



2021-2023 NEW HAMPSHIRE STATEWIDE ENERGY EFFICIENCY PLAN

Jointly submitted by New Hampshire’s Electric and Natural Gas Utilities:

- Liberty Utilities Corp. (Granite State Electric Corp.) d/b/a Liberty Utilities
- Liberty Utilities Corp. (EnergyNorth Natural Gas) d/b/a Liberty Utilities
- New Hampshire Electric Cooperative, Inc.
- Northern Utilities, Inc. d/b/a Unitil-NH Gas Operations
- Public Service Company of New Hampshire d/b/a Eversource Energy
- Unitil Energy Systems, Inc. d/b/a Unitil-NH Electric Operations

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Executive Summary

For more than two decades, New Hampshire’s electric and natural gas utilities have offered energy efficiency and demand response programs to residential and Commercial and Industrial (“C&I”) customers across the state.¹ These programs provide energy savings, promote economic development, reduce the need for additional capacity investments and protect the natural environment by reducing the amount of carbon dioxide (“CO₂”) and sulfur and nitrogen oxides released into the atmosphere due to reduced energy generation and consumption.

New Hampshire’s electric and natural gas utilities (“NH Utilities”) are pleased to submit the 2021-2023 Statewide Energy Efficiency Plan (“2021-2023 Plan” or “Plan”). This 2021-2023 Plan is being submitted jointly by Liberty Utilities Corp. (Granite State Electric) d/b/a Liberty Utilities (“Liberty Electric”), New Hampshire Electric Cooperative, Inc. (“NHEC”), Public Service Company of New Hampshire d/b/a Eversource Energy (“Eversource”), and Unitil Energy Systems, Inc. d/b/a Unitil-NH Electric Operations (“Unitil Electric”) (hereinafter referred to as the “NH Electric Utilities”), and Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities (“Liberty Gas”), and Northern Utilities, Inc. d/b/a Unitil-NH Gas Operations (“Unitil Gas”) (hereinafter referred to as the “NH Natural Gas Utilities”).

Energy efficiency is emission free and the lowest-

cost resource available to utilities, customers, and states. Every kilowatt-hour (“kWh”) or million natural gas British Thermal Units (“MMBtu”) saved through New Hampshire’s energy efficiency programs helps the NH Utilities achieve deeper energy savings, reduce harmful greenhouse gas

Over the last few decades, New Hampshire’s energy efficiency programs have achieved significant energy savings for the state’s electric and natural gas customers.



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

(“GHG”) emissions, save customers money, and mitigate the need to generate additional power. The NH Utilities designed the 2021-2023 Plan to scale up energy savings and program participation, create and promote new and existing “on ramps” to energy efficiency to attract customers, diversify program offerings, tailor marketing solutions and incentives, and broaden outreach to customers and local communities.

Since 2002, New Hampshire’s electric and natural gas customers have installed energy efficiency measures that have resulted in lifetime savings of more than 19.1 billion electric kWh and 45.7 MMBtu. This results in a cumulative customer savings in excess of \$3.4 billion.

The NH Utilities are proud to deliver innovative energy-efficient solutions to customers—residential, municipal, and C&I—throughout the state. The NH Utilities are well trusted and recognized for their ability to work together, and with stakeholders, legislators, and regulators, to provide continuity

The New Hampshire energy efficiency industry supports a robust local and state workforce.



in delivering cost-effective energy efficiency solutions across the state facilitated under the NHSaves™ Programs (“NHSaves Programs”) brand. The NH Utilities are prepared to help customers achieve increased energy efficiency savings in 2021-2023 in furtherance of the Energy Efficiency Resource Standard (“EERS”), established by the New Hampshire Public Utilities Commission (“Commission”), and other state energy policies (see Chapter One).

The NH Utilities have designed a dynamic energy efficiency framework to help reduce energy demand and achieve significant energy savings over the next three-year period. The NH Utilities remain focused on directing customers’ attention to how they use energy and to provide them accessible paths to saving energy and money over the next three years. The 2021-2023 Plan will provide the following results:

- **More Customer Energy Savings.** The 2021-2023 NHSaves Programs will result in customer energy cost savings of more than \$1.13 billion over the lifetime of the measures.

- **Increased Energy Savings.** During the 2021-2023 term, NHSaves Programs will result in savings of 5.6 billion electric kWh and 9 million natural gas MMBtu over the lifetime of installed energy-saving measures. In addition, New Hampshire’s 2021-2023 energy efficiency programs will save ~~8.3~~ 7.9 million MMBtu from other fuels, such as oil and propane.

- **Increased Peak Demand Reduction Savings.** The NHSaves Programs result in passive demand reduction savings that will reduce summer peak demand by ~~64.0~~ 53.5 megawatts (“MW”) and winter peak demand by ~~57.2~~ 51.4 MW. The NHSaves Active Demand Reduction programs will reduce summer peak by an additional 67.7 MW.

*2021-2023 Plan programs
will reduce GHG emissions by
3.8 million tons.*



- **Stronger State Economy.** New Hampshire’s energy efficiency investments help support the state’s economy in multiple ways.

Energy efficiency contractors are necessarily local, so most of the NHSaves Programs funds invested in residential weatherization and other efficiency measures stay in the New Hampshire economy. In turn, lower energy bills free up participating residential customers’ household budgets, to be directed to other needs, goods and services.

Participating C&I customers will lower their energy bills, allowing owners to invest in other company operations, such as labor, materials, and other business-related resources. Energy savings that result from municipal building projects lead to a more efficient use of taxpayer dollars in the community. Funds once allocated to energy costs can now be utilized for increased public services, such as education, health and safety, and public libraries.

- **Highly-Trained Workforce.** The NH Utilities plan to continue providing workforce development opportunities to the growing local labor workforce that supports the implementation of energy

efficiency solutions throughout the state. The 2021-2023 NHSaves Programs will support ~~4,673,503~~ full-time equivalents (“FTEs”) or ~~9.74~~ million work hours.²

- **Cleaner Environment.** The energy savings from the NHSaves Programs protect the public health and environment through significant reductions in carbon dioxide, air-polluting sulfur and nitrous oxides, and other air pollutant emissions. The 2021-2023 NHSaves Programs will provide a lifetime reduction of more than ~~4.43.8~~ million tons of GHG emissions, the equivalent of taking ~~820,751~~ ~~949,313~~ passenger vehicles off the road for one year.³

² According to a study from the Political Economy Research Institute (“PERI”) of the University of Massachusetts at Amherst (2019), every million dollars spent on energy-efficient measures, such as building retrofits, supports 6.2 direct jobs, 2.7 indirect jobs, and 3.3 induced jobs. See Pollin, R., Wicks-Lim, J., Chakraborty, S., Hansen, T. *A Green Growth Program for Colorado*. Study available at: <https://www.peri.umass.edu/publication/item/1168-a-green-growth-program-for-colorado>.

³ Utilizing the Environmental Protection Agency’s Greenhouse Gas Equivalencies Calculator. Retrieved from: www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

Chapter One: New Hampshire's Energy Efficiency Programs

The 2021-2023 Plan reflects a coordinated and integrated planning effort among the six NH Electric and Natural Gas Utilities, with significant input from a diverse array of energy efficiency stakeholders, contractors, and customers.

The NH Utilities worked extensively and collaboratively with members of the Energy Efficiency and Sustainable Energy (“EES”) Board’s EERS Committee, Commission Staff and the stakeholder consultant to develop an energy efficiency and demand management plan that is consistent with the state’s energy policies and legislation, including the EERS. During the 2021-2023 term, the NH Utilities will remain focused on implementing high-quality energy efficiency programs that drive energy savings, save customers money, reduce the need for additional capacity investments, and help protect the environment through reduced electricity, natural gas, and delivered fossil fuel consumption.



The 2021-2023 Plan is a strategic guide for the NH Utilities to deliver multiple energy efficiency and demand management programs and initiatives designed for residential, commercial, municipal, and industrial customers. These programs, taken together as an integrated whole, will achieve significant energy savings, protect the environment, help businesses operate more efficiently, and help lead the state into the next decade as a leader in energy efficiency. For the 2021-2023 term, the NH Utilities remain focused on scaling up participation and energy savings for the NHSaves Residential and C&I Programs and will work together to seamlessly deliver customer-centric solutions under the NHSaves brand. As noted in the C&I and Residential sector chapters of this 2021-2023 Plan, the NH Utilities will support these objectives by designing programs that can be modified quickly to address changing energy code standards, customer demand, emerging

technologies, and economic conditions affecting customers, vendors, and the energy efficiency marketplace.

1.1 NHsaves Programs

New Hampshire's energy efficiency programs are jointly marketed by the NH Utilities under a statewide umbrella marketing brand—NHsaves. Through this collaboration, the NH Utilities deliver innovative, award-winning programs on a statewide marketing platform ensuring continuity in branding and messaging, consequently increasing brand recognition and customer awareness of the programs. The NHsaves.com website serves as the statewide information portal where customers can learn about incentives and services offered through the NHsaves Programs.



1.2 State Energy Policy

1.2.1 Energy Efficiency Resource Standard

In August 2014, the Commission initiated an informal, non-adjudicative stakeholder process to develop a framework, the EERS, within which the NHsaves Programs would be implemented. The process resulted in an eighteen-month dialogue among the Commission, the NH Utilities, and numerous stakeholders. In 2016, the state's first EERS was established through a settlement agreement filed with the Commission.⁴ The EERS is the framework within which the NHsaves Programs have been implemented since 2018, and requires the NH Utilities to file triennial plans, to pursue annual savings goals, and to achieve the long-term objective of achieving all cost-effective energy efficiency.

Coincident with the EERS, the Commission also established a recovery mechanism to compensate the NH Utilities for lost revenue resulting from the implementation of NHsaves Programs under the EERS. The NH Utilities file annual updates with the Commission regarding any necessary changes that need to be made to the Systems Benefit Charge ("SBC") or Local Delivery Adjustment Clause ("LDAC"), the

⁴ State of New Hampshire Public Utilities Commission. DE 15-137. *Order No. 25,392: Energy Efficiency Resource Standard*, Aug. 2, 2016. Available at: <https://www.puc.nh.gov/Regulatory/Orders/2016orders/25932e.pdf>.

primary funding mechanisms for the NHSaves Programs. The SBC and LDAC are nominal charges on customers' electric and natural gas utility bills, respectively.

During the state's transition to the EERS, the Commission extended for an additional year the approved 2015-2016 NHSaves Programs (i.e., the program implementation and established annual savings targets for the 2017 program year). On January 2, 2018, the Commission approved the implementation of the NH Utilities' first three-year plan ("2018-2020 Plan").⁵ The NH Utilities filed plan updates in September 2018 ("2019 Plan Update") and September 2019 ("2020 Plan Update") to realign energy-saving goals and program budgets with the Commission-approved 2018-2020 Plan. The 2021-2023 Plan is the second triennial plan filed by the NH Utilities under the EERS.

1.2.2 New Hampshire's 10-Year State Energy Strategy

In April 2018, New Hampshire Governor Christopher T. Sununu and the New Hampshire Office of Strategic Initiatives ("OSI") released the New Hampshire 10-Year State Energy Strategy ("Strategy") in compliance with state legislation and statute.⁶ The Strategy established 11 statewide goals that should be pursued to better meet residential and C&I customers' needs, including prioritizing all cost-effective energy policies and achieving environmental protection that enables economic growth. The Strategy noted that, "[i]nvesting in efficiency boosts the state's economy by creating jobs and reducing energy costs for consumers and businesses." During the 2021-2023 term, the NH Utilities will vigorously pursue cost-effective strategies to lower customers' energy bills, decrease demand for new generation capacity on the electric and natural gas systems, and to reduce air pollutant emissions.

1.3 Energy Efficiency and Sustainable Energy Board

In 2008, New Hampshire's legislature created the EESE Board to promote and coordinate energy efficiency, demand response, and other sustainable energy programs in the state.⁷ The EERS

⁵ State of New Hampshire Public Utilities Commission. DE 17-136. *Order No. 26,905: 2018-2020 New Hampshire Statewide Energy Efficiency Plan*, Jan. 2, 2018. Available at: <https://www.puc.nh.gov/Regulatory/Orders/2018orders/26095e.pdf>.

⁶ New Hampshire Office of Strategic Initiatives. *New Hampshire 10-Year State Energy Strategy*. Apr. 2018. Available at: <https://www.nh.gov/osi/energy/programs/documents/2018-10-year-state-energy-strategy.pdf>.

⁷ RSA 125-O:5-a; Oct.1, 2008.

Committee of the EESE Board serves as the primary stakeholder body in the development of the NH Utilities' triennial plans.

The EERS Committee met twice a month from November of 2019 to August of 2020 for a total of 20 stakeholder meetings to discuss EERS savings targets, budgets, program design, marketing approaches, development of new elements such as codes and standards savings and energy optimization, changes in the lighting market, the three-year plan structure and other related topics. Participating in the meetings were EERS Committee members, the stakeholder consultant, NH PUC Staff and other interested members of the public. Three of the meetings were specifically designed to gather comments and feedback from members of the public who were not able to devote time to the full committee process. The stakeholder consultant held 11 additional meetings with NH Utility staff for deeper review and discussion on program design and implementation elements, and then reported out the results and recommendations from those meetings to the full EERS Committee.

The work of the NH Utilities and the EERS Committee shifted forums with the onset of the COVID-19 pandemic, as meetings and discussion moved to a remote format starting in March. The pandemic has had a significant impact on customers and program implementation in 2020 and pandemic-related impacts will likely continue well into the 2021-2023 Plan performance period. The NH Utilities worked with the Committee, Commission Staff and the Commission, resulting in Order No 26,375, adjusting the filing schedule to allow more time for analysis, adjustment, and discussion related to the pandemic's impacts. The NH Utilities submitted a Draft Plan to the Committee on April 1, 2020, received feedback and had additional discussion with the Committee about that feedback. A Second Draft was submitted to the Committee on July 1, 2020.

This 2021-2023 Plan is the result of additional feedback and discussion on the July 1st Draft, as well as a culmination of the full 10 months of substantive stakeholder process. The EERS Committee voted 11-0 in unanimous support of the Plan approach at its August 10, 2020 meeting and the EESE Board voted 9-2 in support of the Plan approach at its August 14, 2020 meeting.

This 2021-2023 Plan is further revised by the terms of the Settlement Agreement filed with the Commission on December 3, 2020, reflected by these changes to the Plan narrative. All signatories of the Settlement were participants in the EERS Committee process and consider the settlement to be in the spirit of the consensus achieved through the stakeholder process.

1.4 2021-2023 Plan Goals

With more than two decades of experience in jointly operating successful energy efficiency programs across the state, the NH Utilities have the expertise, infrastructure, and relationships in place to meet the EERS program goals for the 2021-2023 term. During the 2018-2020 term, the NH Utilities are pursuing increased energy efficiency savings goals under the EERS.

To meet the 2021-2023 EERS goals laid out in this Plan, the NH Utilities will develop new market-friendly offerings and heavily promote existing programs to increase customer participation and drive energy savings. Between 2021 and 2023, the NH Utilities will achieve cumulative energy savings of five 4.5 percent of the NH Electric Utilities’ 2019 kWh delivery sales and ~~three~~ 2.8 percent of the NH Natural Gas Utilities’ 2019 MMBtu delivery sales. The data in Tables 1-1 and 1-2 provide a comparison to the 2018-2020 Plan.

Table 1-1: Comparison to 2018-2020 Plan (Electric)

Electric Programs	2018-2020 Plan	2021-2023 Plan
Cumulative Lifetime MWh Savings	4,038,590	<u>5,604,822</u> 6,681,441
Cumulative Annual MWh Savings	334,273	<u>474,616</u> 525,333
Cumulative Annual Savings as a % of 2019 Delivery Sales	3.2%	<u>4.5%</u> 5.0
Cumulative Program Funding	\$154,142,047	<u>\$336,499,582</u> 350,828,573
Program Cost per Lifetime kWh Savings	\$0.038	<u>\$0.060</u> \$0.053

Table 1-2: Comparison to 2018-2020 Plan (Natural Gas)

Natural Gas Programs	2018-2020 Plan	2021-2023 Plan
Cumulative Lifetime MMBtu Savings	7,509,343	9,008,589 9,619,232
Cumulative Annual MMBtu Savings	525,575	706,065 753,581
Cumulative Annual Savings as a % of 2019 Delivery Sales	2.1%	2.8% 3.0
Cumulative Program Funding	\$31,396,650	\$41,882,264
Program Cost per Lifetime MMBtu Savings	\$4.18	\$4.65 \$4.35

1.5 2021-2023 Plan Priorities

For the 2021-2023 term, the NH Utilities are focused on scaling up energy savings and increasing customer participation in the NHSaves



Programs. New Hampshire was ranked twentieth in the American Council for an Energy-Efficient Economy’s (“ACEEE”) *2019 State Energy Efficiency Scorecard* (“Scorecard”), a one-place improvement from the 2018 and 2017 Scorecards.⁸ In the portion of the Scorecard for Utility and Public Benefits Program and Policies, New Hampshire was ranked thirteenth. The 2020 State Scorecard ranked New Hampshire eighteenth overall, tenth in the Northeast, and thirteenth in the Utility and Public Benefits category.⁹ In preparation for the 2021-2023 Plan filing, the NH Utilities reviewed other states’ energy efficiency portfolios to determine additional opportunities to modify, improve, and lead the NHSaves Programs toward cost-effective, comprehensive energy savings over the next three years, and improve the state’s ACEEE ranking.

The 2021-2023 Plan’s program offerings and incentives are designed to increase New Hampshire’s leadership in energy efficiency and demand management programs. Market trends, new federal

⁸ ACEEE. *2019 State Energy Efficiency Scorecard*. Rel. Sep. 2019. Available at: <https://www.aceee.org/sites/default/files/pdf/state-sheet/2019/new-hampshire.pdf>.

⁹ ACEEE. *2020 State Energy Efficiency Scorecard*. Rel. Dec. 2020. Available at: <https://www.aceee.org/state-policy/scorecard>

regulations and policies, changing state building codes, emerging technologies, and baseline studies were all incorporated into the NH Utilities’ planning process. In addition, the NH Utilities used evaluation results during the 2018-2020 term to help steer the NHSaves Programs toward greater efficacy while driving energy savings, GHG emissions reductions, and increased economic benefits.

The NH Utilities developed the following 2021-2023 Plan priorities building on discussions with the EERS Committee and its consultant. *The order of this list does not necessarily correlate to prioritization.*

Priority One: Commitment to Deliver Cost-Effective Energy Efficiency

Energy efficiency is emissions free and is the lowest-cost energy resource available to New Hampshire’s homes, businesses, and municipalities. The NH Utilities recognize that it is imperative to communicate the important benefits that energy efficiency provides to customers and to motivate them to actively pursue all cost-effective energy efficiency measures and behaviors. The 2021-2023 term represents a continued increase in electric, natural gas, and fuel-neutral energy savings in New Hampshire.

Figure 1-1: Electric Programs Over Time (Settlement Revised Version)

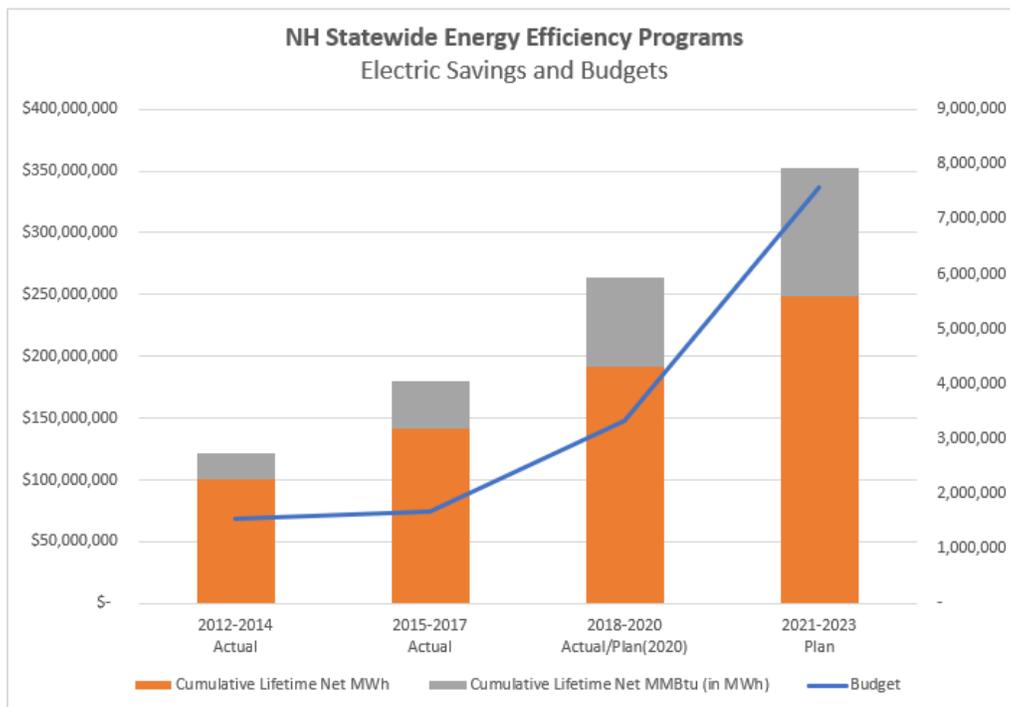
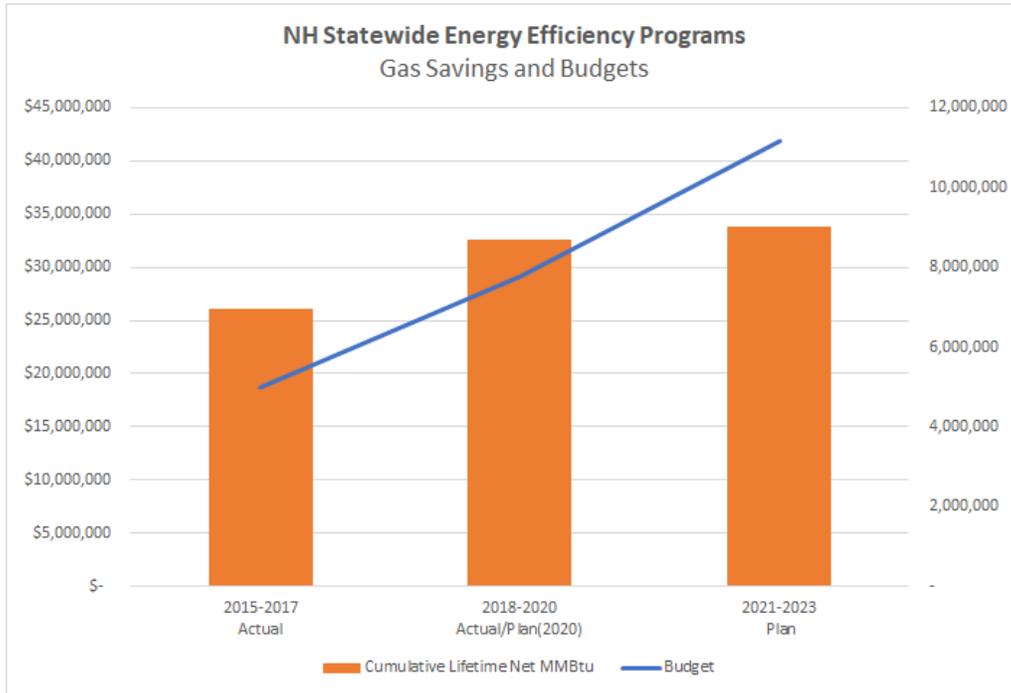


Figure 1-2: Natural Gas Programs Over Time (Settlement Revised Version)



Throughout the 2021-2023 term, the NH Utilities plan to deliver tailored, comprehensive solutions to customers that will drive electric and natural gas savings. The electric programs are deliberately expanding beyond lighting measures, which have provided an inexpensive and relatively easy means of reducing electricity use for the past decade.

For the C&I Programs, “tailored, comprehensive solutions” will involve testing various channels, incentive models, and strategies to identify more precisely what motivates customers and contractors to implement comprehensive energy-saving projects. The NH Utilities will explore offering a tiered incentive design focused on the delivered energy savings of an entire project, rather than the current approach of incentivizing single measures. For the 2021-2023 term, the NH Utilities will continue to offer cost-sharing comprehensive audits and determine if this incentivizes more C&I customers to invest in deeper energy-saving projects.

The NH Utilities will promote comprehensiveness in the 2021-2023 Residential Programs through the introduction and heavy promotion of multiple “on ramps” to energy efficiency (referenced in Priority

Three) that will be utilized to encourage investment in multiple-measure projects over the next three-year period.

Priority Two: Provide Significant Benefits to New Hampshire's Economy

New Hampshire's energy efficiency investments help support the state's economy in multiple ways. Delivering cost-effective energy efficiency programs to customers helps lower energy bills, generates local jobs, reduces the energy dollars that go toward out-of-state energy generation, and increases the quality of the state's building stock. Businesses can invest energy savings toward making their companies more profitable, and into operations and personnel. Towns and cities can use taxpayers' dollars to fund critical infrastructure projects and public services. Homeowners, particularly limited-income customers, can use their energy savings toward their most critical needs, with their dollars staying in the local economy.

Priority Three: Increasing Participation through New and Expanded Program Pathways

The NH Utilities remain focused on transforming the way customers think about and use energy by providing them a variety of innovative energy efficiency services and information that will help them to better manage their energy use and costs, moving them toward adoption of efficiency measures as a standard practice. The NH Utilities will effectively scale up the NHSaves Programs to increase energy savings and program participation by introducing or reinforcing multiple "on ramps" with varied levels of participation requirements for different customer types. These new or more heavily promoted program pathways create easily accessible avenues for customers to achieve energy savings. Through targeted marketing efforts, the NH Utilities can re-engage these customers to purchase additional energy-efficient equipment, use that equipment more effectively, and dive deeper into energy savings.

The NHSaves Residential Programs will introduce or more heavily promote several pathways, including: [electric baseboard to heat-pump conversions](#), code-plus initiatives, online platforms, single-measure rebates, energy kits, and visual audits. For the C&I sector, the NH Utilities will encourage additional participation through the expansion of their "Main Street" efforts and community outreach initiatives,

as well as the creation of standard marketing collateral targeting C&I customers and market segments (see Priority Four).

Priority Four: Offer Effectively-Packaged Solutions to Engage Customers

To increase program participation and energy savings, the NH Utilities must effectively market and package energy efficiency solutions to residential, municipal, and C&I customers. During the 2021-2023 term, the NH Utilities will expand midstream and point-of-purchase rebate offerings for the NHSaves Residential Programs, as well as include additional tiers and bonus incentives for the residential new construction marketplace.

For the NHSaves C&I Programs, the NH Utilities will create standard offer marketing pieces, such as sell sheets and presentations, specifically developed for target C&I market segments and end-use equipment. These tailored marketing collateral packages will make it easier for customers to understand the potential incentives and estimated energy savings associated with common high-efficiency measures applicable to their specific type of business, such as a marketing package for restaurants presenting light-emitting diode (“LED”) fixtures and controls and commercial refrigeration, kitchen, and heating, ventilation, and air conditioning (“HVAC”) equipment.

Priority Five: Develop and Implement a Workforce Development Strategy

A skilled workforce is a critical component of successfully moving the state toward the EERS' increased energy savings goals. The NH Utilities will work with an experienced vendor, as well as knowledgeable and interested New Hampshire stakeholders to train and recruit a qualified energy efficiency workforce. The NH Utilities will also leverage regional activities, best practices and research to inform the workforce development strategy. If needed, the strategy will also be supplemented by a needs assessment or additional research to better understand workforce barriers specific to New Hampshire. In particular, the NH Utilities will be closely examining the outcome of the COVID-19 pandemic on the New Hampshire workforce. The NH Utilities anticipate working more closely with key state agencies, such as the NH Employment Security Office, and the community college system, in order to develop this comprehensive workforce development strategy for (re)building the energy efficiency workforce.

For more information regarding the NH Utilities' workforce development plan, please see Chapter Nine.

Priority Six: Increase Outreach to Main Streets, Municipalities and Rural Areas

For both the Residential and C&I sectors, the NH Utilities will expand efforts to reach customers in hard-to-serve and rural communities, including municipalities, businesses, and residential customers. Part of the NH Utilities' strategy will consist of building a community network of energy champions that includes municipal representatives, sustainability groups, energy committees, and economic development commissions. In addition, the NH Utilities plan to expand Main Streets efforts and community blitzes to further engage local businesses and community groups.

Priority Seven: Upgrading Weatherization Systems and Data Sharing

The NH Utilities are currently working to expand and refine the capabilities of Information Technology ("IT") data sharing, energy modeling and tracking systems for certain statewide programs. For the NHSaves Residential weatherization programs, the home audit and tracking system will be upgraded and deployed in 2021, which will allow the NH Utilities to streamline contractor interactions and provide better energy-savings information to customers.

In the December 13, 2018 settlement, Eversource agreed to review further integration of *Green Button Connect My Data*, which allows utility customers to automate the secure transfer of their own energy usage data to third parties, based on affirmative (opt-in) customer consent and control.¹⁰ Each of the regulated NH Utilities has been investigating the IT requirements and deployment costs associated with the sharing of customer energy use data.

¹⁰ The Green Button initiative is an industry-led effort that responded to a 2012 White House call-to-action to provide utility customers with easy and secure access to their energy usage information in a consumer-friendly and computer-friendly format for electricity, natural gas, and water usage. Customers are able to securely download their own detailed energy usage with a simple click of a literal "Green Button" on utility websites. US DOE, "Green Button". Available at: <https://www.energy.gov/data/green-button>.

Priority Eight: Implement Effective Active Demand Reduction Strategies



Effective demand-reduction strategies can help reduce energy prices and price spikes during summer. For the 2021-2023 term, the NH Electric Utilities will develop and deploy several Active Demand Reduction (“ADR”) strategies to flatten peak loads, improve system load factors, and reduce costs for all electric customers.

The NH Electric Utilities plan to implement two C&I ADR offerings: Load Curtailment and Storage Performance. The Load Curtailment offering will be technology agnostic and allow customers to earn an incentive based on their curtailment performance. The Storage Performance offering consists of a bring-your-own device (“BYOD”) offering for C&I customers with behind-the-meter storage. Participating customers will earn a performance-based incentive for responding to peak demand events initiated or called by their respective NH Electric Utility.

For the 2021-2023 term, the NH Electric Utilities will include two residential ADR offerings: Battery Storage and wirelessly communicating (“Wi-Fi”) Thermostat Direct Load Control (“DLC”). In addition, the NH Electric Utilities will explore implementing an Electric Vehicle (“EV”) ~~pilot~~ measure. The Battery Storage offering will incentivize participants to discharge stored energy from their batteries in response to a signal from their NH Electric Utility. DLC offering participants will be incented to allow brief, limited adjustments to their Wi-Fi thermostats during periods of peak demand. If implemented, the EV measure would utilize incentive strategies to reduce charging demand during peak hours. The NH Utilities will explore this program offering, soliciting feedback from relevant stakeholders through the Stakeholder Advisory Council (“Council”) and make an informational filing with the Commission describing the measure in greater detail. ~~and implement it if deemed feasible during the 2021-2023 term.~~ The NH Utilities will also work with the Council beginning in the summer of 2021 to explore the potential savings and benefits related to monthly peak reduction activity throughout the calendar year.

For more information regarding the NH Utilities’ Residential and C&I ADR offerings, see Chapter Five.

Priority Nine: Implementing an Energy Optimization Pilot

Energy optimization is an energy resource framework that guides customers to make the most efficient use of all energy sources: for heating and cooling, electrification, charging, and even transportation, while maximizing energy and non-energy benefits. With this Plan, the NH Utilities are proposing an Energy Optimization pilot, based on learnings from pilots and programs in other states and from work performed by NHEC. The NHSaves pilot will be focused on conversions from delivered fossil-fuel systems to higher-efficiency electric heating and cooling systems. The pilot will be carefully evaluated [through the EM&V Working Group process](#) in order to guide future decisions on expanding to a full-scale program and to assess the benefits of energy optimization to customers and the electric grid. [Prior to implementation of the pilot the NH Utilities will solicit feedback from relevant stakeholders through the Council, and will make an informational filing with the Commission describing the pilot in greater detail.](#) For more information on the NH Utilities' Energy Optimization pilot, see Chapter Seven.

Priority Ten: Increase Energy Efficiency Portfolio Savings from Non-Lighting Measures

The NH Utilities have carefully considered and accounted for the significant ongoing changes in the residential and C&I lighting marketplaces in the development of the Plan. The NH Utilities' strategy is to actively seek out cost-effective, non-lighting measures wherever possible to provide a robust portfolio during the 2021-2023 term. Several factors were considered to make this determination, including significant discussion with stakeholders at EERS Subcommittee working sessions, as well as among members of the Evaluation, Measurement and Verification ("EM&V") Working Group. Most influential in this decision were the federal roll-back of minimum efficiency standards for lighting (see Section 4.1.3 for a full discussion), results from the Energy Efficiency Baseline and Potential study and other studies conducted in the region (see Section 10.4 for a full discussion), and the need to pursue comprehensive energy efficiency projects to capture all achievable energy savings.

