25,195)	\$ (27,303)	\$ (29,281)	\$ (29,268)	\$ (25,626)	\$ (24,861)	\$ (21,939)	\$ (18,150)	\$ (13,999)	\$ (9,598)	\$ (5,831)	

NOTES:
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Northern Utilities, Inc.
 Lost Revenue Reconciliation
 2021

Line	Sector / Description	Unit	Estimate Nov-20	Estimate Dec-20	Estimate Jan-21	Estimate Feb-21	Estimate Mar-21	Estimate Apr-21	Estimate May-21	Estimate Jun-21	Estimate Jul-21	Estimate Aug-21	Estimate Sep-21	Estimate Oct-21	Total
1	RESIDENTIAL														
2	Beginning Balance - (Over)/Under	\$'s	\$ 98,805	\$ 93,400	\$ 60,767	\$ 14,595	\$ (39,914)	\$ (80,739)	\$ (98,243)	\$ (98,347)	\$ (84,422)	\$ (64,421)	\$ (42,425)	\$ (19,968)	
3	COSTS														
4	Lost Distribution Revenue	\$'s	\$ 27,078	\$ 27,683	\$ 27,971	\$ 28,452	\$ 29,029	\$ 29,702	\$ 26,827	\$ 27,846	\$ 28,950	\$ 29,545	\$ 30,734	\$ 31,583	\$345,400
5															
6	REVENUE														
7	Sector Sales	Therms	1,488,092	2,751,261	3,374,845	3,769,530	3,167,624	2,134,862	1,211,836	621,702	397,455	336,440	372,462	507,126	20,133,234
8	Lost Revenue Rate	\$/Therm	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	\$0.0220	
9	Revenue	\$'s	\$ 32,738	\$ 60,528	\$ 74,247	\$ 82,930	\$ 69,688	\$ 46,967	\$ 26,660	\$ 13,677	\$ 8,744	\$ 7,402	\$ 8,194	\$ 11,157	442,931
10															
11	(Over)/Under-Recovery (Exc interest)	\$	\$ 93,144	\$ 60,555	\$ 14,491	\$ (39,883)	\$ (80,573)	\$ (98,004)	\$ (98,076)	\$ (84,178)	\$ (64,216)	\$ (42,278)	\$ (19,885)	\$ 458	
12															
13	INTEREST														
14	Average Monthly Balance		\$ 95,975	\$ 76,978	\$ 37,629	\$ (12,644)	\$ (60,243)	\$ (89,372)	\$ (98,159)	\$ (91,263)	\$ (74,319)	\$ (53,349)	\$ (31,155)	\$ (9,755)	
15	Interest Rate-WSJ Prime Rate	Annual %	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
16	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
17	Computed Interest	\$'s	\$ 256	\$ 212	\$ 104	\$ (32)	\$ (166)	\$ (239)	\$ (271)	\$ (244)	\$ (205)	\$ (147)	\$ (83)	\$ (27)	\$ (842)
18															
19	Ending Balance	\$'s	\$ 93,400	\$ 60,767	\$ 14,595	\$ (39,914)	\$ (80,739)	\$ (98,243)	\$ (98,347)	\$ (84,422)	\$ (64,421)	\$ (42,425)	\$ (19,968)	\$ 431	
20	COMMERCIAL & INDUSTRIAL														
21	Beginning Balance - (Over)/Under	\$'s	\$ (5,831)	\$ (3,380)	\$ (5,094)	\$ (10,486)	\$ (17,146)	\$ (21,435)	\$ (19,827)	\$ (20,298)	\$ (17,388)	\$ (13,428)	\$ (9,296)	\$ (4,974)	
22															
23	COSTS														
24	Lost Distribution Revenue	\$'s	\$ 15,282	\$ 15,960	\$ 16,130	\$ 16,300	\$ 16,555	\$ 16,853	\$ 10,234	\$ 10,362	\$ 10,541	\$ 10,823	\$ 11,130	\$ 11,462	161,633
25															
26	REVENUE														
27	Sector Sales	Therms	4,273,046	5,887,088	7,167,043	7,641,797	6,930,321	5,063,577	3,549,981	2,467,336	2,179,685	2,219,780	2,262,857	2,804,200	52,446,710
28	Lost Revenue Rate	\$/Therm	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	\$0.0030	
29	Revenue	\$'s	\$ 12,819	\$ 17,661	\$ 21,501	\$ 22,925	\$ 20,791	\$ 15,191	\$ 10,650	\$ 7,402	\$ 6,539	\$ 6,659	\$ 6,789	\$ 8,413	157,340
30															
31	(Over)/Under-Recovery (Exc interest)	\$'s	\$ (3,368)	\$ (5,082)	\$ (10,465)	\$ (17,112)	\$ (21,382)	\$ (19,772)	\$ (20,243)	\$ (17,338)	\$ (13,386)	\$ (9,265)	\$ (4,955)	\$ (1,925)	
32															
33	INTEREST														
34	Average Monthly Balance		\$ (4,600)	\$ (4,231)	\$ (7,779)	\$ (13,799)	\$ (19,264)	\$ (20,604)	\$ (20,035)	\$ (18,818)	\$ (15,387)	\$ (11,347)	\$ (7,126)	\$ (3,449)	
35	Interest Rate-WSJ Prime Rate	Annual %	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
36	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
37	Computed Interest	\$'s	\$ (12)	\$ (12)	\$ (21)	\$ (34)	\$ (53)	\$ (55)	\$ (55)	\$ (50)	\$ (42)	\$ (31)	\$ (19)	\$ (10)	\$ (396)
38															
39	Ending Balance	\$'s	\$ (3,380)	\$ (5,094)	\$ (10,486)	\$ (17,146)	\$ (21,435)	\$ (19,827)	\$ (20,298)	\$ (17,388)	\$ (13,428)	\$ (9,296)	\$ (4,974)	\$ (1,934)	

NOTES:

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Northern Utilities, Inc.
 Lost Revenue Reconciliation
 2022

Line	Sector / Description	Unit	Estimate Nov-21	Estimate Dec-21	Estimate Jan-22	Estimate Feb-22	Estimate Mar-22	Estimate Apr-22	Estimate May-22	Estimate Jun-22	Estimate Jul-22	Estimate Aug-22	Estimate Sep-22	Estimate Oct-22	Total
1	RESIDENTIAL														
2	Beginning Balance - (Over)/Under	\$'s	\$ 431	\$ 2,173	\$ (23,065)	\$ (61,488)	\$ (109,295)	\$ (143,221)	\$ (151,774)	\$ (144,157)	\$ (122,046)	\$ (92,815)	\$ (61,475)	\$ (29,397)	
3	COSTS														
4	Lost Distribution Revenue	\$'s	\$ 36,530	\$ 37,300	\$ 37,664	\$ 38,271	\$ 39,000	\$ 39,850	\$ 35,946	\$ 37,233	\$ 38,627	\$ 39,378	\$ 40,880	\$ 41,953	\$462,632
5															
6	REVENUE														
7	Sector Sales	Therms	1,539,490	2,765,843	3,361,516	3,799,359	3,211,440	2,124,312	1,235,437	653,425	402,658	346,257	384,100	518,031	20,341,869
8	Lost Revenue Rate	\$/Therm	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	\$0.0226	
9	Revenue	\$'s	\$ 34,792	\$ 62,508	\$ 75,970	\$ 85,866	\$ 72,579	\$ 48,009	\$ 27,921	\$ 14,767	\$ 9,100	\$ 7,825	\$ 8,681	\$ 11,708	459,726
10															
11	(Over)/Under-Recovery (Exc interest)	\$	\$ 2,169	\$ (23,036)	\$ (61,371)	\$ (109,082)	\$ (142,873)	\$ (151,380)	\$ (143,749)	\$ (121,691)	\$ (92,519)	\$ (61,262)	\$ (29,275)	\$ 849	
12															
13	INTEREST														
14	Average Monthly Balance		\$ 1,300	\$ (10,432)	\$ (42,218)	\$ (85,285)	\$ (126,084)	\$ (147,301)	\$ (147,761)	\$ (132,924)	\$ (107,283)	\$ (77,039)	\$ (45,375)	\$ (14,274)	
15	Interest Rate-WSJ Prime Rate	Annual %	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
16	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
17	Computed Interest	\$'s	\$ 3	\$ (29)	\$ (117)	\$ (213)	\$ (348)	\$ (393)	\$ (408)	\$ (355)	\$ (296)	\$ (213)	\$ (121)	\$ (39)	\$ (2,528)
18															
19	Ending Balance	\$'s	\$ 2,173	\$ (23,065)	\$ (61,488)	\$ (109,295)	\$ (143,221)	\$ (151,774)	\$ (144,157)	\$ (122,046)	\$ (92,815)	\$ (61,475)	\$ (29,397)	\$ 809	
20	COMMERCIAL & INDUSTRIAL														
21	Beginning Balance - (Over)/Under	\$'s	\$ (1,934)	\$ 687	\$ (2,029)	\$ (9,440)	\$ (18,663)	\$ (25,028)	\$ (23,574)	\$ (24,851)	\$ (21,551)	\$ (16,828)	\$ (11,716)	\$ (6,296)	
22															
23	COSTS														
24	Lost Distribution Revenue	\$'s	\$ 19,576	\$ 20,214	\$ 20,464	\$ 20,714	\$ 21,089	\$ 21,527	\$ 13,092	\$ 13,280	\$ 13,543	\$ 13,957	\$ 14,408	\$ 14,896	206,762
25															
26	REVENUE														
27	Sector Sales	Therms	4,461,453	6,033,757	7,331,503	7,868,875	7,209,005	5,265,433	3,763,681	2,610,132	2,307,251	2,317,233	2,358,947	2,913,010	54,440,281
28	Lost Revenue Rate	\$/Therm	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	\$0.0038	
29	Revenue	\$'s	\$ 16,954	\$ 22,928	\$ 27,860	\$ 29,902	\$ 27,394	\$ 20,009	\$ 14,302	\$ 9,919	\$ 8,768	\$ 8,805	\$ 8,964	\$ 11,069	206,873
30															
31	(Over)/Under-Recovery (Exc interest)	\$'s	\$ 688	\$ (2,027)	\$ (9,425)	\$ (18,628)	\$ (24,968)	\$ (23,510)	\$ (24,784)	\$ (21,489)	\$ (16,775)	\$ (11,677)	\$ (6,272)	\$ (2,470)	
32															
33	INTEREST														
34	Average Monthly Balance		\$ (623)	\$ (670)	\$ (5,727)	\$ (14,034)	\$ (21,815)	\$ (24,269)	\$ (24,179)	\$ (23,170)	\$ (19,163)	\$ (14,252)	\$ (8,994)	\$ (4,383)	
35	Interest Rate-WSJ Prime Rate	Annual %	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
36	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	Total 365
37	Computed Interest	\$'s	\$ (2)	\$ (2)	\$ (16)	\$ (35)	\$ (60)	\$ (65)	\$ (67)	\$ (62)	\$ (53)	\$ (39)	\$ (24)	\$ (12)	\$ (436)
38															
39	Ending Balance	\$'s	\$ 687	\$ (2,029)	\$ (9,440)	\$ (18,663)	\$ (25,028)	\$ (23,574)	\$ (24,851)	\$ (21,551)	\$ (16,828)	\$ (11,716)	\$ (6,296)	\$ (2,482)	

NOTES:

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Northern Utilities, Inc.
 Lost Revenue Reconciliation
 2023

Line	Sector / Description	Unit	Estimate Nov-22	Estimate Dec-22	Estimate Jan-23	Estimate Feb-23	Estimate Mar-23	Estimate Apr-23	Estimate May-23	Estimate Jun-23	Estimate Jul-23	Estimate Aug-23	Estimate Sep-23	Estimate Oct-23	Total
1	RESIDENTIAL														
2	Beginning Balance - (Over)/Under	\$'s	\$ 809	\$ 3,017	\$ (30,731)	\$ (81,398)	\$ (142,968)	\$ (188,305)	\$ (200,494)	\$ (190,631)	\$ (161,488)	\$ (122,942)	\$ (81,561)	\$ (39,230)	
3	COSTS														
4	Lost Distribution Revenue	\$'s	\$ 48,473	\$ 49,445	\$ 49,920	\$ 50,712	\$ 51,663	\$ 52,772	\$ 47,587	\$ 49,266	\$ 51,085	\$ 52,064	\$ 54,023	\$ 55,422	\$612,432
5															
6	REVENUE														
7	Sector Sales	Therms	1,573,826	2,828,417	3,416,061	3,809,640	3,283,798	2,191,915	1,264,781	668,473	413,139	353,796	392,198	531,196	20,727,239
8	Lost Revenue Rate	\$/Therm	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	\$0.0294	
9	Revenue	\$'s	\$ 46,270	\$ 83,155	\$ 100,432	\$ 112,003	\$ 96,544	\$ 64,442	\$ 37,185	\$ 19,653	\$ 12,146	\$ 10,402	\$ 11,531	\$ 15,617	609,381
10															
11	(Over)/Under-Recovery (Exc interest)	\$	\$ 3,012	\$ (30,693)	\$ (81,243)	\$ (142,689)	\$ (187,849)	\$ (199,976)	\$ (190,092)	\$ (161,019)	\$ (122,550)	\$ (81,280)	\$ (39,069)	\$ 574	
12															
13	INTEREST														
14	Average Monthly Balance		\$ 1,911	\$ (13,838)	\$ (55,987)	\$ (112,043)	\$ (165,408)	\$ (194,140)	\$ (195,293)	\$ (175,825)	\$ (142,019)	\$ (102,111)	\$ (60,315)	\$ (19,328)	
15	Interest Rate-WSJ Prime Rate	Annual %	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
16	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
17	Computed Interest	\$'s	\$ 5	\$ (38)	\$ (155)	\$ (279)	\$ (457)	\$ (519)	\$ (539)	\$ (470)	\$ (392)	\$ (282)	\$ (161)	\$ (53)	\$ (3,339)
18															
19	Ending Balance	\$'s	\$ 3,017	\$ (30,731)	\$ (81,398)	\$ (142,968)	\$ (188,305)	\$ (200,494)	\$ (190,631)	\$ (161,488)	\$ (122,942)	\$ (81,561)	\$ (39,230)	\$ 521	
20	COMMERCIAL & INDUSTRIAL														
21	Beginning Balance - (Over)/Under	\$'s	\$ (2,482)	\$ 859	\$ (2,884)	\$ (12,316)	\$ (23,781)	\$ (31,876)	\$ (29,685)	\$ (30,858)	\$ (26,128)	\$ (19,491)	\$ (12,360)	\$ (4,767)	
22															
23	COSTS														
24	Lost Distribution Revenue	\$'s	\$ 25,528	\$ 26,465	\$ 26,807	\$ 27,148	\$ 27,660	\$ 28,257	\$ 17,193	\$ 17,450	\$ 17,809	\$ 18,373	\$ 18,989	\$ 19,656	271,334
25															
26	REVENUE														
27	Sector Sales	Therms	4,621,894	6,292,648	7,545,388	8,035,087	7,432,800	5,413,466	3,808,871	2,634,146	2,314,395	2,332,967	2,369,358	2,933,500	55,734,520
28	Lost Revenue Rate	\$/Therm	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	\$0.0048	
29	Revenue	\$'s	\$ 22,185	\$ 30,205	\$ 36,218	\$ 38,568	\$ 35,677	\$ 25,985	\$ 18,283	\$ 12,644	\$ 11,109	\$ 11,198	\$ 11,373	\$ 14,081	267,526
30															
31	(Over)/Under-Recovery (Exc interest)	\$'s	\$ 861	\$ (2,881)	\$ (12,295)	\$ (23,736)	\$ (31,799)	\$ (29,603)	\$ (30,774)	\$ (26,052)	\$ (19,428)	\$ (12,316)	\$ (4,744)	\$ 808	
32															
33	INTEREST														
34	Average Monthly Balance		\$ (810)	\$ (1,011)	\$ (7,589)	\$ (18,026)	\$ (27,790)	\$ (30,739)	\$ (30,230)	\$ (28,455)	\$ (22,778)	\$ (15,903)	\$ (8,552)	\$ (1,979)	
35	Interest Rate-WSJ Prime Rate	Annual %	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	
36	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	Total 365
37	Computed Interest	\$'s	\$ (2)	\$ (3)	\$ (21)	\$ (45)	\$ (77)	\$ (82)	\$ (83)	\$ (76)	\$ (63)	\$ (44)	\$ (23)	\$ (5)	\$ (524)
38															
39	Ending Balance	\$'s	\$ 859	\$ (2,884)	\$ (12,316)	\$ (23,781)	\$ (31,876)	\$ (29,685)	\$ (30,858)	\$ (26,128)	\$ (19,491)	\$ (12,360)	\$ (4,767)	\$ 803	