Despite the federal roll-back of minimum efficiency standards, the lighting market has continued to drive the transition to LEDs in the marketplace. In order to help maintain and accelerate the strong demand for high-efficiency ENERGY STAR LED technologies, the NH Utilities will continue to

aggressively support and incentivize energy-efficient bulbs and fixtures for the NHSaves Residential Programs through the end of 2021. Beginning in 2022 and depending on how the marketplace responds to the relaxed federal standards, the NH Utilities will transition program support to discount retailers focused on reaching the last-to-adopt and hard-to-reach customers.

For the NHSaves C&I Programs, an emphasis on contractor trainings and the introduction of tiered incentives should encourage comprehensiveness in energy efficiency projects and increase the share of energy savings from non-lighting measures during the 2021-2023 term.

1.6 Benefits of Energy Efficiency Programs

The NHSaves Programs provide significant value to all customers, both participants and non-participants. As noted in the Executive Summary section, the benefits associated with improving the energy performance of residential and C&I buildings and facilities are numerous and include reduced GHG emissions, direct energy and cost savings, direct and indirect jobs creation, lower municipal spending, reinvestment in local New Hampshire communities, and a variety of other non-energy benefits.

Participation in the NHSaves Programs delivers additional benefits, such as lower asthma rates and other health-related improvements due to better air quality (indoor and outdoor). In addition, businesses can realize improved performance and productivity due to the installation of high-efficiency equipment, such as LED lighting controls and commercial kitchen equipment. Other non-energy benefits include: increased comfort, reduced maintenance costs, improved building value, and healthier buildings in which homeowners or renters are spending a significant portion of their day, whether working or relaxing at home.

1.6.1 Direct Energy Savings and Demand Reduction

Since 2002, New Hampshire electric and natural gas customers have installed energy efficiency measures that have saved more than 19.1 billion electric kWh and 45.7 million natural gas MMBtu, resulting in cumulative customer savings in excess of \$3.4 billion. Furthermore, the 2019 Independent System Operator-New England ("ISO-NE") Energy Efficiency Forecast found that energy efficiency

programs in New England will save over 2,460 MW of peak demand from efficiency projects installed between 2020 and 2028.¹¹ The 2021-2023 NHSaves Programs will save ~~6.7~~5.6 billion electric kWh and ~~9.6~~ million natural gas MMBtu. In addition, the 2021-2023 NHSaves Residential and C&I Programs will save ~~8.3~~7.9 million MMBtu from other fuels, such as oil and propane. Over the lifetime of these measures, this will result in customer cost savings of more than \$~~1.3~~1 billion.

1.6.2 Cost Savings

Energy efficiency program participants receive significant direct benefits from energy efficiency programs; however, all customers benefit from the reduction in energy consumption through efficiency and conservation resulting from NHSaves Programs. Energy efficiency improvements can defer the costs of building new power plants and are less expensive than new energy generation. According to the US Energy Information Administration (“EIA”), nationwide residential and commercial sector energy efficiency improvements were responsible for partially offsetting increasing energy demand resulting from the country’s higher growth rates in population, number of households, and commercial floorspace.¹²

1.6.3 Environmental Benefits

Energy efficiency programs help reduce energy consumption, which in turn reduces the amount of fossil fuels burned by power plants. This reduces GHG emissions that contribute to climate change and air pollution across the region, thereby helping to minimize the cost of mitigation at the state and federal level. Since inception, the NHSaves Programs have helped reduce GHG emissions by more than 11.8 million tons, the equivalent of taking 2.6 million passenger vehicles off the road for one year. The 2021-2023 NHSaves Programs will lead to a reduction of more than ~~4.4~~3.8 million tons of GHG emissions, the equivalent of taking ~~820,751~~949,313 passenger vehicles off the road for one year.

¹¹ ISO New England, Inc. *Final 2019 Energy Efficiency Forecast*. May 12, 2019. Available at: https://www.iso-ne.com/static-assets/documents/2019/04/eef2019_final_fcst.pdf.

¹² EIA. *Annual Energy Outlook 2020*. Available at: <https://www.eia.gov/outlooks/aeo/>.

1.6.4 Economic Benefits

Spending on energy efficiency services and technologies supports the local workforce in New Hampshire. For every million dollars spent on energy-efficient measures, such as building retrofits or new equipment, an estimated 6.2 direct jobs and 2.7 indirect jobs are supported.¹³ Using this calculation, the 2021-2023 NHSaves Programs will support 4,503 FTEs or 9.47 million work hours.

Direct jobs are defined as those that perform energy services or install equipment in a home or a building, such as a home energy auditor, installation contractor, or energy service company. Typically, direct jobs in the energy efficiency industry are located close to where building retrofits and new construction take place, thereby stimulating the local economy. Indirect jobs are defined as those that supply direct-install companies with the equipment needed for building retrofits and construction, such as high-efficiency commercial kitchen equipment, insulation, LED lighting and controls, and refrigeration equipment.

Across the state, the NH Utilities work directly with approximately 1,200 architects, builders, distributors, electricians, energy auditors, engineers, energy service companies, retailers, and other energy efficiency professionals. As noted in Priority Five, the NH Utilities are developing a regional comprehensive plan to facilitate workforce development strategies for the energy efficiency industry.

¹³ Pollin, R., Wicks-Lim, J., Chakrabortu, S., Hansen, T. *A Green Growth Program for Colorado*. Available at: <https://www.peri.umass.edu/publication/item/1168-a-green-growth-program-for-colorado>.

1.7 2021-2023 Program Goals

Table 1-3: Electric Program Annual Savings, by Utility

	2021	2022	2023	2021-2023	Percentage of 3-year Savings
Electric Annual Savings (MWh)					
Eversource	<u>106,869</u>	<u>118,024</u>	<u>135,058</u>	<u>359,951</u>	76%
	110,672	130,959	160,737	402,368	77%
Liberty Electric	<u>12,627</u>	<u>13,520</u>	<u>15,025</u>	<u>41,172</u>	9%
	13,074	14,488	16,624	44,185	8%
NHEC	<u>8,805</u>	<u>7,825</u>	<u>7,157</u>	<u>23,788</u>	5%
	9,144	8,382	7,874	25,400	5%
Unitil Electric	<u>14,785</u>	<u>16,035</u>	<u>18,887</u>	<u>49,706</u>	10%
	15,914	17,150	20,315	53,380	10%
Total	<u>143,085</u>	<u>155,404</u>	<u>176,127</u>	<u>474,616</u>	100%
	<u>148,804</u>	<u>170,978</u>	<u>205,551</u>	<u>525,333</u>	100%

Table 1-4: Electric Program Annual Savings, by Sector

	2021	2022	2023	2021-2023	Percentage of 3-year Savings
Electric Annual Savings (MWh)					
C&I and Municipal	<u>110,806</u>	<u>128,393</u>	<u>148,416</u>	<u>387,615</u>	82%
	117,997	146,379	180,990	445,365	85%
Residential	<u>29,678</u>	<u>23,819</u>	<u>23,976</u>	<u>77,473</u>	16%
	28,176	21,264	20,530	69,970	13%
Income-Eligible	<u>2,602</u>	<u>3,191</u>	<u>3,735</u>	<u>9,528</u>	2%
	2,631	3,336	4,031	9,998	2%
Total	<u>143,085</u>	<u>155,404</u>	<u>176,127</u>	<u>474,616</u>	100%
	<u>148,804</u>	<u>170,978</u>	<u>205,551</u>	<u>525,333</u>	100%

Table 1-5: Natural Gas Program Annual Savings, by Utility

	2021	2022	2023	2021-2023	Percentage of 3-year Savings
Natural Gas Annual Savings (MMBtu)					
Liberty Gas	153,886 <u>141,953</u>	191,719 <u>178,869</u>	219,574 <u>205,384</u>	565,179 <u>526,206</u>	75%
Unitil Gas	44,150 <u>42,299</u>	61,938 <u>58,706</u>	82,314 <u>78,854</u>	188,402 <u>179,859</u>	25%
Total	198,036 <u>184,252</u>	253,657 <u>237,575</u>	301,888 <u>284,239</u>	753,581 <u>706,065</u>	100%

Table 1-6: Natural Gas Program Annual Savings, by Sector

	2021	2022	2023	2021-2023	Percentage of 3-year Savings
Natural Gas Annual Savings (MMBtu)					
C&I and Municipal	129,917 <u>114,364</u>	151,159 <u>133,067</u>	177,362 <u>157,554</u>	458,438 <u>404,985</u>	61 <u>57%</u>
Residential	58,569 <u>60,346</u>	91,891 <u>93,913</u>	112,498 <u>114,670</u>	262,959 <u>262,959</u>	35 <u>38%</u>
Income-Eligible	9,550 <u>9,541</u>	10,606 <u>10,595</u>	12,028 <u>12,015</u>	32,184 <u>32,152</u>	4 <u>5%</u>
Total	198,036 <u>184,252</u>	253,657 <u>237,575</u>	301,888 <u>284,239</u>	753,581 <u>706,065</u>	100%

1.8 Energy Efficiency Program Funding

1.8.1 Electric Energy Efficiency Funding

There are three main funding sources for the NHSaves electric programs: (1) a portion of the SBC that is applied to the electric bills of all customers receiving delivery service from one of the NH Electric Utilities; (2) a portion of the Regional Greenhouse Gas Initiative ("RGGI") auction proceeds; and (3) proceeds earned by each of the NH Electric Utilities from ISO-NE for participation in ISO-NE's Forward Capacity Market ("FCM").

All electric utility FCM revenues are derived from the NH Utilities' energy efficiency programs and support NHSaves electric programs. Any balance of funds, positive or negative, from prior program years is carried forward to future years. This includes interest applied on the monthly balance at the prime rate. The NH Utilities have either estimated prior year carryforwards for calculation of 2021-2023 funding or intend to utilize all prior year funding within the 2020 program year or for additional on-bill loan capital. Any transfers of 2020 funding between programs or to loan funds will follow applicable requirements for notification and/or approval under DE 17-136 and the approved 2020 Plan Update. True-up of actual carryforward from 2020 will take place with the 2020 Annual Report and, if needed, the following SBC or LDAC rate adjustment.

The Commission's staff provides an estimate of RGGI revenue figures to be dedicated to the energy efficiency programs. ISO-NE's FCM revenues are estimated based on the market price for passive demand savings and the obligation of each NH Electric Utility during the two commitment periods covered by calendar years 2021-2023. These figures differ by each NE Electric Utility and can be subject to adjustment based on actual performance.

Table 1-7: Electric Program Funding

2021	Sector	Carryover	HEA Carryover	RGGI	FCM	SBC Funds	Total
Eversource	Residential	\$0	\$0	\$377,341	\$1,557,889	\$24,006,762 \$20,673,489	25,941,992 \$22,608,719
	C&I	\$0	\$0	\$1,531,542	\$3,635,073	43,477,055 \$46,577,169	48,643,671 \$51,743,785
NHEC	Residential	\$607,827 \$407,827	\$0	37,560 \$34,612	\$30,000	\$3,731,842 \$3,934,561	\$4,407,229 \$4,407,000
	C&I	\$428,157 \$28,157	\$0	\$172,873	\$70,000	\$2,311,067 \$2,710,970	\$2,982,097 \$2,982,000
Liberty	Residential	\$598,262	\$19,796	\$44,153	\$263,079	\$1,636,452	\$2,561,742
	C&I	\$755,404	\$0	\$177,584	\$348,732	\$3,571,782	\$4,853,502
Unitil	Residential	\$480,100	\$0	\$56,687	\$168,524	\$3,972,212 \$3,972,213	\$4,677,523 \$4,677,524
	C&I	(\$111,241)	\$0	\$228,000	\$393,222	\$4,382,005 \$4,382,004	\$4,891,986 \$4,891,985

2022	Sector	Carryover	HEA Carryover	RGGI	FCM	SBC Funds	Total
Eversource	Residential	\$0	\$0	\$362,535	\$1,433,201	\$26,011,870 \$20,620,060	\$27,807,606 \$22,415,796
	C&I	\$0	\$0	\$1,531,542	\$3,344,136	\$57,460,333 \$67,090,791	\$62,336,012 \$71,966,469
NHEC	Residential	\$0	\$0	\$36,086 \$34,612	\$30,000	\$4,106,158 \$4,100,388	\$4,172,244 \$4,165,000
	C&I	\$0	\$0	\$172,873	\$70,000	\$3,105,213 \$3,100,127	\$3,348,086 \$3,343,000
Liberty	Residential	\$0	\$0	\$42,420	\$233,584	\$2,496,480	\$2,772,483
	C&I	\$0	\$0	\$177,584	\$309,634	\$5,398,895	\$5,886,113
Unitil	Residential	(\$152) (\$879)	\$0	\$54,463	\$140,137	\$4,964,101 \$4,964,828	\$5,158,549 \$5,158,549
	C&I	(\$2,147) (\$852)	\$0	\$228,000	\$326,985	\$5,635,103 \$5,633,809	\$6,187,941 \$6,187,941

2023	Sector	Carryover	HEA Carryover	RGGI	FCM	SBC Funds	Total
Eversource	Residential	\$0	\$0	\$347,726	\$1,198,252	\$29,382,952 \$21,735,949	\$30,928,929 \$23,281,927
	C&I	\$0	\$0	\$1,531,542	\$2,795,920	\$72,388,930 \$91,149,205	\$76,716,392 \$95,476,667
NHEC	Residential	\$0	\$0	\$34,612	\$30,000	\$4,020,203 \$4,006,388	\$4,084,815 \$4,071,000
	C&I	\$0	\$0	\$172,873	\$70,000	\$3,015,054 \$3,005,127	\$3,257,927 \$3,248,000
Liberty	Residential	\$0	\$0	\$40,687	\$150,966	\$2,651,629	\$2,843,282
	C&I	\$0	\$0	\$177,584	\$200,117	\$6,770,979	\$7,148,680
Unitil	Residential	\$863 \$0	\$0	\$52,238	\$133,129	\$5,452,378 \$5,159,285	\$5,344,652
	C&I	(\$920) \$0	\$0	\$228,000	\$310,634	\$7,213,727 \$7,212,807	\$7,751,441

1.9 Natural Gas Energy Efficiency Funding

The NHSaves natural gas programs are funded by a portion of the LDAC, which is applied to natural gas bills for customers of the NH Natural Gas Utilities. Similar to the NHSaves electric programs, the balance of funds from prior program years is carried forward to future years, including interest earned on monthly balances applied at the prime rate.

The NH Natural Gas Utilities determine the overall budget requirements to meet the required energy savings targets. LDAC rates are then set by program sector by each of the NH Natural Gas Utilities based on revenue needs and sales forecasts.

Table 1-8: Natural Gas Program Funding

2021	Sector	Carryover	HEA Carryover	LDAC Funds	Total
Liberty	Residential	\$ 55,173	\$ -	\$ 5,694,467	\$ 5,749,640
	C&I	\$ (29,094)	\$ -	\$ 3,734,528	\$ 3,705,434
Unitil	Residential	\$ (276,963)	\$ -	\$ 1,557,446	\$ 1,280,483
	C&I	\$ 60,459	\$ -	\$ 1,704,995	\$ 1,765,455

2022	Sector	Carryover	HEA Carryover	LDAC Funds	Total
Liberty	Residential	\$ -	\$ -	\$5,999,242	\$ 5,999,242
	C&I	\$ -	\$ -	\$ 4,100,187	\$ 4,100,187
Unitil	Residential	\$ 7,185	\$ -	\$ 1,548,992	\$ 1,556,177
	C&I	\$ 10,794	\$ -	\$ 2,548,396	\$ 2,559,190

2023	Sector	Carryover	HEA Carryover	LDAC Funds	Total
Liberty	Residential	\$ -	\$ -	\$ 6,510,458	\$ 6,510,458
	C&I	\$ -	\$ -	\$ 4,624,437	\$ 4,624,437
Unitil	Residential	\$ -	\$ -	\$ 1,892,786	\$ 1,892,786
	C&I	\$ -	\$ -	\$ 3,644,397	\$ 3,644,397

1.10 Annual Program Budgets

Table 1-9: Annual Electric Budget, by Utility

	2021	2022	2023	2021-2023	Percentage of 3-year Budget
Electric Budget (\$000)					
Eversource	<u>\$70,699</u>	<u>\$85,446</u>	<u>\$102,035</u>	<u>\$258,181</u>	<u>77%</u>
	\$70,478	\$89,464	\$112,569	\$272,511	78%
Liberty Electric	\$7,030	\$8,207	\$9,471	\$24,708	7%
NHEC	\$7,004	\$7,129	\$6,960	\$21,093	6%
Unitil Electric	<u>\$9,071</u>	\$10,755	<u>\$12,692</u>	<u>\$32,518</u>	<u>10%</u>
	\$9,070		\$12,691	\$32,516	9%
Total	<u>\$93,804</u>	<u>\$111,537</u>	<u>\$131,159</u>	<u>\$336,500</u>	<u>100%</u>
	\$93,582	\$115,554	\$141,692	\$350,829	

Table 1-10: Annual Natural Gas Budget, by Utility

	2021	2022	2023	2021-2023	Percentage of 3-year Budget
Natural Gas Budget (\$000)					
Liberty Gas	\$8,962	\$9,573	\$10,554	\$29,089	69%
Unitil Gas	\$3,076	\$4,133	\$5,583	\$12,793	31%
Total	<u>\$12,038</u>	<u>\$13,706</u>	<u>\$16,137</u>	<u>\$41,882</u>	<u>100%</u>

Budget allocations by sector are informed by the source of the funds, and each NH Utility’s forecasted delivery sales to each customer sector. The Home Energy Assistance (income-eligible) program budget is not less than 17 percent of each NH Utility’s total portfolio budget exclusive of any unspent income-

eligible program funds from the prior year and meets New Hampshire legislative requirements that 20 percent of the SBC funds be directed toward limited-income programs.¹⁴

Monthly interest at the prime rate is applied to fund balances and reinvested into programs. Funding estimates from the SBC and LDAC are based on each of the NH Utility’s sales projections. Actual sales may differ, resulting in potentially more or less SBC or LDAC revenue available for energy efficiency programs. In addition, RGGI and FCM proceeds are estimated and are also likely to differ from actual revenues. When planning program budgets and reporting expenses, the NH Utilities summarize expenses by specific tracking activities, defined as follows in Table 1-11:

Table 1-11: Tracking Activities for Expenses

Tracking Activity	Description
Administration—Internal	Internal utility costs associated with program design, development, regulatory support, and quality assurance. Costs include: employee labor, benefits, expenses, materials, and supplies.
Administration—External	Costs associated with external costs of program administration. This includes contractors and consultants used in support of program design, development, regulatory support, and quality assurance.
Customer Rebates and Services	Includes costs associated with incentives that reduce the cost of equipment as well as costs for services to speed adoption. This includes direct rebate dollars paid to distinct participants, as well as indirect incentives for equipment discounts. It also includes services such as technical audits, employee and contractor labor to install measures, expenses, materials, and supplies.
Internal Implementation Services	Tracks costs associated with delivering programs to customers, including labor, benefits, expenses, materials, and supplies.
Marketing	Includes costs for marketing, advertising, trade shows, toll-free numbers, and NHsaves website. Types of expenses include labor, benefits, consultants, contractors, expenses, materials, and supplies.
Evaluation	Costs for EM&V activities including labor, benefits, expenses, materials, supplies, consultants, contractors, and tracking systems.

¹⁴ RSA 374-F.3 VI: *Electric Utility Restructuring Act*, 1996. VI. Benefits for All Consumers. “Restructuring of the electric utility industry should be implemented in a manner that benefits all consumers equitably and does not benefit one customer class to the detriment of another. Costs should not be shifted unfairly among customers. A non-by-passable and competitively neutral system benefits charge applied to the use of the distribution system may be used to fund public benefits related to the provision of electricity. Such benefits, as approved by regulators, may include, but not necessarily be limited to, programs for low-income customers, energy efficiency programs, funding for the electric utility industry’s share of commission expenses pursuant to RSA 363-A, support for research and development, and investments in commercialization strategies for new and beneficial technologies...”

Chapter Two: Three-Year Planning Structure

This chapter outlines the NH Utilities’ proposal to effectuate a true triennial program operating period with a single planning and settlement effort and three-year goals, rather than three distinct annual operating periods with distinct planning efforts, budgets, and goals.

This chapter describes the rationale and details behind the NH Utilities’ proposal, unanimously supported by the EESE Board and stakeholders to the EERS process, to transition from a three-year plan punctuated by significant annual updates to a true three-year plan that emphasizes long-term goals and three-year budgets. This change will provide the NH Utilities the flexibility of the full term to successfully implement the plan while maintaining transparency and accountability with both the Commission and stakeholders.

Adoption of a true three-year plan structure will improve program delivery to customers, foster innovation, provide vendors and contractors with greater flexibility to adapt to fluid and evolving market conditions, and result in a more cost-effective and efficient process for the NH Utilities and stakeholders. Many of the leading states for energy efficiency (e.g., Massachusetts, California, and Vermont) implement true three-year or multi-year plan operating cycles, allowing them to focus on longer term goals, new technologies, innovative program designs, and more effective targeting of all customer demographics.¹⁵

2.1 A Three-Year Plan

Commencing with the 2021-2023 Plan term, the NH Utilities propose to fully transition the NHSaves Programs to a 36-month operating structure, for which the program budgets, energy savings goals, and planned program designs are approved by the Commission for the entire triennium, rather than for

¹⁵ ACEEE. 2019 State Scorecard. Available at: <https://database.aceee.org/state-scorecard-rank>. In the 2019 State Scorecard, Massachusetts, California, and Vermont, were ranked first, second, third, respectively.

each year of the term. Once approved by the Commission, the NH Utilities will implement the three-year plan consistent with such approval and will only seek to modify budgets or goals if certain triggers discussed in Section 2.1.6 occur. During the three-year term, the NH Utilities will apply new evaluation results and updated avoided costs to the actual results on a prospective basis beginning on January 1st of the year after the results are finalized.

The final calculation of achievement of the Commission ordered three-year term energy savings and benefits goals. The resulting Performance Incentive (“PI”) earned will be finalized following the conclusion of the third and final year of the term, in a comprehensive term report (“Term Report”) to be filed by each NH Utility, along with a statewide summary. Planned and approved targets will not change during the term, except for application of new values from the Avoided Energy Supply Components Study (“AESC Study”) or additional net-to-gross factors beyond downstream C&I lighting. ~~However, the~~ The actual savings and benefits resulting from the portfolio of programs will be reported using the prospective application of results from evaluations, except for realization rates from C&I custom impact evaluations, which will be applied retrospectively as recommended by the evaluation contractor and agreed to by the EM&V working group. ~~as well as the Avoided Energy Supply Components study (“AESC Study”), which is scheduled to be completed in the spring of 2021.~~ While the plan will be triennial, stakeholders will remain fully engaged with the NH Utilities’ progress toward achieving the term goals through quarterly and annual reports and participate in information sharing and feedback during quarterly meetings and other updates.

A true triennial plan term will improve program delivery and eliminate some of the barriers facing customers and contractors, including the stop/start of programs due to annual budget constraints. Contractors, installers, NH Utility staff, and other local and regional stakeholders will be afforded a longer view and greater ability to improve programs and adapt over time. Setting three-year budgets and goals will allow the NH Utilities the necessary flexibility to respond to changing economic conditions, seasonal anomalies, and the evolving energy efficiency marketplace. This new structure will also allow for the introduction of new measures and innovations, with the ability to learn and adjust during the three-year period without undue focus on annual goals.

With a three-year planning structure, programs and measure offerings can be emphasized or de-emphasized based on market needs, and resources can be deployed when opportunities arise rather than being constrained by one-year budgets and goals. Three-year budgets and the ability to shift funds from one program to another will minimize disruption in the marketplace caused by programs opening and closing on a calendar-year basis and maximize efficient use of funds.

Budget flexibility across program years will also allow the NH Utilities to effectively execute multi-year commitments with large C&I and municipal customers, which the NH Utilities are confident will result in sustained, long-term, and comprehensive energy savings and potential reductions in administrative costs. Furthermore, a three-year plan, budget, and goals support a sustainable energy efficiency economy by providing more stability and certainty for contractors and partners that invest in training and workforce development over a longer time horizon than 12 months. Moving to a 36-month budget will reduce administrative resources needed to design and approve annual planning efforts and program changes, and will put a greater focus on program implementation, innovation, and achievement of goals.

Prior to implementation of the EERS, the NH Utilities filed biannual energy efficiency plans, which were updated annually. During the course of the 2018-2020 term, the NH Utilities filed two plan update filings with the Commission (2019 Plan Update and 2020 Plan Update). These annual filings and plan updates require an enormous amount of time and resources for the NH Utilities to prepare, beginning in the early summer of the preceding year. Following the filing of a plan or plan update, the NH Utilities and numerous other parties, including Commission Staff, must participate in public input and stakeholder sessions, as well as a four-month adjudicative proceeding including tech sessions, discovery and settlement, and culminating in hearings before the Commission.

An EERS plan that truly spans a three-year period will reduce the time and resources spent in adjudicative proceedings for all parties, thereby allowing resources to be dedicated to serving customers rather than administrative matters. The NH Utilities propose to provide regular and transparent reporting, including robust quarterly and annual reports to the Commission regarding progress toward the three-year goals, significant changes to NHsaves Program delivery or design, and

the results from evaluations, including updates to the Technical Reference Manual (“TRM”) and the AESC Study. Triggers for mandatory review of one or more of the NH Utilities’ plans ensure that proposals for significant mid-term modifications are reviewed and approved by the Commission, with opportunity for stakeholder input.

This proposal strikes the appropriate balance between improved program flexibility with reduced administrative burden, while maintaining robust accountability and Commission oversight.

2.1.1 Savings Goals

In a triennial plan structure, energy savings and benefits goals will be set for the entire three-year period. The NH Utilities will provide a savings target for each program year of the term. This annual target, however, shall be considered a directional indicator, while the binding goal for each utility will be based on the cumulative activity over the three-year term.

The NH Utilities will report actual savings and benefits, applying relevant evaluation findings prospectively, excepting C&I custom realization rates as discussed in Chapter 10. The NH Utilities will also update benefits calculations resulting from the 2021 AESC Study in their reporting for program years 2022 and 2023.

Approved term goals *will not change without the Commission’s approval* regardless of the results of evaluations ~~and the avoided cost study~~. However, in order to maximize savings and benefits for customers, the NH Utilities are likely to implement changes to program delivery and measure mix as a result of changing market conditions, evaluation findings, and other market intelligence gained during the term. For example, if an evaluation finds that a specific measure saves less energy than was estimated in the approved triennial plan, the NH Utilities will apply the updated values to the following year’s TRM, as well as the benefit-cost model used for the calculation of actual savings and benefits. The NH Utilities may also choose to modify the measure offering by adjusting incentive levels or even discontinuing incentive support for the affected measures.

Stakeholders will be made aware of these changes through several channels:

- The EM&V Working Group will be made aware of the evaluation impacts to measures and programs as evaluations are drafted and finalized, and other interested parties will have access to final reports once posted to the Commission’s website;
- A searchable, electronic TRM, developed by the NH Utilities in coordination with the EM&V Working Group, will be updated and published annually to a public website and will highlight changes to measure assumptions to be applied to the following year;
- The NH Utilities will continue to report any changes to measure incentives in each quarterly report, which is distributed to the service list and subject to discussion at ~~quarterly meetings~~ Council meetings; and
- The NHSaves website will reflect up-to-date information regarding what equipment and other energy efficiency measures are eligible for incentives, which measures are offered through mail-in rebate, retail/distributor or online channels, and the dollar amount of all incentives.¹⁶

These changes, however, will only impact the reporting of savings, and not the planned and approved term goals or budgets. The exception is if a mid-term modification trigger occurs, requiring Commission review and approval of the impacts before changes can be considered official. Under the three-year term construct, the NH Utilities will gain the flexibility to adapt to evaluation impacts and pursue cost-effective energy efficiency opportunities in order to achieve the term goals within the approved budget.

2.1.2 Budgets

Each NH Utility will develop individual program budgets for the term, as well as an estimate of the annual budgets. Any budgeted but underspent funds from one year will be carried over into the next program year (until the conclusion of the three-year term), remaining in the relevant energy-saving program. Overspending in the initial program years would reduce the remaining funds available for the remainder of the term. In order to ensure that the NH Utilities are not unduly constrained, while also

¹⁶ Note: Some rebates are determined on a case-by-case basis and depend on the size, savings, total cost, efficiency rating, etc.

ensuring significant increases in spending are subject to Commission review, the NH Utilities propose to allow each NH Utility to spend up to 110 percent of each sector's approved term budget without requiring Commission approval.

2.1.3 Funding

The three-year plan includes estimated customer bill and rate impacts by utility for each year of the triennium (see Section 10.4). Commission approval of the triennial plan will constitute approval of each of the NH Utility's three-year term budget, as well as the term budgets for each program; non-binding *annual* program budgets are also provided.

The three-year plan includes proposed SBC rates and LDAC rates for each year of the triennial plan, based on the projected annual budgets and other funding sources. Commission approval of the triennial plan will constitute approval of the SBC rates for each year. Annually, each of the NH Electric Utilities will review actual sales and revenues to determine whether the approved SBC rate for the next year is still applicable for collection of the approved budget. If this reconciliation results in the need to increase or decrease the rate any such change to the rates approved for the 2021-2023 Plan shall be filed for review and approval by the Commission. ~~by no more than 10 percent of the approved rate, the NH Utility will file a technical statement with the projected over or under calculation, along with the resulting energy efficiency portion of the SBC rate and adjust the rate without the need for a formal procedure and hearing. The NH Utility will also file a revised tariff page reflecting the change. At the end of the three-year period, a final reconciliation will be filed to reconcile the final three-year program budgets and expenses.~~ Proposed SBC Rates for 2021-2023 can be found for Eversource in Attachment C of the Settlement Agreement, for Unitil in Attachment D of the Settlement Agreement, for NHEC in Attachment E of the Settlement Agreement and for Liberty in Exhibit 44.¹⁷ ~~Additional discussion of the proposed rates for the 2021-2023 term and adjustment procedures can be found in Attachment K.~~

¹⁷ Documents described in this sentence can be found in the Docket Book for DE 20-092. The Settlement Agreement is Exhibit 14, Exhibit 44 is a revision to Liberty's SBC Calculations. <https://www.puc.nh.gov/Regulatory/Docketbk/2020/20-092.html#ExhibitsPage>

The model for this proposal is the LDAC charges currently utilized by the NH Natural Gas Utilities. With this approach, energy efficiency budgets are developed and approved in the energy efficiency docket, while the LDAC rate itself is considered and approved in Liberty Gas's and Unitil Gas's utility-specific cost-of-gas filings. ~~Additionally, in Docket No. DR 98-015, the Commission approved in Order No. 22,890, a monthly adjustment to the cost of natural gas that does not require a filing for rate approval, similar to the mechanism proposed in this Plan filing for handling yearly adjustments to the SBC.~~

The NH Electric Utilities are filing separate SBC rates with the Commission based on the funding needed to execute individual portfolio and sector energy efficiency programs. This methodology will streamline the manner in which actual collections and expenditures are reconciled for each NH Electric Utility and allow each utility to collect only those funds needed to execute proposed programs, rather than being tied to a specific rate set for a statewide savings goal.

An important element of this proposal is that, as with the revenue-raising mechanism utilized by the natural gas energy efficiency programs, each NH Electric Utility will set a distinct SBC rate for each sector (Residential and C&I), based on the approved annual energy efficiency budget for that sector in each program year. As the opportunities for energy efficiency evolve in the marketplace, the need for distinct SBC rates for the residential and C&I sectors becomes paramount. In order to achieve increasingly ambitious EERS goals for kWh savings and demand reduction, it is imperative that the NH Utilities have the flexibility to collect revenues at different rates between the sectors.

A relatively high percentage of the investment in the residential sector results in fuel-neutral energy efficiency savings (i.e., heating and water heating savings from weatherization programs, which disproportionately reduces more fossil fuel use than electricity). This dynamic leads to a high cost to achieve kWh savings in the residential sector relative to the C&I sector. Maintaining an identical SBC rate for residential and C&I customers would lead to a disproportionate amount of funding for NHSaves Residential Programs, as well as residential rates that are unnecessarily high, and which contribute relatively little to the EERS' electricity savings goals. This disconnect will be exacerbated as the opportunity for claimable energy efficiency savings from residential lighting is greatly reduced over the coming term as a result of market transformation to LED technology.

A review of other jurisdictions shows that setting distinct energy efficiency rates for each customer sector is the norm.¹⁸ By following suit, the NH Electric Utilities will be able to better target electric funding to where it is most cost effective, capturing electric savings opportunities where they exist in order to achieve increasingly ambitious EERS goals.

Pursuant to state legislation, at least 20 percent of all SBC funds for energy efficiency shall be budgeted for low-income energy efficiency programs.¹⁸ Additionally, the NH Utilities have committed to budgeting and spending at least 17 percent of the total portfolio investment on low-income energy efficiency programs. Other than the revenues needed for the low-income programs (which are funded by both the residential and C&I sectors, relative to revenues), SBC and LDAC funds will continue to be dedicated to the sector from which they are collected. Once budgets are approved by the Commission, there shall be no movement of funds between the residential and C&I customer sectors unless specifically approved by the Commission. In addition, no funds shall be transferred from the HEA program without prior approval by the Commission.

The electric energy efficiency programs will continue to receive and rely on revenues from two other sources: the proceeds from each NH Electric Utility's participation in ISO-NE's FCM, and New Hampshire's participation in RGGI. FCM revenues are unique to each utility and are based on the amount of capacity each NH Electric Utility has bid into and delivered to the market over the past decade. Revenues from RGGI have been relatively fixed for the past several years based on legislation that limits to \$1 per allowance the amount of funding made available to the energy efficiency

¹⁸ Eversource, MA (2020). Summary of Eastern Massachusetts Electric Rates for Greater Boston Service Area, Effective Jan. 1, 2020. Retrieved from: https://www.eversource.com/content/docs/default-source/rates-tariffs/ema-greater-boston-rates.pdf?sfvrsn=c27ef362_40.

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Georgia Power (2020). Demand Side Management Residential & Commercial Schedules: "DSM-R-8". Retrieved from, 1) <https://www.georgiapower.com/content/dam/georgia-power/pdfs/residential-pdfs/residential-rate-plans/DSM-R-8.pdf>, and 2) <https://www.georgiapower.com/content/dam/georgia-power/pdfs/business-pdfs/rates-schedules/small-business/DSM-C-7.pdf>.

CenterPoint Energy Houston Electric, LLC (2020). Tariff for Retail Delivery Service. Retrieved from <https://www.centerpointenergy.com/PublishingImages/CNP/Common/SiteAssets/doc/CNPRetailDeliveryTariffBook12107.pdf>.

programs. Further restrictions on how the RGGI revenues can be spent limit most funding to the Municipal (C&I) and Home Energy Assistance (Residential) programs.

Actual and expected revenues from these two streams, as well as interest earned on balances, offset revenues needed by each of the NH Electric Utilities when proposing each year's SBC rate.

2.1.4 Performance Incentive

Under the proposed three-year planning structure, each NH Utility's PI will be determined based on achievement over the full three-year term. The NH Utilities propose to retain the new PI framework approved by the Commission in Order 26,323 for the 2021-2023 term, with a modification to incorporate the active demand response kW goal in the calculation and adjustment to the threshold percentages as explained in Section 10.2. More substantively, the calculation of the Benefit-Cost Ratio ("BCR") will be amended to reflect the new Granite State Cost Test, which removes customer costs and non-energy benefits from the calculation of the BCR.

For the NH Utility annual reports, each NH Utility will complete a preliminary PI calculation based on actual costs, savings, and benefits for the program year. At the end of the third year of the three-year term, each NH Utility will perform a final calculation of earned PI, based on actual achievement over the term compared to the three-year term goals. After the Commission's final audit is complete, the resulting PI for the entire term will be considered approved, and subsequent SBC filings will adjust rates to account for any over or under recovery of PI.

Additional discussion of the PI calculation, drawing from the 2019 PI Working Group Report, can be found in Chapter Ten.¹⁹

2.1.5 Reporting

As discussed above, each NH Utility will calculate actual achievement of term goals, budgets, and PIs as part of a comprehensive Term Report. The NH Utilities will report actual achievement relative to

¹⁹ 2019 PI Working Group Report. Available at: https://www.puc.nh.gov/EESE%20Board/EERS_WG/20190913-EERS-WG-PI-FINAL-REPORT.pdf.

planned goals, as adjusted by any mid-term modifications (see Section 2.1.6, “Commission Notification and Mid-Term Modifications”). The Term Reports, along with a statewide summary, will be filed with the Commission no later than August 1st after the conclusion of the final year of the three-year term. The Commission will perform its final audit of the 2021-2023 term based on the Term Report and grant final cost recovery and PI following such investigation.

In addition to the Term Report, quarterly reporting over the course of the 2021-2023 term will ensure continued transparency into the progress of the NH Utilities in achieving the proposed goals, as well as provide an opportunity for New Hampshire’s regulators and stakeholders to engage with the NH Utilities to provide feedback on the evolving market for energy efficiency. The NH Utilities will continue to submit a joint Quarterly Report no later than 60 days after the end of each quarter.

For the first and second years of the term, a statewide Annual Report will be filed with the Commission. Assumptions underlying the reported savings and benefits will be based on that year’s Report and TRM, as discussed in more detail below. Updated avoided costs from the 2021 AESC Study will also be applied to the 2022 and 2023 Annual Reports for the purpose of calculating benefits. In addition, each Annual Report will detail the progress made by the NH Utilities individually and as a group toward achieving the three-year goals, as well as estimated PI earned that year for each of the NH Utilities. Each NH Utility’s Annual Report will also include a projection of anticipated term spending, savings and benefits over the term, and updates on all initiatives identified for exploration or investigation during the 2021 Plan implementation period. The NH Utilities will work with stakeholders, via the Council to finalize the appropriate content for annual and quarterly reports to the Commission.

While the Term Report will be subject to a comprehensive review by the Commission, the Annual Report filing will not include a formal adjudicative process unless the Commission deems further investigation necessary. This structure will provide the Commission and stakeholders the continued ability to assess cost effectiveness and progress toward goals on an annual basis. In addition, the structure will reduce administrative time and cost burdens, and will continue to provide the opportunity for comprehensive review after the term has concluded but before the final PI is booked.

By December 1st of each year, the NH Utilities will file an updated TRM, reflecting prospective changes to measure assumptions that will take effect on January 1st of the following program year. This TRM will incorporate all evaluation findings, marketplace changes, emerging technologies, changing federal and state regulations, building code standards, and other pertinent information impacting measure savings assumptions. For the 2021-2023 term, the NH Utilities anticipate producing three TRMs, which are detailed in Table 2-1 on the next page:

Table 2-1: Planned TRMs during the 2021-2023 Plan Term

TRM Version	Used for:
2021-2023 Plan TRM, revised draft filed with Plan ²⁰	Planned 2021-2023 activity Reporting 2021 actual activity
2022 TRM for Reporting, to be filed 12/1/2021	Reporting 2022 actual activity
2023 TRM for Reporting, to be filed 12/1/2022	Reporting 2023 actual activity

This TRM update process will be managed by the EM&V Working Group, which ~~consists of NH Utility members, as well as the Commission’s evaluation consultants, Commission Staff representatives, and a liaison to the EESE Board who is nominated and approved by vote of the EESE Board representatives.~~ shall continue to consist of representatives of the NH Utilities, Staff representatives, a consultant chosen by Staff (paid for out o EERS funds), and a representative of other stakeholders. It shall be the responsibility of the Council to choose the stakeholder representative. The consultant shall be independent and assist the entire working group and shall be available to all members for consultation. The NH Utilities will strive to include consensus based assumptions for all measures and offerings included in the NHSaves Programs. The changes reflected in the annual update to the TRM must be finalized and agreed to by the EM&V Working Group by November 1 of each year in order to be included in the updated TRM and shall take effect with the commencement of the subsequent program year. It shall be the responsibility of the consultant to seek consensus among members of the

²⁰ The 2021-2023 Plan TRM is substantially complete, but some chapters are still under review by members of the EM&V Working Group. The NH Utilities will finalize and publish the complete TRM as soon as possible, in accordance with the 2018-2020 settlement agreement to complete a TRM by December 31st of the final year of the triennium. See Section 10.3 for further details.

EM&V working group. In the event a consensus is not reached after reasonable efforts, any member of the working group may seek a Commission determination on the issue. In such a circumstance, the status quo shall continue to apply until the Commission makes a decision. Should no request for a Commission determination be filed within ten calendar days of notification by the working group member who raised the concern, the recommendation of the consultant shall be adopted. Regarding any disagreement on matters of policy (as distinct from technical disagreements) any member of the working group may notify the Council to give the Council the opportunity to address the issue as appropriate. ~~Should consensus not be reached, members of the EM&V Working Group may petition the Commission for resolution on the matter. For more information regarding the EM&V process, see Chapter 11.~~

~~In order to provide the Commission and EESE Board with information on the results of the 2021 regional AESC Study, the NH Utilities will also submit an informational report to the Commission and EESE Board in the fall of 2021, documenting the impact on planned benefits over the three-year term. As part of this informational report, each NH Utility will calculate the impact of the updated avoided costs on the approved plan for 2022 and 2023. The report will allow for a comparison by year of 2022 and 2023 Commission-approved benefits and cost-effectiveness calculations with the projected benefits and cost-effectiveness applying the results of the AESC Study.~~

~~As noted above, while the new AESC Study will impact reported benefits, the NH Utilities will not change their *planned* savings or benefits goals unless a mid-term modification trigger occurs, and the Commission approves a requested change. If the impact of the AESC Study (alone or in conjunction with other evaluation results) is substantial enough to require a modification, each of the impacted NH Utilities will develop and file a proposed revision of plan goals and budgets in accordance with the process set forth in Section 2.1.6.~~

2.1.6 Commission Notification and Mid-Term Modifications

While a true three-year plan will lead to improved continuity of programs, flexibility, and minimization of time spent in adjudicative proceedings, some changes may be significant enough to necessitate a mid-course correction that requires adjustments to the NH Utilities' approved plans. The NH Utilities

propose two mechanisms for amending the term plan based on the significance of the change(s) requested. The first mirrors the current practice of alerting the Commission and stakeholders regarding relatively modest changes in program budgets, program design or delivery, or measure offerings. The second type of amendment will require one or more individual utilities to file a mid-term modification, which the Commission must approve in order for the proposed change to take effect.

Circumstances Requiring Notification to the Commission:

- ~~Adjusting program budgets by less than 20 percent of its approved term budget~~ Adjusting program budgets if actual expenditures for an individual program are forecast to exceed 120 percent of the program's 36-month budget.
- The transition from a pilot offering to a full offering that does not trigger one or more of the conditions requiring a mid-term modification.
- The annual filing of the TRM, which includes modifications to measure level assumptions (e.g., measure life, gross savings, in-service rates, net-to-gross factors, load shape, coincidence factors, algorithms, etc.) that will be used in reporting savings and benefits.

A Commission notification under this section will not result in a change to approved three-year plan goals or total budgets.

Circumstances Requiring a Mid-Term Modification and Approval by the Commission (by one or more of the NH Utilities):

- Inclusion of a new program.
- The suspension or closure of an approved energy savings program.
- An increase in a sector's approved term budget exceeding 110 percent of the original budget dollar amount:
 - The NH Utility proposing such change will also file an associated change to the budget for income-eligible programs in order to satisfy NH Rev Stat 374-F:3, VI.

- ~~A projected decrease to the planned and approved benefits or primary annual energy savings (kWh or kW) for NH Electric Utilities; MMBtu for NH Natural Gas Utilities) in a particular sector of greater than 25 percent over the term.~~
- ~~A change to the planned and approved Granite State Test's portfolio benefits or primary energy savings (kWh or summer kW for NH Electric Utilities, MMBtu for NH Natural Gas Utilities) greater than 10 percent in either direction over the term resulting from:~~
 - ~~An update to the AESC Study; and/or~~
 - ~~Evaluation findings.~~

The NH Utilities will notify the Council of the circumstances requiring a modification, which the Council may discuss prior to a filing with the Commission by one or more of the NH Utilities requesting such changes.

An approved mid-term modification under this section will result in a corresponding change to a NH Utility's plan goals or budgets. The NH Utility will compare actual term performance with the modified and Commission-approved plan goals and budgets in its respective Term Report.

Avoided Energy Supply Components Study Update

The New England states expect completion of a new Avoided Energy Supply Components ("AESC") study during the first half of 2021, which will provide updated values for the marginal avoided costs of electricity, natural gas, and other resources to be applied to the NH Utilities' benefit cost models for the energy efficiency and active demand reduction programs. When the updated values for marginal avoided costs become available, the NH Utilities will update the AESC 2018 values currently used in their benefit cost models, apply the values from AESC 2021 to program years 2022 and 2023, and seek Commission approval for such revisions. The NH Utilities agree that these new calculations shall be used to report actual results in 2022 and 2023. However, the 2021 benefits calculations, based on AESC 2018, shall not be changed for either updating planned benefits goals or for reporting 2021 actual results.

The NH Utilities shall submit amended attachments and benefit cost models to account for the AESC 2021 updates to the Commission by September 1, 2021. Amendments shall be limited to the avoided cost updates resulting from the AESC 2021 study and reflection of this change in the calculation of the component of the performance incentive. Amended attachments to the 2021-2023 Plan filed to docket DE 20-092 shall serve as a notification and automatic update of the 2021-2023 Plan but shall not require the Commission to commence a proceeding.

2.1.7 Exceptions

In exigent circumstances, a NH Utility may petition the Commission for an exception to the specific mid-term modification triggers and procedures set forth above. The NH Utility shall have the burden to demonstrate the compelling nature of such request.

2.1.8 Program Continuity

The NH Utilities have designed the NHSaves Programs to be open and available year round throughout the three-year term in order to achieve the planned energy savings and to maximize customer satisfaction and minimize market disruption with key channel partners such as contractors, equipment suppliers, and distributors. In order to be responsive to the market, ensure consistent program availability and achieve goals, the NH Utilities may make specific program changes as needed during the term, including:

- Adjusting program marketing activity levels to ramp up or slow down demand;
- Modifying incentive levels for certain programs or measure categories;
- Introducing time-based incentives, which could involve promoting more limited period offerings, as well as potentially promoting higher incentive offers during periods of lower or seasonal demand where there may be greater contractor availability;
- Transferring available program funds from underperforming programs into programs with higher demand within the same sector; and
- Amending per-customer maximum project cap levels to help extend program availability.

Chapter Three: NHSaves C&I Energy Efficiency Programs

Since 2002, the NH Utilities have implemented programs to help improve the efficiency of small and midsize businesses, municipalities, and large C&I customers across New Hampshire. The NHSaves C&I Programs are designed to help businesses and municipalities reduce operating costs, purchase high-efficiency equipment and technologies, and increase productivity. Also, the C&I Programs defer the need for additional generation on the electric grid and protects the environment through reduced electricity, natural gas, and fossil fuel consumption.

3.1 Overview

In addition to serving customers, the NHSaves C&I Programs collaborate with a mature and robust network of stakeholders, including but not limited to: energy efficiency contractors, architects, developers, distributors, manufacturers, and retailers. The NH Utilities provide education, incentives, design and technical assistance, and workforce development opportunities to promote investment in energy-efficient technologies and designs in C&I buildings and facilities.



For the 2021-2023 term, the NH Utilities are focused on scaling up energy savings and program participation for the NHSaves C&I Programs. The NH Utilities will support these goals by expanding their outreach to towns and business customers, incentivizing emerging energy-efficient technologies, ensuring convenient customer access to capital, developing an enhanced workforce development strategy, and encouraging customer participation through standard offer marketing pieces.

Through market research and data analytics, the NH Utilities can identify what financing mechanisms, incentives, and market actions are needed to convince a C&I customer or market segment to invest in energy-efficient equipment and process improvements. Over the next three-year period, the NH Utilities will continue to apply market research and customer insights gleaned from data analysis to identify key C&I segments and customers and deliver packaged marketing and incentive solutions tailored to their needs. During the 2021-2023 term, the NH Utilities will also develop standard offer marketing pieces for targeted market segments and end-use equipment.

The NHSaves' C&I Programs are continuously evaluated by independent third parties to determine how processes, procedures, energy savings calculations, and incentives can be improved. Once these evaluations are completed, the NH Utilities review the third-party's findings and recommendations to determine how they can improve the delivery of the NHSaves C&I Programs. The flexibility in design allows the NH Utilities to respond quickly to changing codes and standards, customer demand, economic conditions, emerging technologies, market transformation, and new federal and state laws.

3.1.1 2021-2023 C&I Program Priorities

For more than 20 years, the NH Utilities have designed and delivered valuable energy efficiency services to municipalities, small businesses, commercial entities, and industries across the state. The primary focus of the NH Utilities during the 2021-2023 term is to tailor energy efficiency solutions to the customer. Each C&I customer's business needs, energy consumption, on-site technical expertise in energy-efficient technologies and design, and access to capital are varied and unique. Different market segments, such as municipal buildings, convenience stores, manufacturers, and ski resorts, demand different solutions that do not fit into a one-size-fits-all approach.

To realize investment in energy-efficient technologies and building design, the 2021-2023 term will emphasize the following C&I Programs' priorities:

- 1. Achieve Cost-Effective and Comprehensive Energy Savings.** The NH Utilities will continue their long-term push to motivate C&I customers and contractors toward implementing cost-effective, comprehensive projects at customer facilities and buildings. To promote

comprehensiveness, the NH Utilities may implement a tiered incentive approach for all C&I Programs to encourage multi-measure projects that move beyond common lighting upgrades.

- 2. Scale Up to Deliver Increased Savings While Stimulating Market Transformation.** During the 2021-2023 term, the NH Utilities will look to develop strategic initiatives and support emerging technologies in the marketplace to create market demand for energy-efficient products and building design.
- 3. Expand Reach of Programs by Serving More Customers.** The NH Utilities will expand efforts to reach hard-to-serve and rural small businesses, municipalities, and large C&I enterprises throughout the 2021-2023 term. The Small Business Energy Solutions and Municipal programs' turnkey direct-install pathways will support Main Street efforts and community blitzes targeting microbusinesses, small municipal accounts (libraries and town halls), and downtown areas to engage C&I customers in energy efficiency efforts.
- 4. Deliver Excellent Customer Experience.** The NHSaves Programs provide great opportunities for the NH Utilities, as trusted entities within the state and local communities, to engage customers in energy efficiency and deliver excellent customer experience. The NH Utilities have refined and streamlined the C&I Programs' design for the 2021-2023 term that will deliver packaged marketing and tailored solutions to New Hampshire's businesses and municipalities.
- 5. Encourage Customer Participation with "Standard Offer" Information.** For the 2021-2023 term, the NH Utilities will create standard offer marketing pieces, such as sell sheets and presentations, specifically developed for market segments (e.g., convenience stores, manufacturing, multifamily buildings, restaurants, retail stores, etc.) and end-use equipment (e.g., compressed air, industrial boilers, LED fixtures and controls, motors, retro-commissioning, VFDs and controls, HVAC including heat pumps, low-energy snowmaking guns, etc.). Standard offer marketing collateral packages will serve as market and facility-specific energy efficiency guides to help small and large C&I customers and contractors understand potential incentives, energy-efficient measures, and other energy-saving opportunities.

The NH Utilities have extensive expertise in effectively implementing the NHSaves C&I Programs and understand the target markets, end-use systems and equipment, participation barriers, and market actors (i.e., trade ally networks). The creation of a targeted, streamlined presentation of incentive options will encourage additional participation in the C&I Programs.

- 6. Engage with Stakeholders to Increase Customer Participation.** For the Municipal and Small Business Energy Solutions programs, the NH Utilities will increase collaboration with New Hampshire's towns and cities by building a community network of energy champions that includes municipal representatives, sustainability groups, energy committees, and economic development commissions.
- 7. Expand Product and Service Provider Infrastructure.** During the 2021-2023 term, the NH Utilities will continue to expand point-of-sale (midstream) incentive offerings by working with distributors and equipment manufacturers to monitor and evaluate new and emerging technologies. In collaboration with regional distributors, the NH Utilities will conduct periodic refreshes and introduce technologies to align efforts with customer demand and emerging technologies.
- 8. Stimulate Customer and Other Private Investment.** To encourage C&I customer investment in energy efficiency projects, the NH Utilities will continue to explore and evaluate financing mechanisms throughout the 2021-2023 term. For the Small Business Energy Solutions program, the NH Utilities will look to establish a permanent source of capital for financing energy efficiency projects.

3.1.2 C&I Programs

The NH Utilities have three statewide C&I Programs that deliver vital energy efficiency services, technical assistance, and incentives to New Hampshire's industrial, large commercial, municipal, and small business customers. Figure 3-1 details the 2021-2023 NHSaves C&I Programs.

Figure 3-1: 2021-2023 C&I Programs (Statewide)



- **Small Business Energy Solutions Program.** Small businesses are the backbone of the state’s charm and economic development. This retrofit and new equipment & construction initiative offers technical expertise and incentives to small business customers who lack the dedicated staff, time, or resources to address energy costs. This program allows small business owners to achieve energy savings while continuing to invest their time and resources in the business market they’re operating in, customer service, and innovation.
- **Municipal Program.** This NHSaves energy efficiency solution provides technical assistance and incentives to municipalities and school districts to help them identify energy-saving opportunities and implement projects. The Municipal program was established by legislation and is administered by the NH Electric Utilities and provides fuel-neutral opportunities for energy savings. The NH Natural Gas Utilities also service municipalities by seamlessly providing the same key services and incentives to towns and cities through the Small Business Energy Solutions and Large Business Energy Solutions programs.

Energy efficiency programs help town and school officials reduce their buildings’ high energy costs, often a large component of their operations and maintenance (“O&M”) budgets. This allows these entities to reduce O&M budgets or redirect the savings toward other priorities.

- **Large Business Energy Solutions (Retrofit and New Equipment & Construction) Program.** The program offers technical services and incentives to assist large C&I customers who are retrofitting existing facilities or equipment, adding or replacing equipment that is at the end of its useful life, or constructing new facilities or additions.

In addition to the three statewide programs referenced above, Eversource implements a Large Business Energy Rewards Request for Proposal (“RFP”) program.

Figure 3-2: C&I Programs (Eversource Only)



- ~~Large Business Energy Rewards RFP (“Energy Rewards”) Program.~~ The Energy Rewards program encourages customers to propose energy efficiency projects through a competitive solicitation process.

Multifamily Offering

During the 2021-2023 term, the NH Utilities will continue to work with multifamily building owners to encourage investment in energy-efficient measures through both the NHSaves Residential and C&I Programs. The NH Utilities will create a standard offer for multifamily buildings which will include marketing sell sheets, presentations, and targeted incentives to reach this market segment. This will provide multifamily building owners an overview of the NHSaves Programs.

The Large Business Energy Solutions program will target multifamily buildings where there are common-area lighting and master-metered natural gas heat energy-saving opportunities. Tenant area energy-efficient measures (e.g., appliances, lighting, water-saving devices, plug load, etc.) will be served through the NHSaves Residential Programs. In addition, the NH Utilities will investigate creating

a pathway for multifamily buildings over the next three-year period to incentivize comprehensive energy approaches that optimize the energy performance of common areas and tenant units.

3.1.3 Incentives

The NH Utilities are responsible for managing the overall energy efficiency budgets and for achieving an equitable distribution of program funds across customer types and market segments. To move customers to action once opportunities have been identified, the NH Utilities offer various financial incentives and resources that are calibrated to match customer investment criteria and reduce barriers to adoption, while maintaining cost effectiveness and minimizing costs of acquisition. Each of the NH Utilities may establish caps on the level of incentives offered by that utility to serve as guideposts for disbursing incentives.

3.1.4 Workforce Development

To scale up participation and drive deeper energy savings for the 2021-2023 NHSaves Programs, the NH Utilities and a consultant will develop a cohesive statewide workforce development strategy for understanding workforce development priorities and what training is needed for vendors, community action agencies, distribution contractors, building operators, and other energy efficiency stakeholders. For more information regarding the NH Utilities' planned workforce development strategy, see Chapter Nine.

3.1.5 Marketing and Outreach

During the 2021-2023 term, the NH Utilities will create standard offer marketing collateral packages (as described in Section 3.1.1.), including sell sheets and presentations designed to deliver C&I customers targeted, industry-specific information regarding energy-efficient incentive offerings that can help their business maximize energy savings, improve productivity, and reduce O&M costs.

In addition to the creation of the standard offer marketing collateral, the NH Utilities will market the C&I Programs through a variety of proven marketing channels, both directly to individual companies as well as broadly through a statewide marketing approach. These channels include but are not limited to: the NHSaves website, program promotional materials, direct mail, distributor engagement, e-mail,

outbound calling, active social media campaigns, paid digital advertising, billboards, radio/TV/music streaming advertisements, trade shows, public relations efforts (statewide and utility-driven), providing presentations for and hosting energy efficiency trainings, forums, and events, and providing content for partners' blogs, newsletters, and websites.

3.1.6 Financing

The NH Utilities recognize that financing mechanisms are effective in encouraging C&I customers to invest in comprehensive energy efficiency projects, especially when combined with the NHSaves Programs' energy-efficient incentives. The NH Utilities currently offer several financing options, including on-bill financing and low-interest/interest-free loans, to commercial, municipal, and industrial customers. During the 2021-2023 term, the NH Utilities will continue to offer several financing options to encourage C&I customers to pursue comprehensive and cost-effective energy efficiency projects.

On-Bill Financing

All of the NH Utilities offer on-bill financing mechanisms for commercial, industrial, and municipal customers. On-bill financing mechanisms help reduce upfront costs and allow C&I customers to repay loans through their monthly natural gas or electric bills. Customers gravitate toward on-bill financing due to the simplicity in applying for loans, and the fact that repayment is typically treated as an operating expense rather than a capital investment. These financing tools allow for more comprehensive energy-saving projects by reducing cost and transaction barriers. These offerings, including flexible caps and repayment periods, depend upon the NH Utilities having sufficient capital available in on-bill loan pools.

The NH Utilities will continue to focus the marketing of on-bill financing towards small and medium businesses that are prone to face more significant barriers to access low-cost capital. Small business customers are more likely to commit to comprehensive energy-saving projects if they can overcome the upfront cost barriers of installing high-efficiency equipment and controls through on-bill, zero-percent interest loans.

Traditional On-Bill Financing

All NH Utilities offer a zero-percent on-bill financing revolving loan program to small business customers. Thanks to these programs, customers can install energy efficiency measures with no upfront costs and pay for them over time on their electric bills. Liberty Electric, Liberty Gas, Unitil Electric, and Unitil Gas also make on-bill loans available to municipal and large business customers. NHEC added \$300,000 from Commercial carry over funds to its existing commercial on-bill revolving loan program for 2021.

Smart Start

Eversource and NHEC offer Smart Start tariffs, tied to the meter, on-bill repayments to municipal customers. This financial offering provides municipal customers with the opportunity to install energy-saving measures with no upfront costs and the ability to pay for the measures over time on their electric bill with the savings realized from lower energy costs. Municipalities reimburse their utility (Eversource or NHEC) through charges added to their regular monthly electric bill.^{21 22} The Smart Start charges are calculated to be less than or equal to the customer's estimated monthly energy savings. NHEC also offers Smart Start to commercial customers.

Additional Financing Offerings

In addition to on-bill financing offerings, the NH Utilities provide customers with or can connect customers to other options that can help them invest in energy efficiency. These include an online competitive loan platform (described below), as well as loan options offered by the Community Development Finance Authority ("CDFA"), the New Hampshire Business Finance Authority ("NHBFA"), and Property Assessed Clean Energy ("PACE") financing where available, and from other banks and lending institutions across the state.

²¹ Eversource Delivery Service Tariff Rate SSP106 outlines the requirement for service under the SmartSTART financing option.

²² NHEC pays all costs associated with the purchase and installation of approved energy efficiency measures. A SmartSTART Delivery Charge, calculated to be less than or equal to the monthly savings, is added to the member's monthly electric bill until all costs are repaid. NHEC's Delivery Service Tariff Rate SmartSTART SDC 107 outlines the requirements for service under the SmartSTART financing option.

Online Competitive Loan Platform

In 2019, the National Energy Improvement Fund (“NEIF”) presented its online competitive loan platform to the NH Utilities and Financing and Funding Working Group. The NEIF platform can be utilized by energy efficiency installation contractors to better market their services by presenting a variety of financing options directly to the customer at the point of sale. By entering the customer’s specific project details into the platform, the contractor can match the project with lenders willing and able to satisfy the lending needs of the customer. If the customer chooses to follow through with one of the loans included in the platform, a portion of their project incentive can be utilized to buy down the interest rate to zero percent. The customer and their contractor are able to explore an initial analysis of cashflow and paybacks to help them choose the best loan option. Eversource began including the loan platform as one element in the portfolio of financing supports to its vendors and C&I customers in 2019.

3.2 Small Business Energy Solutions Program

3.2.1 Program Objective

The NH Utilities' energy efficiency offering for small and midsize businesses is the Small Business Energy Solutions program. This is both a turnkey retrofit, and new equipment & construction initiative that provides small commercial customers with technical expertise and incentives to improve the energy performance of their businesses and facilities.

Many small business owners face a variety of needs and market barriers that limit or prevent them from pursuing energy efficiency opportunities. These needs and barriers include a shortage of capital resources, lack of staff dedicated to operations and facility issues, time, expertise or awareness of energy efficiency programs and opportunities, and splitting incentives between a building owner and the tenants. The Small Business Energy Solutions program helps identify electric and natural gas-saving opportunities and guides business owners through the energy efficiency process. This allows small business owners to focus on customer service, entrepreneurship, and creating a competitive niche within their market segments.



3.2.2 Target Market

Small and midsize energy users are the target market for the program, and specifically those customers who use less than 200 kW annual demand (electric) or 40,000 Therms (natural gas), which represent 97 percent of the NH Utilities' C&I customer accounts.

The small and midsize business market segment has a diverse set of customer types, including convenience stores, dry cleaners, office buildings, private schools, repair and professional services, restaurants, general and specialty retail stores, and commercially or master-metered multi-tenant facilities just to name a few.

Throughout the 2021-2023 term, the NH Utilities will continue to apply data analytics to identify underserved small business market segments and determine if new measures or tailored solutions should be employed to engage them in energy efficiency programs. These include small businesses that are in rural or hard-to-serve markets where energy efficiency contractors and program outreach have traditionally been limited.

3.2.3 2021-2023 Priorities

During the 2021-2023 term, the NH Utilities will expand the design of the Small Business Energy Solutions program to drive electric and natural gas energy savings and develop multiple pathways to engage the hard-to-reach small business customer in energy efficiency. This includes the following priorities:

Developing a Comprehensive Energy Efficiency Approach

The NH Utilities plan to deliver tailored, comprehensive solutions to small business customers and drive electric and natural gas savings beyond lighting measures. This will be a long-term effort testing various channels, incentive models, on-bill financing mechanisms, and strategies to identify what motivates customers and contractors toward implementing cost-effective, comprehensive projects. The NH utilities offer no-cost walk through project scoping audits. The NH Utilities will also continue to offer cost-sharing comprehensive audit expenses with small business customers in order to help reduce barriers related to exploring holistic energy efficiency solutions.

To encourage comprehensiveness in the Small Business Energy Solutions program, the NH Utilities are exploring a tiered incentive approach for the 2021-2023 term. The NH Utilities' tiered incentive design would package rebates based on delivered energy savings of an entire project, rather than the current prescriptive approach of incentivizing individual energy-efficient measures. To complement this approach, the NH Utilities will increase the number of contractor trainings on non-lighting measures, including HVAC equipment and controls, Wi-Fi thermostats, and building controls.

Incentivizing New Energy Efficiency Measures

With the diverse priorities of the state’s small businesses, the NH Utilities recognize that varied business operations and needs require different equipment, systems, and “on ramps” to participate in energy efficiency. Throughout the 2021-2023 term, the NH Utilities will introduce new and emerging technologies to diversify the energy efficiency measure portfolio, including products such as high-efficiency VFDs for distribution systems, heat recovery ventilators (“HRVs”), and energy recovery ventilators (“ERVs”). The NH Utilities will look to align the state’s energy-efficient product qualifications with other New England and neighboring states to create regional continuity.

For the 2021-2023 term, the NH Utilities will expand the program’s point-of-service (midstream) distributor incentives now offered for commercial kitchen equipment (i.e., dishwashers, fryers, griddles, and ice machines) and HVAC equipment (i.e., heat pump water heaters (“HPWHs”)) and gas water heating equipment. The NH Utilities will work to provide consistent qualified product offerings across all New England states and will also partner with distributors, equipment manufacturers, and the Massachusetts & Connecticut Technical Assessment Center to monitor and evaluate emerging energy-efficient technologies. This continual review will ensure that the NH Utilities are incentivizing up-to-date, energy-efficient solutions tailored to optimizing building performance and ensuring that distributors are stocking high-efficiency equipment.

Outreach Initiatives

Small businesses are the backbone of New Hampshire’s economy and vital to local communities. In an effort to extend the reach of the Small Business Energy Solutions program, the NH Utilities will continue to employ outreach initiatives, such as Main Street efforts and community blitzes, to meet small and midsize C&I customers where they conduct business.

These outreach initiatives are collaborations between the NH Utilities and the cities and towns they serve to create small business communities engaged in saving energy. These efforts provide targeted communications and direct outreach to customers explaining the Small Business Energy Solutions program, its benefits, and what customers can do to begin their energy efficiency journey. Participating small business customers receive energy assessments and recommended energy efficiency solutions

tailored to their business' needs, priorities, and energy-consuming equipment and practices. These marketing and outreach activities engage small business customers in NHSaves C&I Programs and efforts, thereby helping Main Street reinvest in employees, business operations, and the local economy. Please see Section 3.3.3 for more information about Main Street efforts and community blitzes.

3.2.4 Program Design

The NH Utilities are exploring segment- and facility-specific energy efficiency guides and standard offer marketing packages that enable small business customers and contractors to plan for more comprehensive energy-saving projects. In the 2021-2023 term, the NH Utilities will work with program contractors to develop these types of resources.

Small business customers are offered a number of channels to participate in the NHSaves C&I Programs and throughout the 2021-2023 term the NH Utilities will continue to simplify this process. For instance, small business customers can install high-efficiency lighting through multiple pathways, including: direct installation by program contractors, applying for downstream rebates for prescriptive and custom projects, and receiving midstream rebates. The NH Utilities will continue to look for new pathways to better align with contractor distribution models and customer engagement within the small business market segment.