NOTES:
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Northern Utilities
 Monthly and Cumulative Savings (Therms) and Lost Base Revenue
 November 1, 2019 to October 31, 2020

Northern Utilities Inc.
 NHPUC Docket No. 20-092
 Settlement - Attachment J5
 Page 3 of 6

Line	Description	10/31/2019	Actual Nov-19	Actual Dec-19	Estimate Jan-20	Estimate Feb-20	Estimate Mar-20	Estimate Apr-20	Estimate May-20	Estimate Jun-20	Estimate Jul-20	Estimate Aug-20	Estimate Sep-20	Estimate Oct-20	Period 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	349,140	-	-	3,936	6,560	7,872	9,184	9,184	15,745	17,057	9,184	18,369	13,121	110,213
2	C&I Annualized Savings	616,273	65,423	7,159	10,876	10,876	16,314	19,033	10,876	13,595	19,033	29,910	32,629	35,348	271,073
3	Total		65,423	7,159	14,812	17,437	24,187	28,218	20,061	29,340	36,090	39,094	50,998	48,468	381,286
			Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Period LBR
4	Monthly Residential Savings		-	-	328	547	656	765	765	1,312	1,421	765	1,531	1,093	9,184
5	Cumulative Residential Savings	29,095	29,095	29,095	29,423	29,970	30,626	31,391	32,156	33,468	34,890	35,655	37,186	38,279	391,235
6	Average Residential Distribution Rate		0.6915	0.6915	0.6916	0.6916	0.6916	0.6916	0.6108	0.6108	0.6108	0.6108	0.6108	0.6108	
7	Lost Residential Revenue		\$ 20,120	\$ 20,120	\$ 20,348	\$ 20,726	\$ 21,180	\$ 21,709	\$ 19,640	\$ 20,442	\$ 21,310	\$ 21,777	\$ 22,712	\$ 23,380	\$ 253,465
8	Monthly C&I Savings		5,452	597	906	906	1,360	1,586	906	1,133	1,586	2,492	2,719	2,946	22,589
9	Cumulative C&I Savings	51,356	56,808	57,405	58,311	59,217	60,577	62,163	63,069	64,202	65,788	68,281	71,000	73,946	760,767
10	Average C&I Distribution Rate		0.1988	0.1988	0.1993	0.1993	0.1993	0.1993	0.1198	0.1198	0.1198	0.1198	0.1198	0.1198	
11	Lost C&I Revenue		\$ 11,295	\$ 11,413	\$ 11,624	\$ 11,804	\$ 12,075	\$ 12,391	\$ 7,558	\$ 7,694	\$ 7,884	\$ 8,183	\$ 8,509	\$ 8,862	\$ 119,293
12	Total Lost Revenue		\$ 31,414	\$ 31,533	\$ 31,972	\$ 32,530	\$ 33,255	\$ 34,100	\$ 27,199	\$ 28,136	\$ 29,194	\$ 29,960	\$ 31,221	\$ 32,242	\$ 372,758

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 Line 5: Prior Month Line 5 + Current Month Line 4
 Line 6: Page 5, Line 30, Col. 3; Page 5, Line 30, Col. 3
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 Line 8: Line 2 / 12
 Line 9: Prior Month Line 9 + Current Month Line 8
 Line 10: Page 5, Line 37, Col. 3; Page 5, Line 52, Col. 3
 Line 11: Line 9 x Line 10
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Northern Utilities
 Monthly and Cumulative Savings (Therms) and Lost Base Revenue
 November 1, 2020 to October 31, 2021

Northern Utilities Inc.
 NHPUC Docket No. 20-092
 Settlement - Attachment J5
 Page 3a of 6

Line	Description	10/31/2020	Estimate Nov-20	Estimate Dec-20	Estimate Jan-21	Estimate Feb-21	Estimate Mar-21	Estimate Apr-21	Estimate May-21	Estimate Jun-21	Estimate Jul-21	Estimate Aug-21	Estimate Sep-21	Estimate Oct-21	Period 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	459,352	10,496	10,496	5,006	8,344	10,012	11,681	11,681	20,025	21,694	11,681	23,362	16,687	161,167
2	C&I Annualized Savings	887,347	32,629	40,786	10,245	10,245	15,367	17,928	10,245	12,806	17,928	28,173	30,734	33,295	260,380
3	Total		43,125	51,282	15,251	18,588	25,379	29,609	21,926	32,831	39,622	39,854	54,096	49,983	421,547

			Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Period LBR
4	Monthly Residential Savings		875	875	417	695	834	973	973	1,669	1,808	973	1,947	1,391	13,431
5	Cumulative Residential Savings	38,279	39,154	40,029	40,446	41,141	41,976	42,949	43,922	45,591	47,399	48,372	50,319	51,710	533,009
6	Average Residential Distribution Rate		0.6916	0.6916	0.6916	0.6916	0.6916	0.6916	0.6108	0.6108	0.6108	0.6108	0.6108	0.6108	
7	Lost Residential Revenue		\$ 27,078	\$ 27,683	\$ 27,971	\$ 28,452	\$ 29,029	\$ 29,702	\$ 26,827	\$ 27,846	\$ 28,950	\$ 29,545	\$ 30,734	\$ 31,583	\$ 345,400

8	Monthly C&I Savings		2,719	3,399	854	854	1,281	1,494	854	1,067	1,494	2,348	2,561	2,775	21,698
9	Cumulative C&I Savings	73,946	76,665	80,063	80,917	81,771	83,051	84,546	85,399	86,466	87,960	90,308	92,869	95,644	1,025,661
10	Average C&I Distribution Rate		0.1993	0.1993	0.1993	0.1993	0.1993	0.1993	0.1198	0.1198	0.1198	0.1198	0.1198	0.1198	
11	Lost C&I Revenue		\$ 15,282	\$ 15,960	\$ 16,130	\$ 16,300	\$ 16,555	\$ 16,853	\$ 10,234	\$ 10,362	\$ 10,541	\$ 10,823	\$ 11,130	\$ 11,462	\$ 161,633
12	Total Lost Revenue		\$ 42,360	\$ 43,642	\$ 44,101	\$ 44,752	\$ 45,584	\$ 46,555	\$ 37,061	\$ 38,209	\$ 39,492	\$ 40,368	\$ 41,864	\$ 43,046	\$ 507,033

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 Line 6: Page 5, Line 30, Col. 3; Page 5, Line 30, Col. 3
 Line 7: Line 5 x Line 6
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 Line 9: Prior Month Line 9 + Current Month Line 8
 Line 10: Page 5, Line 37, Col. 3; Page 5, Line 52, Col. 3
 Line 11: Line 9 x Line 10
 Line 12: Line 7 + Line 11

Northern Utilities
 Monthly and Cumulative Savings (Therms) and Lost Base Revenue
 November 1, 2021 to October 31, 2022

Northern Utilities Inc.
 NHPUC Docket No. 20-092
 Settlement - Attachment J5
 Page 3b of 6

Line	Description	10/31/2021	Estimate Nov-21	Estimate Dec-21	Estimate Jan-22	Estimate Feb-22	Estimate Mar-22	Estimate Apr-22	Estimate May-22	Estimate Jun-22	Estimate Jul-22	Estimate Aug-22	Estimate Sep-22	Estimate Oct-22	Period 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	620,519	13,350	13,350	6,322	10,537	12,645	14,752	14,752	25,290	27,397	14,752	29,505	21,075	203,728
2	C&I Annualized Savings	1,147,727	30,734	38,418	15,052	15,052	22,579	26,342	15,052	18,815	26,342	41,394	45,157	48,920	343,857
3	Total		44,084	51,767	21,375	25,590	35,223	41,094	29,805	44,105	53,739	56,146	74,662	69,995	547,585
			Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Period LBR
4	Monthly Residential Savings		1,112	1,112	527	878	1,054	1,229	1,229	2,107	2,283	1,229	2,459	1,756	16,977
5	Cumulative Residential Savings	51,710	52,822	53,935	54,462	55,340	56,394	57,623	58,852	60,960	63,243	64,472	66,931	68,687	713,721
6	Average Residential Distribution Rate		0.6916	0.6916	0.6916	0.6916	0.6916	0.6916	0.6108	0.6108	0.6108	0.6108	0.6108	0.6108	
7	Lost Residential Revenue		\$ 36,530	\$ 37,300	\$ 37,664	\$ 38,271	\$ 39,000	\$ 39,850	\$ 35,946	\$ 37,233	\$ 38,627	\$ 39,378	\$ 40,880	\$ 41,953	\$ 462,632
8	Monthly C&I Savings		2,561	3,201	1,254	1,254	1,882	2,195	1,254	1,568	2,195	3,450	3,763	4,077	28,655
9	Cumulative C&I Savings	95,644	98,205	101,407	102,661	103,915	105,797	107,992	109,246	110,814	113,009	116,459	120,222	124,299	1,314,026
10	Average C&I Distribution Rate		0.1993	0.1993	0.1993	0.1993	0.1993	0.1993	0.1198	0.1198	0.1198	0.1198	0.1198	0.1198	
11	Lost C&I Revenue		\$ 19,576	\$ 20,214	\$ 20,464	\$ 20,714	\$ 21,089	\$ 21,527	\$ 13,092	\$ 13,280	\$ 13,543	\$ 13,957	\$ 14,408	\$ 14,896	\$ 206,762
12	Total Lost Revenue		\$ 56,106	\$ 57,514	\$ 58,128	\$ 58,986	\$ 60,089	\$ 61,377	\$ 49,038	\$ 50,513	\$ 52,171	\$ 53,335	\$ 55,288	\$ 56,849	669,394

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 Line 10: Page 5, Line 37, Col. 3; Page 5, Line 52, Col. 3
 Line 11: Line 9 x Line 10
 Line 12: Line 7 + Line 11

Northern Utilities
 Monthly and Cumulative Savings (Therms) and Lost Base Revenue
 November 1, 2022 to October 31, 2023

Northern Utilities Inc.
 NHPUC Docket No. 20-092
 Settlement - Attachment J5
 Page 3c of 6

Line	Description	10/31/2022	Estimate Nov-22	Estimate Dec-22	Estimate Jan-23	Estimate Feb-23	Estimate Mar-23	Estimate Apr-23	Estimate May-23	Estimate Jun-23	Estimate Jul-23	Estimate Aug-23	Estimate Sep-23	Estimate Oct-23	Period 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	824,247	16,860	16,860	8,247	13,745	16,494	19,243	19,243	32,987	35,736	19,243	38,485	27,489	264,631
2	C&I Annualized Savings	1,491,585	45,157	56,446	20,546	20,546	30,819	35,955	20,546	25,682	35,955	56,501	61,638	66,774	476,567
3	Total		62,017	73,306	28,793	34,291	47,313	55,198	39,789	58,670	71,692	75,744	100,123	94,264	741,198
			Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Period LBR
4	Monthly Residential Savings		1,405	1,405	687	1,145	1,374	1,604	1,604	2,749	2,978	1,604	3,207	2,291	22,053
5	Cumulative Residential Savings	68,687	70,092	71,497	72,184	73,330	74,704	76,308	77,911	80,660	83,638	85,242	88,449	90,740	944,756
6	Average Residential Distribution Rate		0.6916	0.6916	0.6916	0.6916	0.6916	0.6916	0.6108	0.6108	0.6108	0.6108	0.6108	0.6108	
7	Lost Residential Revenue		\$ 48,473	\$ 49,445	\$ 49,920	\$ 50,712	\$ 51,663	\$ 52,772	\$ 47,587	\$ 49,266	\$ 51,085	\$ 52,064	\$ 54,023	\$ 55,422	\$ 612,432
8	Monthly C&I Savings		3,763	4,704	1,712	1,712	2,568	2,996	1,712	2,140	2,996	4,708	5,136	5,565	39,714
9	Cumulative C&I Savings	124,299	128,062	132,766	134,478	136,190	138,758	141,755	143,467	145,607	148,603	153,312	158,448	164,013	1,725,457
10	Average C&I Distribution Rate		0.1993	0.1993	0.1993	0.1993	0.1993	0.1993	0.1198	0.1198	0.1198	0.1198	0.1198	0.1198	
11	Lost C&I Revenue		\$ 25,528	\$ 26,465	\$ 26,807	\$ 27,148	\$ 27,660	\$ 28,257	\$ 17,193	\$ 17,450	\$ 17,809	\$ 18,373	\$ 18,989	\$ 19,656	\$ 271,334
12	Total Lost Revenue		\$ 74,001	\$ 75,910	\$ 76,727	\$ 77,860	\$ 79,323	\$ 81,029	\$ 64,780	\$ 66,716	\$ 68,894	\$ 70,437	\$ 73,012	\$ 75,078	883,766

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**Northern Utilities, Inc.
 Gas Savings for LRR Calculation**

Planned Gas Savings - 2020

	Annual Therms
1. Residential Programs	
2. Home Energy Assistance	21,368
3. EnergyStar Homes	15,065
4. Home Performance w/EnergyStar	17,165
5. EnergyStar Products	58,268
6. Residential Behavior	19,340
7. Residential	131,206
8.	
9. Commercial & Industrial Programs	
10. Large Business Energy Solutions	190,942
11. Small Business Energy Solutions	80,964
12. Education (Gas)	-
13. Commercial & Industrial	271,906