As noted in the C&I Program priorities section (3.1.3), during the 2021-2023 term, the NH Utilities will create standard offer marketing collateral, including sell sheets and presentations, to provide targeted small business market segments with specific information and incentives tailored to their market's end-use systems and equipment. For example, a food and grocery store sell sheet would identify the incentives for commonly-incentivized measures, such as high-efficiency lighting and controls, HVAC systems and controls, and commercial refrigeration equipment.

In addition, the NH Utilities will focus efforts on developing the state's workforce to increase program participation and encourage comprehensive, cost-effective efficiency projects. The Small Business Energy Solutions program, like the other NHSaves Programs, is dependent upon a well-trained and

customer-oriented contractor network to promote its benefits, energy-efficient measures, incentives, financing mechanisms, and to help identify tailored solutions for New Hampshire’s small business community.

Incentives

The program provides incentives to customers to encourage the implementation of cost-effective, energy efficiency projects. For the 2021-2023 term, the Small Business Energy Solutions program will continue to develop and refine measure initiatives over time. There are two types of incentives for energy-efficient measures—prescriptive and custom.

- **Prescriptive Incentives.** These incentives are fixed-price rebates for pre-qualified energy efficiency measures and are designed to streamline the process for customers who are installing common technologies.
- **Custom Incentives.** These incentives are flexible and allow customers to determine if a non-standard (not on the prescriptive list or overly complex) energy efficiency measure is cost effective. These types of incentives rely on engineering calculations to evaluate cost effectiveness and determine energy savings. As these incentives are more customer centric, custom rebates allow for more comprehensive energy efficiency projects that are tailored and unique to a particular small business. Custom projects are reviewed on a case-by-case basis and may require a technical study to present the planned energy savings and project costs.

For the 2021-2023 term, the NH Utilities will implement a tiered incentive level design for comprehensive energy efficiency projects with multiple measures. For lighting projects beyond fixture replacements only, incentives may be increased to account for greater savings derived by the addition of one or more control strategies. For projects that have a minimum of one or more non-lighting end uses with each end-use defined as a natural gas or electric measure impacting heating, cooling, lighting, process, domestic water heating, refrigeration, motors and drives, etc., incentives could be enhanced for each additional measure that increases savings beyond that single measure. Savings from each additional measure must be significant enough to warrant the additional incentives.

In addition, the Small Business Energy Solutions program may offer higher incentive levels for small microbusinesses, nonprofits, or customers in rural areas to broaden the NH Utilities' reach into hard-to-serve and underserved markets.

Measures

Throughout the 2021-2023 term, the NH Utilities will continuously look for new energy efficiency measures to incentivize through the Small Business Energy Solutions program. This will include reviewing new and emerging technologies, such as controls, evaluated by the Massachusetts and Connecticut Technical Assessment Center.

The program will provide incentives for prescriptive high-efficiency equipment, including, but not limited to: air compressors, commercial kitchen equipment (e.g., dishwashers and ice machines), electric HVAC equipment (e.g., heat pumps and unitary air conditioners), HVAC controls, LED lighting, lighting controls, motors, spray rinse valves, variable speed drives ("VSDs"), water heating equipment, and Wi-Fi thermostats.

Throughout the three-year plan, the NH Utilities will pursue more comprehensive projects that look at energy efficiency as a long-term journey for the small business customer. This new approach can include a tiered incentive structure encouraging the installation of non-lighting measures in small business customers' buildings and facilities. To deliver tiered incentive measures the NH Utilities will collaborate with energy service companies and other turnkey service providers who have staff or sub-contractors capable of installing multiple energy efficiency measures.

Custom measures will include but are not limited to: energy management systems and controls, insulation and air sealing, integrated air compressors, specialized equipment (e.g., polymer bead washing machines), and industrial process equipment.

Multiple Program Pathways

The Small Business Energy Solutions program is designed to provide hard-working small business owners with multiple pathways to engage in energy efficiency. These options allow the NH Utilities to broaden program reach to the different market segments, business sizes, and customer types that fall

under the “small business” umbrella. Whether a small business is replacing failed or end-of-life equipment, has aging, inefficient equipment and systems, or is planning for a major renovation or new construction project, there is a program option allowing customers to choose an energy-efficient solution designed for them.

The program’s pathways include turnkey direct-installations, customer-directed installations, and midstream incentives.

Turnkey Direct Installations

Turnkey direct installation is the program’s simple, easy-to-use pathway that removes the initial barriers to energy efficiency (e.g., time, shortage of capital resources, and expertise or awareness of energy efficiency opportunities) and delivers solutions to small business customers. Professional trade ally contractors perform an initial assessment of the small business and its existing equipment at no cost to the customers. Then, the contractors recommend energy-efficient improvements, and directly install customer-approved measures, including, but not limited to: hot water-saving measures, LED lighting and controls, programmable Wi-Fi thermostats, commercial refrigeration measures, spray rinse valves, and weatherization measures.

As program administrators, the NH Utilities establish the pricing of energy-efficient measures, approve comprehensive custom projects, review energy savings proposals, and issue incentives. Contractors are paid directly for the incentive portion of approved energy efficiency projects: ensuring upfront costs are not a barrier to small business customer participation. The NH Utilities and energy efficiency contractors work with business owners to guide them through the program’s processes, determine which prescriptive and custom measures can be installed, and assess how each business can optimize its facility’s energy performance. In addition to routine marketing efforts, the NH Utilities promote the Small Business Energy Solutions program through Main Street efforts and community blitzes.

Customer-Directed Installations

To streamline and increase participation, the NH Utilities also encourage customer-directed installations (measures installed by the customers’ vendors of choice) of energy-efficient equipment through prescriptive incentives for common, pre-qualified measures.

Midstream Incentives

Midstream (point-of-sale) incentives encourage distributors to stock and promote energy-efficient equipment and systems, including, but not limited to lighting, HVAC, commercial kitchen, and water heating equipment. The midstream rebate approach is an effective way to impact the broader marketplace and influence what distributors purchase and make available throughout their product inventory. Midstream rebates increase the availability of energy-efficient products in the marketplace, streamline the transaction process for the customer (i.e., no rebate forms), and play a critical role in encouraging program participation and increasing energy savings.

3.2.5 Program Budget and Goals

Table 3-1: Small Business Energy Solutions Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	<u>\$19,233,341</u> \$18,256,109	<u>\$23,821,711</u> \$23,519,869	<u>\$26,618,987</u> \$26,472,350	<u>\$69,674,039</u> \$68,248,328
Annual kWh Savings	<u>43,705,371</u> 44,565,529	<u>47,403,253</u> 51,966,852	<u>50,850,011</u> 57,983,341	<u>141,958,635</u> 154,515,722
Lifetime kWh Savings	<u>520,223,726</u> 578,904,251	<u>559,856,190</u> 677,515,283	<u>597,275,907</u> 761,818,067	<u>1,677,355,823</u> 2,018,237,600
kW Reduction	<u>4,664</u> 5,305	<u>4,498</u> 5,725	<u>4,484</u> 6,234	<u>13,646</u> 17,264
No. of Participants	<u>6,100</u> 6,106	<u>5,743</u> 5,851	<u>5,008</u> 5,186	<u>16,851</u> 17,143
Natural Gas Programs				
Program Budget	\$2,170,666	\$2,490,353	\$3,149,503	\$7,810,522
Annual MMBtu Savings	34,139 <u>31,045</u>	38,422 <u>34,906</u>	43,814 <u>39,783</u>	116,374 <u>105,735</u>
Lifetime MMBtu Savings	574,867 <u>536,384</u>	647,631 <u>602,243</u>	738,300 <u>685,868</u>	1,960,797 <u>1,824,496</u>
No. of Participants	1,211 <u>616</u>	1,287 <u>678</u>	1,383 <u>758</u>	3,881 <u>2,052</u>
Note: kWh = kilowatt hours, kW = kilowatts, and MMBtu = million British thermal units.				

3.3 Municipal Program

3.3.1 Program Objective

The Municipal program was established by legislation to focus RGGI energy efficiency revenues on New Hampshire's towns and cities and is administered by the NH Electric Utilities.²³ The objective is to help local communities to better identify, plan, and implement energy efficiency projects to help reduce the energy intensity and operating costs of municipal and school buildings. This turnkey retrofit and new construction program provides incentives and technical assistance to municipalities and school districts replacing existing equipment with high-efficiency alternatives, installing new equipment or systems, or planning major renovation or new construction projects. In addition, the program provides fuel-neutral weatherization services for existing municipal buildings to help reduce energy costs and promote comprehensive energy-saving projects.

The municipal sector (municipal and school buildings) is a large and important customer segment of the NH Utilities. Energy-efficient projects allow New Hampshire's towns and cities to reduce their operational costs and shift energy bill-related funds toward other priorities. The Municipal program is a close collaboration among the NH Electric Utilities, municipal representatives, and citizen stakeholders, including community energy committees.

The program's effective design allows the NH Electric Utilities to help municipal representatives and staff eliminate unique market segment barriers to planning and implementing energy efficiency projects. These barriers include a shortage of time, expertise or awareness of energy efficiency programs and opportunities, and the number of dedicated staff for facilities and operations. In addition, municipalities face other barriers that limit participation in energy efficiency programs, including the short operating hours of municipal buildings (resulting in reduced cost-benefit savings),

²³ RSA 125-O:23. Available at: <http://www.gencourt.state.nh.us/rsa/html/X/125-O/125-O-23.htm>. NH Senate Bill 123 ("SB 123") requires that the NH Electric Utilities ensure municipal customers have priority access to these funds. If after four months however, program funding is not fully allocated, the dollars will be offered to other business customers who contribute to the Systems Benefit Charge. This legislatively-directed funding for the Municipal program goes specifically to the NHSaves Electric programs and not the NHSaves Natural Gas programs.

the long-term budgeting and approval process of towns and cities for capital improvements, and the cyclic electoral turnover of municipal representatives.

3.3.2 Target Market

Municipalities and school buildings are the target market for the Municipal program, including both large and small energy users. The Municipal program covers a diverse array of energy-efficient projects, ranging from large comprehensive school district upgrades to small wastewater facility renovations. The program provides technical assistance and incentives to encourage comprehensive and fuel-neutral energy savings from electric, oil, and propane municipal customers. All municipal and local government energy efficiency projects are eligible to participate in the program, including local governments with municipal utilities, such as Ashland, Littleton, New Hampton, Wolfeboro, and Woodsville.

While the Municipal program is administered by the NH Electric Utilities, the NH Natural Gas Utilities provide the same C&I rebates, technical assistance, and financing to municipalities; however, these are offered through other NHSaves C&I Programs. The NH Utilities work closely together to ensure that the process for municipalities to participate in energy efficiency projects, regardless of electric, natural gas, or other fuel measures, is uniformly accessible.

3.3.3 2021-2023 Plans

For the 2021-2023 term, the NH Electric Utilities are considering a number of innovative approaches to expand the Municipal program's reach and energy savings. These include:

Increasing the Comprehensiveness of Municipal Projects

For the 2021-2023 term, the Municipal program will continue to pursue more comprehensive projects in municipal and school buildings, including potentially offering a new tiered incentive design to encourage the installation of multiple, non-lighting energy-efficient measures. If implemented, this proposed incentive design change would increase energy savings for municipal customers and drive comprehensiveness in school and town building renovation and new construction projects.

The NH Utilities will explore splitting comprehensive energy audit costs with municipal customers. Currently, these costs are seen as an upfront barrier to municipalities and school districts that prefer funds to be directed toward short-term energy fixes rather than long-term energy planning and solutions. Municipal capital projects involve long-term planning and goals which do not always align with the current annual savings goals for the NHSaves C&I Programs. For the 2021-2023 term, the NH Utilities will encourage long-term projects that consider comprehensive, multi-measure and multi-year energy solutions rather than short-term, energy-efficient fixes. This effort will involve the NH Utilities encouraging program contractors to shift toward multi-year strategies and energy savings goals, rather than annual goals, and encouraging process improvements.

In addition, the NH Utilities will increase the number of contractor trainings on non-lighting energy-efficient measures, such as commercial kitchen equipment, HVAC systems and controls, commercial refrigeration measures, programmable Wi-Fi thermostats, and VFDs. This will increase contractor awareness and education regarding new and emerging technologies that can help them customize energy solutions for a municipality's needs.

Engaging Municipalities and New Hampshire Communities in Energy Efficiency

Continuing for the 2021-2023 term, the NH Utilities remain committed to increasing collaboration with municipalities and building a community network of energy champions that includes sustainability groups, community energy committees, and economic development commissions from across the state. Municipalities with energy-efficient town and school buildings serve as sustainable role models, educating and empowering citizens and businesses to participate in NHSaves Residential and C&I Programs.

The NH Utilities will continue to work with the Community Relations and Account Executive departments to engage municipal leaders to help identify appropriate energy champions within that community. Outreach will also be conducted by leveraging existing relationships already developed through the local energy committees.

Main Street Efforts

In 2020, the NH Utilities initiated the Main Street efforts. This unique initiative allows the NH Utilities to focus outreach efforts on specific neighborhoods and to provide personal attention to the small businesses and smaller town and city accounts in that community. Initially, the NH Utility that serves the community will partner with a municipality to lead an “energy blitz” campaign to educate local businesses about the NHSaves C&I Programs, energy-saving measures, incentives, and financing tools that can help reduce energy consumption and save money. The applicable NH Utility will send out communications to the targeted community letting it know about the Main Street campaign in the community, including specifics regarding its duration, objectives, program partners, and how a small business can engage in energy efficiency.

Then, an NH Utility-authorized contractor will perform a no-cost energy assessment of businesses to identify energy-saving opportunities, such as high-efficiency lighting and controls, Wi-Fi thermostats, occupancy sensors, and commercial refrigeration measures and controls. During the assessment some of these measures are immediately installed, while larger energy-saving projects, such as new HVAC systems and controls, are scheduled for direct installation at a later date.

During the 2021-2023 term, the NH Utilities plan to continue Main Street efforts and offer increased incentives for micro-businesses, small town and city accounts, such as libraries and town halls. These efforts will be supported by direct outreach through NH Utilities’ employees who work closely with municipalities and energy committees to leverage partnerships with chambers of commerce, Main Street groups, and affinity groups (e.g., NH Lodging & Restaurant Association, NH Grocers Association, NH Manufacturing Extension Partnership, etc.) to conduct more aggregated campaigns rather than single-customer marketing activities. Main Street efforts will also utilize the new standard offer materials to provide targeted marketing collateral to market segments and microbusinesses typically not targeted by the C&I Programs’ turnkey vendors.

To ensure that the NH Utilities are strategically focusing Main Street efforts, the NH Utilities will look to establish a steering committee comprised of municipalities, energy committees, stakeholders, and community partners during the 2021-2023 term. This steering committee will help the NH Utilities

establish a clear set of guidelines for selecting (i.e., qualifying) a community for Main Street efforts to ensure its efficacy and cost-effectiveness.

Additional Municipal Engagement

In addition, the NH Utilities will explore ways to enhance municipal engagement by providing technical assistance and project management support for towns and cities with limited or no facility operations staff. Efforts will be made to help guide small and rural towns and cities through the energy efficiency process and provide education on the programs and incentives. The NH Utilities will provide additional technical assistance to help municipal customers review proposals, implement long-term planning, develop sustainable procurement policies, and how to discuss projects with the community at town and school board meetings. This increased technical assistance, combined with additional workforce development and the new Granite State benefit-cost test will allow less cost-effective projects (small municipal buildings with lower operating hours) to be implemented in rural and small towns across the state.

Increasing Number of Comprehensive Fuel Neutral Projects

The Municipal program is funded by RGGI to deliver fuel-neutral measures to New Hampshire's town and city buildings, facilities, and schools. During the 2021-2023 term, the NH Utilities stand ready to adjust programs if RGGI funding changes to help the state's municipalities save energy and money. Therefore, the NH Utilities will plan accordingly to increase the number of fuel-neutral projects in school districts through enhanced incentives for comprehensive energy efficiency solutions, including air sealing, insulation, and HVAC equipment and control measures. If RGGI funding is exhausted, the NH Utilities will work with the municipality to offer solutions through the other C&I Programs.

3.3.4 Program Design

The Municipal program covers a diverse array of building types, such as school buildings, town offices, public works facilities, police and fire stations, and libraries. For the 2021-2023 term, the NH Utilities will offer an array of C&I solutions, incentives, technical assistance, and financing options to support the state's municipalities in implementing energy-efficient projects. Similar to the other NHSaves C&I Programs, the Municipal program focuses on providing seamless pathways for customers to participate

in energy efficiency projects. Though programs, measures, and incentives are detailed in the 2021-2023 Plan, the NH Utilities work with municipalities to present efficiency solutions tailored to them.

The NH Utilities are consistently looking for new ways to simplify the process for municipal customers and contractors to engage in energy efficiency. Municipal customers have several pathways to install high-efficiency lighting, including direct install, downstream rebates for prescriptive and custom projects, and upstream rebates. In addition to the direct-install option, the NH Utilities envision a new mid-size comprehensive model for municipal customers. The NH Utilities have also moved certain existing downstream offerings upstream, such as commercial kitchen equipment to make a municipality's participation seamless. Throughout the 2021-2023 term, the NH Utilities will continue to develop new pathways to better align with contractor distribution models and customer engagement within the municipal market segment.

Incentives

Similar to Small Business Energy Solutions, the Municipal program offers prescriptive and custom incentives to encourage towns and cities to implement energy efficiency projects.

Prescriptive Incentives

Prescriptive incentives allow customers to select measures from a pre-qualified energy-efficient measure list and receive a set rebate amount to cover the incremental cost of installing a high-efficiency measure rather than a standard product. Municipal customers can receive prescriptive incentives through turnkey contractors (see Program Pathways section) if they are installing standard energy-efficient measures.

Custom Incentives

The Municipal program also offers custom incentives that are determined based on engineering calculations and analyses. By offering custom incentives, the NH Utilities encourage customers to consider tailored solutions to reduce the energy intensity of their town's or school district's buildings and facilities. Custom incentives encourage long-term comprehensive projects that drive energy savings, reduce capital and operational budgets, and increase the rate of return on a municipality's

energy-efficient investment. The NH Utilities review and evaluate each project's technical studies and analyses on a case-by-case basis to determine the custom incentive amount.

Targeted Incentives

In addition to prescriptive and custom measures, the Municipal program provides targeted incentives to encourage New Hampshire's towns and cities to commit to energy efficiency projects. For public school buildings, NHSaves Programs offer energy-efficient school incentives of up to 100 percent of the incremental cost of new equipment and new construction projects to assist buildings to improve indoor air quality.²⁴ As referenced earlier in this section, the Municipal program offers fuel-neutral incentives for the installation of energy-efficient measures, such as boilers, HVAC systems and equipment, and weatherization measures.²⁵ This is in addition to the custom, prescriptive, or energy-efficient school incentives given for the installation of electric and natural gas-saving measures.

Financing Products and Incentive Structure

In addition to incentives, the NH Utilities provide on-bill financing and other financing products which allows municipalities to pay for a project out of O&M budgets (i.e., monthly utility bill): not requiring the towns and cities to secure additional approvals, bonding, or ballot measures.

For the 2021-2023 term, the NH Utilities are exploring a more flexible incentive structure that can calibrate incentive levels to meet the customer's benefit-cost decision making based on the customer's business needs. This portfolio-level view of cost effectiveness will allow for program review of municipal projects that historically may not have qualified due to cost-effectiveness barriers, such as low operating hours or other extenuating circumstances.

²⁴ RSA 374-F:4 VIII(a): Electric Utility Restructuring Act, 1996. VIII-a. Any electric utility that collects funds for energy efficiency programs that are subject to the Commission's approval, shall include in its plans to be submitted to the Commission program design, and/or enhancements, and estimated participation that maximize energy efficiency benefits to public schools, including measures that help enhance the energy efficiency of public school construction or renovation projects that are designed to improve indoor air quality. The report required under RSA 374-F:4, VIII(f) shall include the results and effectiveness of the energy efficiency programs for schools and, in addition to other requirements, be submitted to the commissioner of the department of education.

²⁵ Note: Very few fuel-neutral incentives for boilers and furnaces are issued on an annual basis. As natural gas is not available in many areas of the state, the NH Utilities see oil and propane as the only option for older municipal buildings without incurring extensive weatherization upgrades to cost-effectively support electric heating technologies, such as heat pumps.

To encourage comprehensiveness in the program, the NH Utilities may implement a pay-for-performance approach. This would include the creation of a tiered incentive system that packages rebates based on delivered energy savings of an entire project, rather than the current prescriptive approach of incentivizing specific energy-efficient measures. In addition, the NH Utilities may increase incentive levels for remote towns and allow non-turnkey vendors to implement Municipal program services in hard-to-serve areas. To complement these incentive approaches, the NH Utilities will increase the number of municipal contractor trainings on non-lighting measures, such as HVAC equipment and controls, programmable Wi-Fi thermostats, and air compressors.

Measures

During the 2021-2023 term, the Municipal program will provide incentives for both high-efficiency prescriptive and custom measures. Over the next three-year period, the NH Utilities will pursue more comprehensive projects that consider energy efficiency from a long-term perspective. The program's new comprehensive incentive design will incentivize turnkey, performance contracting, and direct-install contractors (see Multiple Program Pathways section below) to install non-lighting measures in municipal buildings and facilities.

Prescriptive Measures

The program will provide incentives for the following prescriptive measures: high-efficiency equipment including but not limited to: aerators, air compressors, electric commercial kitchen equipment (e.g., dishwashers and ice machines), electric HVAC equipment (e.g., heat pumps and unitary air conditioners), HVAC controls, HPWHs, LED lighting and controls, motors, spray rinse valves, VSDs, water heater pipe wrap, water-heating equipment, and Wi-Fi thermostats.

Custom Measures

Custom measures will include, but are not limited to: energy management systems, HPWHs, insulation and air sealing, commercial refrigeration equipment, water heating equipment, and weatherization measures.

Multiple Program Pathways

The NH Utilities have designed the Municipal program to provide New Hampshire's towns and cities with multiple pathways to participate in energy efficiency projects. They have developed a robust trade ally network of equipment distributors and installers, energy assessors, engineering and commissioning firms, and energy service companies to drive energy efficiency projects across New Hampshire's towns and cities. The NH Utilities rely on the technical and project management expertise of contractors to work effectively with municipalities to aggregate energy-saving projects, determine the best energy efficiency solution for the town or city, and analyze how incentives and financing mechanisms can help make the project feasible and affordable.

Turnkey Vendor Installations

The program's turnkey vendor installation pathway connects municipalities with experienced trade allies who can help design, develop, and install prescriptive measures for town buildings or facilities. This pathway is an effective streamlined mechanism that provides municipalities with professional trade allies who perform initial assessments of municipal or school district buildings and make energy-efficient recommendations. The NH Utilities work with the contractors to determine pricing, approve energy savings proposals, and help municipalities prioritize the projects with the best payback. Contractors are paid directly for the incentive portion of approved energy efficiency projects: ensuring that upfront costs are not a barrier to municipalities participating in the program. During the 2021-2023 term, the NH Utilities will continue to increase the availability of turnkey vendors' schedules and expand Main Street efforts and community blitzes.

Customer-Directed Installations

To streamline and increase participation in the Municipal program, the NH Utilities encourage customer-directed installations of energy-efficient equipment through prescriptive incentives for common, pre-qualified measures. This includes midstream rebates, incentives that encourage distributors to stock and promote energy-efficient equipment and systems, including, but not limited to HVAC, commercial kitchen, and water heating equipment. Midstream rebates allow distributors to offer incentives directly to customers and offers flexibility to non-turnkey vendors to participate in

NHSaves C&I Programs. This also streamlines the program for the NH Utilities, as many distributors operate in multiple states, allowing for coordination and common points of contact.

The NH Utilities provide technical assistance to municipal customers with limited energy efficiency expertise or resources to guide them through the project process. This assistance includes showing municipalities how to understand an energy audit's findings, determining which energy-efficient solutions are right for the town's needs, and how to leverage incentive and loan options to finance projects. For the 2021-2023 term, the NH Utilities will continue to provide technical assistance for specialized assessments of historical buildings, such as building shell or HVAC system audits.

Over the past few years, the NH Utilities have observed an increased interest in performance contracting by school districts and municipalities. For the 2021-2023 term, the Municipal program will continue to support performance contracting as it spurs comprehensiveness in projects and is a streamlined guided energy efficiency pathway for municipalities and school districts. The NH Utilities will also continue to service wastewater treatment facilities through a partnership with the New Hampshire Department of Environmental Services to implement audit findings and recommendations identified as part of a prior three-year US Department of Energy ("US DOE") grant. This grant funded comprehensive energy audits and benchmarking (analysis of energy performance of a building).

Contractor and Customer Education

To encourage participation in the program and comprehensiveness, the NH Utilities will continue to offer contractor and customer education opportunities, including Builder Operator Certification ("BOC") training, energy code training, and workshops. BOC training helps municipal facility managers learn to efficiently manage town and school building operations and helps connect NH Utility employees with municipal points of contact. The NH Utilities will also participate in affinity group conferences during the 2021-2023 term.

3.3.5 Program Budget and Goals

Table 3-2: Municipal Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	<u>\$1,952,552</u> \$1,955,558	<u>\$1,949,935</u> \$1,955,089	<u>\$1,954,679</u> \$1,961,055	<u>\$5,857,165</u> \$5,871,702
Annual kWh Savings	<u>3,628,249</u> 3,769,585	<u>3,255,757</u> 3,520,545	<u>3,024,579</u> 3,409,955	<u>9,908,585</u> 10,700,086
Lifetime kWh Savings	<u>43,221,284</u> 52,433,933	<u>39,900,472</u> 50,268,690	<u>37,301,036</u> 48,703,610	<u>120,422,793</u> 151,406,233
kW Reduction	<u>390</u> 504	<u>331</u> 448	<u>329</u> 451	<u>1,050</u> 1,404
No. of Participants	<u>224</u> 227	<u>217</u> 224	<u>209</u> 220	<u>650</u> 672
Note: kWh = kilowatt hours, kW = kilowatts.				

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3.4 Large Business Energy Solutions Program (Retrofit and New Equipment & Construction)

3.4.1 Program Objective

New Hampshire's energy efficiency solution for large C&I customers is the Large Business Energy Solutions program. The program provides custom and prescriptive incentives to large C&I customers who are retrofitting existing facilities or equipment (Retrofit Pathway) or constructing new facilities, installing new equipment, or replacing equipment that is at the end of its useful life (New Equipment & Construction Pathway). The NH Utilities' energy efficiency staff, key account representatives, and energy service contractors work collaboratively with customers to design, build, and retrofit large C&I facilities to optimize energy performance. Energy-efficient projects can provide numerous benefits for large C&I customers, including reduced operating costs, increased productivity, improved comfort of employees and customers, and enhanced building air quality.

3.4.2 Target Market

Large C&I energy users are defined as customers who have an average annual demand of 200 kW or greater for electric customers and 40,000 Therms or greater for natural gas customers. The program serves large C&I customers who are replacing failed equipment, addressing aging, inefficient equipment and systems, or who are planning new construction or major renovation projects.

The target market segments for the Large Business Energy Solutions program include commercial real estate, healthcare facilities, higher education, hotels, manufacturers, national retail chains, private schools, ski resort areas (snowmaking), and large retail facilities. These large C&I customers typically have in-house sustainability and energy efficiency expertise and are primarily interested in reducing operating costs and eliminating waste.

In addition to focusing on large C&I energy users, the NH Utilities also target building developers, architects, and design teams through the New Equipment & Construction pathway. Working with design and building firms early in the process allows the NH Utilities to work with architects to promote and incorporate energy efficiency at the drawing board.

To optimize large C&I customer participation during the 2021-2023 term, the NH Utilities will continue to consider these customers' unique seasonal, organizational decision-making constraints. A recent New Hampshire Energy Efficiency Market Assessment ("Market Assessment") determined the decision-making constraints of four large C&I market segments and identified recommendations for the NHSaves Programs.²⁶ The NH Utilities will employ this research to create standard offer marketing packages to these large C&I customer segments:

- **Large National Retail Chains.** Decisions regarding energy efficiency are made at the national and regional level for large national retail chain stores. The Market Assessment noted that it was essential for the NH Utilities to maintain strong key account representative relationships and to coordinate efforts with other regional utility partners to promote energy efficiency.
- **Large Manufacturers.** The large manufacturing segment is a highly-competitive space focused on cost-cutting measures that increase productivity and output and give businesses an advantage over competitors. The decision-making process for large manufacturers is often decentralized and all levels of the business offer energy efficiency opportunities. The NH Utilities will maintain strong account representative relationships and highlight cost-saving measures to this market segment.
- **Municipal and Higher Education.** The decision-making process for these organizations is highly structured, long term, and time consuming. Large-scale projects are often considered with this market segment, increasing the potential for comprehensive energy-saving measures.
- **Seasonal Operations.** This market segment includes resorts, hotels, and manufacturing firms with cyclic down periods and limited operations. It is important to market these types of businesses during their respective off-seasons, so that energy efficiency investments will not interfere with business operations.

²⁶ Navigant Consulting. *New Hampshire Energy Efficiency Market Assessment*. Apr. 19, 2019 presentation. Available at: <https://www.puc.nh.gov/EESE%20Board/Meetings/2019/0419Mtg/20190419-EESE-Board-NHSaves-Market-Assessment-Presentation.pdf>.

The NH Utilities are exploring segment- and facility-specific energy efficiency guides and standard offer marketing packages that advise large C&I customers and contractors to plan for more comprehensive energy-saving projects. In the 2021-2023 term, the NH Utilities will work with contractors to develop these types of resources.

3.4.3 2021-2023 Retrofit Pathway

The Retrofit pathway incentivizes large C&I customers to replace existing, functioning equipment or systems with high-efficiency measures. The incentives cover a portion of the installed cost to purchase the energy-efficient measure, thus deeming it an acceptable return on investment for large companies and facilities. The NH Utilities are considering introducing several initiatives and design approaches to the 2021-2023 Large Business Energy Solutions program's Retrofit pathway. These changes include increasing contractor education and training, strengthening trade ally relationships, focusing on retro-commissioning equipment and systems performance, and delivering tailored solutions to targeted C&I market segments.



Promoting Retro-commissioning and Systems Performance Optimization

For the Retrofit pathway, the NH Utilities will introduce multiple channels to retro-commissioning during the 2021-2023 term. This includes offering low-cost prescriptive tuning measures, such as resetting water and air temperature for cooling systems and adjusting pump and fan schedules. The Retrofit pathway will also introduce financial assistance to help defray the cost of technical assistance to facilitate targeted systems tuning and process tuning to help meter and monitor energy savings for targeted system optimization. In addition, the NH Utilities will introduce a Whole Buildings and Process Tuning channel to the Retrofit pathway that will target facilities with existing functioning control systems.

Develop Tailored Services and Delivery Models for Market Segments

For the 2021-2023 term, the NH Utilities will continue to develop segment-specific services and delivery models to target large C&I market sectors. For the Manufacturing sector, the NH Utilities will focus on promoting and incentivizing air compressors and chiller optimization as an entry point to work with new manufacturing customers. Air compressors and chillers provide highly cost-effective savings and the NH Utilities have found that the existing marketplace for these technologies is focused on selling high-efficiency components to large C&I customers. Once air compressors and chillers are installed, large C&I customers are encouraged by the cost-effective energy savings to participate in deeper energy efficiency projects, such as boiler optimization, process optimization, refrigeration measures, and VFDs. For the 2021-2023 term, another critical focus of the Large Business Energy Solutions program is retro-commissioning: encouraging contractors to look holistically at entire building systems rather than individual system components.

For the Healthcare sector, the program will focus on promoting the adoption of high-efficiency HVAC technologies and controls, water heating equipment, and commercial kitchen equipment. For the Retail sector, the NH Utilities will direct customers to advanced lighting and controls, commercial refrigeration equipment, and HVAC equipment and controls.

The NH Utilities have identified that tenant fit-outs and HVAC equipment are customized solutions for the Real Estate Management sector. For franchise businesses, the NH Utilities will continue to market high-efficiency commercial kitchen equipment, hot water equipment, HVAC equipment and controls, interior and exterior lighting and controls, and commercial refrigeration equipment to this customer segment.

3.4.4 New Equipment & Construction Pathway

The New Equipment & Construction pathway incentivizes major renovation and new construction projects, as well as the replacement of failed existing equipment or equipment at the end of its life with high-efficiency units. The NH Utilities created this pathway to encourage design teams, facility managers, and building owners to move beyond minimum building code compliance and integrate high-efficiency technologies and optimized building systems early in the design stage.

The program’s New Equipment & Construction pathway allows the NH Utilities and contractors to reinforce the value that energy-efficient measures and design create for large C&I customers, including reduced energy costs, improved comfort of the building space, and increased worker productivity. It is vital that the NH Utilities and efficiency stakeholders play a role with new construction and renovation projects to ensure that incentives and the benefits of energy-efficient methods are considered at each of the design stages. Including the NH Utilities and efficiency contractors in cost-and-design deliberations with building owners and design firms will ensure that the Large Business Energy Solutions program’s incentives and technical assistance are fully considered and not removed in an effort to reduce project costs.



For the 2021-2023 term, the NH Utilities are considering introducing several initiatives and design approaches to the New Equipment & Construction pathway, including revamping pathway offerings, expanding midstream rebate offerings, increasing trade ally education and trainings, and exploring opportunities to integrate Combined Heat and Power (“CHP”) systems with energy-efficient projects.

Introduce New Equipment & Construction Pathway Offerings

The NH Utilities will revamp the New Equipment & Construction pathway during the 2021-2023 term through the creation of four new paths:

1. Deep Energy Savings and Lower Energy Use Intensity;
2. Whole Building with Modeled Savings;
3. Simplified Whole Buildings Worksheet Model; and
4. Systems and Measures.

Deep Energy Savings and Lower Energy Use Intensity Pathway

The NH Utilities will introduce a Deep Energy Savings and Lower Energy Use Intensity (“EUI”) path over the next three-year period. The EUI path is designed to encourage new construction projects with a target of zero net energy or zero net emissions. For the 2021-2023 term, the NH Utilities are exploring offering a building commissioning incentive.

Whole Building with Modeled Savings Pathway

The second path is the Whole Building with Modeled Savings path that is designed to provide intensive technical assistance and support for large C&I new construction and equipment projects. Customers will be guided through the decision-making process in determining the correct energy-efficient measures or designs that are right for their business’ needs and priorities. Large C&I projects require a collaborative planning process that utilizes the expertise of architects, design teams, and contractors—often via a design charrette. The Whole Building with Modeled Savings path will provide charrette support, mid-design feedback, and guidance regarding setting EUI targets.

Simplified Whole Buildings Worksheet Model Pathway

The Simplified Whole Buildings Worksheet Model is the third path introduced for the 2021-2023 term. This path is being introduced for fast-paced design and build projects and will require simplified spreadsheets versus detailed energy models.

Systems and Measures Pathway

The fourth and final new path being introduced in 2021-2023 is the Systems and Measures path that will focus on capture projects in the late design stages. This path will integrate existing prescriptive and custom incentives, and the NH Utilities will provide technical assistance services typically not available for these fast-paced projects.

Expand Program Offerings

The NH Utilities are consistently looking for new ways to simplify the process for C&I customers to engage in energy efficiency including offering different incentive models and pathways. For example, large C&I customers who install high-efficiency lighting can participate through downstream incentives

for prescriptive and custom projects, and the NH Utilities can shift downstream offerings upstream, such as commercial kitchen equipment. Throughout the 2021-2023 term, the NH Utilities will continue to develop new pathways and incentives to better align with contractor distribution models and customer engagement to better serve the large C&I customer market segment.

Similar to other C&I solutions, the Large Business Energy Solutions program is focused on expanding the availability of midstream offerings to increase the availability of, and stocking of, high-efficiency technologies. For the 2021-2023 term, the NH Utilities will expand beyond the lighting market to support new midstream incentives for commercial kitchen equipment and HVAC equipment, including HPWHs and high-efficiency condensing units. The NH Utilities will use the results of the Energy Efficiency Baseline and Potential study (see Chapters 10 and 11) as a guide to determine which technologies still have significant opportunities. The NH Utilities will continue to collaborate across the New England region to influence distributors to stock high-efficiency equipment.

In 2020, the NH Utilities added commercial kitchen and HVAC equipment to midstream offerings. During the 2021-2023 term, the NH Utilities will continue to actively evolve midstream initiatives to capitalize on multiple measures.

Support CHP System Installations

In 2021-2023, the NH Utilities will continue to explore opportunities to incentivize CHP projects to target market segments with high-energy requirements for heat and power. CHP equipment uses waste heat from a building's generator for thermal needs, such as space heating or hot water. These types of projects have long lead times, typically one to three years, requiring a long-term commitment from participating customers.

Though any input fuel can be used with CHP projects, generally natural gas is the preferred choice due to the reliability of the equipment, less GHG emissions emitted, and the low cost of fuel. Other fuels could include liquid natural gas, propane, diesel, or biomass. CHP can also be used as a demand reduction resource and as a back-up generator. Typically, the market segments that are viable

candidates for CHP include: hospitals, hotels, manufacturers with a significant thermal process load, and nursing homes.

For the 2021-2023 term, both the NH Electric Utilities and NH Natural Gas Utilities will include and support CHP projects across the state. In addition, the NH Utilities will also develop a network of vendors to assist with screening CHP projects to determine qualifications and system performance, as well as establish partnerships with universities and other groups to assess CHP opportunities. Starting in 2021, the NH Utilities will begin to incorporate custom incentives for CHP installations.

Building Codes and Standards

The NH Utilities plan to pursue a codes and standards initiative as part of the C&I New Construction program. Please see the full description in the Residential New Construction section, Section 4.2.4.

3.4.5 Program Design

Design

There are three program delivery channels for customers to participate in the Large Business Energy Solutions program's Retrofit or New Equipment & Construction pathways.

One-on-One Technical Assistance

First, the NH Utilities offer one-on-one technical assistance, through account representatives and energy efficiency staff, to help large C&I customers identify energy-saving opportunities, complete applications, and generally guide them through the process.

Energy Service Companies

Energy service companies are firms that offer compressed air, electrical, HVAC, lighting certification, and other comprehensive energy efficiency services to large C&I customers such as state and local government, higher education institutions, hospitals, hotels, manufacturers, and ski resorts. This second program delivery channel allows energy service companies to provide holistic building services and comprehensive technical assistance to large C&I customers.

Engineering Firms

Engineering firms are the third alternative channel for customers to participate in the Large Business Energy Solutions program. These firms provide whole building audits and individual building system performance checks and work directly with a customer's facility team and energy committee to identify energy behavioral changes, new equipment, renovations, retro-commissioning opportunities, and process improvements that could result in energy efficiency savings.

Incentives

Similar to other C&I programs, the Large Business Energy Solutions program provides prescriptive, custom, and performance-based incentives to encourage the implementation of cost-effective, energy efficiency projects. The addition of a tiered incentive design in 2021-2023 will encourage advanced lighting and comprehensive energy efficiency projects for the Retrofit and New Equipment & Construction pathways. The NH Utilities will provide third-party review of savings for customers participating in performance contracting.

The NH Utilities note that flexibility is key for serving large C&I customers. Different market segments and energy-efficient measures have unique payback requirements and there are varying barriers to implementation. Flexibility in the incentive model encourages large C&I customers to invest in comprehensive energy efficiency projects and not focus on individual measure savings or payback thresholds. A dynamic incentive model allows the NH Utilities to increase incentives for some measures while not overpaying for others; thus, allowing for the implementation of cost-effective projects.

Prescriptive Incentives

Prescriptive incentives allow customers to select equipment from a pre-qualified list of measures and receive an incentive designed to cover the incremental installed cost for New Equipment & Construction pathway projects and a percentage of the installed costs for Retrofit pathway projects. Incentives for prescriptive measures offer a standardized process for customers to integrate energy efficiency in their renovation or construction projects. Program trade allies can manage the prescriptive incentive process for large C&I customers, allowing them a streamlined pathway to energy

efficiency. Prescriptive incentives create a supply chain that includes distributors, manufacturers, key trade ally contractors, and the NH Utilities.

Custom Incentives

The Large Business Energy Solutions program offers custom incentives for energy-efficient measures that are non-standard and not on the prescriptive list of approved products. This approach encourages comprehensive, long-term projects that the prescriptive incentive process cannot fully address. Project engineering calculations and analyses are reviewed on a case-by-case basis by the NH Utilities to determine project eligibility and incentive amounts.

Performance-Based Incentives

In addition, performance-based incentives are also offered to customers to encourage comprehensive energy savings from multiple measures. These incentives are based on energy calculations, including watts saved per square foot, dollars per kWh saved, and energy savings achieved above code.

Performance-based incentives encourage customers to move beyond installing just one piece of energy-efficient equipment to consider long-term, holistic building design and measures that optimize the energy performance of systems or buildings. For the 2021-2023 term, the NH Utilities will offer performance-based incentives for performance lighting, lighting controls, and whole building projects implemented through the New Equipment & Construction pathway.

Tiered Incentives

For lighting projects beyond fixture replacements only, incentives may be increased to account for greater savings derived by the addition of one or more control strategies. For projects that have a minimum of one or more non-lighting end uses with each end-use defined as a natural gas or electric measure impacting heating, cooling, lighting, process, domestic water heating, refrigeration, motors and drives, etc., the incentives would be enhanced for each additional measure that increases savings beyond that single measure. Savings from each additional measure must be significant enough to warrant the additional incentives. To deliver tiered incentive measures, the NH Utilities will collaborate with energy service companies and other turnkey service providers who have staff or sub-contractors capable of installing multiple energy efficiency measures.

Performance Contracting

As noted in the Municipal program section, the NH Utilities have observed an increased interest in performance contracting over the last few years. During the 2021-2023 term, the Large Business Energy Solutions program will continue to support large C&I customers who choose to follow the performance contracting path. The NH Utilities will collaborate with key performance contractor partners in the state on the development of energy efficiency projects. The NH Utilities provide a third-party review of calculated energy savings and help determine the right level of incentives to encourage the installation of highly cost-effective measures with lower savings to create a balanced, comprehensive suite of energy-efficient measures.

Measures

The NH Utilities will incentivize prescriptive, custom, and performance-based measures for the Large Business Energy Solutions program during the 2021-2023 term. The NH Utilities will search for opportunities to achieve more energy savings through controls for building systems, such as energy management systems (“EMS”), lighting, HVAC equipment, and Wi-Fi thermostats.

Prescriptive Measures

Incentivized prescriptive measures will include, but are not limited to: air compressors, chillers, commercial kitchen equipment, HPWHs, high-efficiency condensing equipment, hot water-saving equipment, HVAC equipment (e.g., heat pumps and unitary air conditioners) and controls, insulation and air sealing, LED lighting and lighting controls, motors, commercial refrigeration equipment, process equipment, and VFDs.

Custom Measures

Many large C&I customers have complex technologies and specialty equipment and systems that require tailored solutions and custom measures. These custom measures will include, but are not limited to: chiller pump upgrades, CHP systems, EMS, injection molding machines, insulation and air sealing, integrated air compressors, large chillers and boilers, retro-commissioning, snowmaking equipment (e.g., low-energy snow guns and lift heater terminal controls), specialized equipment (e.g., polymer bead washing machines), and weatherization measures.

Commissioning Assistance

The NH Utilities provide commissioning assistance for existing equipment and facilities. Energy savings are either prescriptive or custom calculations based upon metering and monitoring. Currently, the NH Utilities do not envision offering incentives for the commissioning of new building systems as builders and owners are expected to ensure optimal equipment performance as part of the cost to deliver a new construction or new equipment project.

3.4.6 Program Budget and Goals

Table 3-3: Large Business Energy Solutions Program—Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	<u>\$25,729,788</u> \$24,938,645	<u>\$34,115,152</u> \$34,018,730	<u>\$44,630,665</u> \$46,779,278	<u>\$104,475,606</u> \$105,736,654
Annual kWh Savings	<u>63,472,247</u> 65,122,196	<u>77,734,351</u> 83,591,154	<u>94,540,953</u> 109,036,322	<u>235,747,551</u> 257,749,671
Lifetime kWh Savings	<u>795,658,922</u> 876,554,611	<u>975,376,475</u> 1,124,260,353	<u>1,187,986,401</u> 1,461,425,507	<u>2,959,021,798</u> 3,462,240,471
kW Reduction	<u>7,041</u> 8,203	<u>8,532</u> 10,464	<u>10,505</u> 13,572	<u>26,078</u> 32,239
No. of Participants	<u>1,805</u> 1,811	<u>1,902</u> 1,957	<u>1,936</u> 2,091	<u>5,643</u> 5,859
Natural Gas Programs				
Program Budget	\$2,685,689	\$3,334,466	\$4,140,552	\$10,160,707
Annual MMBtu Savings	95,778 <u>83,319</u>	112,738 <u>98,161</u>	133,548 <u>117,770</u>	342,064 <u>299,250</u>
Lifetime MMBtu Savings	1,195,081 <u>1,034,434</u>	1,443,530 <u>1,250,421</u>	1,707,340 <u>1,500,117</u>	4,345,950 <u>3,784,972</u>
No. of Participants	291 <u>294</u>	385 <u>388</u>	435 <u>438</u>	1,110 <u>1,119</u>
Note: kWh = kilowatt hours, kW = kilowatts, and MMBtu = million British thermal units.				

3.5 Energy Rewards Program (Eversource Only)

Funding has been removed from the Energy Rewards Program as part of the Eversource budget adjustments for the Settlement Agreement.

3.5.1 Program Objectives

The Energy Rewards program encourages customers to propose energy efficiency retrofit projects as part of a competitive solicitation process and is designed to promote competitive market development in the energy efficiency industry by encouraging third parties to bid for energy saving projects on a competitive basis. The program's objective is to generate market driven demand for cost-effective electric savings by encouraging customers to bid in retrofit projects that meet their internal business objectives, rate of return requirements, and approval processes. The program was designed for industrial and other large customers who need several years to design, plan, approve, and implement large, comprehensive electric saving projects.

3.5.2 Target Market

The target market for the 2021-2023 Energy Rewards program is C&I customers with electric demand greater than 200 kW, individually or in aggregate. Eversource has established a minimum estimated energy savings for all projects of 100,000 kWh per year (single site or aggregate) and project costs of \$150,000 or greater. C&I customers of Eversource, energy service companies, and other third party service providers representing an Eversource C&I customer are eligible to participate in the program.

3.5.3 Program Design

The Energy Rewards program offers customers and engineering consultants an opportunity to design and bid in cost-effective comprehensive projects with electric savings. The program allows customers to bundle less cost-effective and more cost-effective efficient measures together. This increases the chances for comprehensive energy saving projects that are multi-year and implement multiple measures. Having a multi-year program structure gives large C&I customers the time to develop projects, obtain approval, and submit well-developed proposals for their internal planning process.

The design of the Energy Rewards program allows Eversource to engage large C&I customers, giving them the opportunity to tailor their own energy efficient solutions. Over the years, the program has allowed Eversource to provide a better customer experience and to develop project plans, such as Memorandums of Understanding (“MOUs”), with large C&I energy users across New Hampshire.

2021-2023 Changes

During the 2021-2023 term, Eversource will issue an open-bidding cycle held year-round with bids awarded two times a year. This program design change is in response to customer demand to align the issuance of an RFP with multiple accounting calendars, such as the fiscal year and a customer’s annual accounting year (e.g., some state and local government calendar years end on June 30th, while some businesses’ fiscal years end on October 31st). This program modification creates time for C&I customers to receive internal approvals, secure financing, and gain company support for efficiency projects. Eversource expects that this change will increase participation in the Energy Rewards program and create a continuous pipeline of electric saving projects. In addition, this should help increase the number of submitted bids from large national companies and franchises that have counterparts in other states competing for the same funding sources to complete renovation projects.

During the 2021-2023 term, the NH Utilities will encourage Energy Rewards program participants to develop sustainable procurement policies and implement comprehensive energy efficiency projects.

Incentives and Measures

The Energy Rewards program’s incentive levels are market driven through a competitive bidding process. Customers submit their requests for incentives to implement energy efficiency projects through their bid submissions. Customers determine their requested incentive levels based upon internal calculations regarding rate of return and if management will approve the projects, project costs, and design plans. The program reviews all energy efficient measures that cost effectively deliver electric savings.

Eligible measures include but are not limited to: high efficiency lighting systems and controls, motor VSDs, process or air conditioning system improvements, and other measures that reduce annual

electrical consumption. Non-eligible measures include new construction projects, any power-producing projects such as cogeneration, fuel-switching, and any repair or maintenance projects, and any technology with a measure lifetime of less than three years.

Program Process

For each RFP issued, Eversource hosts an Energy Rewards bidders' conference to provide customers and contractors information regarding submission requirements and the criteria used to select projects. Potential bidders are invited to the bidders' conference to learn how to participate in the program. Eversource also promotes the Energy Rewards program to Eversource customers with greater than 200 kW peak demand who might qualify either individually or on an aggregated demand basis. Potential energy service companies and third-party service providers are notified, and the Energy Rewards program and bidders' conferences are promoted on the NHSaves and Eversource websites.²⁷

In response to an RFP, customers must submit a request for the incentive amount needed to implement an individual project or a series of energy efficiency projects. Funds are awarded through the competitive RFP process to customers or third parties acting on behalf of a customer. Projects are screened through a preliminary evaluation and a final, more detailed analysis by Eversource staff. The bids are evaluated on the projected electric savings, incentive levels (pricing determined by customer or third party), and other non-price variables. Non-price variables include such factors as whether the project includes measures other than lighting (e.g., HVAC and process measures) and whether the environmental impacts reduce on-site emissions or waste stream impacts. All projects are evaluated on the basis of established cost-effectiveness criteria.

²⁷—Energy Rewards Program. Available at: <https://nhsaves.com/energy-rewards-rfp-program/>.

3.5.4 Program Budget and Goals

Table 3-4: Energy Rewards Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	\$2,997,161	\$5,611,934	\$9,172,068	\$17,781,164
Annual kWh Savings	4,540,000	7,300,000	10,560,000	22,400,000
Lifetime kWh Savings	59,250,000	96,600,000	141,300,000	297,150,000
kW Reduction	424	657	924	2,005
No. of Participants	10	16	23	49
Note: kWh = kilowatt hours and kW = kilowatts.				

Chapter Four: NHSaves Residential Energy Efficiency Programs

Since 2002, the NH Utilities have implemented residential programs to help improve the efficiency of single-family and multifamily homes across the state. The NHSaves Residential Programs are designed to help New Hampshire residents reduce their energy costs, engage in energy efficiency behaviors, purchase high-efficiency equipment and technologies, defer the need for additional generation on the electrical grid, and help protect the environment through reduced electricity, natural gas, and delivered fossil fuel consumption.

4.1 Residential Programs Overview

In addition to serving customers, the NHSaves Residential Programs support a mature and robust network of stakeholders, including but not limited to: energy efficiency contractors, community action agencies, distributors, manufacturers, retailers, and other stakeholders that are the backbone of completing audits and installations of equipment and materials. The NH Utilities provide education, incentives, design and technical assistance, and contractor education to promote investment in energy-efficiency advancement and increase program participation.

For the 2021-2023 term, the NH Utilities are focused on scaling up participation and energy savings for the NHSaves Residential Programs. The NH Utilities will support these objectives by designing flexible and innovative programs, incentivizing emerging energy-efficient technologies, ensuring convenient customer access to capital, increasing workforce development efforts, and providing new “on-ramps” that allow customers varied pathways to participate in NHSaves Residential Programs. The flexibility built into NHSaves Residential Programs is



imperative to allowing the NH Utilities to adapt quickly to new federal and state laws, changing codes and standards, market transformation, emerging technologies, and customer demand.

4.1.1 2021-2023 Residential Program Priorities

For almost 20 years, the NH Utilities have designed and delivered valuable energy efficiency services to New Hampshire’s residential customers. Historical efforts have prioritized energy efficiency projects that maximize cost effectiveness over serving the greatest number of customers. Due to increased 2021-2023 Plan program budgets and goals, the NH Utilities will shift the focus to providing market-friendly offerings that encourage greater customer participation and increased engagement. To realize these evolving goals in residential energy-efficient technologies and building design, the 2021-2023 Plan emphasizes the following NHSaves Residential Programs’ priorities:

- 1. Increasing Participation through New and Expanded Program Pathways.** The NH Utilities will continue to effectively scale up the NHSaves Residential Programs to drive deeper and broader energy savings by creating or reinforcing multiple market pathways or “on ramps” with varied levels of participation offered for different customer types. These may include but are not limited to: access to single-measure rebates, online platforms, visual audits, and code-plus initiatives for residential new construction projects. These on-ramps will provide residential home owners, home buyers, and tenants with easily accessible avenues to realize initial energy savings.

The NH Utilities will use various marketing methods to attract and retain these customers, as they may be more inclined to further engage in energy efficiency with future home improvement projects. The NH Utilities will employ data analysis to determine how these new or reinforced pathways are utilized and will also track repeat program participation by contractors, home builders, homeowners, or landlords throughout the 2021-2023 term.

- 2. Offering Effectively-Packaged Solutions to Engage Customers.** The NH Utilities will effectively market and package energy efficiency solutions to New Hampshire residents. These solutions will include expanded midstream and point-of-purchase rebates (ENERGY STAR® Products

program) and additional tiers and bonus incentives to encourage the design-and-build community to move beyond the current building code in residential new construction projects (ENERGY STAR Homes program).

- 3. Increase Customer Education and Workforce Development Trainings.** To scale up participation and drive deeper energy savings for the 2021-2023 NHSaves Residential Programs, the NH Utilities must facilitate a thorough and targeted workforce development plan to educate contractors, distributors, manufacturers, community action agencies, home builders, and retailers regarding the benefits and availability of energy-efficient technologies and program offerings.

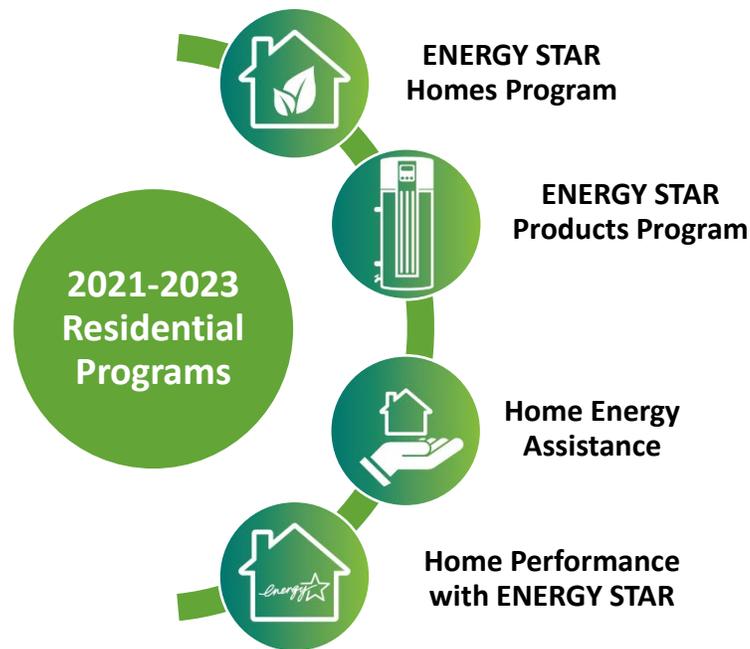
Throughout the 2021-2023 term, the NH Utilities will expand the trainings offered for going beyond minimum code compliance, emerging technologies, and energy-efficient building techniques. These trainings will be delivered through several short-term and long-term workforce development channels, including but not limited to: interactive online training videos, in-field home builder trainings, hands-on equipment training, and lunch & learn sessions.

4.1.2 Residential Programs

For the 2021-2023 term, the NH Utilities will continue to deliver comprehensive NHSaves Residential Programs to help all New Hampshire residents regardless of income or home type, to reduce their energy consumption, save money, and protect the environment through reduced GHG emissions.

The 2021-2023 NHSaves Residential Programs will offer multiple pathways to engage residential customers with entrées to energy efficiency. In order to reach the ambitious EERS goals, the NH Utilities must offer multiple and varied pathways in order to scale up program participation and drive energy savings. By offering multiple new and reinforced pathways, the NH Utilities will engage a broad range of customers in energy efficiency programs at various levels of savings, while raising interest across the market overall regardless the degree of participation. Figure 4-1 illustrates the multi-entry point approach of the 2021-2023 NHSaves Residential Programs.

Figure 4-1: 2021-2023 Residential Programs



- **ENERGY STAR Homes Program.** This is the NHSaveS energy efficiency solution for residential single-family and multifamily new construction homes. The program provides incentives and contractor support through two pathways: (1) Drive to ENERGY STAR and (2) ENERGY STAR 3.1. During the 2021-2023 term, the NH Utilities will for the first time explore providing incentives for new construction homes that are certified passive solar, solar photovoltaic (“PV”) ready, EV ready, demand management ready, and for all-electric homes.
- **ENERGY STAR Products Program.** This high-volume program with broad reach is designed to help residential customers overcome the extra expense of purchasing and installing ENERGY STAR-certified appliances, electronics, HVAC equipment and systems, hot water-saving equipment, and lighting. This is accomplished through consumer education, point-of-sale marketing, active training, engagement of retailers and distributors, and a variety of incentives both at point of sale and through automatic markdowns.
- **Home Energy Assistance Program.** This fuel-neutral weatherization program is designed to reduce energy use from both electric and fossil fuel-consuming appliances, lighting, and HVAC

systems. The program serves New Hampshire’s income-eligible homeowners and renters to help reduce their energy costs, optimize their home’s energy performance, and make their homes safer, healthier, and more comfortable.

- **Home Performance with ENERGY STAR.** This energy efficiency solution provides comprehensive energy-saving services at significantly reduced cost to customers’ existing homes, and covers lighting improvements, space heating and hot water equipment upgrades, weatherization measures, and appliance replacements.

4.1.3 Changes in the National Lighting Marketplace

Over the past two years, there has been great uncertainty regarding the implementation and enforcement of the Energy Independence & Security Act of 2007 (“EISA”).²⁸ Phase 2 and Phase 3 of EISA’s light bulb standards were slated to begin on January 1, 2020 (“EISA 2020 standard”) and January 1, 2025 (“EISA 2025 standard”), respectively, to go into effect on those dates. Finally, on February 11, 2019, the US DOE published a Notice of Proposed Rulemaking (“NOPR”) that proposed withdrawing the revised definitions of general service lamp (“GSL”), general service incandescent lamp (“GSIL”), and other supplemental definitions, that were originally set to go into effect on January 1, 2020. In a final ruling issued on September 5, 2019, the US DOE reversed its 2017 decision to expand the types of GSLs to be subject to the stricter standards, rescinded the expanded definition, and allowed exemptions for specialty lamps such as globes, candelabras, and reflectors, as well as other bulbs such as three-way and rough service lamps.²⁹

With this ruling, the US DOE withdrew the prior final rules regarding the EISA 2020 standard published on January 19, 2017 (82 FR 7276 and 82 FR 7322) that were to become effective on October 7, 2019. The September 2019 final rule eliminated energy efficiency standards for about 50 percent of the six

²⁸ Public Law 110-40. Energy Independence and Security Act of 2007. Dec. 19, 2007.

²⁹ 84 FR 46661. Office of Energy Efficiency and Renewable Energy. Energy Conservation Program: Definition for General Service Lamps, Published Sep. 5, 2019, pp. 46661-46676. Available at: <https://www.federalregister.gov/documents/2019/09/05/2019-18940/energyconservation-program-definition-for-general-service-lamps>.

billion light bulbs used in the United States.³⁰ The standards would have covered a variety of light bulb shapes and sizes used in homes, including candelabra-based bulbs, candle- and globe-shaped bulbs, and reflector bulbs. These original standards were intended to phase out the incandescent bulb in favor of high-efficiency LEDs and fluorescent bulbs and fixtures. In a further rollback of earlier proposed lighting efficiency standards, the US DOE also issued a proposed determination on September 5, 2019, which if finalized, would eliminate the EISA 2020 standards for “A-lamps,” the pear-shaped bulbs that make up the other 50 percent of light bulbs used in the United States.³¹



At the same time, lighting manufacturers, expecting the original rules to go into effect in 2020 and 2025, have largely already transitioned to designing and manufacturing long-lasting, energy-efficient LEDs, both ENERGY STAR-certified and otherwise. As a result, the lighting market continued to drive the transition to LEDs in the marketplace, a process that is expected to continue in spite of the federal roll-back of minimum-efficiency standards.

In order to help maintain and accelerate the strong demand for high-efficiency ENERGY STAR LED technologies, the NH Utilities will continue to aggressively support and incentivize energy-efficient bulbs and fixtures for the NHSaves Residential Programs through the end of 2021. Beginning in 2022 and depending on how the marketplace responds to the relaxed federal standards, the NH Utilities will begin to transition program support to discount retailers focused on reaching the last-to-adopt and underserved customers.

³⁰ ACEEE. DOE’s Light Bulb Standards Rollback Will Cost Americans \$14 Billion Each Year. Sep. 4, 2019. Available at: <https://aceee.org/press/2019/09/doe-s-light-bulb-standards-rollback>. 25 84 FR 46830. Office of Energy Efficiency and Renewable Energy. Energy.

³¹ 84 FR 46830. Office of Energy Efficiency and Renewable Energy. Energy Conservation Program: Energy Conservation Standards for General Service Incandescent Lamps, Published Sep. 5, 2019, pp. 46830-46862. Available at: <https://www.federalregister.gov/documents/2019/09/05/2019-18941/energy-conservation-program-energy-conservation-standards-for-general-service-incandescent-lamps>.

4.1.4 Residential Building Codes

New Hampshire’s current building energy code went into effect on September 15, 2019 when the State Building Code Review Board approved the adoption of the 2015 editions of the International Building Code, including the 2015 International Energy Conservation Code (“IECC 2015”).³² There were several legislative amendments to the code that will sunset in March 2022. As of January 1, 2019, the NH Utilities updated the ENERGY STAR Homes program’s User Defined Reference Home (“UDRH”) to reflect the current minimum standard from the IECC 2015. The UDRH will be updated again in March 2022 to reflect the end of the sunsetted amendments to the IECC 2015.

The NH Utilities are extensively researching current approaches for building code savings attribution in New England, specifically in Connecticut and Massachusetts. Based on the NH Utilities’ analysis, the creation of a code savings attribution model for New Hampshire may be proposed during the 2021-2023 term.

4.1.5 Workforce Development

To scale up participation and drive deeper energy savings for the 2021-2023 NHSaves Programs, the NH Utilities and a consultant will develop a cohesive statewide Workforce Development Strategy for understanding workforce development needs and what training is needed for vendors, community action agencies, distribution contractors, building operators, and other energy efficiency stakeholders. For more information regarding the NH Utilities’ Workforce Development Strategy, see Chapter Nine of the 2021-2023 Plan.

4.1.6 Financing

The NH Utilities recognize that technical assistance, incentives, and innovative financing tools are all important mechanisms to effectively encourage residential customers to invest in comprehensive energy efficiency. Effective financing mechanisms have supported the success of the NHSaves Residential Programs and can be leveraged further in the next term. During the 2021-2023 term, the

³² New Hampshire Department of Safety—State Building Code Review Board. *New Hampshire Building Code*. Sep. 15, 2019. Available at: <https://www.nh.gov/safety/boardsandcommissions/bldgcode/>.

NH Utilities will continue to offer on-bill and third-party financing options to encourage residential customers to pursue comprehensive and cost-effective energy efficiency projects in their homes. These include zero percent on-bill offerings for electric and natural gas customers, two percent loans offered in partnership with local lenders, and zero-percent moderate-income loans, also in partnership with local lenders.

On-Bill Financing

All NH Utilities have on-bill financing available for Home Performance with ENERGY STAR program customers to help cover their portion of a weatherization project. Customers with a qualifying project apply to their NH Utility for the loan. Lending criteria includes bill payment history (all NH Utilities) and credit score (Eversource only). For customers receiving an on-bill loan, the NH Utility will pay the customer's co-pay to the contractor directly and the customer will pay off the loan at zero percent interest on their utility bill³³.

The NH Utilities will continue to monitor customer interest in residential on-bill financing as well as capital available for loans and may make adjustments to maximum loan amounts if needed. On-bill loan offerings are governed by each NH Utility's tariff and changes are made by updating the tariff with the Commission.

Residential Energy Efficiency Loan Program

Through the Residential Energy Efficiency Loan program, the NH Utilities partner with local lending institutions, banks, and credit unions to ensure capital and lending expertise is available to customers who want or need it to move forward with efficiency projects. The Residential Energy Efficiency Loan program allows qualified electric and natural gas customers to finance all or a portion of their share of approved energy efficiency upgrades through a low-interest loan in cooperation with local banks and credit unions. Loans cover a residential customer's co-pay portion of the work performed through the

³³ Liberty Electric and Gas, Until Electric and Gas, and NHEC all have a maximum on-bill loan amount of \$4,000. Eversource has a maximum on-bill loan amount of \$2,000. Until has a maximum on-bill loan amount of \$7,500 for market-rate customers and \$15,000 for moderate-income customers. Customers needing loans up to \$15,000 can access the Residential Energy Efficiency Loan Program with third-party lenders.

Home Performance with ENERGY STAR program (e.g., insulation, appliances, and health and safety measures) and some other approved energy efficiency measures.³⁴

Customers can finance up to \$15,000 for qualifying energy efficiency upgrades and the customer’s lending institution will determine if a customer is eligible for a loan based on lending criteria. The NHSaves Programs subsidize a two percent APR home energy efficiency improvement loan to qualified customers. See Table 4-1 for loan amounts and repayment terms.

Table 4-1: Residential Energy Efficiency Loan

Amount	Max Loan Repayment Term
\$1,000 up to \$2,000	2 Years
\$2,001 up to \$4,000	3 Years
\$4,001 up to \$6,000	4 Years
\$6,001 up to \$9,000	5 Years
\$9,001 up to \$12,000	6 Years
\$12,001 up to \$15,000	7 Years

This third-party financing program is not designed to support a specific number of loans, but rather to ensure that customers have financing options available to cover the co-pay portion of their projects if needed. These financing dollars help drive more comprehensive projects. Throughout the 2021-2023 term, the NH Utilities will continue to offer the Residential Energy Efficiency Loan through the current lending partners for the 2018-2020 program cycle, and additional lenders will be introduced based on customer need and lender interest.³⁵

³⁴ Unital Electric and Gas will give loans to Gas Networks customers.