LBR Savings Allocation		Actual Nov-19	Actual Dec-19	Estimate Jan-20	Estimate Feb-20	Estimate Mar-20	Estimate Apr-20	Estimate May-20	Estimate Jun-20	Estimate Jul-20	Estimate Aug-20	Estimate Sep-20	Estimate Oct-20	Estimate Nov-20	Estimate Dec-20	Nov-19 to Oct- 20 Total	Jan-20 to Dec- 20 Total
14. Residential Programs				<u>3.0%</u>	<u>5.0%</u>	<u>6.0%</u>	<u>7.0%</u>	<u>7.0%</u>	<u>12.0%</u>	<u>13.0%</u>	<u>7.0%</u>	<u>14.0%</u>	<u>10.0%</u>	<u>8.0%</u>	<u>8.0%</u>		<u>100.0%</u>
15. Annualized Therms	Therms	0	0	3,936	6,560	7,872	9,184	9,184	15,745	17,057	9,184	18,369	13,121	10,496	10,496	110,213	131,206
16.																	
17. Monthly Incremental	Therms	0	0	328	547	656	765	765	1,312	1,421	765	1,531	1,093	875	875	9,184	10,934
18. Monthly Cumulative	Therms	29,095	29,095	29,423	29,970	30,626	31,391	32,156	33,468	34,890	35,655	37,186	38,279	39,154	40,029	391,235	412,228
19.																	
20. Commercial & Industrial Programs				<u>4.0%</u>	<u>4.0%</u>	<u>6.0%</u>	<u>7.0%</u>	<u>4.0%</u>	<u>5.0%</u>	<u>7.0%</u>	<u>11.0%</u>	<u>12.0%</u>	<u>13.0%</u>	<u>12.0%</u>	<u>15.0%</u>		<u>100.0%</u>
21. Annualized Therms	Therms	65,423	7,159	10,876	10,876	16,314	19,033	10,876	13,595	19,033	29,910	32,629	35,348	32,629	40,786	271,073	271,906
22.																	
23. Monthly Incremental	Therms	5,452	597	906	906	1,360	1,586	906	1,133	1,586	2,492	2,719	2,946	2,719	3,399	22,589	22,659
24. Monthly Cumulative	Therms	56,808	57,405	58,311	59,217	60,577	62,163	63,069	64,202	65,788	68,281	71,000	73,946	76,665	80,063	760,767	803,281

**Northern Utilities, Inc.
Gas Savings for LRR Calculation**

Planned Gas Savings - 2021

	Annual Therms
1. Residential Programs	
2. Home Energy Assistance	24,336
3. EnergyStar Homes	27,485
4. Home Performance w/EnergyStar	14,078
5. EnergyStar Products	68,758
6. Residential Behavior	32,216
7. Residential	166,874
8.	
9. Commercial & Industrial Programs	
10. Large Business Energy Solutions	179,062
11. Small Business Energy Solutions	77,055
12. Education (Gas)	-
13. Commercial & Industrial	256,117

LBR Savings Allocation	Unit	Estimate Nov-20	Estimate Dec-20	Estimate Jan-21	Estimate Feb-21	Estimate Mar-21	Estimate Apr-21	Estimate May-21	Estimate Jun-21	Estimate Jul-21	Estimate Aug-21	Estimate Sep-21	Estimate Oct-21	Estimate Nov-21	Estimate Dec-21	Nov-20 to Oct- 21 Total	Jan-21 to Dec- 21 Total
14. Residential Programs		8.0%	8.0%	3.0%	5.0%	6.0%	7.0%	7.0%	12.0%	13.0%	7.0%	14.0%	10.0%	8.0%	8.0%		100.0%
15. Annualized Therms	Therms	10,496	10,496	5,006	8,344	10,012	11,681	11,681	20,025	21,694	11,681	23,362	16,687	13,350	13,350	161,167	166,874
16.																	
17. Monthly Incremental	Therms	875	875	417	695	834	973	973	1,669	1,808	973	1,947	1,391	1,112	1,112	13,431	13,906
18. Monthly Cumulative	Therms	39,154	40,029	40,446	41,141	41,976	42,949	43,922	45,591	47,399	48,372	50,319	51,710	52,822	53,935	533,009	560,584
19.																	
20. Commercial & Industrial Programs		12.0%	15.0%	4.0%	4.0%	6.0%	7.0%	4.0%	5.0%	7.0%	11.0%	12.0%	13.0%	12.0%	15.0%		100.0%
21. Annualized Therms	Therms	32,629	40,786	10,245	10,245	15,367	17,928	10,245	12,806	17,928	28,173	30,734	33,295	30,734	38,418	260,380	256,117
22.																	
23. Monthly Incremental	Therms	2,719	3,399	854	854	1,281	1,494	854	1,067	1,494	2,348	2,561	2,775	2,561	3,201	21,698	21,343
24. Monthly Cumulative	Therms	76,665	80,063	80,917	81,771	83,051	84,546	85,399	86,466	87,960	90,308	92,869	95,644	98,205	101,407	1,025,661	1,068,543

**Northern Utilities, Inc.
 Gas Savings for LRR Calculation**

Northern Utilities, Inc.
 NHPUC Docket No. 20-092
 Settlement - Attachment J5
 Page 4b of 6

Planned Gas Savings - 2022

	Annual Therms
1. Residential Programs	
2. Home Energy Assistance	30,743
3. EnergyStar Homes	38,250
4. Home Performance w/EnergyStar	15,525
5. EnergyStar Products	84,454
6. Residential Behavior	41,775
7. Residential	210,747
8.	
9. Commercial & Industrial Programs	
10. Large Business Energy Solutions	282,398
11. Small Business Energy Solutions	93,911
12. Education (Gas)	-
13. Commercial & Industrial	376,309

LBR Savings Allocation	Unit	Estimate Nov-21	Estimate Dec-21	Estimate Jan-22	Estimate Feb-22	Estimate Mar-22	Estimate Apr-22	Estimate May-22	Estimate Jun-22	Estimate Jul-22	Estimate Aug-22	Estimate Sep-22	Estimate Oct-22	Estimate Nov-22	Estimate Dec-22	Nov-21 to Oct- 22 Total	Jan-22 to Dec- 22 Total
14. Residential Programs		8.0%	8.0%	3.0%	5.0%	6.0%	7.0%	7.0%	12.0%	13.0%	7.0%	14.0%	10.0%	8.0%	8.0%		100.0%
15. Annualized Therms	Therms	13,350	13,350	6,322	10,537	12,645	14,752	14,752	25,290	27,397	14,752	29,505	21,075	16,860	16,860	203,728	210,747
16.																	
17. Monthly Incremental	Therms	1,112	1,112	527	878	1,054	1,229	1,229	2,107	2,283	1,229	2,459	1,756	1,405	1,405	16,977	17,562
18. Monthly Cumulative	Therms	52,822	53,935	54,462	55,340	56,394	57,623	58,852	60,960	63,243	64,472	66,931	68,687	70,092	71,497	713,721	748,553
19.																	
20. Commercial & Industrial Programs		12.0%	15.0%	4.0%	4.0%	6.0%	7.0%	4.0%	5.0%	7.0%	11.0%	12.0%	13.0%	12.0%	15.0%		100.0%
21. Annualized Therms	Therms	30,734	38,418	15,052	15,052	22,579	26,342	15,052	18,815	26,342	41,394	45,157	48,920	45,157	56,446	343,857	376,309
22.																	
23. Monthly Incremental	Therms	2,561	3,201	1,254	1,254	1,882	2,195	1,254	1,568	2,195	3,450	3,763	4,077	3,763	4,704	28,655	31,359
24. Monthly Cumulative	Therms	98,205	101,407	102,661	103,915	105,797	107,992	109,246	110,814	113,009	116,459	120,222	124,299	128,062	132,766	1,314,026	1,375,241

Northern Utilities, Inc.
Gas Savings for LRR Calculation

Northern Utilities, Inc.
 NHPUC Docket No. 20-092
 Settlement - Attachment J5
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Planned Gas Savings - 2023		Annual
		Therms
1. Residential Programs		
2. Home Energy Assistance		38,771
3. EnergyStar Homes		55,244
4. Home Performance w/EnergyStar		16,937
5. EnergyStar Products		98,942
6. Residential Behavior		65,000
7. Residential		274,894
8.		
9. Commercial & Industrial Programs		
10. Large Business Energy Solutions		399,882
11. Small Business Energy Solutions		113,767
12. Education (Gas)		-
13. Commercial & Industrial		513,649

LBR Savings Allocation		Unit	Estimate Nov-22	Estimate Dec-22	Estimate Jan-23	Estimate Feb-23	Estimate Mar-23	Estimate Apr-23	Estimate May-23	Estimate Jun-23	Estimate Jul-23	Estimate Aug-23	Estimate Sep-23	Estimate Oct-23	Estimate Nov-23	Estimate Dec-23	Nov-22 to Oct- 23 Total	Jan-23 to Dec- 23 Total
14. Residential Programs			8.0%	8.0%	3.0%	5.0%	6.0%	7.0%	7.0%	12.0%	13.0%	7.0%	14.0%	10.0%	8.0%	8.0%		100.0%
15. Annualized Therms	Therms		16,860	16,860	8,247	13,745	16,494	19,243	19,243	32,987	35,736	19,243	38,485	27,489	21,992	21,992	264,631	274,894
16.																		
17. Monthly Incremental	Therms		1,405	1,405	687	1,145	1,374	1,604	1,604	2,749	2,978	1,604	3,207	2,291	1,833	1,833	22,053	22,908
18. Monthly Cumulative	Therms		70,092	71,497	72,184	73,330	74,704	76,308	77,911	80,660	83,638	85,242	88,449	90,740	92,572	94,405	944,756	990,145
19.																		
20. Commercial & Industrial Programs			12.0%	15.0%	4.0%	4.0%	6.0%	7.0%	4.0%	5.0%	7.0%	11.0%	12.0%	13.0%	12.0%	15.0%		100.0%
21. Annualized Therms	Therms		45,157	56,446	20,546	20,546	30,819	35,955	20,546	25,682	35,955	56,501	61,638	66,774	61,638	77,047	476,567	513,649
22.																		
23. Monthly Incremental	Therms		3,763	4,704	1,712	1,712	2,568	2,996	1,712	2,140	2,996	4,708	5,136	5,565	5,136	6,421	39,714	42,804
24. Monthly Cumulative	Therms		128,062	132,766	134,478	136,190	138,758	141,755	143,467	145,607	148,603	153,312	158,448	164,013	169,149	175,570	1,725,457	1,809,348

Northern Utilities, Inc.

Summary of Average Distribution Rate for Lost Revenue

Calculation of Average Distribution Rate for Lost Revenue (Detail)

Line	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	(4) Billing Determinants - Winter First	Excess	(5) Winter Distribution Rates First	Excess	(6) = (4) X (5) Winter Distribution	(7) Billing Determinants - Summer First	Excess	(8) Summer Distribution Rates First	Excess	(9) = (7) X (8) Summer Distribution	
				Therms	Therms	Therms \$/thm	Therms \$/thm	Revenue	Therms	Therms	Therms \$/thm	Therms \$/thm	Revenue	
8	R-5 Residential, Heating	298,631	\$22.20	\$6,629,608	6,478,926	9,001,237	\$ 0.6920	\$ 0.6920	\$10,712,273	2,834,361	443,163	\$ 0.6099	\$ 0.6099	\$1,998,962
9	R-10 Residential Heating, Low Income	8,632	\$8.88	\$76,652	220,721	233,658	\$ 0.6920	\$ 0.6920	\$314,430	76,929	10,603	\$ 0.6099	\$ 0.6099	\$53,386
10	R-6 Residential, Non-Heating	15,334	\$22.20	\$340,415	52,030	102,959	\$ 0.6470	\$ 0.6470	\$100,278	50,338	31,354	\$ 0.6470	\$ 0.6470	\$52,855
11	Total Residential Service	322,597		\$7,046,675	6,751,677	9,337,854		\$11,126,981	2,961,628		485,120			\$2,105,202
13	G-40 Low Annual, High Winter Use	60,426	\$75.09	\$4,537,388	1,992,261	7,546,425	\$ 0.1865	\$ 0.1865	\$1,778,965	764,224	873,989	\$ 0.1865	\$ 0.1865	\$305,527
14	G-50 Low Annual, Low Winter Use	9,931	\$75.09	\$745,719	222,671	971,369	\$ 0.1865	\$ 0.1865	\$222,688	215,924	504,561	\$ 0.1865	\$ 0.1865	\$134,370
15	G-41 Medium Annual, High Winter Use	8,238	\$222.64	\$1,834,108	11,812,715		\$ 0.2425	\$2,864,583	2,550,957			\$ 0.1895		\$483,406
16	G-51 Medium Annual, Low Winter Use	3,357	\$222.64	\$747,402	1,848,039	1,299,553	\$ 0.1712	\$ 0.1399	\$498,192	1,394,554	800,973	\$ 0.1337	\$ 0.1087	\$273,518
17	G-42 High Annual, High Winter Use	377	\$1,335.81	\$503,600	4,461,198		\$ 0.1984	\$885,102	1,555,205			\$ 0.1206		\$187,558
18	G-52 High Annual, Low Winter Use	395	\$1,335.81	\$527,645	8,729,046		\$ 0.1720	\$1,501,396	8,525,494			\$ 0.0792		\$675,219
19	Total General Service	82,724		\$8,895,863	29,065,930	9,817,347		\$7,750,926	15,006,358		2,179,523			\$2,059,598
20														
21	Total Company	405,321		\$15,942,538	35,817,607	19,155,201		\$18,877,907	17,967,986		2,664,643			\$4,164,800

Notes:

Column (1), Column (4) and Column (7): 2018 actual billing determinants.

Column (2), Column (5) and Column (8): Winter and Summer distribution rates effective May 1, 2019.

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 Revenue	Total Volumetric Revenue	Total Distribution Revenue	Total Annual Therms
R-5	\$6,629,608	\$12,711,235	\$19,340,843	18,757,687
R-10	\$76,652	\$367,816	\$444,468	541,911
R-6	\$340,415	\$153,133	\$493,547	236,681
Total Residential Service	\$7,046,675	\$13,232,183	\$20,278,858	19,536,279
G-40	\$4,537,388	\$2,084,492	\$6,621,880	11,176,899
G-50	\$745,719	\$357,059	\$1,102,778	1,914,525
G-41	\$1,834,108	\$3,347,990	\$5,182,098	14,363,672
G-51	\$747,402	\$771,709	\$1,519,112	5,343,119
G-42	\$503,600	\$1,072,659	\$1,576,260	6,016,403
G-52	\$527,645	\$2,176,615	\$2,704,260	17,254,540
Total General Service	\$8,895,863	\$9,810,524	\$18,706,387	56,069,158
Total Company	\$15,942,538	\$23,042,707	\$38,985,246	75,605,437

Based on Actual Billing Determinants for 2019 at Current Distribution Rates- Winter

	(1) Total Volumetric Revenue	(2) Total Winter therms	(3)=(1)X(2) Average Distribution Rate \$/therm
R-5	\$10,712,273	15,480,163	\$0.6920
R-10	\$314,430	454,379	\$0.6920
R-6	\$100,278	154,989	\$0.6470
Total Residential Service	\$11,126,981	16,089,531	\$0.6916
G-40	\$1,778,965	9,538,686	\$0.1865
G-50	\$222,688	1,194,040	\$0.1865
G-41	\$2,864,583	11,812,715	\$0.2425
G-51	\$498,192	3,147,592	\$0.1583
G-42	\$885,102	4,461,198	\$0.1984
G-52	\$1,501,396	8,729,046	\$0.1720
Total General Service	\$7,750,926	38,883,277	\$0.1993

Based on Actual Billing Determinants for 2019 at Current Distribution Rates- Summer

	(1) Total Volumetric Revenue	(2) Total Summer therms	(3)=(1)X(2) Average Distribution Rate \$/therm
R-5	\$1,998,962	3,277,524	\$0.6099
R-10	\$53,386	87,532	\$0.6099
R-6	\$52,855	81,692	\$0.6470
Total Residential Service	\$2,105,202	3,446,748	\$0.6108
G-40	\$305,527	1,638,213	\$0.1865
G-50	\$134,370	720,485	\$0.1865
G-41	\$483,406	2,550,957	\$0.1895
G-51	\$273,518	2,195,527	\$0.1246
G-42	\$187,558	1,555,205	\$0.1206
G-52	\$675,219	8,525,494	\$0.0792
Total General Service	\$2,059,598	17,185,881	\$0.1198
Total	\$ 23,042,707	75,605,437	

NORTHERN UTILITIES, INC. - NEW HAMPSHIRE DIVISION
Summary of EEC/LRR Typical Bill Analysis

Energy Efficiency Charge/Lost Revenue Rate (\$/therm)	<u>2019-2020</u>	<u>2020-2021</u>	<u>2021-2022</u>	<u>2022-2023</u>
Residential	\$0.0613	\$0.0994	\$0.0987	\$0.1207
Commercial & Industrial	\$0.0266	\$0.0367	\$0.0508	\$0.0702

<u>Bill per period</u>	<u>Winter</u>	<u>Summer</u>	<u>Winter</u>	<u>Summer</u>	Winter	Summer	Winter	Summer
Residential Heat - R-5	\$965.88	\$253.49	\$989.78	\$258.50	\$989.34	\$258.40	\$1,003.14	\$261.29
Residential Non-Heat - R-6	\$293.77	\$190.71	\$298.54	\$193.02	\$298.45	\$192.98	\$301.21	\$194.32
G-40 Commercial & Industrial	\$1,883.32	\$595.65	\$1,901.21	\$598.63	\$1,926.18	\$602.78	\$1,960.54	\$608.51
G-41 Commercial & Industrial	\$15,873.32	\$3,247.96	\$16,042.98	\$3,287.04	\$16,279.83	\$3,341.59	\$16,605.71	\$3,416.65
G-51 Commercial & Industrial	\$8,115.57	\$4,059.16	\$8,217.05	\$4,135.37	\$8,358.71	\$4,241.77	\$8,553.62	\$4,388.16

Change from prior period - \$ per period

Residential Heat - R-5	\$23.90	\$5.01	(\$0.44)	(\$0.09)	\$13.80	\$2.89
Residential Non-Heat - R-6	\$4.77	\$2.31	(\$0.09)	(\$0.04)	\$2.75	\$1.34
G-40 Commercial & Industrial	\$17.89	\$2.98	\$24.97	\$4.16	\$34.36	\$5.72
G-41 Commercial & Industrial	\$169.66	\$39.08	\$236.85	\$54.55	\$325.88	\$75.06
G-51 Commercial & Industrial	\$101.47	\$76.21	\$141.66	\$106.40	\$194.91	\$146.39

Change from prior period - %

Residential Heat - R-5	2.47%	1.97%	-0.04%	-0.04%	1.39%	1.12%
Residential Non-Heat - R-6	1.62%	1.21%	-0.03%	-0.02%	0.92%	0.69%
G-40 Commercial & Industrial	0.95%	0.50%	1.31%	0.69%	1.78%	0.95%
G-41 Commercial & Industrial	1.07%	1.20%	1.48%	1.66%	2.00%	2.25%
G-51 Commercial & Industrial	1.25%	1.88%	1.72%	2.57%	2.33%	3.45%

PSNH d/b/a Eversource Energy

C&I Savings - New Component for Year 2021

Line	Description	Eversource
1	Gross Annualized kWh Savings	95,034,292
2	Maximum Demand Factor (MDF)	Varies based on measure mix
3	Extended Max. Load Reduction kW	16,917.8
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix
5	Sub-Total Customer Peak kW Reduction	11,536.5
6	% Net to Gross	Varies based on measure mix
7	Sub-Total Customer Peak kW Reduction	10,746.1
8	% In-Service Rate	Varies based on measure mix
9	Sub-Total Customer Peak kW Reduction	10,679.3
10	% kW Realization Rate	Varies based on measure mix
11	Sub-Total Customer Peak kW Reduction	10,654.4
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%
13	Sub-Total Customer Peak kW Reduction	10,654.4
14	% Retirement Adjustment	100.00%
15	Total Customer Peak kW Reduction, Full Year	10,654.4
16	% Annual Savings Achieved in First Year	50.00%
17	Total Customer Peak Red. in First Year	10,210.4
18	Annualized (x12)	127,852
19	Average Distribution Rate (ADR)	\$ 6.46
20	Total C&I kW LBR	\$ 412,886

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)

PSNH d/b/a Eversource Energy
C&I Savings - New Component for Year 2022

Line	Description	Eversource
1	Gross Annualized kWh Savings	114,419,497
2	Maximum Demand Factor (MDF)	Varies based on measure mix
3	Extended Max. Load Reduction kW	19,874.7
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix
5	Sub-Total Customer Peak kW Reduction	13,286.9
6	% Net to Gross	Varies based on measure mix
7	Sub-Total Customer Peak kW Reduction	12,001.4
8	% In-Service Rate	Varies based on measure mix
9	Sub-Total Customer Peak kW Reduction	11,954.3
10	% kW Realization Rate	Varies based on measure mix
11	Sub-Total Customer Peak kW Reduction	11,936.3
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%
13	Sub-Total Customer Peak kW Reduction	11,936.3
14	% Retirement Adjustment	100.00%
15	Total Customer Peak kW Reduction, Full Year	11,936.3
16	% Annual Savings Achieved in First Year	50.00%
17	Total Customer Peak Red. in First Year	11,439.0
18	Annualized (x12)	143,236
19	Average Distribution Rate (ADR)	\$ 6.46
20	Total C&I kW LBR	<u><u>\$ 462,565</u></u>

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)

PSNH d/b/a Eversource Energy

C&I Savings - New Component for Year 2023

Line	Description	Eversource
1	Gross Annualized kWh Savings	136,727,261
2	Maximum Demand Factor (MDF)	Varies based on measure mix
3	Extended Max. Load Reduction kW	23,562.8
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix
5	Sub-Total Customer Peak kW Reduction	15,500.9
6	% Net to Gross	Varies based on measure mix
7	Sub-Total Customer Peak kW Reduction	13,721.4
8	% In-Service Rate	Varies based on measure mix
9	Sub-Total Customer Peak kW Reduction	13,696.9
10	% kW Realization Rate	Varies based on measure mix
11	Sub-Total Customer Peak kW Reduction	13,531.6
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%
13	Sub-Total Customer Peak kW Reduction	13,531.6
14	% Retirement Adjustment	100.00%
15	Total Customer Peak kW Reduction, Full Year	13,531.6
16	% Annual Savings Achieved in First Year	50.00%
17	Total Customer Peak Red. in First Year	12,967.8
18	Annualized (x12)	162,379
19	Average Distribution Rate (ADR)	\$ 6.46
20	Total C&I kW LBR	\$ 524,386

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)

PSNH d/b/a Eversource Energy

Calculation for LBR New Methodology for Year 2021

Line	Description	Residential kWh	Commercial kWh	C&I kW	Total	Reference
Legacy (Measures Installed in 2017 and 2018): (1)						
1	Program Year 2017 LBR Savings (2)	-	-	-		Company Records
2	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.02798	N/A		Attachment E3
3	Sub-Total LBR	\$ -	\$ -	\$ -	\$ -	Line 1 * Line 2
4	Program Year 2018 LBR Savings (2)	7,121,114	38,157,478	-		Company Records
5	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.02798	N/A		Attachment E3
6	Sub-Total LBR	\$ 313,354	\$ 1,067,675	\$ -	\$ 1,381,029	Line 4 * Line 5
7	Sub-Total Legacy Methodology LBR	\$ 313,354	\$ 1,067,675	\$ -	\$ 1,381,029	Line 3 + Line 6
New Methodology (Measures Installed in 2019 and forward): (3)						
8	Program Year 2019 LBR Savings	18,035,905	70,845,870	127,768		Company Records
9	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
10	Sub-Total LBR	\$ 793,642	\$ 794,264	\$ 825,226	\$ 2,413,132	Line 8 * Line 9
11	Program Year 2020 LBR Savings estimated	26,377,578	58,915,156	117,072		Company Forecast
12	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
13	Sub-Total LBR	\$ 1,160,705	\$ 660,507	\$ 756,144	\$ 2,577,356	Line 11 * Line 12
14	Program Year 2021 LBR Savings estimated (annualized)	20,386,259	86,482,629	127,852		Company Forecast
15	Program Year 2021 LBR Savings in 2021	10,193,130	43,241,315	63,926		Company Forecast
16	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
17	Sub-Total LBR	\$ 448,533	\$ 484,785	\$ 412,886	\$ 1,346,204	Line 15 * Line 16
18	Sub-Total New Methodology LBR	\$ 2,402,880	\$ 1,939,556	\$1,994,256	\$ 6,336,692	Line 10 + Line 13 + Line 17
19	Total LBR - Year 2021	\$ 2,716,234	\$ 3,007,231	\$1,994,256	\$ 7,717,721	Line 7 + Line 18

*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 reset as part of DE 19-057 Rate Case
- (3) New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-36 (Order No. 26,095)

PSNH d/b/a Eversource Energy
Calculation for LBR New Methodology for Year 2022

Line	Description	Residential kWh	Commercial kWh	C&I kW	Total	Reference
Legacy (Measures Installed in 2017 and 2018): (1)						
1	Program Year 2017 LBR Savings (2)	-	-	-		Company Records
2	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.02798	N/A		Attachment E3
3	Sub-Total LBR	\$ -	\$ -	\$ -	\$ -	Line 1 * Line 2
4	Program Year 2018 LBR Savings (2)	6,795,031	38,157,478	-		Company Records
5	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.02798	N/A		Attachment E3
6	Sub-Total LBR	\$ 299,005	\$ 1,067,675	\$ -	\$ 1,366,680	Line 4 * Line 5
7	Sub-Total Legacy Methodology LBR	\$ 299,005	\$ 1,067,675	\$ -	\$ 1,366,680	Line 3 + Line 6
New Methodology (Measures Installed in 2019 and forward): (3)						
8	Program Year 2019 LBR Savings	14,909,999	70,845,870	127,768		Company Records
9	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
10	Sub-Total LBR	\$ 656,092	\$ 794,264	\$ 825,226	\$ 2,275,582	Line 8 * Line 9
11	Program Year 2020 LBR Savings estimated	26,377,578	58,915,156	117,072		Company Forecast
12	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
13	Sub-Total LBR	\$ 1,160,705	\$ 660,507	\$ 756,144	\$ 2,577,356	Line 11 * Line 12
14	Program Year 2021 LBR Savings estimated	20,386,259	86,482,629	127,852		Company Forecast
15	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
16	Sub-Total LBR	\$ 897,066	\$ 969,570	\$ 825,771	\$ 2,692,407	Line 14 * Line 15
17	Program Year 2022 LBR Savings estimated (annualized)	16,430,956	101,592,956	143,236		Company Forecast
18	Program Year 2022 LBR Savings in 2022	8,215,478	50,796,478	71,618		Company Forecast
19	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
20	Sub-Total LBR	\$ 361,509	\$ 569,487	\$ 462,565	\$ 1,393,562	Line 18 * Line 19
21	Sub-Total New Methodology LBR	\$ 3,075,372	\$ 2,993,828	\$2,869,707	\$ 8,938,907	Line 10 + Line 13 + Line 16 + Line 20
22	Total LBR - Year 2022	\$ 3,374,377	\$ 4,061,503	\$2,869,707	\$10,305,587	Line 7 + Line 21

*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 reset as part of DE 19-057 Rate Case
- (3) New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-36 (Order No. 26,095)

PSNH d/b/a Eversource Energy

Calculation for LBR New Methodology for Year 2023

Line	Description	Residential kWh	Commercial kWh	C&I kW	Total	Reference
Legacy (Measures Installed in 2017 and 2018): (1)						
1	Program Year 2017 LBR Savings (2)	-	-	-		Company Records
2	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.02798	N/A		Attachment E3
3	Sub-Total LBR	\$ -	\$ -	\$ -	\$ -	Line 1 * Line 2
4	Program Year 2018 LBR Savings (2)	6,684,435	38,157,478	-		Company Records
5	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.02798	N/A		Attachment E3
6	Sub-Total LBR	\$ 294,138	\$ 1,067,675	\$ -	\$ 1,361,814	Line 4 * Line 5
7	Sub-Total Legacy Methodology LBR	\$ 294,138	\$ 1,067,675	\$ -	\$ 1,361,814	Line 3 + Line 6
New Methodology (Measures Installed in 2019 and forward): (3)						
8	Program Year 2019 LBR Savings	13,767,029	70,845,870	127,768		Company Records
9	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
10	Sub-Total LBR	\$ 605,797	\$ 794,264	\$ 825,226	\$ 2,225,287	Line 8 * Line 9
11	Program Year 2020 LBR Savings estimated	26,377,578	58,915,156	117,072		Company Forecast
12	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
13	Sub-Total LBR	\$ 1,160,705	\$ 660,507	\$ 756,144	\$ 2,577,356	Line 11 * Line 12
14	Program Year 2021 LBR Savings estimated	20,386,259	86,482,629	127,852		Company Forecast
15	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
16	Sub-Total LBR	\$ 897,066	\$ 969,570	\$ 825,771	\$ 2,692,407	Line 14 * Line 15
17	Program Year 2022 LBR Savings estimated	16,430,956	101,592,956	143,236		Company Forecast
18	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
19	Sub-Total LBR	\$ 723,019	\$ 1,138,974	\$ 925,130	\$ 2,787,123	Line 17 * Line 18
20	Program Year 2023 LBR Savings estimated (annualized)	16,110,807	118,947,480	162,379		Company Forecast
21	Program Year 2023 LBR Savings in 2023	8,055,404	59,473,740	81,189		Company Forecast
22	Average Distribution Rate (ADR)	\$ 0.04400	\$ 0.01121	\$ 6.46		Attachment E3
23	Sub-Total LBR	\$ 354,466	\$ 666,769	\$ 524,386	\$ 1,545,621	Line 21 * Line 22
24	Sub-Total New Methodology LBR	\$ 3,741,052	\$ 4,230,084	\$3,856,658	\$11,827,794	Line 10 + Line 13 + Line 16 + Line 19 + Line 23
25	Total LBR - Year 2023	\$ 4,035,191	\$ 5,297,759	\$3,856,658	\$13,189,608	Line 7 + Line 24

*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 reset as part of DE 19-057 Rate Case
- (3) New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-36 (Order No. 26,095)

Unitil Energy Systems, Inc.

C&I Savings - New Component for Year 2021

Line	Description	Unitil
1	Gross Annualized kWh Savings	10,520,881
2	Maximum Demand Factor (MDF)	Varies based on measure mix
3	Extended Max. Load Reduction kW	1,396.9
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix
5	Sub-Total Customer Peak kW Reduction	774.2
6	% Net to Gross	Varies based on measure mix
7	Sub-Total Customer Peak kW Reduction	720.5
8	% In-Service Rate	Varies based on measure mix
9	Sub-Total Customer Peak kW Reduction	720.5
10	% kW Realization Rate	Varies based on measure mix
11	Sub-Total Customer Peak kW Reduction	720.5
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%
13	Sub-Total Customer Peak kW Reduction	720.5
14	% Retirement Adjustment	100.00%
15	Total Customer Peak kW Reduction, Full Year	720.5
16	% Annual Savings Achieved in First Year	50%
17	Total Customer Peak Red. in First Year	360.3
18	Annualized (x12)	4,323.2
19	Average Distribution Rate (ADR)	\$ 9.16
20	Total C&I kW LBR	\$ 39,600

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)

Unitil Energy Systems, Inc.