³⁵ The current lending partners include: Merrimack County Saving Bank, Meredith Village Savings Bank, Northeast Credit Union, Woodsville Guaranty County Bank (Eversource and NHEC customers only), Claremont Savings Bank (Eversource customers only), Mills 42 Federal Credit Union (Eversource customers only), and the Savings Bank of Walpole (Eversource customers only).

Moderate-Income Customer Financing

During the 2019 program year, the NH Utilities established a zero-percent moderate-income financial offering with local lenders. The NH Utility buys down the lender interest rate to zero percent and the lender additionally extends the maximum loan term to 10 years. These actions combine to result in a lower monthly loan payment for moderate-income customers compared to the payment for the typical Residential Energy Efficiency Loan. The lending partner determines whether the customer is within a moderate-income bracket and eligible for a loan based on income review and lending criteria. During the 2021-2023 term, this financing offering will continue.

Funding—NH Saves Partnership Initiative

During the 2021-2023 term, the NH Utilities will continue to work with stakeholders, local non-profits, and foundations in order to procure funds to be used to enhance offerings or overcome barriers beyond what is typically funded by the NHSaves Programs. This could include pre-weatherization barriers for HEA customers, expansion costs for Community Action Agencies (“CAAs”), funding the co-pay of moderate-income customers, coordination with efforts that provide interactive benefits with energy efficiency, such as public health, or other identified opportunities. The NH Saves Partnership Initiative serves all of the NH Utilities’ customers, however, this very much depends on the types of grants that are awarded.

Specific to income-eligible customers, in May of 2020, a grant was written and submitted on behalf of a CAA for a US Department of Agriculture Housing Preservation Grant. If awarded, this grant will be used for repairs and health and safety measures for single-family homes that the HEA program could not pay for and, therefore, the house would be classified as a “walk away.”³⁶ Additionally, in May of 2020, a grant was written on behalf of a CAA and submitted to the Northern Borders Regional Commission, which provides economic and community development grants in Maine, New Hampshire, New York,

³⁶ The grant request is for \$100k.

and Vermont. This grant, if awarded, would pay for two trucks for a crew-based CAA that is expanding due to more HEA funds being available.³⁷

Throughout the 2021-2023 term, the NH Utilities will continue to look for additional opportunities to apply for grants and leverage funding resources to promote energy efficiency.

4.1.6 Marketing and Outreach

The NH Utilities will market the NHSaves Residential Programs through a variety of channels, both as individual companies as well as through a statewide marketing approach. These channels will include but are not limited to: the website (NHSaves.com), program promotional materials (“collateral”), direct mail and e-mail, bill inserts, point-of-sale marketing, retailer engagement, social media campaigns, paid digital advertising, billboards, radio/TV/music streaming advertisements, trade shows, public relations efforts (statewide and utility-driven), hosting or providing speakers for trainings, forums, and events, and providing content for partners’ blogs, newsletters, and websites.

The NH Utilities take advantage of market segmentation to effectively target customers and engage them in energy efficiency programs. Understanding what motivates a customer to participate in energy efficiency programs gives the NH Utilities insight into what marketing strategies will work when trying to increase NHSaves Residential Program participation. During the 2021-2023 term, the NH Utilities plan to scale up data analysis of customers’ billing and demographic information to effectively market new and existing program pathways and offerings to those customers who are most likely to respond to and benefit from the NHSaves Residential Programs.

In addition, the NH Utilities conduct significant community outreach through training such as the Button Up Workshops. This is a popular energy-saving workshop series sponsored by NHSaves and coordinated by the Plymouth Area Renewable Energy Initiative (“PAREI”).



³⁷ This grant request is for \$70k.

Participants attend a 90 minute presentation on how to optimize the energy performance of their homes and the workshop includes information about basic building science principles and how whole-house energy measures can help customers “button up” their homes for the heating and cooling seasons. Each workshop is presented by a knowledgeable Building Performance Institute (“BPI”)-certified Building Analyst and a representative from the NH Utilities.

4.2 ENERGY STAR Homes Program

4.2.1 Program Objective

The ENERGY STAR Homes (“ES Homes”) program is New Hampshire’s energy efficiency solution for residential single-family and multifamily new construction homes. Residential new construction homes must meet strict building guidelines to earn the US Environmental Protection Agency’s (“EPA”) ENERGY STAR certification and are typically 15 to 30 percent more efficient than standard, built-to-code homes. The EPA’s ENERGY STAR Home certification uses the Home Energy Rating System (“HERS”) as a scoring mechanism, analogous to a miles-per-gallon sticker for new homes, giving current or future home owners insight into the home’s energy performance. The lower the HERS Index Score the more energy efficient the home is compared to one built to standard building code.

The goal of ES Homes is to encourage homeowners, home builders, and contractors to build high-performance single-family and multifamily homes. This encouragement is provided through incentives and connecting home builders with third-party HERS Raters who provide support and verification services



throughout the construction process. Over the past decade, ES Homes has seen 15 to 35 percent of New Hampshire’s newly built homes achieve ENERGY STAR certification. ES Homes, the NH Utilities, participating home builders, HERS Raters, and contractors have also received numerous national ENERGY STAR awards and recognition for driving the New Hampshire residential construction market toward high-efficiency building designs, techniques, and technologies.

4.2.2 Target Market

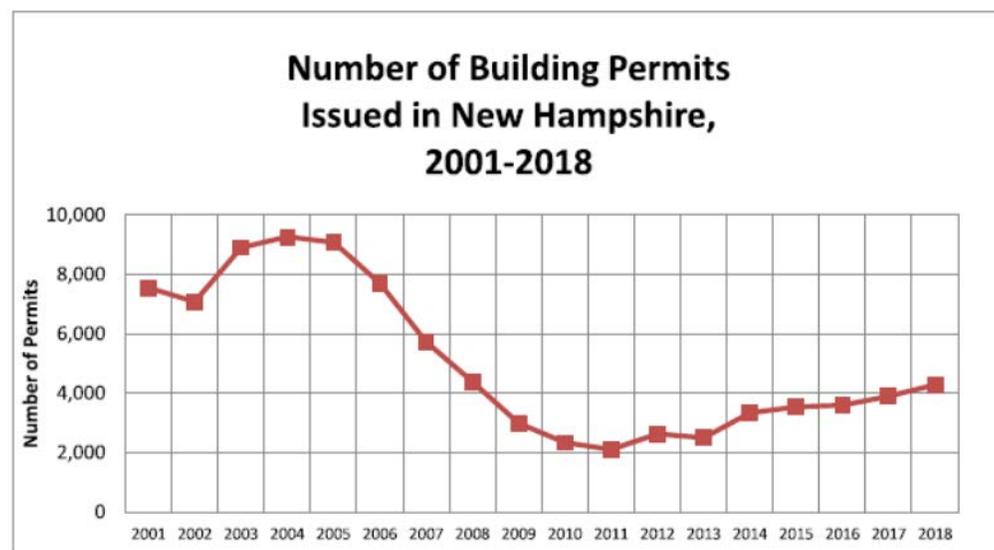
The target market for ES Homes is the entire residential new construction community across the state of New Hampshire. This includes architects, developers, home builders, homeowners, and HVAC contractors. All residential single-family and multifamily new construction projects are eligible to

participate in ES Homes, regardless of the fuel or system used in the home for space heating. ES Homes eligibility applies to manufactured, pre-fabricated, and site-built homes.

A secondary target market is homes with major additions or large portions of a home’s structure undergoing a renovation. The goal of this offering is to encourage high-efficiency building practices and equipment for remodeled homes that are not eligible for the ENERGY STAR Homes Version 3.1 or Drive to ENERGY STAR pathways. For the 2021-2023 term, the NH Utilities will look to expand this strategy through greater marketing and by offering more robust incentives (based on the scale of the opportunity and cost-effectiveness) and increasing home contractor and homeowner awareness.

In 2018, the number of new construction permits filed statewide reached 4,285, an increase of approximately 18.5 percent from 2017 (3,625 permits pulled).³⁸ This is the fifth year in a row in which there was an increase in the total number of permits issued. The NH Utilities estimate that 4,500 permits will be filed in 2020, with 33 percent participating in the ES Homes program.

Figure 4-2: Building Permits Issued in New Hampshire (2001-2018)



³⁸ New Hampshire Office of Strategic Initiatives. *Current Estimates and Trends in New Hampshire’s Housing Supply: Update 2010-2018*. Dec. 2019. Available at: <https://www.nh.gov/osi/data-center/documents/housing-estimates-trends.pdf>.

Over the next decade, the NH Utilities plan to foster an increase in the percentage of ENERGY STAR-certified homes built in New Hampshire through enhanced contractor outreach, in-person and online home builder trainings, and the creation of a flexible program design that encourages multiple points of entry and incentive levels for the home builder community.

4.2.3 2021-2023 Plans

For the 2021-2023 term, the NH Utilities will implement a number of new strategies to increase electricity, natural gas, and fossil fuel savings for residential customers. These include:

Increase Reach of Existing Program and Serve More Customers

Beginning with the 2021-2023 term, the NH Utilities plan to significantly ramp-up energy savings and participation in ES Homes. By 2030, an aspirational objective of the NH Utilities is to have 80 percent of new construction homes permitted in the state participating in ES Homes each program year.³⁹ During the 2021-2023 term, the NH Utilities will deploy a combination of training, technical support, and incentives to encourage home builders, renovation firms, and HVAC contractors to utilize the ES Homes' two performance-based pathways to integrate energy-efficient design and equipment into new construction or major rehab and renovation projects. For the 2021-2023 term, ES Homes will continue to offer performance-based incentives and high targets for energy efficiency savings for the residential new construction marketplace.

The Drive to ENERGY STAR Homes pathway provides an introduction to ES Homes by offering smaller incentives for home builders who construct homes above code but fall short of being eligible for ENERGY STAR certification. By slowly easing non-participating builders into ES Homes, the NH Utilities can encourage home builders to begin to practice more comprehensive design with the idea of moving them toward the higher efficiency ENERGY STAR Homes Version 3.1 pathway. In 2021-2023, the NH

³⁹ For the 2021-2023 term, the NH Utilities expect the number of residential permits pulled in New Hampshire that are enrolled in ES Homes to be between 15 and 30 percent. The 80 percent goal by 2030 is aspirational only and is not a PI metric.

Utilities will make the online enrollment form more accessible to builders and allow builders to submit the enrollment form and associated ES Homes paperwork online.

Increase Workforce Development, Education and Outreach

To meet increased energy savings goals and to encourage greater participation in ES Homes, the NH Utilities will expand contractor education and outreach efforts during the 2021-2023 term. This includes providing more code and beyond code trainings for home builders, and lunch & learn sessions for architects, home builders, and HVAC contractors.

The NH Utilities will continue to deploy more in-the-field home builder trainings in which high-performance building specialists will provide on-site technical support during the installation of air sealing, high-efficiency insulation, and HVAC equipment and systems. These hands-on, interactive trainings will be supplemented with an enhanced NHSaves.com video library to serve as an online classroom for home builders, HVAC contractors, and home owners, as well as web links to the EPA's ENERGY STAR-certified home project checklists. In addition, the NH Utilities will create and post their own ES Homes checklists and guidelines for home builders, home owners, and contractors detailing the different aspects of designing and building an ENERGY STAR-certified home. These utility-generated checklists will feature "Top 10" tips and tricks of the trade (e.g., "Top 10 ways to ensure HVAC equipment is properly installed," etc.).

Throughout the 2021-2023 term, the NH Utilities will continue to engage with local building departments regarding current residential building codes, IECC 2015, and ES Homes. This includes ongoing meetings with building departments and delivering program literature to town halls and building code enforcement offices. The NH Utilities are researching current approaches for building code savings attribution in New England. This may include attribution of energy savings for increasing compliance with codes and standards, as well as conducting code trainings. Based on the NH Utilities' analysis, the creation of a code savings attribution model for New Hampshire may be proposed during the 2021-2023 term.

Design Program Tiers and Bonus Incentives to Encourage Sustainability

During the 2021-2023 term, the NH Utilities will include multifamily new construction projects in the Drive to ENERGY STAR pathway. The NH Utilities will also offer additional program tiers and bonus incentives to encourage the design-and-build community to build to standards well beyond the current IECC 2015. In addition, the NH Utilities may offer bonus incentives for residential new construction projects that meet additional efficiency criteria or other sustainable guidelines, such as:

- 1. US DOE Zero Energy Ready Home (“ZERH”) Program.** This US DOE program is based on the building science requirements of ENERGY STAR for Homes Version 3.1 and promotes a comprehensive home performance-principled approach to residential new construction projects. ZERHs are high-performance homes that are so energy efficient that a renewable energy system can offset all or most of the home’s annual energy consumption.

The ZERH program has two pathways: Prescriptive and Performance. This allows the NH Utilities to offer more opportunities for home builders and homeowners looking for varied options to construct efficiently. The Performance pathway requires energy modeling (HERS) and qualifying measures include: thermal enclosures, domestic hot water equipment and distribution systems, high-quality HVAC installations, water management, certification by the EPA’s Indoor airPLUS program, ENERGY STAR-certified appliances, lighting, and windows, and compliance with the US DOE’s PV-ready checklist.

A ZERH offering may also include incentives for “renewable energy-ready” homes. The NH Utilities will explore whether there is a need for separate or additional incentives to ensure that future homeowners can easily install renewable energy systems, such as PVs, without needing to alter their home’s building envelope or electrical service.

- 2. Passive House Certification.** The NH Utilities are closely watching the passive house (“Passive House”) movement in Massachusetts and Connecticut and will apply any lessons learned in the development of a New Hampshire offering during the 2021-2023 term. The NH Utilities will

actively support Passive House trainings conducted by PHIUS in the region to the state's building community.

- 3. EV-Ready Homes.** The NH Utilities may also add a bonus incentive for newly-constructed homes that are built as "EV ready". An EV-ready home ensures that customers have safe access to a dedicated 240 volt power supply for fast-charging Level 2 EV chargers. If a homeowner prewires their new home for EV charging during construction (even if it is not used immediately upon occupancy), they can save hundreds of dollars later. There are two paths to make a home EV-ready, both of which include a pre-installed conduit and wiring for a Level 2 EV charger.

To design the EV-ready bonus incentive, the NH Utilities will benchmark other states' program designs, including Rhode Island's stretch code which includes requirements for upgraded service panels and a conduit for electricity to a garage or driveway from the home's service breaker.

- 4. All-Electric Home Package.** For the 2021-2023 term, the NH Utilities will offer an all-electric home offering to encourage home builders and contractors to build all-electric residential homes outfitted with heat pump technologies to mitigate the environmental impact of fossil fuels and eliminate fuel combustion within the home. The Companies may provide incentives for the following measures: building envelope measures, thermal energy-efficiency measures, air-source or heat pumps, increased use of biofuels, biomass heating systems, EV readiness, and on-site renewable energy production and storage, including PV readiness.
- 5. Above-and-Beyond Code Measures.** During the 2021-2023 term, the NH Utilities will explore offering incentives for energy-efficient measures that meet the next iteration of building codes for residential new construction, such as duct blaster thresholds and infiltration measures. In addition, the NH Utilities will explore implementing a pay-for-performance incentive for occupants of new homes to keep their home's energy consumption down.

4.2.4 Program Design

ES Homes is designed to serve all residential single-family and multifamily new construction homes, including site-built, manufactured, and pre-fabricated homes. The NH Utilities' Residential Program implementation staff will work closely with home builders, contractors, and certified HERS Raters across New Hampshire to encourage participation in the program's two primary pathways—ENERGY STAR Version 3.1 and Drive to ENERGY STAR.

ENERGY STAR Version 3.1 Pathway

The ENERGY STAR Homes Version 3.1 pathway (“ES 3.1”) establishes a high-efficiency target for new construction homes to be built above code in the state. On average, ES 3.1 homes are designed to save 15 percent or more energy relative to homes built to the IECC 2015 standards. The NH Utilities use a robust HERS Rater contractor network to provide independent third-party inspection, verification, and diagnostic testing to help maximize the energy efficiency of single-family and multifamily homes. Once enrolled in ES Homes, a home builder submits design plans to a HERS Rater for review. The HERS Rater analyzes the submitted designs using HERS to determine and share with builders the energy-efficient features needed to ensure the home earns the ENERGY STAR certification. During the construction process, the HERS Rater is responsible for performing site visits and inspections.

To be eligible for incentives, a home must be enrolled in ES Homes and inspected prior to the installation of any sheet rock or other type of wall covering, to ensure that an insulation inspection can occur. Once a home is fully built, the HERS Rater will perform a final inspection and calculate the home's energy performance. For the 2021-2023 term, the NH Utilities will encourage the continued adoption of ES 3.1 through additional incentives and increased HERS Rater support and training.

Drive to ENERGY STAR Pathway

During the 2018-2020 Plan, the NH Utilities introduced the Drive to ENERGY STAR (“Drive to ES”) pathway to recruit new builders, HVAC contractors, and single-family homeowners to ES Homes. The pathway was originally designed as an entry point into energy-efficient building design and practices to encourage home builders to go beyond code (code plus) in their new construction projects. Once a

home builder participates in the Drive to ES pathway, the NH Utilities have found that it eliminates an identified program barrier: the perception that committing to building an ENERGY STAR-certified home is a complex undertaking that requires multiple steps and interactions with other firms or contractors.

For the 2021-2023 term, the NH Utilities will continue to offer the Drive to ES pathway to builders of single-family homes and will expand the pathway offering to include builders of multifamily homes. The pathway will continue to provide smaller incentives (less than the ES 3.1's pathway incentives) to builders who have constructed new single-family and multifamily homes that are above code but do not meet ENERGY STAR certification requirements.

HVAC Contractor Training

Through ES Homes, the NH Utilities will expand the workforce training opportunities and certification assistance for HVAC contractors during the 2021-2023 term. Currently, a third-party vendor trains HVAC contractors to understand the ES 3.1 requirements and checklists, how to conduct duct blaster tests, and how to properly seal duct work. The EPA requires builders to utilize a credentialed HVAC contractor trained in best practice HVAC design and installation services to qualify a home for ENERGY STAR certification. These trainings and technical assistance will allow the NH Utilities to build a robust network of HVAC contractors to support increased energy savings goals.

Measures

An ENERGY STAR-certified home is designed and built so that all energy efficiency systems and features work together to create a high-performance home. This level of building performance is achieved through the installation of energy-saving measures and energy-efficient design, including high-efficiency HVAC systems, complete thermal enclosure (i.e., high-performance windows, properly installed insulation, and air sealing), ENERGY STAR-certified lighting and appliances, water protection systems (i.e., water management system checklist) to improve indoor air quality and durability, and well-insulated and sealed heating and cooling ducts.

Drive to Net Zero Home Competition

The Drive to Net Zero Home Competition was designed to challenge homebuilders, architects, and home owners to build high-efficiency, net zero energy homes that generate more on-site energy than is used. Typically, net zero homes are 40 to 50 percent more energy efficient than standard homes and score a 10 or below on the HERS Index Score. The NH



Utilities started the competition in 2017 and have seen considerable success in promoting beyond ENERGY STAR construction techniques to the New Hampshire residential home builder community.

The annual competition recognizes the top three homes across five categories, including: lowest overall HERS Index, lowest overall HERS Index prior to renewables, home’s estimated annual operating costs, construction cost per square foot, and technological innovation. The competition is marketed to the state’s home builder community and publicized through press releases, videos on the NHSaves website, and at an annual awards presentation. For program years 2020, 2021, and 2022, the NH Utilities have partnered with the New Hampshire Home Builders Association (“NHHBA”) to recognize the Drive to Net Zero Home Competition winners at the NHHBA’s annual Cornerstone Awards.⁴⁰ These awards are presented yearly to recognize excellence in the building industry.

Throughout the 2021-2023 term, the NH Utilities will continue to meet with the EPA to collaborate on how to continue integrating advancements in net zero homes in New Hampshire. The ES Homes program is performance based and uses HERS as a scoring mechanism to determine incentives on a dollar-per-point below the target HERS Index Score. Net zero homes have a low HERS Index Score (i.e., energy efficient); therefore, homeowners and builders who build a net zero home will earn a higher

⁴⁰ NHHBA. Website: <https://nhhba.com/nhhbaevents/cornerstone-awards/>.

performance-based incentive for building above code. During the 2021-2023 term, the NH Utilities may move toward offering a net zero homes option or pathway.

Building Codes and Standards

New Hampshire's current building energy code went into effect on September 15, 2019 when the State Building Code Review Board approved the adoption of the 2015 editions of the International Building Code²⁹, including the 2015 International Energy Conservation Code ("IECC 2015"). There were several legislative amendments to the code that will sunset in March 2022. As of January 1, 2019, the NH Utilities updated the ENERGY STAR Homes program's User Defined Reference Home ("UDRH") to reflect the current minimum standard from the IECC 2015. The UDRH will be updated again in March 2022 to reflect the end of the sun-set amendments to the IECC 2015.

Compliance Support for Base and Stretch Code

The NH Utilities can provide support to improve compliance with building energy codes and appliance standards. As codes change and become more stringent, the building community (owners, developers, designers, contractors) must understand how to interpret requirements in order to comply with building codes. The NHSaves Programs have a successful history of promoting, educating, and delivering energy-efficient measures and programs. For these reasons, the NH Utilities are in an advantageous position to support code compliance and code enhancement through energy codes training and education as they work closely with stakeholders and trade allies.

The NH Utilities would work with local builders, contractors and building enforcement officials to increase the number of homes and commercial buildings complying with the locally applicable energy code, generally either the International Conservation Code ("ICC") model code version adopted statewide, or New Hampshire's stretch code. Activities may include targeted trainings, outreach and technical support in the form of code ambassadors and circuit riders, compliance documentation tool development, and review support. Looking ahead to the 2021-2023 term, additional infrastructure will need to be developed to support the next iteration of requirements for residential and commercial new construction. For example, the IECC 2015 building code requires blower door testing for all

residential buildings. Starting in 2021, the NH Utilities plan to begin the strategic identification of jurisdictions that would benefit from code compliance support.

The NH Utilities' efforts can supplement the efforts of code enforcement officials who may be challenged to fully enforce the energy use provisions, as their focus is more on health and safety-related aspects of the code. Through their relationship with contractors and builders, the NH Utilities will be able to support the implementation of those improvements going forward. The NH Utilities could expand upon existing incentive-based new construction program outreach efforts to target various stakeholders.

Stretch Code Development Support

The NH Utilities can support the development of a stretch code that exceeds statewide minimum requirements and is adopted by local governments. A coordinated approach by the NH Utilities will provide technical support for the development of stretch code.

While the NH Utilities will focus their efforts in 2021-2023 on support for energy code compliance, another aspect of codes and standards includes supporting the adoption of updated versions as knowledge and technical capabilities related to building science applications improves. Codes and standards adoption work in other jurisdictions includes efforts on both appliance standards and on base energy codes. Energy efficiency programs can provide technical expertise and resources as state boards and legislative bodies review codes and standards updates.

Evaluation Savings and Attribution

Support for Energy Code Compliance should result in the realization of the energy savings that are lost when newly-constructed homes are not 100 percent compliant with the locally applicable building code. The NH Utilities will collaborate with stakeholders on the development of an evaluation plan that will enable the measurement and attribution of savings from these efforts to the NH Utilities for the 2021-2023 term. A detailed evaluation plan, along with an appropriate attribution methodology, will be developed in 2021. Qualitative as well as quantitative research would be planned for in 2021 and 2022 to evaluate ongoing initiative efforts and will be used for savings projections that can potentially be claimed within this three-year cycle (2021-2023 term) and future cycles.

4.2.5 Marketing

ES Homes will be promoted through a variety of marketing channels including social media updates (Facebook and Twitter), home shows, paid Internet searches, and circuit riders at Lowe's, Home Depot, and local hardware and lumber stores. The NHSaves.com website will continue to drive participation in the program through interactive online trainings regarding ENERGY STAR-certified homes, fillable online enrollment forms, customer testimonials, and Drive to Net Zero Home Competition case studies.

Throughout the ~~2021-22~~ 2021-2023 term, the NH Utilities will focus their marketing efforts on direct outreach to the program's existing network of builders, HERS Raters, and HVAC contractors, as well as reaching out to recruit new participants from the home builder community through the Drive to ES pathway. In addition, the NH Utilities have ongoing meetings with building departments and deliver ES Homes literature to town halls and building code enforcement offices.

The NH Utilities will continue to diversify marketing strategies to reach potential new construction home buyers. This may include utilizing data collected from consumer social media searches to target customers looking for property and residential developments, as well as promoting ES Homes at home improvement stores (brick-and-mortar and online) and lumberyards. In addition, the NH Utilities may extend educational opportunities beyond the new construction marketplace to the real estate, home inspection, and appraisal communities.

4.2.6 Program Budget and Goals

Table 4-2: ES Homes Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	\$3,364,757 \$3,370,729	\$3,585,684 \$3,605,389	\$3,845,581 \$3,878,304	\$10,796,022 \$10,854,423
Annual kWh Savings	1,628,763 1,614,972	1,768,891 1,753,735	1,964,087 1,944,116	5,361,741 5,312,824
Lifetime kWh Savings	38,251,847 38,239,860	41,521,046 41,507,492	45,927,293 45,841,807	125,700,186 125,589,158
kW Reduction	22 20	23 20	36 33	81 73
No. of Participants	797 797	764 764	837 837	2,398 2,398
Natural Gas Programs				
Program Budget	\$1,346,744	\$1,592,055	\$1,823,272	\$4,762,071
Annual MMBtu Savings	7,2184	9,3183	13,42519	29,96147
Lifetime MMBtu Savings	178,569612	230,377433	320,050112	728,9979,15 7
No. of Participants	198	256	306	760
Note: kWh = kilowatt hours, kW = kilowatts, and MMBtu = million British thermal units.				

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4.3 ENERGY STAR Products Program

4.3.1 Program Objective

The ENERGY STAR Products (“ES Products”) program’s objective is to increase the purchase and installation of high-efficiency appliances, lighting, heating and cooling systems, and water heating equipment. ES Products is focused on targeted consumer education and a robust network of distributors, manufacturers, installation contractors, and retailers to promote the purchase of energy-efficient products over standard-efficiency equipment. The NH Utilities also provide appliance recycling rebates that give customers an incentive to recycle certain old, inefficient appliances, such as refrigerators and freezers, and dispose of them in an environmentally-friendly manner.

4.3.2 Target Market

The target market for ES Products is New Hampshire’s 520,000 households which utilize a multitude of energy-consuming devices. The program’s incentives are designed to encourage customers to replace old, inefficient products with high-efficiency ENERGY STAR-certified technologies.

4.3.3 2021-2023 Plan Priorities

The NH Utilities have established several priorities for ES Products to increase energy savings and customer participation during the 2021-2023 term. These priorities include:

Introducing New Products to the Energy Efficiency Marketplace

The NH Utilities will expand ES Products during the 2021-2023 term by offering incentives for additional high-efficiency products, such as advanced power strips, freezers, electric-heated water-saving devices, and Wi-Fi thermostats (for oil and propane-heated homes). In addition, the NH Utilities will expand appliance recycling rebates to include room air conditioners and will investigate adding dehumidifiers during the 2021-2023 term. This expansion may be integrated into the current appliance recycling pick-up offering (see Section 4.3.4: Program Design) for freezers and refrigerators. Alternatively, some of the NH Utilities may host local and regional recycling events in collaboration with municipalities or waste managers.

In addition to the above-referenced new measures, the NH Utilities will evaluate the cost effectiveness of smart home energy management systems and connected products for inclusion in the 2021-2023 ES Products program. The NH Utilities work with organizations and vendors such as the Massachusetts and Connecticut Technical Assessment Centers, EPA, Northeast Energy Efficiency Partnerships (“NEEP”), E-Source, and contracted vendors who are experts in the appliance field (i.e., retailer circuit riders and product fulfillment vendors) to identify new and emerging technologies for ES Products.

Residential Lighting

During the 2021-2023 term, the NH Utilities will continue to incentivize general service LED bulbs and fixtures in order to prevent backsliding that may otherwise result from recent reversals in federal standards for general service bulbs (see Section 4.1.3). The NH Utilities have been implemented retailer point-of-purchase markdowns for energy-efficient lighting beginning in 2016. Since that time, the number of participating retailers has increased each year, while some smaller retailers have continued to offer mail-in rebates.

During the 2021-2023 term, the NH Utilities will conduct strategic marketing promotions and incentives to ensure that hard-to-reach and income-eligible customers, who are the most up-front value conscious consumers, have high-efficiency choices in the lighting marketplace.



ENERGY STAR Retail Products Platform

During the 2021-2023 term, the NH Utilities will look into introducing the ENERGY STAR Retail Products Platform (“ESRPP”), a collaborative marketing and upstream initiative facilitated by the EPA, ENERGY STAR, energy efficiency program sponsors (i.e., utilities), retailer partners, and other stakeholders to the New Hampshire marketplace. The ESRPP gives program sponsors a national-level structure to offer minimal direct retailer incentives to big-box retail stores, such as Best Buy, Home Depot, Lowe’s, Wal-Mart, Target, and small independent stores (as part of the Nationwide Marketing Group) to increase the sale, promotion, and stocking of high-efficiency appliances.

Incentivized measures may include, but are not limited to: clothes dryers, clothes washers, freezers, refrigerators, and room air conditioners. This new product channel will be designed to generate increased energy savings as more energy-efficient products are stocked and sold at big-box and small independent retail stores. In preparation, the NH Utilities will research other state's ESRPP programs, and evaluations of those offerings to help determine best practices regarding a possible deployment of a New Hampshire ESRPP.

Expand Midstream Rebate Offerings

The NH Utilities will expand the list of measures offered by the existing midstream distributor network to include HPWHs and Electronically Commutated Motor ("ECM") circulating pumps. The NH Utilities will continue to investigate if and when to include heat pumps for heating and cooling in midstream offerings.

4.3.4 Program Design

The NH Utilities have designed ES Products for 2021-2023 to promote the purchase of ENERGY STAR-certified appliances, lighting, heating and cooling systems, and water-heating equipment. The NH Utilities will continue to utilize varied incentives and delivery mechanisms to reach New Hampshire's households at multiple retail entry points.

Lighting Products

The primary mechanisms to promote ENERGY STAR-certified LED products are point-of-purchase product markdowns and online rebates. The NH Utilities partner with numerous retailers, distributors, and manufacturers ("Retail Partnerships") to promote LED light bulbs and fixtures. Recently, five new Retail Partnerships with discount stores have been established to better serve the limited-income and hard-to-serve markets. Over the next three-year period, the NH Utilities will continue to negotiate the special placement of products and promotions at various retail partners' locations throughout the state to help fully transform the market toward high-efficiency LED lighting.

Appliances

Rebates

ES Products provides rebates for the purchase of ENERGY STAR-certified electric appliances, including: clothes dryers, clothes washers, dehumidifiers, pool pumps, refrigerators, room air conditioners, and room air purifiers. These rebate forms are available online and at retail partner locations. For online rebates, customers must first purchase the energy-efficient item, then complete an online rebate form, and provide supporting documentation (i.e., receipts) through the ES Product online system. The NH Utilities' rebate fulfillment vendor then processes and verifies online rebate submissions. Once an online rebate submission has been approved, the vendor sends the NHsaves incentive check to the customer. The rebate fulfillment vendor sends detailed rebate fulfillment data to each NH Utility along with an invoice for the cost of all customer rebates fulfilled during the period.



Point-of-sale rebates result from collaborations between the NH Utilities, a retailer, and a manufacturer. These partners agree to offer special promotions combined with program incentives for targeted high-efficiency products. The on-sale products are displayed at end-caps and retail shelves with prominent NHsaves and ENERGY STAR signage promoting the discounted prices. Upon checkout, the product is automatically marked down without the need for the customer to fill out a mail-in rebate: thus, removing a participation barrier for customers and retailers. Point-of-sale rebates and instant discount e-rebates are available for measures such as dehumidifiers, room air conditioners, and room air purifiers. The NH Utilities will monitor new and emerging technologies that could be introduced during the 2021-2023 term.

Appliance Recycling Program

The NH Utilities offer appliance recycling rebates to encourage customers to dispose of their under-utilized freezers and refrigerators wasting energy that are typically located in the basement or garage.

These old, inefficient appliances are then disposed of in an environmentally-friendly manner. The appliance recycling process begins when a customer schedules a pick-up time for the appliances through an online request form or via telephone. The third-party vendor will pick up the old refrigerator or freezer at the customer's home and will then issue an incentive payment.

During the 2021-2023 term, the NH Utilities will expand ES Products recycling to include room air conditioners and will evaluate the cost effectiveness of offering dehumidifier recycling rebates. This expansion may include integration into the current program design (third-party pickup) or recycling events at central locations.

HVAC Systems

The NH Utilities offer mail-in and online submission rebates for high-efficiency heating and cooling equipment, including central air conditioning systems, air-source heat pumps, ductless heat pump mini-splits ("DHPMS"), natural gas boilers and furnaces, and Wi-Fi thermostats. The NH Utilities will include additional focus of electric baseboard heat to heat pump conversions. The HVAC offerings are heavily promoted through periodic e-mail blasts to over 500 contractors across the state and New England area, as well as through bill inserts, newsletters, and social media.

Contractor response has been extremely positive to these rebates, especially for air-source heat pumps, as the incentives significantly help them to sell high-efficiency heating and cooling equipment to customers. To complement these rebates, the NH Utilities will continue to support contractor education and training on high-efficiency HVAC equipment.