C&I Savings - New Component for Year 2022

Line	Description	Unitil
1	Gross Annualized kWh Savings	12,350,728
2	Maximum Demand Factor (MDF)	Varies based on measure mix
3	Extended Max. Load Reduction kW	1,129.4
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix
5	Sub-Total Customer Peak kW Reduction	568.9
6	% Net to Gross	Varies based on measure mix
7	Sub-Total Customer Peak kW Reduction	520.6
8	% In-Service Rate	Varies based on measure mix
9	Sub-Total Customer Peak kW Reduction	520.6
10	% kW Realization Rate	Varies based on measure mix
11	Sub-Total Customer Peak kW Reduction	520.6
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%
13	Sub-Total Customer Peak kW Reduction	520.6
14	% Retirement Adjustment	100.00%
15	Total Customer Peak kW Reduction, Full Year	520.6
16	% Annual Savings Achieved in First Year	50%
17	Total Customer Peak Red. in First Year	260.3
18	Annualized (x12)	3,123.3
19	Average Distribution Rate (ADR)	\$ 9.16
20	Total C&I kW LBR	\$ 28,609

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)

Unitil Energy Systems, Inc.

C&I Savings - New Component for Year 2023

Line	Description	Unitil
1	Gross Annualized kWh Savings	14,907,607
2	Maximum Demand Factor (MDF)	Varies based on measure mix
3	Extended Max. Load Reduction kW	1,179.4
4	% kW Demand Reduction at Customer Peak	Varies based on measure mix
5	Sub-Total Customer Peak kW Reduction	673.8
6	% Net to Gross	Varies based on measure mix
7	Sub-Total Customer Peak kW Reduction	619.6
8	% In-Service Rate	Varies based on measure mix
9	Sub-Total Customer Peak kW Reduction	619.6
10	% kW Realization Rate	Varies based on measure mix
11	Sub-Total Customer Peak kW Reduction	619.6
12	% Billing Adjustment to Reflect Ratchets (1)	100.00%
13	Sub-Total Customer Peak kW Reduction	619.6
14	% Retirement Adjustment	100.00%
15	Total Customer Peak kW Reduction, Full Year	619.6
16	% Annual Savings Achieved in First Year	50%
17	Total Customer Peak Red. in First Year	309.8
18	Annualized (x12)	3,717.4
19	Average Distribution Rate (ADR)	\$ 9.16
20	Total C&I kW LBR	\$ 34,051

Comments:

Above schedule mirrors the Template recommended by the LBRWG Report (p.6)

DE 20-092
 Calculation of the Estimated LBR for 2021 (cumulative 2017-2021)
 Unitil Energy Systems, Inc.

Description	Residential kWh	Commercial kWh	C&I kW	Total	Reference
Legacy (Measures Installed in 2017 and 2018):	(Note 1)				
1. Program Year 2017 Actual LBR Savings	1,344,216	6,004,884	-	7,349,100	DE 14-216, 2017 Annual Report, P. 3
2. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.03217</u>	-		DE 20-092, Attachment H3 Page 8
3. Sub-Total LBR	\$ 47,827	\$ 193,177	\$ -	\$ 241,004	Line 1 * Line 2
4. Program Year 2018 Actual LBR Savings	(Note 2)				
5. Program Year 2018 Actual Retired LBR Savings	(385,652)	-	-	(385,652)	DE 17-136, 2018 Annual Report, P. 3 DE 17-136, 2019 Annual Report, P. 3
6. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.03217</u>	-		DE 20-092, Attachment H3 Page 8
7. Sub-Total LBR	\$ 88,330	\$ 215,801	\$ -	\$ 304,130	(Line 4 + Line 5) * Line 6
8. Sub-Total Legacy Savings (Measures Installed in 2017 and 2018)	\$ 136,157	\$ 408,978	\$ -	\$ 545,135	Line 3 + Line 7
New Methodology (Measures Installed in 2019 and forward):	(Note 3)				
9. Program Year 2019 Actual LBR Savings	4,692,054	6,410,154	13,686	11,115,894	DE 17-136, 2019 Annual Report, P. 3
10. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
11. Sub-Total LBR	\$ 166,943	\$ 1,538	\$ 125,362	\$ 293,843	Line 9 * Line 10
12. Program Year 2020 Estimated LBR Savings	3,214,309	10,734,644	13,216	13,962,169	DE 17-136, 2020 Planned Savings
13. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
14. Sub-Total LBR	\$ 114,365	\$ 2,576	\$ 121,061	\$ 238,003	Line 12 * Line 13
15. Program Year 2021 Estimated LBR Savings (annualized)	5,300,959	9,483,611	8,646	14,793,217	DE 20-092 Planned Savings
16. Program Year 2021 Estimated LBR Savings in 2021	2,685,377	4,804,239	4,323	7,493,940	DE 20-092 Attachment H3
17. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
18. Sub-Total LBR	\$ 95,546	\$ 1,153	\$ 39,600	\$ 136,299	Line 16 * Line 17
19. Sub-Total "New Method" LBR - 2019 Forward	\$ 376,854	\$ 5,268	\$ 286,023	\$ 668,145	Line 11 + Line 14 + Line 18
20. Total 2021 Estimated LBR	\$ 513,011	\$ 414,246	\$ 286,023	\$ 1,213,280	Line 8 + Line 19

Comments

- Legacy portion utilizes old methodology for calculating LBR - i.e. it utilizes a combined ADR for measures installed in 2017 and 2018.
- Actual LBR Savings differ from program savings as the 110% LBR cap was reached
- New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-136 (Order No. 26,095).

DE 20-092
 Calculation of the Estimated LBR for 2022 (cumulative 2017-2022)
 Unitil Energy Systems, Inc.

Description	Residential kWh	Commercial kWh	C&I kW	Total	Reference
Legacy (Measures Installed in 2017 and 2018):	(Note 1)				
1. Program Year 2017 Actual LBR Savings	1,344,216	6,004,884	-	7,349,100	DE 14-216, 2017 Annual Report, P. 3
2. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.03217</u>	-		DE 20-092, Attachment H3 Page 8
3. Sub-Total LBR	\$ 47,827	\$ 193,177	\$ -	\$ 241,004	Line 1 * Line 2
4. Program Year 2018 Actual LBR Savings	(Note 2)				
5. Program Year 2018 Actual Retired LBR Savings	(385,652)	-	-	(385,652)	DE 17-136, 2018 Annual Report, P. 3
6. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.03217</u>	-		DE 17-136, 2019 Annual Report, P. 3
7. Sub-Total LBR	\$ 88,330	\$ 215,801	\$ -	\$ 304,130	DE 20-092, Attachment H3 Page 8 (Line 4 + Line 5) * Line 6
8. Sub-Total Legacy Savings (Measures Installed in 2017 and 2018)	\$ 136,157	\$ 408,978	\$ -	\$ 545,135	Line 3 + Line 7
New Methodology (Measures Installed in 2019 and forward):	(Note 3)				
9. Program Year 2019 Actual LBR Savings	4,692,054	6,410,154	13,686	11,115,894	DE 17-136, 2019 Annual Report, P. 3
10. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
11. Sub-Total LBR	\$ 166,943	\$ 1,538	\$ 125,362	\$ 293,843	Line 9 * Line 10
12. Program Year 2020 Estimated LBR Savings	3,214,309	10,734,644	13,216	13,962,169	DE 17-136, 2020 Planned Savings
13. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
14. Sub-Total LBR	\$ 114,365	\$ 2,576	\$ 121,061	\$ 238,003	Line 12 * Line 13
15. Program Year 2021 Estimated LBR Savings	5,300,959	9,483,611	8,646	14,793,217	DE 20-092 Planned Savings
16. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
17. Sub-Total LBR	\$ 188,608	\$ 2,276	\$ 79,201	\$ 270,085	Line 15 * Line 16
18. Program Year 2022 Estimated LBR Savings (annualized)	5,030,719	11,004,014	6,247	16,040,979	DE 20-092 Planned Savings
19. Program Year 2022 Estimated LBR Savings in 2022	2,548,478	5,574,450	3,123	8,126,052	DE 20-092 Attachment H3
20. Average Distribution Rate (ADR)	<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
21. Sub-Total LBR	\$ 90,675	\$ 1,338	\$ 28,609	\$ 120,622	Line 19 * Line 20
22. Sub-Total "New Method" LBR - 2019 Forward	\$ 560,591	\$ 7,729	\$ 354,233	\$ 922,553	Line 11 + Line 14 + Line 17 + Line 21
23. Total 2022 Estimated LBR	\$ 696,748	\$ 416,707	\$ 354,233	\$ 1,467,688	Line 8 + Line 22

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).

DE 20-092
 Calculation of the Estimated LBR for 2023 (cumulative 2017-2023)
 Unitil Energy Systems, Inc.

Description		Residential kWh	Commercial kWh	C&I kW	Total	Reference
Legacy (Measures Installed in 2017 and 2018):	(Note 1)					
1. Program Year 2017 Actual LBR Savings		1,344,216	6,004,884	-	7,349,100	DE 14-216, 2017 Annual Report, P. 3
2. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.03217</u>	-		DE 20-092, Attachment H3 Page 8
3. Sub-Total LBR		\$ 47,827	\$ 193,177	\$ -	\$ 241,004	Line 1 * Line 2
4. Program Year 2018 Actual LBR Savings	(Note 2)	2,868,216	6,708,144	-	9,576,360	DE 17-136, 2018 Annual Report, P. 3
5. Program Year 2018 Actual Retired LBR Savings		(385,652)	-	-	(385,652)	DE 17-136, 2019 Annual Report, P. 3
6. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.03217</u>	-		DE 20-092, Attachment H3 Page 8
7. Sub-Total LBR		\$ 88,330	\$ 215,801	\$ -	\$ 304,130	(Line 4 + Line 5) * Line 6
8. Sub-Total Legacy Savings (Measures Installed in 2017 and 2018)		\$ 136,157	\$ 408,978	\$ -	\$ 545,135	Line 3 + Line 7
New Methodology (Measures Installed in 2019 and forward):	(Note 3)					
9. Program Year 2019 Actual LBR Savings	(Note 2)	4,692,054	6,410,154	13,686	11,115,894	DE 17-136, 2019 Annual Report, P. 3
10. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
11. Sub-Total LBR		\$ 166,943	\$ 1,538	\$ 125,362	\$ 293,843	Line 9 * Line 10
12. Program Year 2020 Estimated LBR Savings		3,214,309	10,734,644	13,216	13,962,169	DE 17-136, 2020 Planned Savings
13. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
14. Sub-Total LBR		\$ 114,365	\$ 2,576	\$ 121,061	\$ 238,003	Line 12 * Line 13
15. Program Year 2021 Estimated LBR Savings		5,300,959	9,483,611	8,646	14,793,217	DE 20-092 Planned Savings
16. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
17. Sub-Total LBR		\$ 188,608	\$ 2,276	\$ 79,201	\$ 270,085	Line 15 * Line 16
18. Program Year 2022 Estimated LBR Savings		5,030,719	11,004,014	6,247	16,040,979	DE 20-092 Planned Savings
19. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
20. Sub-Total LBR		\$ 178,993	\$ 2,641	\$ 57,219	\$ 238,853	Line 18 * Line 19
21. Program Year 2023 Estimated LBR Savings (annualized)		5,799,244	13,087,321	7,435	18,894,000	DE 20-092 Planned Savings
22. Program Year 2023 Estimated LBR Savings in 2023		2,937,800	6,629,819	3,717	9,571,336	DE 20-092 Attachment H3
23. Average Distribution Rate (ADR)		<u>\$0.03558</u>	<u>\$0.00024</u>	<u>\$9.16</u>		DE 20-092, Attachment H3 Page 8
24. Sub-Total LBR		\$ 104,527	\$ 1,591	\$ 34,051	\$ 140,169	Line 22 * Line 23
25. Sub-Total "New Method" LBR - 2019 Forward		\$ 753,436	\$ 10,623	\$ 416,894	\$ 1,180,953	Line 11 + Line 14 + Line 17 + Line 20
26. Total 2023 Estimated LBR		\$ 889,593	\$ 419,601	\$ 416,894	\$ 1,726,088	Line 8 + Line 25

Comments

- Legacy portion utilizes old methodology for calculating LBR - i.e. it utilizes a combined ADR for measures installed in 2017 and 2018.
- Actual LBR Savings differ from program savings as the 110% LBR cap was reached
- New methodology disaggregates kWh and kW components as specified in the Settlement Agreement in DE 17-136 (Order No. 26,095).

DE 20-092
Northern Utilities, Inc.
Calculation of Lost Base Revenue for Year 2021* (cumulative 2017-2021)

Northern Utilities, Inc.
NHPUC Docket No. DE 20-092
Settlement - Attachment L2
Page 1 of 3

Description	Therm Savings			Ref.
	Residential	C&I	Total	
<u>Measures Installed in 2017:</u>				
1. Program Year 2017 Actual Therm Savings (Nov - Apr)	35,378	132,787	168,165	2017 Annual Report, P2, Annualized Savings/12*6
2. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
3. Sub-Total LBR	\$ 24,466	\$ 26,470	\$ 50,936	Ln 1 * Ln 2
4. Program Year 2017 Actual Therm Savings (May - Oct)	35,378	132,787	168,165	2017 Annual Report, P2, Annualized Savings/12*6
5. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
6. Sub-Total LBR	\$ 21,608	\$ 15,914	\$ 37,522	Ln 4 * Ln 5
7. Total LBR (Measures Installed in 2017)	\$ 46,074	\$ 42,383	\$ 88,458	Ln 3 + Ln 6
<u>Measures Installed in 2018:</u>				
8. Program Year 2018 Actual Therm Savings (Nov - Apr)	57,884	91,060	148,944	2018 Annual Reports, P2, Annualized Savings/12*6
9. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
10. Sub-Total LBR	\$ 40,031	\$ 18,152	\$ 58,182	Ln 8 * Ln 9
11. Program Year 2018 Actual Therm Savings (May - Oct)	57,884	91,060	148,944	2018 Annual Reports, P2, Annualized Savings/12*6
12. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
13. Sub-Total LBR	\$ 35,354	\$ 10,913	\$ 46,267	Ln 11 * Ln 12
14. Total LBR (Measures Installed in 2018)	\$ 75,385	\$ 29,065	\$ 104,450	Ln 10 + Ln 13
<u>Measures Installed in 2019:</u>				
15. Program Year 2019 Estimated Therm Savings (Nov - Apr)	81,308	120,580	201,888	2019 Annual Reports, P2, Annualized Savings/12*6
16. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
17. Sub-Total LBR	\$ 56,230	\$ 24,036	\$ 80,266	Ln 15 * Ln 16
18. Program Year 2019 Estimated Therm Savings (May - Oct)	81,308	120,580	201,888	2019 Update, Att J5, P4 & P5, Annualized Therms
19. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
20. Sub-Total LBR	\$ 49,661	\$ 14,451	\$ 64,112	Ln 18 * Ln 19
21. Total LBR (Measures Installed in 2019)	\$ 105,891	\$ 38,487	\$ 144,378	Ln 17 + Ln 20
<u>Measures Installed in 2020:</u>				
22. Program Year 2020 Estimated Therm Savings (Nov - Apr)	64,728	132,554	197,283	Attachment J5, P4
23. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
24. Sub-Total LBR	\$ 44,764	\$ 26,423	\$ 71,187	Ln 22 * Ln 23
25. Program Year 2020 Estimated Therm Savings (May - Oct)	65,603	135,953	201,556	Attachment J5, P4
26. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
27. Sub-Total LBR	\$ 40,069	\$ 16,293	\$ 56,362	Ln 25 * Ln 26
28. Total LBR (Measures Installed in 2020)	\$ 84,833	\$ 42,716	\$ 127,549	Ln 24 + Ln 27
<u>Measures Installed in 2021:</u>				
29. Program Year 2021 Estimated Therm Savings (Nov - Apr)	6,397	10,031	16,428	Attachment J5, P4
30. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
31. Sub-Total LBR	\$ 4,424	\$ 2,000	\$ 6,423	Ln 29 * Ln 30
32. Program Year 2021 Estimated Therm Savings (May - Oct)	47,142	58,267	105,408	Attachment J5, P4
33. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
34. Sub-Total LBR	\$ 28,793	\$ 6,983	\$ 35,776	Ln 32 * Ln 33
35. Total LBR (Measures Installed in 2021)	\$ 33,217	\$ 8,982	\$ 42,199	Ln 31 + Ln 34
36. Grand Total Forecasted LBR (Nov 2020 to Oct 2021)	\$ 345,400	\$ 161,633	\$ 507,033	Ln 7 + Ln 14 + Ln 21 + Ln 28 + Ln 35

*November 2020 through October 2021

DE 20-092
Northern Utilities, Inc.
Calculation of Lost Base Revenue for Year 2022* (cumulative 2017-2022)

Northern Utilities, Inc.
NHPUC Docket No. DE 20-092
Settlement - Attachment L2
Page 2 of 3

Description	Therm Savings			Ref.
	Residential	C&I	Total	
<u>Measures Installed in 2017:</u>				
1. Program Year 2017 Actual Therm Savings (Nov - Apr)	35,378	132,787	168,165	2017 Annual Report, P2, Annualized Savings/12*6
2. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
3. Sub-Total LBR	\$ 24,466	\$ 26,470	\$ 50,936	Ln 1 * Ln 2
4. Program Year 2017 Actual Therm Savings (May - Oct)	35,378	132,787	168,165	2017 Annual Report, P2, Annualized Savings/12*6
5. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
6. Sub-Total LBR	\$ 21,608	\$ 15,914	\$ 37,522	Ln 4 * Ln 5
7. Total LBR (Measures Installed in 2017)	\$ 46,074	\$ 42,383	\$ 88,458	Ln 3 + Ln 6
<u>Measures Installed in 2018:</u>				
8. Program Year 2018 Actual Therm Savings (Nov - Apr)	57,884	91,060	148,944	2018 Annual Reports, P2, Annualized Savings/12*6
9. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
10. Sub-Total LBR	\$ 40,031	\$ 18,152	\$ 58,182	Ln 8 * Ln 9
11. Program Year 2018 Actual Therm Savings (May - Oct)	57,884	91,060	148,944	2018 Annual Reports, P2, Annualized Savings/12*6
12. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
13. Sub-Total LBR	\$ 35,354	\$ 10,913	\$ 46,267	Ln 11 * Ln 12
14. Total LBR (Measures Installed in 2018)	\$ 75,385	\$ 29,065	\$ 104,450	Ln 10 + Ln 13
<u>Measures Installed in 2019:</u>				
15. Program Year 2019 Estimated Therm Savings (Nov - Apr)	81,308	120,580	201,888	2019 Annual Reports, P2, Annualized Savings/12*6
16. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
17. Sub-Total LBR	\$ 56,230	\$ 24,036	\$ 80,266	Ln 15 * Ln 16
18. Program Year 2019 Estimated Therm Savings (May - Oct)	81,308	120,580	201,888	2019 Update, Att J5, P4 & P5, Annualized Therms
19. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
20. Sub-Total LBR	\$ 49,661	\$ 14,451	\$ 64,112	Ln 18 * Ln 19
21. Total LBR (Measures Installed in 2019)	\$ 105,891	\$ 38,487	\$ 144,378	Ln 17 + Ln 20
<u>Measures Installed in 2020:</u>				
22. Program Year 2020 Estimated Therm Savings (Nov - Apr)	65,603	135,953	201,556	Attachment J5, P4
23. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
24. Sub-Total LBR	\$ 45,369	\$ 27,101	\$ 72,469	Ln 22 * Ln 23
25. Program Year 2020 Estimated Therm Savings (May - Oct)	65,603	135,953	201,556	Attachment J5, P4
26. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
27. Sub-Total LBR	\$ 40,069	\$ 16,293	\$ 56,362	Ln 25 * Ln 26
28. Total LBR (Measures Installed in 2020)	\$ 85,438	\$ 43,394	\$ 128,831	Ln 24 + Ln 27
<u>Measures Installed in 2021:</u>				
29. Program Year 2021 Estimated Therm Savings (Nov - Apr)	82,324	124,857	207,181	Attachment J5, P4
30. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
31. Sub-Total LBR	\$ 56,933	\$ 24,889	\$ 81,822	Ln 29 * Ln 30
32. Program Year 2021 Estimated Therm Savings (May - Oct)	83,437	128,059	211,495	Attachment J5, P4
33. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
34. Sub-Total LBR	\$ 50,961	\$ 15,347	\$ 66,308	Ln 32 * Ln 33
35. Total LBR (Measures Installed in 2021)	\$ 107,894	\$ 40,236	\$ 148,130	Ln 31 + Ln 34
<u>Measures Installed in 2022:</u>				
36. Program Year 2022 Estimated Therm Savings (Nov - Apr)	8,079	14,739	22,817	Attachment J5, P4
37. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
38. Sub-Total LBR	\$ 5,587	\$ 2,938	\$ 8,525	Ln 36 * Ln 37
39. Program Year 2022 Estimated Therm Savings (May - Oct)	59,536	85,610	145,146	Attachment J5, P4
40. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
41. Sub-Total LBR	\$ 36,363	\$ 10,260	\$ 46,623	Ln 39 * Ln 40
42. Total LBR (Measures Installed in 2022)	\$ 41,950	\$ 13,198	\$ 55,148	Ln 38 + Ln 41
43. Grand Total Forecasted LBR (Nov 2021 to Oct 2022)	\$ 462,632	\$ 206,762	\$ 669,394	Ln 7 + Ln 14 + Ln 21 + Ln 28 + Ln 35 + Ln 42

*November 2021 through October 2022

DE 20-092
Northern Utilities, Inc.
Calculation of Lost Base Revenue for Year 2023* (cumulative 2017-2023)

Northern Utilities, Inc.
NHPUC Docket No. DE 20-092
Settlement - Attachment L2
Page 3 of 3

Description	Therm Savings			Ref.
	Residential	C&I	Total	
Measures Installed in 2017:				
1. Program Year 2017 Actual Therm Savings (Nov - Apr)	35,378	132,787	168,165	2017 Annual Report, P2, Annualized Savings/12*6
2. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
3. Sub-Total LBR	\$ 24,466	\$ 26,470	\$ 50,936	Ln 1 * Ln 2
4. Program Year 2017 Actual Therm Savings (May - Oct)	35,378	132,787	168,165	2017 Annual Report, P2, Annualized Savings/12*6
5. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
6. Sub-Total LBR	\$ 21,608	\$ 15,914	\$ 37,522	Ln 4 * Ln 5
7. Total LBR (Measures Installed in 2017)	\$ 46,074	\$ 42,383	\$ 88,458	Ln 3 + Ln 6
Measures Installed in 2018:				
8. Program Year 2018 Actual Therm Savings (Nov - Apr)	57,884	91,060	148,944	2018 Annual Reports, P2, Annualized Savings/12*6
9. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
10. Sub-Total LBR	\$ 40,031	\$ 18,152	\$ 58,182	Ln 8 * Ln 9
11. Program Year 2018 Actual Therm Savings (May - Oct)	57,884	91,060	148,944	2018 Annual Reports, P2, Annualized Savings/12*6
12. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
13. Sub-Total LBR	\$ 35,354	\$ 10,913	\$ 46,267	Ln 11 * Ln 12
14. Total LBR (Measures Installed in 2018)	\$ 75,385	\$ 29,065	\$ 104,450	Ln 10 + Ln 13
Measures Installed in 2019				
15. Program Year 2019 Estimated Therm Savings (Nov - Apr)	81,308	120,580	201,888	2019 Annual Reports, P2, Annualized Savings/12*6
16. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
17. Sub-Total LBR	\$ 56,230	\$ 24,036	\$ 80,266	Ln 15 * Ln 16
18. Program Year 2019 Estimated Therm Savings (May - Oct)	81,308	120,580	201,888	2019 Update, Att J5, P4 & P5, Annualized Therms
19. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
20. Sub-Total LBR	\$ 49,661	\$ 14,451	\$ 64,112	Ln 18 * Ln 19
21. Total LBR (Measures Installed in 2019)	\$ 105,891	\$ 38,487	\$ 144,378	Ln 17 + Ln 20
Measures Installed in 2020				
22. Program Year 2020 Estimated Therm Savings (Nov - Apr)	65,603	135,953	201,556	Attachment J5, P4
23. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
24. Sub-Total LBR	\$ 45,369	\$ 27,101	\$ 72,469	Ln 22 * Ln 23
25. Program Year 2020 Estimated Therm Savings (May - Oct)	65,603	135,953	201,556	Attachment J5, P4
26. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
27. Sub-Total LBR	\$ 40,069	\$ 16,293	\$ 56,362	Ln 25 * Ln 26
28. Total LBR (Measures Installed in 2020)	\$ 85,438	\$ 43,394	\$ 128,831	Ln 24 + Ln 27
Measures Installed in 2021				
29. Program Year 2021 Estimated Therm Savings (Nov - Apr)	83,437	128,059	211,495	Attachment J5, P4
30. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
31. Sub-Total LBR	\$ 57,702	\$ 25,527	\$ 83,229	Ln 29 * Ln 30
32. Program Year 2021 Estimated Therm Savings (May - Oct)	83,437	128,059	211,495	Attachment J5, P4
33. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
34. Sub-Total LBR	\$ 50,961	\$ 15,347	\$ 66,308	Ln 32 * Ln 33
35. Total LBR (Measures Installed in 2021)	\$ 108,664	\$ 40,874	\$ 149,537	Ln 31 + Ln 34
Measures Installed in 2022				
36. Program Year 2022 Estimated Therm Savings (Nov - Apr)	103,969	183,451	287,419	Attachment J5, P4
37. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
38. Sub-Total LBR	\$ 71,901	\$ 36,569	\$ 108,470	Ln 36 * Ln 37
39. Program Year 2022 Estimated Therm Savings (May - Oct)	103,974	188,155	293,528	Attachment J5, P4
40. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
41. Sub-Total LBR	\$ 64,360	\$ 22,549	\$ 86,909	Ln 39 * Ln 40
42. Total LBR (Measures Installed in 2022)	\$ 136,261	\$ 59,118	\$ 195,379	Ln 38 + Ln 41
Measures Installed in 2023				
43. Program Year 2023 Estimated Therm Savings (Nov - Apr)	10,538	20,118	30,656	Attachment J5, P4
44. Average Distribution Rates (ADR) (Nov - Apr)	\$0.6916	\$0.1993		Attachment J5, P3
45. Sub-Total LBR	\$ 7,287	\$ 4,010	\$ 11,298	Ln 43 * Ln 44
46. Program Year 2023 Estimated Therm Savings (May - Oct)	77,658	116,855	194,513	Attachment J5, P4
47. Average Distribution Rates (ADR) (May - Oct)	\$0.6108	\$0.1198		Attachment J5, P3
48. Sub-Total LBR	\$ 47,432	\$ 14,004	\$ 61,436	Ln 46 * Ln 47
49. Total LBR (Measures Installed in 2023)	\$ 54,719	\$ 18,014	\$ 72,734	Ln 45 + Ln 48
43. Grand Total Forecasted LBR (Nov 2022 to Oct 2023)	\$ 612,432	\$ 271,334	\$ 883,766	Ln 7 + Ln 14 + Ln 21 + Ln 28 + Ln 35 + Ln 42

*November 2022 through October 2023

Attachment M: Bill and Rate Impacts of 2021-2023 Plan

The regulated utilities estimated the following bill and rate impacts of the 2021-2023 plan using Synapse Energy Economics' bill and rate impact model, which is still in the process of being finalized, and is meant to calculate the impacts of the proposed energy efficiency programs relative to a scenario with no energy efficiency programs. As proposed, the 2021- 2023 energy efficiency programs are expected to reduce the regulated electric utilities' revenue requirements by -1.0% on average, or -\$306.0M in total, over the life of the measures installed during the 2021-2023 term and across all programs. The regulated gas utilities' revenue requirements are expected to reduce by -2.1% on average, or -\$68.2M in total. Table 1 provides changes in revenue requirements by utility.

This rate and bill impact analysis reflects changes in electric and gas utility rates and bills and does not account for the significant fuel neutral savings to customers consuming oil, propane, or other unregulated fuels.

Table 1. Long-term Revenue Requirement Changes due to 2021-2023 Plan, by Utility

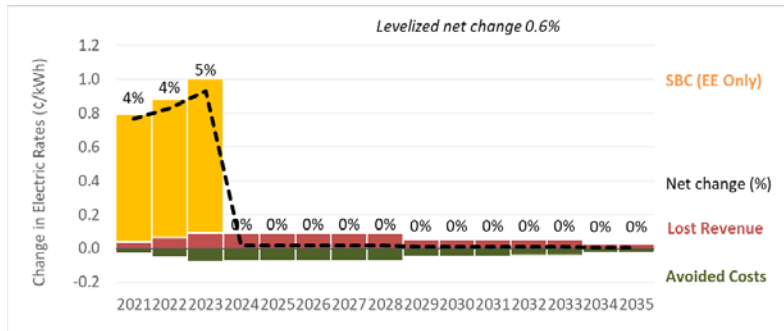
Utility	Percent Change	Dollar Change (millions)
Eversource	-1.1%	-\$254.2
Liberty Electric	-1.5%	-\$43.4
Unitil Electric	-0.2%	-\$8.4
Electric Total	-1.0%	-\$306.0
Liberty Gas	-2.1%	-\$48.2
Unitil Gas	-2.1%	-\$20.0
Gas Total	-2.1%	-\$68.2

The graphs below show long-term bill and rate impacts over the life of the installed measures for each of four customer segments: residential, low-income, small C&I, and large C&I. Bill impacts are shown separately for the following types of customers:

- non-participant—customers who do not participate in any year of the term
- low savings participant—For Electric – an illustrative residential participant (e.g. a customer swapping out their lighting for LEDs) who saves 1% of usage, or C&I participant (e.g. a customer performing a few off-the shelf offerings) who saves 5% of usage during year 1 of the plan; For Gas, an illustrative low savings residential participant would save 1% of their usage, and a low savings C&I participant would save 5% of their usage.
- high savings participant— For Electric – an illustrative residential participant (e.g. a customer performing a comprehensive HPwES project including weatherization and HVAC) who saves 10% of usage, or C&I participant (e.g. a customer performing a comprehensive custom project) who saves 20% of usage during year 1 of the plan; For Gas, an illustrative high savings residential participant would save 7% of their usage, and a high savings C&I participant would save 10% of their usage.
- average customer—a hypothetical blend between non-participants and participants, calculated based on the segment's program savings divided by the segment's total customers.