To receive an incentive, midstream or upstream, the NH Utilities require that central air conditioning ("A/C") systems and heat pump systems meet nationally-recognized energy efficiency specifications, including:

- **Energy Efficiency Ratio ("EER").** An EER rating measures how efficient a central A/C or heat pump system will operate when the outdoor temperature is at a specific level (95°F). The higher the EER, the more efficient the system.

- **Heating Seasonal Performance Factor (“HSPF”).** The HSPF measures the efficiency of a heat pump and shows the total heating output of the heat pump during a normal heating season, in BTUs, as compared to the total electricity consumed (in kWh) during the same period. The higher the HSPF, the more efficient the heat pump.
- **Seasonal Energy Efficiency Ratio (“SEER”).** A SEER rating measures the efficiency of a central A/C or heat pump system over an entire cooling season. The SEER rating indicates the cooling output of a central A/C or heat pump system in BTUs during the normal cooling season as compared to the total electricity consumed (in kWh) during the same period. The higher the SEER rating, the more efficient the central A/C or heat pump system.

Domestic Water Heating Equipment

ES Products provides rebates for the purchase of ENERGY STAR-certified water heating equipment, including natural gas water heaters, combination units (providing both heat and hot water), and HPWHs. Natural gas water heater incentives are available through mail-in and online rebate submissions.

HPWHs are considerably more efficient than traditional electric water heaters. HPWHs concentrate the warmth of ambient air around them to heat water for domestic hot water consumption. For the 2021-2023 term, HPWH technology rebates will be offered through three channels: (1) mail-in rebates, (2) instant discount e-rebates offered through participating Retail Partners, and (3) a midstream offering.

In 2020, the NH Utilities introduced a midstream rebate to encourage retailers and distributors to stock their shelves with ECM circulating pumps and high-efficiency HPWHs and market the technologies to contactors. To support the newly-introduced midstream rebates, the NH Utilities will continue to partner with big-box retail stores and distributors to conduct contractor trainings regarding the benefits of high-efficiency water heating equipment.

4.3.5 Marketing

For the 2021-2023 Plan, the NH Utilities plan to market ES Products through a variety of marketing channels, including retail and equipment distributor partner promotions, bill inserts, e-mail

communications, social media updates (Facebook and Twitter), and paid internet searches. The NH Utilities will also continue to work closely with Retail Partners to market high-efficiency appliances, HVAC systems, water heating equipment, and lighting products to the residential marketplace. This may include special promotions, end-cap displays, distribution of marketing collateral, and in-store educational presentations.

4.3.6 Program Budget and Goals

Table 4-3: ES Products Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	<u>\$13,719,480</u>	<u>\$12,748,843</u>	<u>\$12,876,094</u>	<u>\$39,344,417</u>
	\$11,931,356	\$10,230,869	\$9,465,526	\$31,627,751
Annual kWh Savings	<u>23,900,663</u>	<u>17,114,059</u>	<u>15,193,773</u>	<u>56,208,494</u>
	22,405,241	14,574,410	11,770,086	48,749,738
Lifetime kWh Savings	<u>161,803,671</u>	<u>167,490,360</u>	<u>189,304,130</u>	<u>518,598,160</u>
	141,057,761	133,362,831	141,898,573	416,319,165
kW Reduction	<u>3,728</u>	<u>2,857</u>	<u>2,657</u>	<u>9,242</u>
	3,421	2,226	1,854	7,500
No. of Participants	<u>443,126</u>	<u>252,090</u>	<u>103,744</u>	<u>798,959</u>
	442,076	250,791	102,196	795,062
Natural Gas Programs				
Program Budget	\$1,463,811	\$1,634,490	\$1,808,383	\$4,906,684
Annual MMBtu Savings	17,493	19,791	21,456	58,740
	<u>19,265</u>	<u>21,807</u>	<u>23,622</u>	<u>64,695</u>
Lifetime MMBtu Savings	296,615	334,790	362,488	993,893
	<u>325,728</u>	<u>367,780</u>	<u>397,813</u>	<u>1,091,321</u>
No. of Participants	11,216	12,930	13,231	37,377
Note: kWh = kilowatt hours, kW = kilowatts, and MMBtu = million British thermal units.				

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4.4 Home Energy Assistance Program (“HEA”)

4.4.1 Program Objective

HEA is a fuel-neutral weatherization program designed to reduce energy use from both electric and fossil fuel-consuming appliances and HVAC systems. The program serves New Hampshire’s income-eligible homeowners and renters to help reduce their energy costs, optimize their home’s energy performance, and make their homes more comfortable. The primary objective of HEA is to reduce the energy burden of limited-income households, which often incur a significantly higher share of household income from energy costs.

High energy burdens, often called *energy poverty*, are when a household spends 10 percent or more of its income on energy-related expenses. Often, these households are older homes where maintenance improvements have been deferred and there is insufficient insulation to keep the home comfortable, safe, and efficient. HEA measures, such as air sealing, insulation, heating system upgrades, and LED lighting provide long-term solutions that help these households reduce energy consumption, lower their bills, and provide significant non-energy-related benefits.



HEA covers the cost to improve the efficiency of customers’ homes and provides practical solutions about how to modify how they use their homes and equipment without sacrificing their comfort or quality of life. In addition to energy-efficient measures, the HEA program may provide services to address health and safety barriers in the home, such as inadequate ventilation, old wiring, and damaged insulation, if the energy efficiency project is deemed as cost effective.

4.4.2 Target Market

A baseline potential study currently being undertaken estimates that approximately 22 percent of New Hampshire’s households meet the income-eligible criteria for HEA, some of which have been served

over the past two decades through the NH Utilities' collaboration with the CAAs.⁴¹ The HEA program targets income-eligible residential customers who live in single-family buildings (1 to 4 units) and multifamily buildings (greater than 4 units).

To receive HEA services, a household's income must meet the eligibility criteria for participation in the New Hampshire Fuel Assistance Program ("FAP"), the New Hampshire Electric Assistance Program ("EAP"), or anyone residing in subsidized housing or municipal or nonprofit organizations serving those in need. The current guidelines include:

- **FAP Guidelines.** Participants must have an income that is at or below 60 percent of the state median income for their household size; or
- **Electric Assistance Guidelines.** This statewide utility assistance program has general guidelines for discounts on bills based on household income, household size, and electricity or natural gas usage. Applications are processed by the CAAs.

The NH Utilities also coordinate closely with the US DOE's Weatherization Assistance Program ("WAP") to identify HEA participants and to leverage funding for energy efficiency projects. WAP participants must have an income that is at or below 200 percent of the federal poverty guidelines for their household size.

HEA applications are reviewed, and income eligibility is verified before customers can receive services. HEA effectively leverages multiple funding sources, like WAP and FAP, to fund additional energy efficiency measures, such as heating system replacements. WAP provides federal funding to income-qualified homeowners who want to optimize the energy performance of their home. The New Hampshire FAP is funded by the federal Low Income Home Energy Assistance Program's ("LIHEAP") funds and assists the state's low-income customers in paying for heating costs. The New Hampshire Office of Strategic Initiatives ("NH OSI") and New Hampshire's CAAs distribute FAP benefits.

⁴¹ Itron, Inc. *New Hampshire Residential Energy Efficiency Baseline Study*. Jun. 11, 2020.

4.4.3 2021-2023 Plans

For the 2021-2023 Plan, the NH Utilities will implement a number of new initiatives to increase participation in HEA, including supporting workforce development, addressing program design constraints, developing new “on ramps” to program participation, introducing new energy-efficient measures, and improving the program’s data sharing and data tracking systems.

Improving Weatherization Tracking Systems

Currently, the NH Utilities are working to upgrade weatherization tracking and referral systems to streamline information sharing between the NH Utilities, CAAs, NH OSI, and other contractors. The new software will allow the NH Utilities to perform energy modeling more easily; allowing them to review more projects for cost effectiveness and provide better energy savings information to customers. By 2021, the NH Utilities’ data tracking system should be upgraded and operational.

Modifications to HEA

During the 2021-2023 term, the NH Utilities will make several modifications to HEA, including:

- 1. Increasing or Eliminating Current Incentive Cap.** The NH Utilities have increased the previous incentive cap of \$8,000 to \$20,000, including heating systems, and will allow exceptions to exceed that cap when there is not enough other funding available to complete all cost-effective measures. Due to the limited amount of WAP funds available, once the incentive threshold is reached, HEA contractors cannot install additional energy-efficient measures or address further health and safety barriers. The previous threshold did not always support the installation of all energy efficiency measures that could optimize each home’s energy performance. The increased incentive cap of \$20,000 will ensure that more homes are addressed comprehensively, consequently driving energy savings in HEA. If the project cap is reached (\$20,000), the NH Utilities will review each home on a case-by-case basis to determine the cost-effectiveness of the project.
- 2. Implement New Screening Methodologies.** By 2021, the structure of the new Granite State Test for cost-benefit analysis of the portfolio of programs, as well as a PI structure that places

the benefit-cost threshold at the portfolio level, will allow the NH Utilities more flexibility in applying the benefit-cost test requirements for HEA which in turn will allow more projects to qualify, including those that need health and safety repairs. For the 2021-2023 term, the NH Utilities will also continue to allocate HEA incentive dollars toward fixing health and safety barriers, such as roof repair, removal of knob and tube wiring, and vermiculite remediation, as part of the energy improvements.

- 3. HEA Implementation Manual.** During the 2021-2023 term, the NH Utilities will revise and update the HEA implementation manual to record the standard processes and guidelines the NH Utilities follow to administer the program. This will eliminate some inconsistencies in HEA design, procedures (e.g., invoice processing, which measures are funded, etc.), and operations across the NH Utilities.
- 4. Introduce New Pathways and Measures.** To scale up energy savings and serve more customers through HEA, the NH Utilities will offer additional “on ramps” for income-eligible customers to participate in the program during the 2021-2023 term. These additional pathways will include, but are not limited to: visual audits, standalone appliance vouchers, and the distribution of energy efficiency kits.

In addition to the new HEA pathways, the NH Utilities will introduce new energy-efficient measures during the 2021-2023 term, including, but not limited to: clothes dryers, clothes washers, dehumidifiers, HPWHs, and air conditioning equipment. Some of these measures may be included with the standalone appliance vouchers referenced above.

Increase Education, Training, and Trade Ally Relationships

In order to ramp-up HEA activity, the NH Utilities recognize the need to increase workforce capacity in parallel through CAA and qualified contractor training. This will ensure the CAAs can train and retain contractors who have the expertise to specify, install, and optimize energy-efficient technologies. In addition, the NH Utilities plan to allocate a portion of NHSaves funds to allow CAAs to support capacity building, such as hiring and training new CAA staff due to attrition in the workforce and purchasing

weatherization equipment.⁴² The NH Utilities will focus efforts on conducting CAA and qualified contractor education and training to increase the knowledge-level and expertise regarding high-efficiency technologies and comprehensive energy savings. Building an educated workforce will allow the program to serve more customers and drive increased energy savings.

4.4.4 Program Design

The HEA program provides fuel-neutral weatherization services to income-eligible homeowners and renters across the state. These energy-efficient measures reduce customers' energy costs, improves their homes' energy performance, and ensures their homes are comfortable. For the 2021-2023 term, the NH Utilities have established four pathways for HEA: (1) direct-install weatherization services, (2) visual audits with limited weatherization measures, (3) appliance vouchers offered to visual audit participants or as standalone rebates, and (4) the distribution of energy kits. The NH Utilities have created these pathways to scale up energy savings and make it easier for income-eligible customers to participate in NHSaves Programs.

Customer Intake

The NH Utilities partner with the CAAs, NH OSI, housing authorities, and other nonprofits across the state to identify and verify eligible customers and projects for the HEA program. This collaboration is important to ensure that the HEA program fully qualifies, prioritizes, and serves income-eligible customers who have a variety of complex needs. The HEA program's partners are consistent and reliable presences within the low-income community and have established relationships with multiple service providers that help promote trust and social acceptance, and have access to a variety of local, state and federal funding sources that improve services and outcomes for the same income-eligible customers.

⁴² RSA 374-F. <http://www.gencourt.state.nh.us/rsa/html/XXXIV/374-F/374-F-mrg.htm>. Energy efficiency programs should include the development of relationships with third-party lending institutions to provide opportunities for low-cost financing of energy efficiency measures to leverage available funds to the maximum extent and shall also include funding for workforce development to minimize waiting periods for low-income energy audits and weatherization.

Energy Efficiency Audit and Direct-Install Pathway

Verification screenings determine if customers are eligible for HEA based on their income. HEA contractors will perform an energy assessment of the eligible home to identify the most cost-effective improvements needed to optimize the energy performance of each customer's home. Then, a team of energy technicians installs the recommended improvements. Once a home has received HEA direct-install services, an energy auditor will perform a post-work inspection and explain the energy savings to the customer. Services are fully paid for by the NHSaves HEA budget or collaborating partner funding (e.g., WAP), and there are no costs incurred directly by the customer.

For the 2021-2023 term, the NH Utilities will continue to offer the CAAs the right of first refusal to deliver HEA direct-install program services, provided they meet a set of statewide standards for bidding, pricing, and timely program delivery. In 2020, the HEA measure incentives were increased based on updated pricing. Should a CAA not be able to provide HEA program services in accordance with the approved weatherization plan or declines to deliver the services, the work will be assigned to other qualified contractors who meet the NH Utilities' standards for pricing, customer service, and work quality.

Direct-Install Measures

HEA contractors will direct-install a number of cost-effective energy efficiency measures, such as:

- Air sealing;
- Building shell insulation;
- Duct sealing;
- Freezer replacements;
- High-efficiency lighting;
- Hot water-saving devices (hot water temperature setback, faucet aerators, low-flow showerheads, and water pipe insulation);
- HVAC system cleaning;

- Refrigerator replacements;
- Window and door replacements; and
- Health and safety measures that are required for weatherization services to be performed.⁴³

HEA also replaces HVAC equipment with high-efficiency technologies if the current model is at the end of its useful life, deemed potentially unsafe, or is otherwise in need of replacement. The NH Utilities may install ductless heat pumps for customers currently using electric resistance heat or electric cooling when it is deemed cost-effective. In addition, the NH Utilities will continue to offer HPWHs to encourage homeowners to replace old, inefficient oil and propane water heaters with these high-efficiency technologies.

For the 2021-2023 term, the NH Utilities will continuously evaluate the cost effectiveness of adding new measures to the program.

Visual Audit Pathway

A visual audit offering has been deployed through the Home Performance with ENERGY STAR (“HPwES”) program (see Section 4.5) and is being reviewed for its efficacy and cost effectiveness within the 2020 HEA framework. The Visual Audit pathway in HPwES is utilized for electric and natural gas customers who applied for energy efficiency services through the Home Heating Index (“HHI”) tool but did not meet the heating fuel threshold for participation in the full HPwES program. If a visual audit customer is identified by their NH Utility as income-qualified, that customer is eligible to receive a visual audit through HEA.

In the Visual Audit pathway, the contractor will perform an on-site assessment of the home to determine energy-saving opportunities and the customer will receive basic measures, such as Wi-Fi or programmable thermostats, flow-control showerheads and faucet aerators, up to six feet of domestic

⁴³ For the 2021-2023 term, the basic health and safety measures will include basic ventilation requirements, as well as smoke and carbon monoxide detectors needed to safely conduct weatherization services. Additional health and safety measures that are typically high-cost barriers to weatherization will continue to be included in HEA, including but not limited to: roof repair, knob and tube wiring replacement, and wet basement mitigation.

hot water pipe insulation, and LED bulbs without the need for a full on-site energy audit. The contractor will also determine if there are other opportunities that can be implemented through the full HEA pathway (direct-install). If sufficient opportunity exists, then the contractor will notify the customer's NH Utility to enroll the customer in the full HEA offering.

Appliance Vouchers

During the 2021-2023 term, the NH Utilities plan to offer appliance vouchers (rebates) to income-qualified customers, including those with high electric usage. These vouchers will be offered through the Visual Audit or may be standalone appliance rebates to encourage customers to replace their old, inefficient appliances with high-efficiency models.

Prior to implementation, the NH Utilities will finalize the pre-qualification conditions for appliance vouchers, which may include requiring the customer to receive a Visual Audit or processing qualified customers that have been on a wait list for an extended period of time for HEA direct-install weatherization services. The appliance voucher offering will allow the NH Utilities to reach more income-eligible customers and drive energy savings for HEA.

Distribution of Energy Kits

For the 2021-2023 term, the NH Utilities will expand the distribution of energy kits to targeted groups of income-eligible customers across the state to broaden access to low cost measures for eligible customers. The distributed energy kits will include items such as LED bulbs, power strips, and program literature. Energy kits may be distributed to targeted customers (i.e., EAP customers) through direct marketing, after they have participated in the Visual Audit pathway, or at Button Up Workshops (see Section 4.4.5 for more details).

Energy kits are an effective tool to offer quick and easy energy savings to customers, particularly if they are on a wait list for an extended period of time for HEA direct-install weatherization services.

Coordination with Other Fuel Assistance Programs

HEA is closely coordinated with the EAP and FAP (which as noted previously is funded by LIHEAP). The NH Utilities work with EAP and FAP participants to help make their homes more energy efficient and help them save on their energy bills. This stretches EAP and FAP funding to include other New Hampshire residents in need of assistance, while improving the comfort and efficiency of their homes.

Coordination with WAP

The CAAs and the NH OSI administer WAP. The NH Utilities collaborate closely with these HEA partners to maximize the number of projects that are jointly funded by HEA and WAP. Leveraging other energy efficiency funding allows the NH Utilities to serve more income-qualified customers and help decrease these customers' energy burdens.

Coordination with Other NHSaves Programs

When a customer qualifies for the HPwES program (see Section 4.5), the NH Utility checks to see if the customer is receiving EAP benefits to determine if they qualify for HEA. In addition, the NH Utilities work closely with building owners and developers building new homes or multifamily buildings for low-income communities (e.g., Habitat for Humanity, affordable housing projects, etc.) to ensure that these homes are built efficiently to decrease the energy burden on the new tenants or occupants. Residential new construction projects are budgeted for and energy savings goals are tracked through ES Homes (see Section 4.2).

4.4.5 Marketing

Program participants are primarily recruited through referrals from the CAAs, social service agencies, housing authorities, nonprofit groups, the EAP and FAP programs, and the NH Utilities' customer care and energy efficiency departments. These groups are well-trusted and serve the target market year round. By partnering with these entities, the NH Utilities have direct access to communicate HEA benefits to the right market segment. For the 2021-2023 term, the NH Utilities may market HEA through a variety of marketing channels, including bill inserts, periodic e-mail updates and newsletters, events, social media updates (Facebook and Twitter), targeted direct mail, and paid Internet searches.

4.4.6 Program Budget and Goals

Table 4-4: HEA Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	\$18,246,708 <u>\$18,555,949</u>	\$21,794,265 \$23,025,028	\$25,656,123 <u>\$28,273,056</u>	\$65,697,095 <u>\$69,854,034</u>
Annual kWh Savings	2,601,832 <u>2,631,229</u>	3,191,110 <u>3,336,262</u>	3,735,315 <u>4,030,680</u>	9,528,257 <u>9,998,172</u>
Lifetime kWh Savings	36,057,818 <u>36,575,964</u>	43,099,753 <u>45,155,878</u>	50,103,663 <u>54,156,758</u>	129,261,234 <u>135,888,600</u>
kW Reduction	360 <u>365</u>	435 <u>458</u>	503 <u>549</u>	1,297 <u>1,372</u>
No. of Participants	1,941 <u>1,974</u>	2,407 <u>2,531</u>	2,728 <u>2,982</u>	7,076 <u>7,487</u>
Natural Gas Programs				
Program Budget	\$2,066,275	\$2,356,050	\$2,713,815	\$7,136,139
Annual MMBtu Savings	9,550 <u>9,541</u>	10,606 <u>10,595</u>	12,028 <u>12,015</u>	32,184 <u>32,152</u>
Lifetime MMBtu Savings	207,193 <u>204,111</u>	230,583 <u>227,192</u>	262,398 <u>258,565</u>	700,173 <u>689,868</u>
No. of Participants	453	490	540	1,483
Note: kWh = kilowatt hours, kW = kilowatts, and MMBtu = million British thermal units.				

4.5 Home Performance with ENERGY STAR Program

4.5.1 Program Objective

The HPwES program is a comprehensive, fuel-neutral whole house approach to improving energy efficiency and comfort in existing residential single-family and multifamily homes. The objective of HPwES is to help customers who live in existing homes reduce their energy costs, reduce their dependence on fossil fuels, and improve their home's energy performance through the implementation of weatherization and energy-efficient measures. HPwES provides lighting upgrades, heating and hot water equipment upgrades, weatherization measures, and appliance replacements.

4.5.2 Target Market

The target market for HPwES is existing residential single-family homes where the homeowners or landlords want to reduce energy bills, improve a home's energy performance, and increase the comfort of the home.

Program Eligibility

There are a number of eligibility guidelines for participation in HPwES. Single-family homes (1 to 4 units) are eligible to participate regardless of how a home is heated. If a home is primarily served by its natural gas utility (residentially-metered home heated by natural gas), it participates in HPwES through its natural gas utility and if it is a non-natural gas home, it participates through its electric utility.⁴⁴



HPwES reviews multifamily homes and evaluates them for cost effectiveness using the standard benefit-cost test to determine the home's eligibility.

⁴⁴ For single-family and multifamily homes that are natural gas-heated, the customer's NH Gas Utility pays for weatherization and health and safety measures and the customer's NH Electric Utility pays for the electric savings measures.

- **Natural Gas-Heated Homes.** Individually-metered residential units are serviced through HPwES. If a project reaches the customer's cap ~~\$(8,000)~~, the customer's electric utility will incent the customer up to \$8,000 more. Centrally-heated residential units that are on a commercial or master-meter account are primarily served by the NH Natural Gas Utilities through the NHSaves C&I programs (see Chapter Three).
- **Other Fuel-Heated Homes.** These homes are eligible for all services, which are provided by the respective NH Electric Utility.

Regardless of heating fuel, utility territory, or which program the project falls into, customers undertaking a multifamily project will have a streamlined single point of contact, through their Home Performance Contractor, Community Action Agency, or other vendor working with the NH Utilities.

4.5.3 2021-2023 Plans

For the 2021-2023 term, the NH Utilities will implement a number of new initiatives to continue the success of HPwES while making program design modifications to serve more customers and help drive more energy savings.

Improving Weatherization Tracking Systems

As noted in the HEA section (Section 4.4), the NH Utilities are working to upgrade weatherization tracking and referral systems to streamline information sharing between the NH Utilities, CAAs, NH OSI, and other contractors. The new software will allow the NH Utilities to perform energy modeling more easily; allowing them to review more projects for cost effectiveness and provide better energy savings information to customers. By 2021, the NH Utilities will have upgraded the program's data tracking systems.

Increase Program Participation and Savings

The NH Utilities will increase HPwES participation levels and energy savings by expanding the entry points to the program for customers and contractors. This drive toward increased energy savings and participation will include the following initiatives:

- **Prioritize Workforce Trainings.** The NH Utilities will focus efforts on conducting contractor education and training workshops to increase the knowledge level and expertise regarding high-efficiency technologies and comprehensive energy savings. Building an educated workforce will allow the program to serve more customers and drive increased energy savings.
- **Implement New Screening Methodologies.** The structure of the new Granite State Test for cost-benefit analysis of the portfolio of NHsaves Programs, as well as a PI structure that places the benefit-cost threshold at the portfolio level, will allow the NH Utilities more flexibility in applying the benefit-cost test requirements for HPwES. The upgraded tracking software will allow more timely and accurate energy modeling that is expected to allow the NH Utilities to expand HPwES offerings to more customers.
- **Expand Visual Audit Pathway.** To ensure that HPwES energy efficiency services reach more customers, the NH Utilities will expand the program to offer more HPwES Visual Audits. This ensures that all customers have a pathway to participate in the program, even if they do not qualify through the HHI screening models.
- **Add New Pathways.** The NH Utilities are exploring adding more pathways for customers who do not meet the HHI screening tool to participate in HPwES. This may include appliance vouchers for prescriptive measures, such as high-efficiency appliances or self-installed insulation. For the 2021-203 term, the NH Utilities will continue the Virtual Assessment pathway to HPwES that was introduced in 2020.

Addressing Program Design Constraints

For the 2021-2023 term, the NH Utilities have resolved to refine several HPwES design constraints, including:

- **Increasing Current Incentive Cap.** For the 2021-2023 term, the NH Utilities have increased the previous HPwES incentive cap from \$4,000 to \$8,000, including heating system incentives. Increasing project costs restrict, HPwES contractors' ability to drive deeper energy savings

through the installation of holistic energy-efficient measures under the previous incentive cap. The previous threshold did not always support the installation of all energy efficiency measures that could optimize each home's energy performance. The increased incentive cap of \$8,000 will ensure that more homes are addressed comprehensively, consequently driving energy savings in HPwES. If the project cap is reached (\$8,000), the NH Utilities will review each home on a case-by-case basis to determine the cost effectiveness of the project.

- **Addressing More Health and Safety Barriers.** In 2021, the NH Utilities will begin to make financing options available to those homes with health and safety barriers, such as knob tube wiring and vermiculite for projects requiring this remediation to move forward.

Introduce Additional Measures to HPwES

To increase energy savings and better serve customers, the NH Utilities will introduce new energy-efficient measures during the 2021-2023 term, such as additional appliances and HPWHs (that are already part of the ES Products program). In addition, the NH Gas Utilities will work to identify and evaluate new natural gas space and water heating measures throughout the 2021-2023 term.

4.5.4 Program Design

Contractor Eligibility

HPwES supports a robust network of local energy efficiency professionals who provide a number of implementation services including: raising customer awareness of the program, recruiting participants, conducting the home energy audits, recommending energy-saving improvements, installing energy-efficient measures, and tracking the energy savings and project progress. The NH Utilities provide a contractor vetting process to ensure all HPwES contractors meet the following qualifications: (1) be a registered business in New Hampshire, (2) have weatherization experience, (3) have BPI Building Analyst certification and lead training, (4) pass an enhanced quality assurance ("QA") review of their initial three jobs performed within HPwES, and (5) agree to the HPwES program's pricing and the NH

Utilities' terms and conditions.⁴⁵ A third-party QA contractor reviews a percentage of homes serviced and provides feedback to the NH Utilities and HPwES contractor.

Program Qualifications

Customers can determine if their home qualifies to participate in HPwES through the NHSaves.com website. Here, customers can self-qualify via the HHI Tool. Customers are asked for the following information: (1) zip code, (2) conditioned square footage of the home, and (3) annual heating fuel use (one year of fuel history; system accepts up to two different types of heating fuel).⁴⁶ Interested residential customers can also work directly with their respective NH Utility to enroll in the HPwES program.

Home Heating Index

The HHI is used as a customer intake system for the program and includes a behavioral component of raising customer awareness regarding their energy consumption. The HHI Tool determines if a customer is considered a low, moderate or higher energy usage per square foot customer (normalized for size of house) and if the customer is eligible for full HPwES services. Eligibility for full HPwES services is based on a high proportion of heating fuel usage per square feet of the home to help identify if there is potential for cost-effective measures or actual energy savings. In limited cases, a NH Utilities program administrator may waive the HHI qualification if it can be determined that the project potentially has significant energy-saving opportunities.

The HHI qualification was put in place several years ago to identify the homes with the most opportunity for energy savings. In an effort to better serve residential customers who wish to engage in energy efficiency but who have low to moderate energy consumption in the home. The NH Utilities

⁴⁵ Customers can choose their own contractor provided the contractor meets meet the HPwES program's minimum qualifications. If the contractor is not already approved for work in the program, they can be brought in, provided they agree to all the program rules that participating contractors must follow.

⁴⁶ The NH Utilities do allow customers with less than 12 months of fuel data to participate in the program, as long as their usage still meets the HHI threshold for HPwES.

introduced the Visual Audit during the 2018-2020 term. For the 2021-2023 term, the NH Utilities will expand the Visual Audit offering and Virtual Assessment to more customers.

Full Program Services

The NH Utilities use a streamlined whole-home approach from the energy audit through installation to inspection and allows customers to choose their HPwES contractor from a qualified list, or to ask their respective utility to assign them a contractor based on location and workload. Once a customer qualifies for HPwES, a qualified contractor will perform an energy audit of the customer's home to identify energy efficiency opportunities, calculate potential savings, and provide QA for any services performed. A nominal fee is paid upfront for the energy audit, which includes diagnostic testing (blower door test) for air leakage. If a customer decides to move forward with any of the HPwES contractor's recommendations, this fee is applied toward the customer's cost share of the project costs.

The energy audit report provides the project cost, rebate availability, and payback or Return-on-Investment ("ROI") estimations. When presented with the recommendations and energy audit report, customers must decide within 45 days if they want to proceed further with the energy-efficient improvements.⁴⁷ For customers who decide not to proceed further with energy-efficient improvements, the contractor will provide some no cost, direct-install measures.

If a customer decides to proceed with the home improvements, energy efficient measures are installed by the qualified HPwES contractor. Incentive payments are typically paid directly to contractors by the NH Utilities once the project is complete. Customers are responsible for paying their share of the project costs ("Co-pay") either directly to the contractor or via the loan program. Qualifying energy-efficient measures allow for comprehensive, fuel neutral weatherization, and typically include:

- Air sealing;

⁴⁷ All pricing of recommendations is good for 45 days and can be extended by the contractor if necessary. The HPwES contract gives customers an initial 45 days to commit and the NH Utilities note that contracts are often extended to give customers as much time as they need to make a decision regarding what energy-efficient measures (if any) they will install.

- Building shell insulation;
- Duct sealing;
- High-efficiency lighting;
- Hot water pipe insulation and hot water temperature setback;
- Refrigerator replacements;
- Water-saving devices (low-flow showerheads and faucet aerators);
- Wi-Fi thermostats; and
- Health and safety measures⁴⁸ that serve as barriers to energy efficiency projects.

During the energy audit, the HPwES contractor will also evaluate the efficiency of the home's appliances to determine if they are cost effective to replace. These appliances include: clothes dryers, clothes washers, dehumidifiers, refrigerators, room air purifiers, and other measures.

For homes that need more energy-efficient improvements than those listed above, HPwES also offers incentives for custom measures. Custom measures are proposed and evaluated as individual projects, separate from the customer's HPwES energy-efficient improvements. These custom measures can include but are not limited to:

- Air source or ductless heat pumps;
- HVAC optimization; and
- Smart home energy management systems.

In addition, if an oil or propane heating system is at the end of its life, the HPwES contractor can recommend that the customer bring in an HVAC contractor to replace the unit with a new ENERGY

⁴⁸ For the 2021-2023 term, the basic health and safety measures will continue to be limited to basic ventilation requirements, as well as smoke and carbon monoxide detectors needed to safely conduct weatherization services and will be limited to ensure the project is cost effective.

STAR-certified model. HPwES provides an additional rebate to lower the incremental cost between the standard equipment and high-efficiency model. Customers that receive a recommendation from the contractor to install a new natural gas heating system or electric heat pump system will be served via ES Products.

Visual Audit Approach

For the 2021-2023 term, the NH Utilities will continue to offer the Visual Audit pathway to electric and natural gas customers who do not meet the current HHI threshold (typically high to moderate usage customers) and therefore are not eligible to participate in HPwES. The contractor performs a visual audit of the home and the customer will receive measures, including Wi-Fi thermostats, flow-control showerheads or faucet aerators, up to six feet of domestic hot water pipe insulation, and LED light bulbs. Additional appliance vouchers may also be considered. The contractor will also determine if there are opportunities for weatherization measures that can be implemented through the full HPwES offering. If sufficient opportunity exists, then the contractor will notify the customer's NH Utility to evaluate the customer for full HPwES.

Virtual Assessments

The NH Utilities are continuously exploring new offerings for customers to participate in HPwES. In 2020, the NH Utilities designed and implemented a temporary virtual HPwES audit offering ("Virtual Assessment") to provide an opportunity for contractors to engage with customers who have already expressed an interest in an audit while on-site services were suspended due to the COVID-19 pandemic.

Pre-Screening Tool

The NH Utilities believe that the Virtual Assessment is a useful pre-screening tool for a home, allowing contractors to better prepare for a more efficient on-site visit. Virtual Assessments could potentially identify weatherization barriers (e.g., improper ventilation, etc.) in advance of an on-site Visual Audit, thus reducing the need for a second visit which should reduce costs. In addition, a Virtual Assessment can help contractors better ascertain the opportunity and scope of work so the optimum contractor crew compliment and the length of scheduled on-site visit time (through the direct-install or visual

audit pathways) is more precise. This could result in more efficient scheduling and perhaps more effective utilization of existing contractor resources. During the 2021-2023 term, the NH Utilities will integrate Virtual Assessments into the HPwES program as appropriate.

Customers who elect to receive a Virtual Assessment will have a convenient way to understand the likely energy-saving opportunities in their homes. Together, the customer and an experienced contractor will identify energy efficiency opportunities in the home, get the customer access to immediate energy-saving measures, and define additional savings opportunities and appropriate follow-up actions.

Through a combination of reviewing information about the customer's home from publicly-available online resources, pictures submitted by the customer, and through virtual interactions with the customer, a contractor will identify the energy efficiency savings opportunities and recommend solutions. The contractor will educate the customer about the opportunities and the value proposition for moving forward to implement certain measures.