Eversource Electric

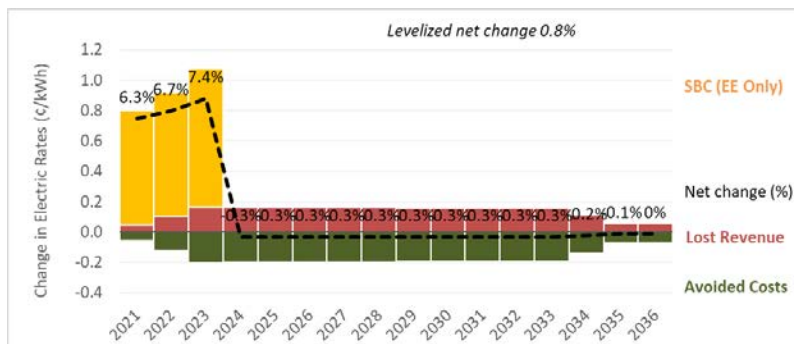
Residential, Change in Rates Over the Life of the Measures



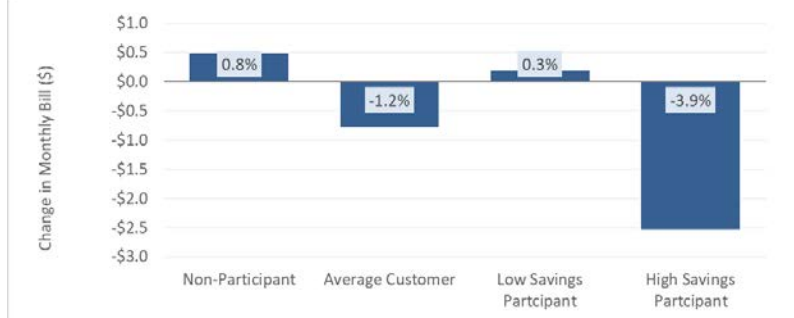
Residential, Long-Term Average Change in Bills Over the Life of the Measures



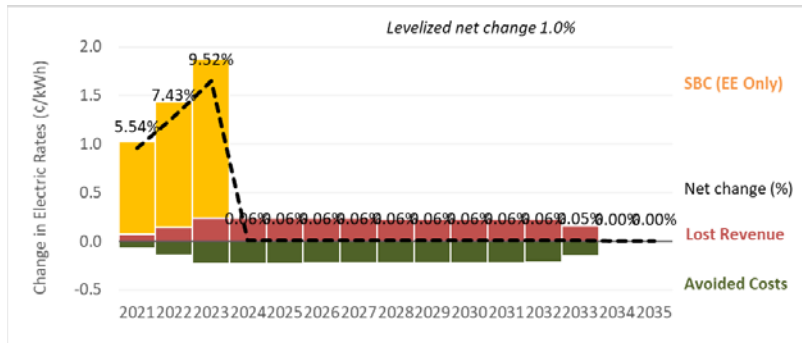
Low-Income, Change in Rates Over the Life of the Measures



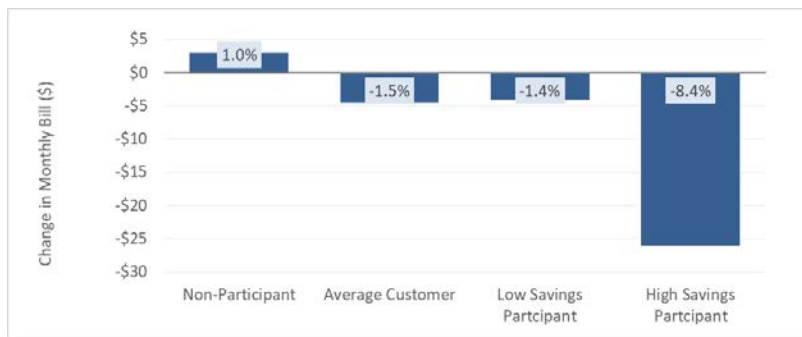
Low-Income, Long-Term Average Change in Bills Over the Life of the Measures



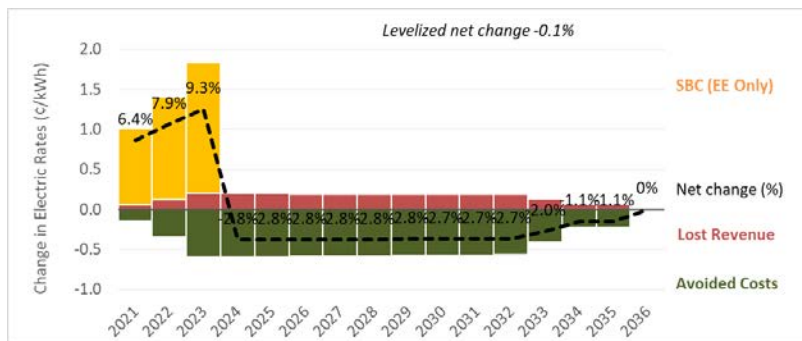
Small C&I, Change in Rates Over the Life of the Measures



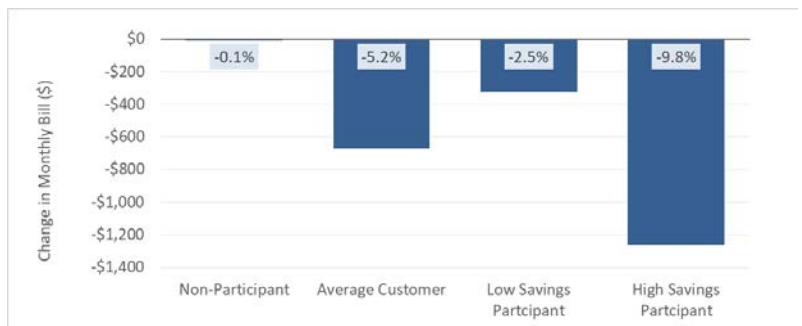
Small C&I, Long-Term Average Change in Bills Over the Life of the Measures



Large C&I, Change in Rates Over the Life of the Measures

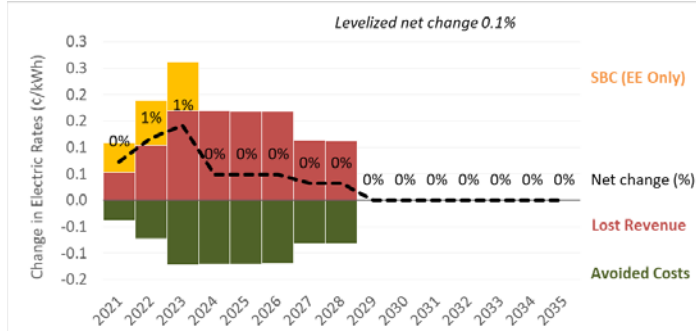


Large C&I, Long-Term Average Change in Bills Over the Life of the Measures

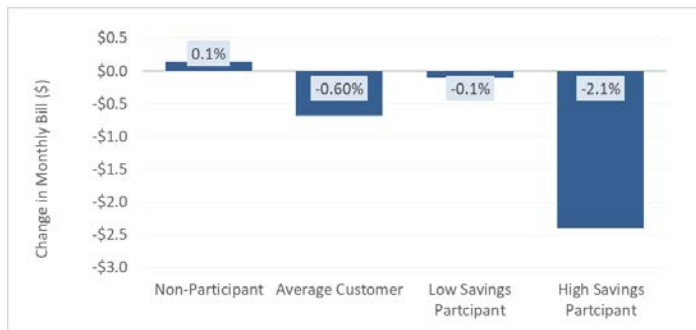


Liberty Electric

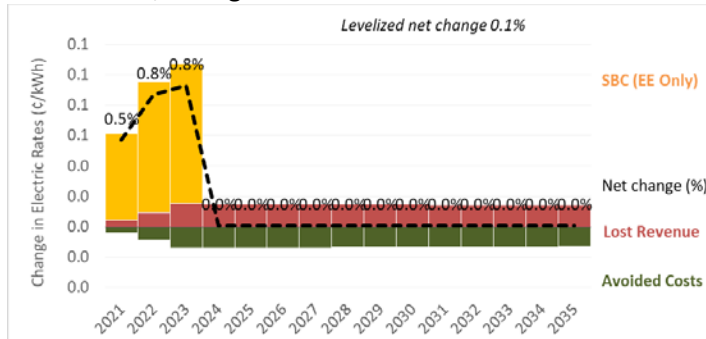
Residential, Change in Rates Over the Life of the Measures



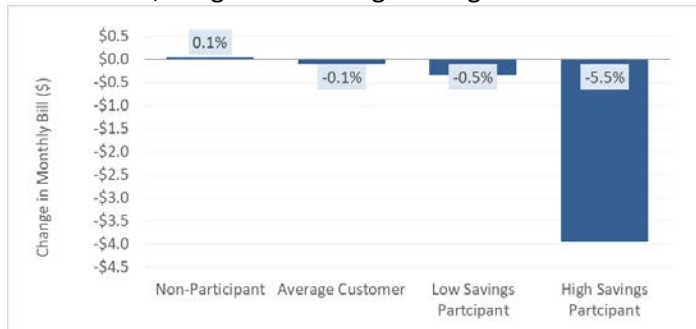
Residential, Long-Term Average Change in Bills Over the Life of the Measures



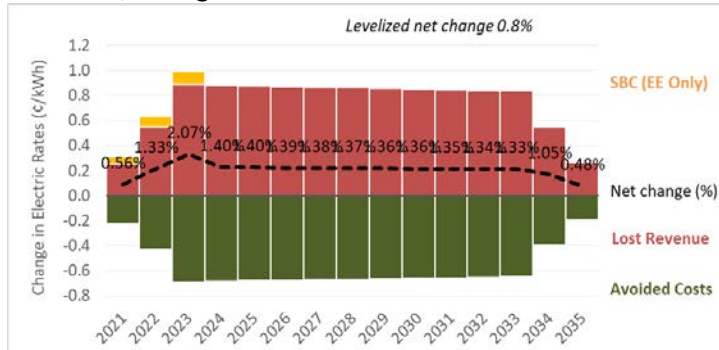
Low-Income, Change in Rates Over the Life of the Measures



Low-Income, Long-Term Average Change in Bills Over the Life of the Measures



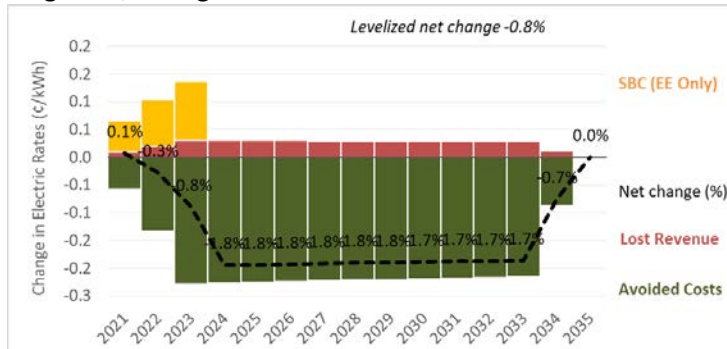
Small C&I, Change in Rates Over the Life of the Measures



Small C&I, Long-Term Average Change in Bills Over the Life of the Measures



Large C&I, Change in Rates Over the Life of the Measures

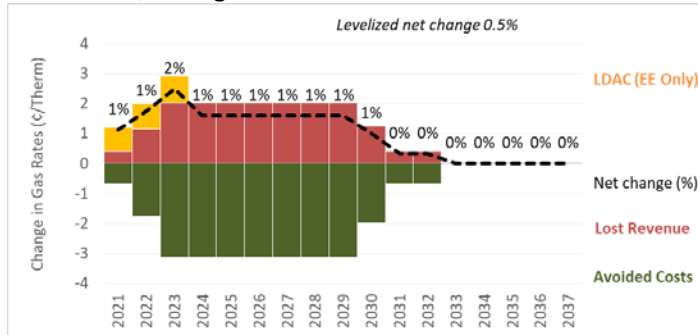


Large C&I, Long-Term Average Change in Bills Over the Life of the Measures

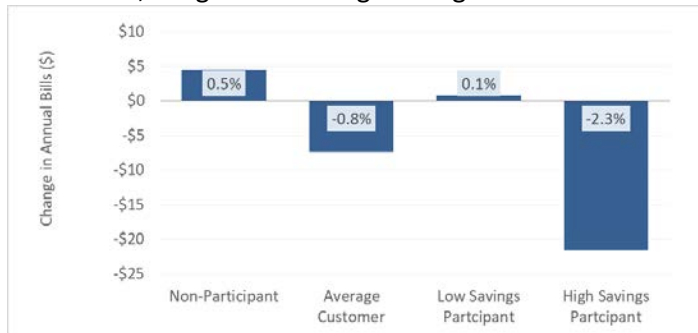


Liberty Gas

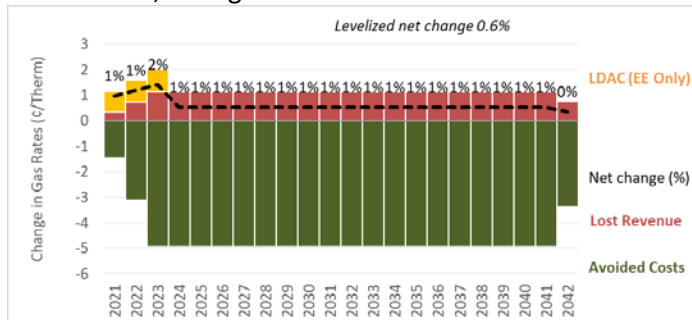
Residential, Change in Rates Over the Life of the Measures



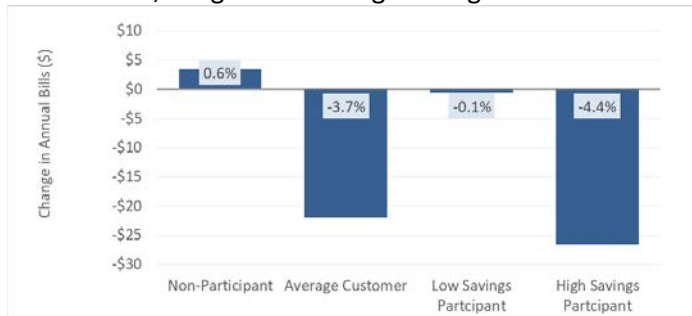
Residential, Long-Term Average Change in Bills Over the Life of the Measures



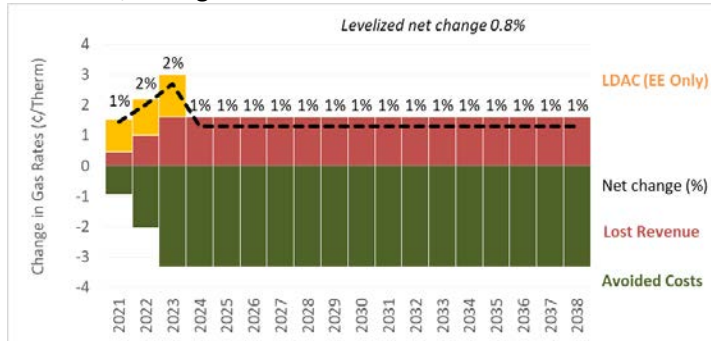
Low-Income, Change in Rates Over the Life of the Measures



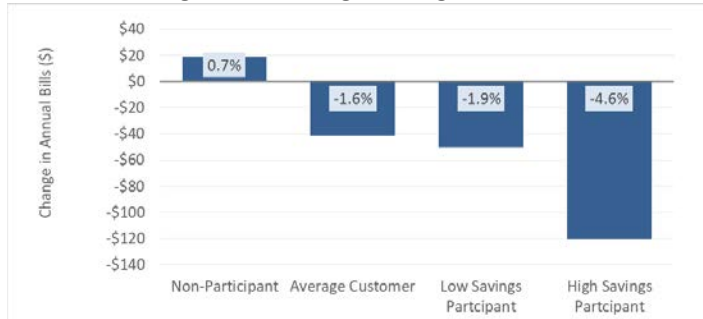
Low-Income, Long-Term Average Change in Bills Over the Life of the Measures



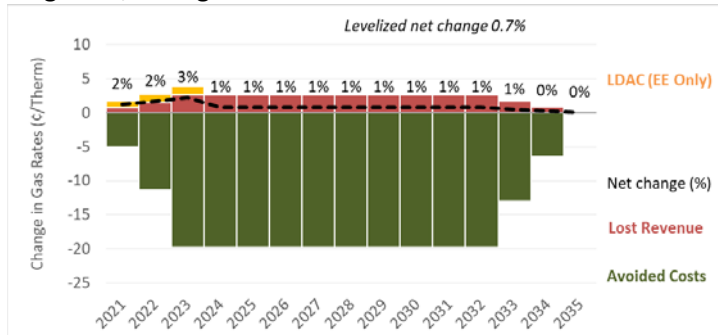
Small C&I, Change in Rates Over the Life of the Measures



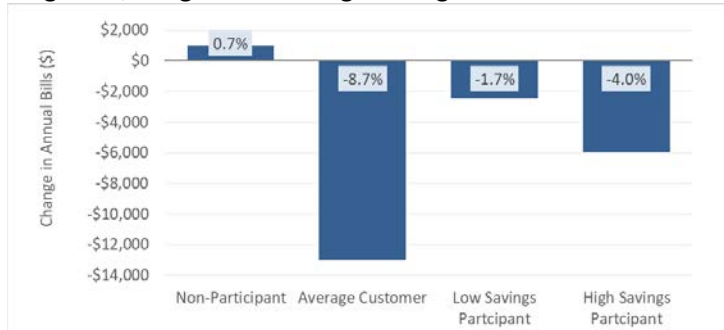
Small C&I, Long-Term Average Change in Bills Over the Life of the Measures



Large C&I, Change in Rates Over the Life of the Measures

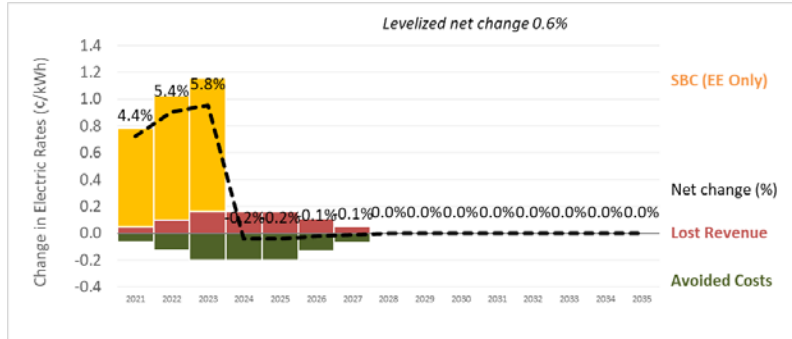


Large C&I, Long-Term Average Change in Bills Over the Life of the Measures

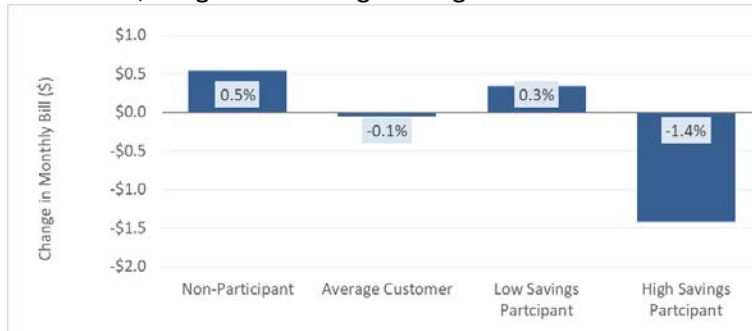


Unitil Energy Systems, Inc.

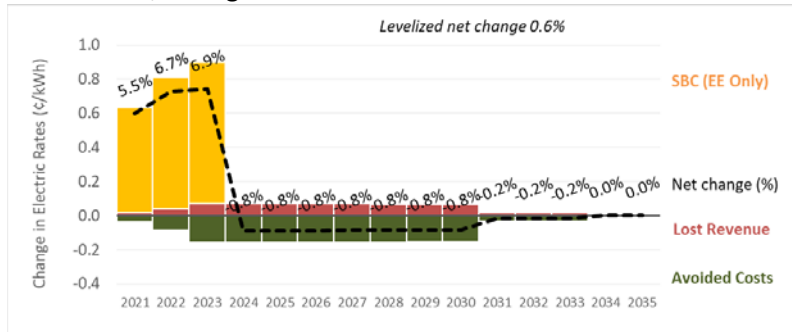
Residential, Change in Rates Over the Life of the Measures



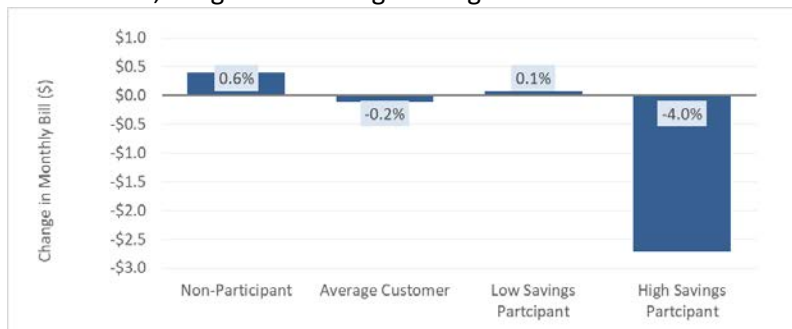
Residential, Long-Term Average Change in Bills Over the Life of the Measures



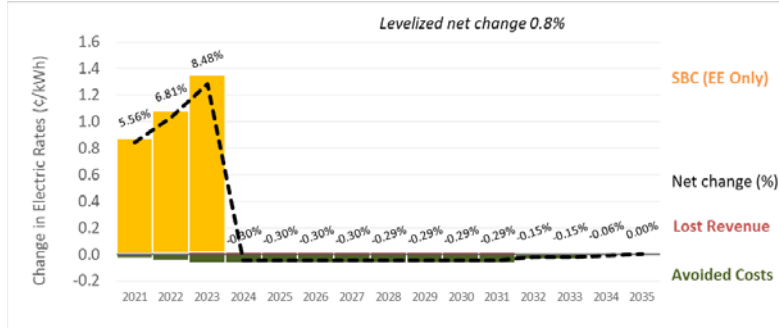
Low Income, Change in Rates Over the Life of the Measures



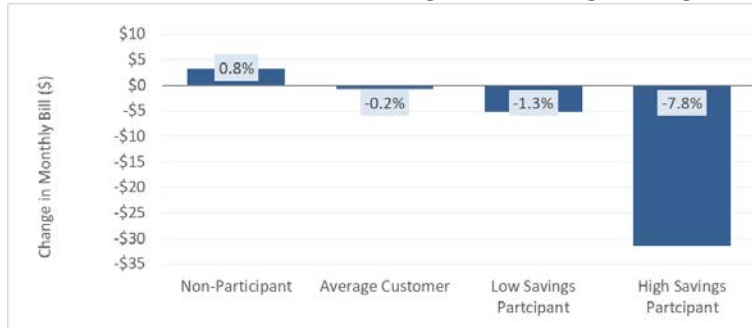
Low-Income, Long-Term Average Change in Bills Over the Life of the Measures



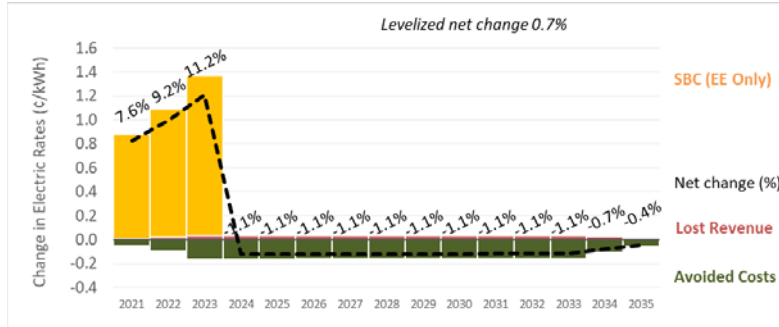
Small Commercial & Industrial, Change in Rates Over the Life of the Measures



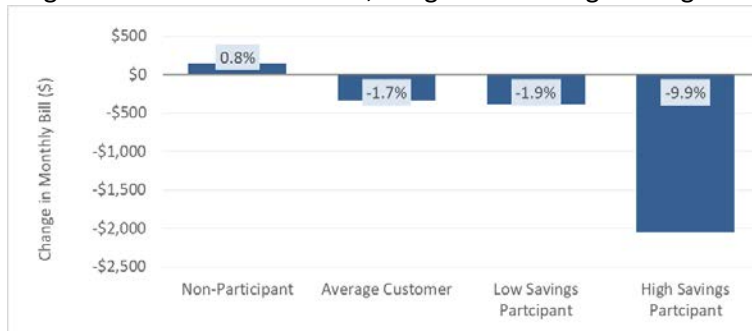
Small Commercial & Industrial, Long-Term Average Change in Bills Over the Life of the Measures



Large Commercial & Industrial, Change in Rates Over the Life of the Measures

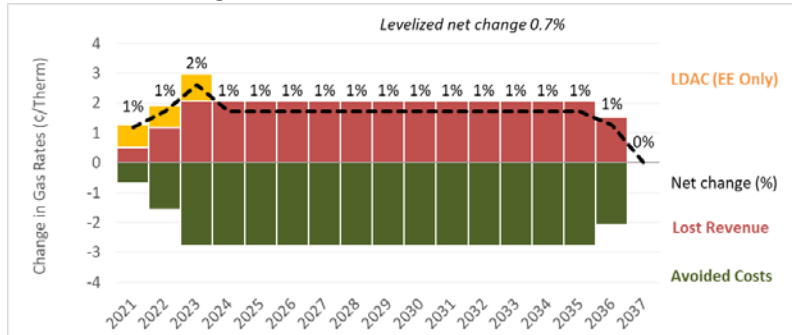


Large Commercial & Industrial, Long-Term Average Change in Bills Over the Life of the Measures

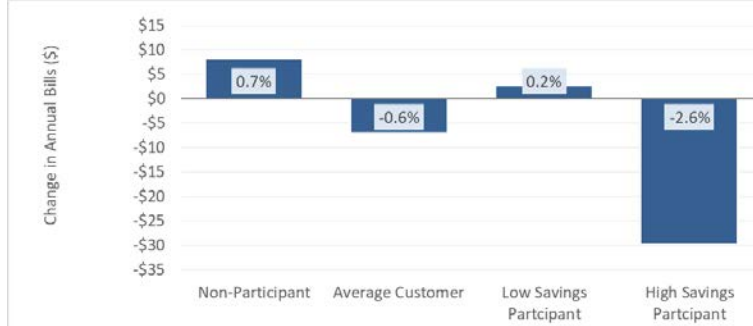


Northern Utilities, Inc.

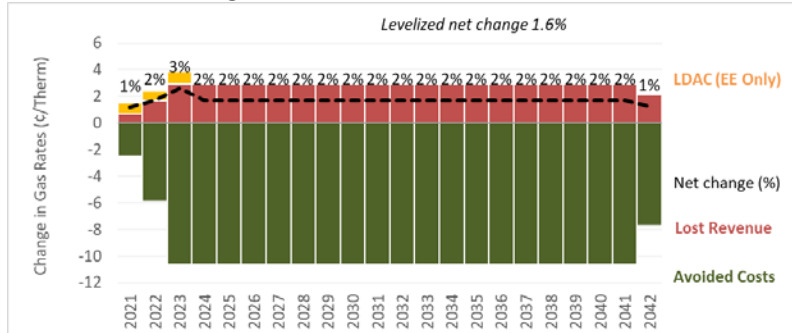
Residential, Change in Rates Over the Life of the Measures



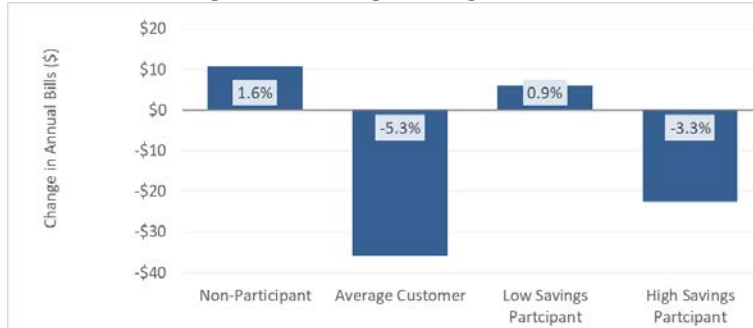
Residential, Long-Term Average Change in Bills Over the Life of the Measures



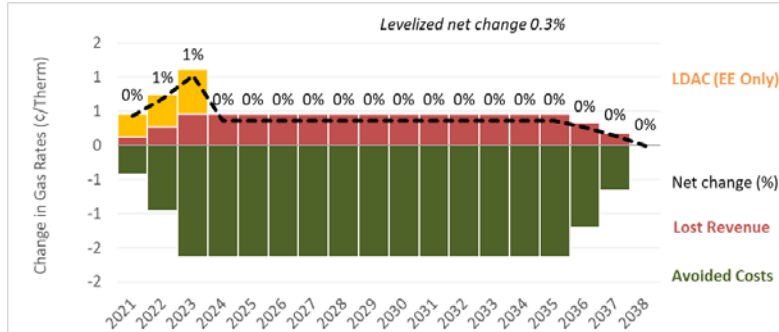
Low Income, Change in Rates Over the Life of the Measures



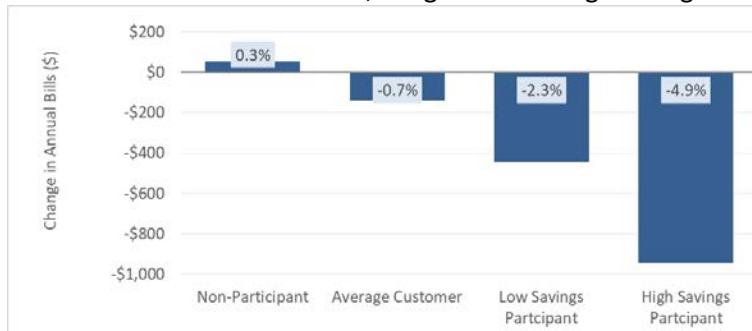
Low Income, Long-Term Average Change in Bills Over the Life of the Measures



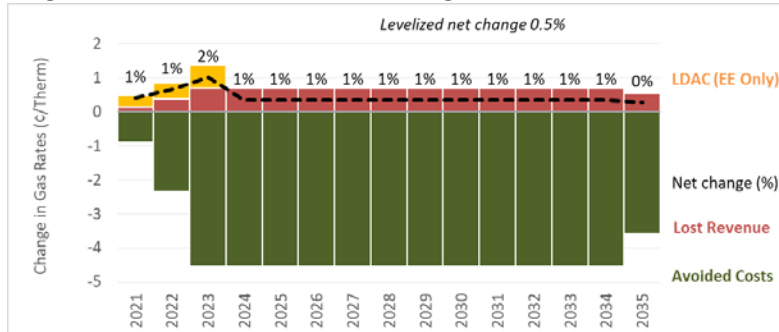
Small Commercial & Industrial, Change in Rates Over the Life of the Measures



Small Commercial & Industrial, Long-Term Average Change in Bills Over the Life of the Measures



Large Commercial & Industrial, Change in Rates Over the Life of the Measures



Large Commercial & Industrial, Long-Term Average Change in Bills Over the Life of the Measures