Customers participating in the Virtual Assessment may be eligible to receive the following:

- **Energy Kits.** Customers may receive Energy Kits (similar to those offered through HEA) containing energy-saving measures, such as LED lighting, power strips, and NHSaves Residential Programs information. The customer will be asked if they are comfortable with installing any of these measures on their own. For measures where the customer affirms their ability to self-install, the customers will be required to attest that they will install the identified applicable products upon receipt. Once an attestation is signed, the products will be shipped directly to the customer for self-installation within an agreed-upon timeframe.
- **Appliance Rebates.** During the Virtual Assessment, the contractor will identify potential opportunities, within reason, for upgrades to mechanical equipment (e.g., heating, air conditioning, hot water, etc.) and appliances. For the 2021-2023 term, the NH Utilities will consider allowing the contractor to offer appliance rebates through the Virtual Assessment pathway. This would encourage customers to replace their old, inefficient appliances with high-

efficiency models. Prior to implementation of appliance rebates, the NH Utilities will finalize the pre-qualifications, which may include requiring the customer to still receive a Visual Audit (on-site service). The appliance rebate offering would allow the NH Utilities to reach more customers and drive energy savings for HPwES.

Participating customers will be emailed a report that discusses the energy-saving opportunities identified by the HPwES contractor during the Visual Assessment. This report will direct customers to the appropriate informational resources for all applicable rebates, incentives, and financing options.

Appliance Rebates

For the 2021-2023 term, HPwES may offer standalone rebates for the following appliances: clothes dryers, clothes washers, dehumidifiers, room air purifiers, and other measures. This offering would encourage customers to replace their old, inefficient appliances with high-efficiency models. Prior to implementation of these rebates, the NH Utilities will finalize the pre-qualifications for appliance vouchers, which may include requiring the customer to receive a Visual Audit (on-site service). The Appliance Rebate offering would allow the NH Utilities to reach more customers and drive energy savings for HPwES.

4.5.5 Marketing

For the 2021-2023 term, the NH Utilities plan to market HPwES through a variety of marketing channels, including bill inserts, direct mail, e-mail blasts, events, newspaper and magazine advertisements, NH Utilities call center referrals, paid Internet searches, and social media updates (e.g., Facebook and Twitter). The NH Utilities will continue to work to increase the number of natural gas customers enrolled in HPwES over the next three years especially since low natural gas prices have historically limited participation.

The NH Utilities will continue to explore avenues to partner with and support community-based initiatives to encourage weatherization projects during the 2021-2023 term. This includes partnering with local energy committees, community organizations, and environmental groups to promote the

benefits of HPwES through workshops and outreach events. The NH Utilities will work with community partners to deliver online trainings to create grassroots “boots-on-the-ground” outreach.

4.5.6 Program Budget and Goals

Table 4-5: HPwES Program—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Programs				
Program Budget	<u>\$8,588,081</u> \$8,607,418	<u>\$9,633,346</u> \$9,696,828	<u>\$10,653,196</u> \$10,758,305	<u>\$28,874,623</u> \$29,062,551
Annual kWh Savings	<u>1,603,032</u> 1,610,469	<u>1,696,699</u> 1,695,769	<u>1,788,561</u> 1,786,000	<u>5,088,291</u> 5,092,237
Lifetime kWh Savings	<u>19,679,793</u> 19,877,078	<u>21,259,816</u> 21,260,740	<u>22,707,606</u> 22,657,112	<u>63,647,216</u> 63,794,930
kW Reduction	<u>233</u> 245	<u>246</u> 259	<u>259</u> 274	<u>738</u> 778
No. of Participants	<u>3,100</u> 3,094	<u>3,141</u> 3,132	<u>3,180</u> 3,171	<u>9,421</u> 9,397
Natural Gas Programs				
Program Budget	\$1,448,128	\$1,600,824	\$1,791,511	\$4,840,463
Annual MMBtu Savings	12,472	13,584	15,013	41,069
Lifetime MMBtu Savings	229,868 <u>229,592</u>	249,787 <u>249,751</u>	276,564 <u>276,228</u>	756,219 <u>755,571</u>
No. of Participants	843	887	947	2,676
Note: kWh = kilowatt hours, kW = kilowatts, and MMBtu = million British thermal units.				

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Chapter Five: Active Demand Reduction Programs

5.1 Program Objective

For the 2021-2023 term, the NH Utilities have designed several ADR offerings to reduce customer costs and provide benefits to the ISO-NE electric grid. Through the new Residential and C&I ADR programs, the NH Electric Utilities seek to reduce peak demand and capture benefits as quantified in the regional Annual Energy Supply Components (“AESC”) study. The goals of the Residential and C&I ADR programs are to flatten peak loads, improve system load factors, and reduce long-term system costs for all grid-tied New Hampshire customers. Active Demand savings (kW) are realized by dispatching resources during the ISO-NE peak demand period. Reducing load during ISO-NE peak hours also has the effect of reducing New Hampshire’s share of the installed capacity (“ICAP”) cost allocation.

5.2 Target Market

The target market for the 2021-2023 ADR programs includes residential and C&I customers with controllable equipment that can be called upon to reduce electricity demand when an “event” is called during peak times. C&I program participants typically include customers with interval meters and demand charges, summer average annual peak demands of 250 kW or higher, and the ability to curtail at least 50 kW during an event. Residential ADR program participants typically include customers with controllable behind-the-meter (“BTM”) equipment such as batteries, Wi-Fi thermostats controlling central air conditioning, or EV chargers.

5.3 2021-2023 Plans

For the 2021-2023 term, Eversource, Unitil Electric, and Liberty Electric will build upon the ADR demonstrations offered by Eversource and Unitil in 2019 and 2020 and in other jurisdictions and transition the ADR pilots to full programs in 2021. Liberty Electric will also offer a C&I ADR program for the first time.

Table 5-1: ADR Program Offerings for 2021-2023

Offering	Participating Utilities	Targeted Peaks	Event Window
Wi-Fi Thermostat DLC Residential)	Eversource, Unitil Electric	ISO-NE annual system peak. Benefits based on ISO-NE top 62 days (Max. 15 events, 3 hour duration each).	June – Sept. (2-7 p.m., non-holiday weekdays)
Battery Storage (Residential)	Eversource	ISO-NE annual system peak. Benefits based on ISO-NE top 62 days (Max. 60 events per season, 2 or 3 hour events).	Daily dispatch program. June – Sept. (2-7 p.m., non-holiday weekdays)
Load Curtailment (C&I)	Eversource, Unitil Electric, Liberty Electric	ISO-NE annual system peak. Benefits based on ISO-NE top 62 days (Max. 8 events per season, 3 hour events).	Targeted curtailment/shedding. June – Sept. (2-7 p.m. non-holiday weekdays)
Storage Performance (C&I)	Eversource, Unitil Electric	ISO-NE annual system peak. Benefits based on ISO-NE top 62 days (Max. 60 events per season, 2 or 3 hour events).	Daily dispatch program. June – Sept. (2-7 p.m., non-holiday weekdays)

5.3.1 Program Design - Commercial ADR Offerings

The Commercial ADR program has two main offerings: Load Curtailment (i.e., Interruptible Load) and Storage Performance.

Load Curtailment

The Load Curtailment offering provides an incentive for verifiable shedding of load by participants in response to communication from the NH Utilities or utility-vendors, curtailment service providers (“CSPs”). This offering is based upon the design of the Eversource and Unitil Electric pilots implemented during the 2018-2020 term. The Load Curtailment offering is technology agnostic, which means that customers are able to use any technology or strategy and earn an incentive based on their summer seasonal average curtailment performance.

With a technology agnostic approach, customers with on-site generation are allowed to participate in the Load Curtailment offering. However, the NH Utilities have established certain criterion in order to not increase emissions, including prohibiting participation by “emergency only” back-up generators.

Allowed generators in the program must pass local, state, and federal guidelines for participation in demand response programs. These permitting procedures mean this class of generator (typically EPA Tier 4) can operate a higher number of hours per year and produce little emissions, especially when compared to electrical grid emissions during peak hours.

The Load Curtailment offering provides an incentive to C&I customers to temporarily reduce facility load upon a signal from their NH Electric Utility or CSP during times of peak electric demand (referred to as “events”). Generally, curtailment events will last three hours and occur during July and August. Typically, there will be between one to eight events per summer season depending upon ISO-NE load conditions.

The NH Utilities (with assistance from CSPs) identify customers with curtailable load, assess curtailment opportunities, process and approve customer enrollment applications, manage the relationship with participants, call and manage curtailment events, oversee customer performance, and calculate payments. Unitil Electric, Eversource, and Liberty Electric plan to offer curtailment incentives to customers beginning in 2021 and throughout the 2021-2023 term.

Storage Performance

Storage Performance is a BYOD pay-for-performance ADR offering, which provides an incentive to customers with BTM storage at their facilities, based on the measured kW discharge from a storage device when responding to an NH Utility event signal. The performance-based incentive only rewards the actual performance of storage systems during events and does not provide compensation for other project costs such as the installation or maintenance of such systems. The technologies chosen by customers tend to be battery storage and thermal storage. Unitil Electric and Eversource plan to offer this to customers beginning in 2021 and throughout the 2021-2023 term.

Customer Outreach and Integration with Other Efficiency Offerings

Eversource, Liberty Electric, and Unitil Electric will utilize a variety of methods to conduct customer outreach for the Commercial ADR offerings, including leveraging touchpoints and relationships from the other NHSaves Program offerings. Many of the NH Utility staff focused on managing the standard

efficiency programs, including account executives and NHSaves C&I Program staff, will also help deliver the ADR offerings to C&I customers. Customers can speak with their account executive or NH Utility contact about all of the offerings that may apply to their business and develop an implementation plan that works best for them. The direct expertise and relationships developed by CSPs and storage system vendors will also serve as an entryway to the program for customers.

Monthly Peak Reduction

The regulated members of the NH Utilities shall work with the Council beginning in the summer of 2021 to explore the potential savings and benefits related to monthly peak reduction activity throughout the calendar year. If consensus is reached, the regulated members of the NH Utilities shall file a proposal for review and approval by the Commission. If consensus is not reached, the NH Utilities shall file a report with the Commission describing the opposing views and seeking a Commission decision resolving the disagreements.

5.3.2 Program Design - Residential ADR Offerings

The residential ADR program consists of two main BYOD offerings: Battery Storage and Wi-Fi Thermostat DLC. For the 2021-2023 term, the NH Utilities will also explore EV load management as a potential third offering for residential customers.

Battery Storage

The residential Battery Storage offering encourages the utilization of energy storage systems during peak events through a pay-for-performance approach. Under this offering, participating customers are incentivized to decrease their demand on the electric grid and rely instead on stored energy from their residential batteries in response to a signal or communication from their NH Utility's intermediary partner(s). Lowering daily summer peak demand may lower the distribution company's associated capacity costs. Eversource intends to provide this offering to its customers beginning in 2021 and throughout the 2021-2023 term, while Unitil Electric continues to explore this offering.

Wi-Fi Thermostat Direct Load Control

The Wi-Fi Thermostat DLC offering will target customers who own a qualified, wirelessly communicating thermostat that controls a central A/C system (including heat pump technology). As is the case with the current pilot being offered by Eversource and Unitil Electric, participants agree to allow their NH Utility to make brief, limited adjustments to their Wi-Fi thermostats during periods of peak electric demand (referred to as “events”).

There will be a minimum of one event per summer season, and a maximum of 15 events. Customers who enroll in the program may opt out of any or all events depending on their needs. Customers receive an incentive at the time of enrollment and an annual participation incentive. There is no minimum number of events for customers to receive a participation incentive, however, customers with low participation may be removed from the program.

Eversource and Unitil have offered a similar Wi-Fi Thermostat DLC program for several years in neighboring jurisdictions and will draw upon third-party evaluations as well as in-market experience to optimize customer recruitment, retention, as well as performance for New Hampshire residential customers. Having established relationships with partnering vendors, both Eversource and Unitil Electric intend to begin the full program in 2021 and continue throughout the 2021-2023 term. Multiple evaluations of Wi-Fi Thermostat DLC programs across Massachusetts and Connecticut have repeatedly verified programs’ performance in reducing peak utility system demand, as detailed in Section 5.3.4 below.

EV Load Management

The NH Electric Utilities will explore possible EV Load Management offerings throughout the various service territories and may implement this offering if deemed feasible and cost effective. If implemented, the EV Load Management measure would focus on events that limit or stop EVs from charging during ISO-NE peak hours. The NH Electric Utilities expect that best practices involving EV load management will evolve concurrently with the EV marketplace as other jurisdictions and energy regulatory proceedings begin to offer EV Load Management solutions. In particular, Eversource MA

and CT are currently piloting EV load management offerings, and evaluation results from those pilots are expected in early 2021, which will inform the potential development of such an offering in New Hampshire. The NH Electric Utilities will collaborate with colleagues and vendors in other states that are considering or offering EV Load Management solutions in conjunction with other ADR programs.

Prior to offering an electric vehicle managed charging measure for the active demand program, the regulated members of the NH Utilities shall solicit feedback from relevant stakeholders through the Council, and shall make an informational filing with the Commission describing the measure in greater detail. The filing shall also review any interplay between electric vehicle measures within the active demand program and other electric vehicle related docket matters underway at the Commission.

Customer Outreach and Integration with Other Efficiency Offerings

For the Residential ADR program, Eversource and Unitil Electric can leverage marketing efforts from the other energy efficiency programs to introduce the ADR offerings. For example, when a customer receives an incentive for a Wi-Fi thermostat purchase, they can also sign up for a Residential ADR program offering at the same time. Eversource and Unitil Electric Residential program staff, customer services representatives and others who provide customers information on efficiency offerings will be provided information on the residential ADR offerings as well. Eversource and Unitil Electric will partner with technology manufacturers and battery integrators as another means to inform and enroll potential customers in the Residential ADR program.

5.3.3 Cybersecurity

Eversource and Unitil Electric have undertaken a thorough cybersecurity risk review for ADR offerings as described in depth in the 2020 Demand Reduction Initiatives Supplemental Information compliance filing submitted as part of the 2020 Plan Update in DE 17-136.⁴⁹ Liberty Electric plans to undertake the same level of cybersecurity risk review.

⁴⁹ DE 17-136. 2020 Demand Reduction Initiatives Supplemental Information. Feb. 28, 2020. Unitil and Eversource's cybersecurity review process is described in Section 4, pp. 10-14. https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2020-02-28_EVERSOURCE_UES_SUPP_INFORMATION.PDF.

5.3.4 Evaluation

In 2019, Eversource’s and Unitil Electric’s NHSaves C&I ADR pilots were evaluated as part of a multi-state evaluation, and the NH Utilities are applying the impact results from the study to the ADR programs for 2021, as described in the 2020 Demand Reduction Initiatives Supplemental Information filing, and as reflected in the TRM.⁵⁰ This study also included a process evaluation, which is informing the NH Utilities on how to improve program processes as the initiative expands and matures. Recent ADR program evaluations have been conducted in Massachusetts and Connecticut on residential offerings, including a cross-state evaluation of the Wi-Fi Thermostat DLC offered by Eversource and Unitil Electric, which produced impact results that are being applied in estimating load reductions for the New Hampshire offering, as detailed in the TRM.⁵¹ These and other evaluations shown in Table 5-2 below have validated the load reductions of ADR programs and provided insight into program processes in other states that have helped the NH Utilities fine-tune the proposed programs. The NH Utilities have included with this filing New Hampshire-specific ADR benefit-cost models detailing the planning assumptions and program goals for all offerings described in this section.

⁵⁰ Cross-State C&I Active Demand Reduction Initiative Summer 2019 Evaluation Report. Prepared for Eversource, National Grid and Unitil https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/Cross-State-CI-DR-S19-Evaluation-Report_04-15-2020.pdf

⁵¹ Navigant Consulting. 2019 Residential Wi-Fi Thermostat DLC Offering Evaluation. Prepared for Eversource, National Grid, and Unitil, Apr. 1, 2020. <http://ma-eeac.org/wordpress/wp-content/uploads/2019-Residential-Wi-Fi-Thermostat-DLC-Evaluation-Report-2020-04-01-with-Infographic.pdf>.

Table 5-2: Evaluations of ADR Programs

Evaluation Focus	State and Year	Evaluator	Title	Link
C&I Load Curtailment and Targeted Battery Storage, Impact and Process Evaluation	MA, CT, NH, 2019	ERS	Cross-State C&I Active Demand Reduction Initiative Summer 2019 Evaluation Report. Prepared for Eversource, National Grid and Unitil	https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/Cross-State-CI-DR-S19-Evaluation-Report_04-15-2020.pdf
C&I Manual Curtailment, Controls, Thermal and Battery storage, Impact and Process Evaluation	MA, 2019	ERS	2019 Consolidated Demand Demonstration Project Evaluation Report (Eversource)	http://ma-eeac.org/wordpress/wp-content/uploads/2019-Consolidated-Demand-Demonstration-Project-Evaluation-Report_04-15-2020_clean.pdf
C&I Battery Storage, Impact and Process Evaluation	MA, 2019	ERS	C&I Daily Dispatch Battery Project Evaluation Report (Eversource)	http://ma-eeac.org/wordpress/wp-content/uploads/Daily-Dispatch-Battery-Post-Summer-2019-Report_2-3-2020.pdf
Residential Wi-Fi Thermostat DLC, Impact and Process Evaluation	MA, CT, 2019	Navigant Consulting	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
Residential Energy Storage, Impact and Process Evaluation	MA, 2019	Navigant Consulting	2019 Residential Energy Storage Demand Response Demonstration Evaluation	http://ma-eeac.org/wordpress/wp-content/uploads/MA19DR02-E-Storage_Res-Storage-Summer-Eval_wInfographic_2020-02-10-final.pdf
Residential Wi-Fi Thermostat, Impact and Process Evaluation	MA, 2018	Navigant Consulting	2018 Residential Wi-Fi Thermostat Demand Response Evaluation. Prepared for National Grid. MA.	http://ma-eeac.org/wordpress/wp-content/uploads/2018-NGrid-DR-Eval-Report-2019-03-28-Final.pdf
Residential Wi-Fi Thermostat, A/C Smart Plugs and HPWH Controls, Impact and Process Evaluation	CT, 2018	GDS Associates, Inc.	Eversource CT Residential Demand Response Pilot - Second Year Evaluation	http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/8525797c00471adb8525840b005c200c/\$FILE/GDS,%20Eversource%20Connecticut%20Residential%20Demand%20Response%20Pilot,%20February%2020,%202019.pdf

5.3.5 Program Budget and Goals

Table 5-3: ADR Programs—Energy Savings and Budgets

	2021	2022	2023	2021-2023
Electric Residential Programs				
Program Budget	\$139,564 \$139,875	\$198,262 \$199,665	\$283,633 \$286,832	\$621,459 \$626,372
Active kW Reduction	1,025	1,538	2,275	4,838
No. of Participants	1,685 1,655	2,528 2,483	3,760 3,693	7,973 7,830
Electric C&I Programs				
Program Budget	\$1,060,840 \$1,059,735	\$1,524,366 \$1,524,233	\$2,190,438 \$2,191,526	\$4,775,644 \$4,775,494
Active kW Reduction	13,655	19,983	29,175	62,813
No. of Participants	142 139	208 202	303 296	652 636
Note: kW = kilowatts.				

Chapter Six: Behavioral-Based Strategies

Utilities and energy efficiency program administrators are increasingly exploring new innovative ways to utilize data-driven and behavioral-based strategies to engage customers in energy efficiency. During the 2021-2023 term, the NH Utilities plan to diversify and expand their behavioral-based strategies to determine optimal engagement channels.

The NH Utilities' Behavioral-Based Strategies are designed to make customers aware of how much energy they consume and empower them to adopt energy-efficient technologies and behaviors. The concept behind behavioral-based strategies is that most customers are neither engaged, nor knowledgeable, regarding their energy consumption and habits. However, when a customer is made aware of how much energy they consume via digital, print, or visual communications, they are more empowered and motivated to adopt energy-efficient behaviors or technologies. Since 2014, one or more of the NH Utilities have utilized a behavioral-based strategy in the form of Home Energy Reports ("HER") as a component of the NHSaves Programs.

For the 2021-2023 term, the NH Utilities will diversify program offerings in order to test new behavioral-based strategies to determine if varied approaches work better for certain customer segments, utility service territories, and even fuel types. Though these approaches vary, the NH Utilities are all working toward a common goal of maintaining behavioral-based strategies as an integral part of the NHSaves Programs and to drive customer engagement in energy efficiency.

6.1 Home Energy Reports (Unitil and Liberty)

For the past several years, the primary behavioral-based solution for the NH Utilities has been HERs. HERs are communications (e-mails and printed reports) that provide energy consumption information and energy-saving tips to residential customers in an effort to raise awareness and change behavior. These reports provide customer-specific information in easy-to-understand language and with easy-to-read graphics. The primary objective of HER is to induce customers to conserve energy by providing

easy-to-understand paper and e-mail communications comparing their household energy consumption with that of their neighbors or other customers. The 2021-2023 program will continue to be implemented by Liberty (Electric and Natural Gas) and Unitil (Electric and Natural Gas). HER is a well-established behavioral-based strategy offered across North America by utilities and energy efficiency program administrators to help customers better understand and control their energy use.

6.1.1 Liberty Electric and Gas HERs

The initial launch of the Liberty Gas HER program was in the fall of 2014 and currently includes approximately 30,000 customers. Paper-based HERs are sent out approximately four times a year and six e-mail-based HERs are distributed during the heating months (November-March) when natural gas consumption is higher for space heating.

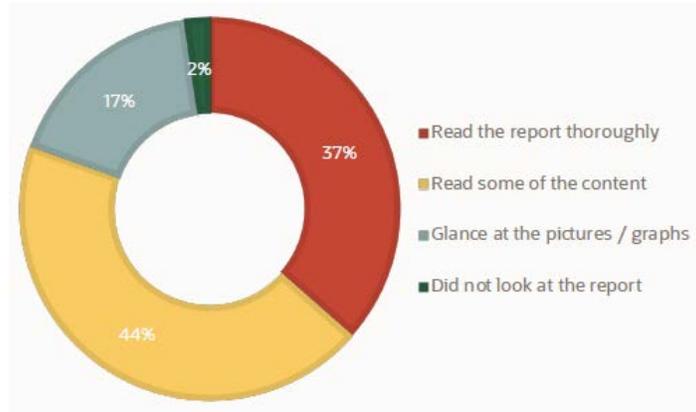
The Liberty Electric HER program was launched in January 2018 and currently includes approximately 12,000 electric customers. The program components and structure are identical to that of the Liberty Gas HER program, with the exception of communication frequencies. Liberty Electric customers receive year-round HER via print and e-mail alternating every other month in frequency for a total of six of each medium per year.

Customers receiving either the paper or email-based reports have the ability to view their reports and profiles online via a web-based platform. The online platform allows customers to view their reports and energy consumption data, as well as provide additional data about their residences and energy consumption patterns that then enables Liberty to benchmark a customer more accurately against an appropriate peer comparison group.

Liberty Electric and Gas completed an online customer engagement survey of the program in June of 2020 which showed that the overall response to HER has been favorable, with over 80 percent of

program recipients actively reading their reports and 82 percent stating positive (60 percent) or neutral (22 percent) opinions of the program.⁵²

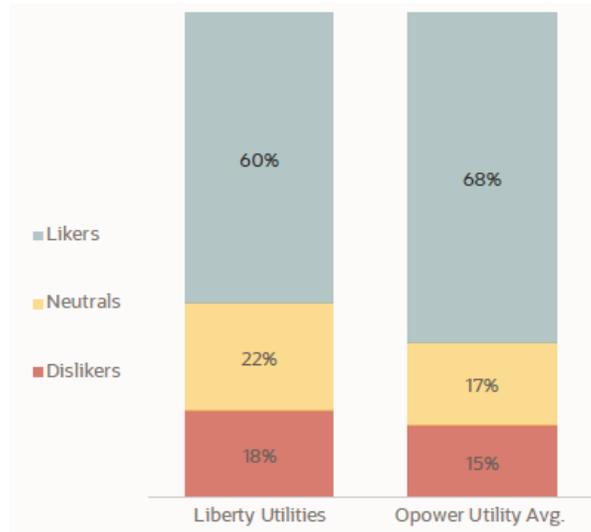
Image 6-1: Home Energy Report Reading⁵³



⁵² Online survey of 479 Liberty customers in Home Energy Report program: 286 recipients of the HER communications; 193 “control” customers (non-recipients to be used as baseline); ~4.5% margin of error; Random sample of customers from across overall program population, gas and electric; survey fielded between June 5 and June 26, 2020 by California-based provider Interviewing Service of America. ~4% overall response rate (email invitations sent to ~13k customers).

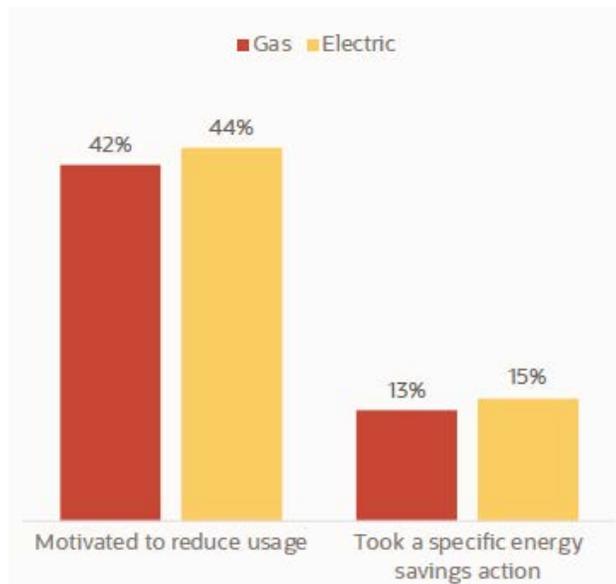
⁵³ Survey question: “In the past six months, do you remember receiving a Home Energy Report from Liberty Utilities about your in-home energy use? Thinking of all the reports you have received, in general, what have you done with them?”

Image 6-2: Home Energy Report Liking (all customers who have read reports) ⁵⁴



Nearly half of report recipients (42 percent – Liberty Gas; 44 percent- Liberty Electric) also cite being motivated to save energy from the program.

Image 6-3: Energy Savings Action (all customers who have read reports) ⁵⁵



⁵⁴ Survey question: “Thinking about the Home Energy Reports you’ve received; how much do you agree or disagree with each of the following statements: I like the Home Energy Reports.”

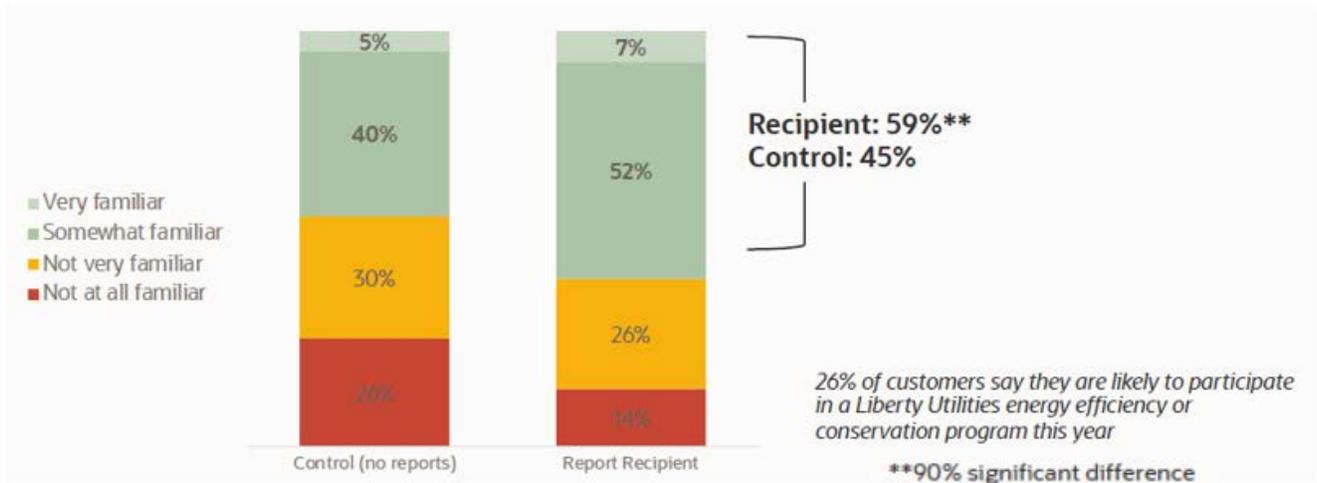
⁵⁵ Survey question: “After reviewing your reports, do you... Take a specific energy-savings action. Did the Home Energy Report motivate you to reduce your energy usage?”

Image 6-4: What Actions Did You Take? (sample of open-ended customer responses)⁵⁵

- “Lowered temp on water heater.”
- “Turn down water heater. Bought hi-tech thermostat.”
- “More careful about using televisions and lights in the house.”
- “Started using the timer feature on my dehumidifier.”
- “Storm window. Keeping heat at 62.”
- “Made people aware of the amount our bill had gone up, shutting off lights, to keep bill down.”
- “I bought an Ecobee. I talked to my daughters about their energy use and its costs.”
- “Adjusting thermostat, consideration of purchasing better windows to be more efficient, be more diligent about turning off lights when not in use/unplug things when not in use and consider purchasing more energy efficient light bulbs.”

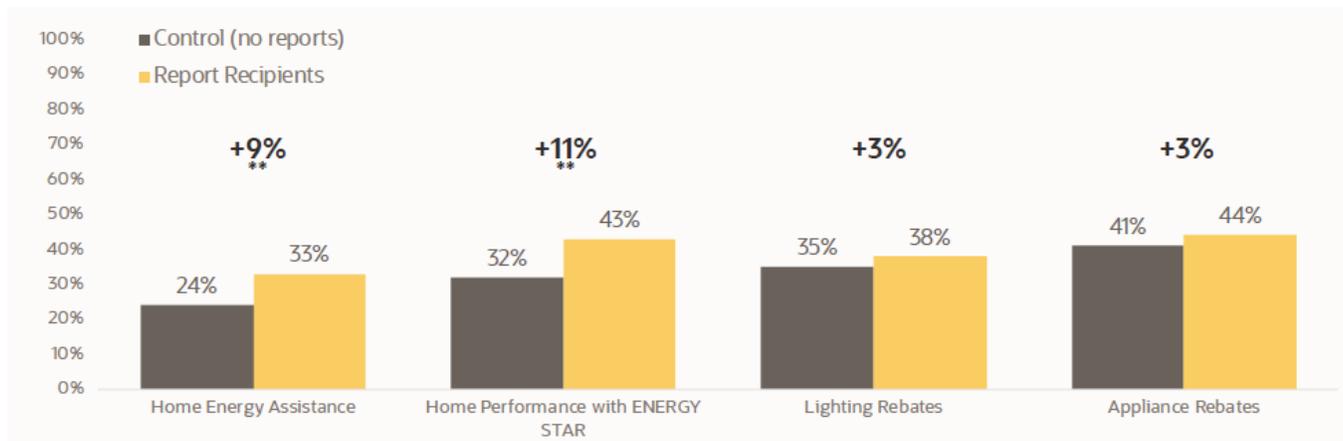
Liberty extensively uses the HER program to cross promote its other NHsaveS Program offerings and finds a number of customers who sign up for HPwES or HEA referencing their HER when asked about how they found out about the programs. The recent engagement survey results support this where report recipients were shown to be more familiar with energy efficiency programs.

Image 6-5: Energy Efficiency Program Familiarity⁵⁶



⁵⁶ Survey question: “How familiar are you with energy efficiency or conservation programs from Liberty Utilities that help you use less energy?”

Image 6-6: Energy Efficiency Program Familiarity by Offering⁵⁷



Savings

As the program continues to mature, for the 2021-2023 Plan, Liberty Electric and Gas will attempt to capture more relative savings out of the program by cycling its recipient pool, adjusting the frequency of reports distributed, and continuing to tailor report and tip messaging via the printed and web-based reports.

Liberty Electric and Gas have decided to change the accounting methodology for computing energy savings for the program. The current methodology uses a three-year measure life and accounts for persisting savings year to year. Liberty Electric and Gas intend to switch to a single-year measure life, which is recommended by the implementation vendor to simplify accounting, improve forecasting, and remove the savings variability that occurs with a multi-year measure life scheme.

Ultimately in a single-year methodology, annual savings will be equal to measured savings in a given year. With the shift from multi-year measure life comes a transition period where Liberty Electric and Gas must take into account persisting savings that have already been claimed, which will not count toward annual savings in the new methodology. This will affect cost effectiveness in the first year of the new triennial, bringing the program benefit-cost ratios under the Granite State Test below 1.0 in

⁵⁷ Survey question: “Which of the following Liberty Utilities energy efficiency initiatives are you familiar with?”

2021. Because the program will stop counting new persistence in the new methodology, this already-claimed persistence will phase out over time, and cost effectiveness will be above 1.0 under the Granite State Test in 2022 and 2023, and will also be above 1.0 under the Granite State Test when looking across the cumulative three-year period.

Given the benefits of moving to a single-year measure life and the focus on a true three-year planning process for the next triennial, Liberty Electric and Gas believe a single transition year with a benefit-cost ratio below 1.0 under the Granite State Test is reasonable and appropriate.

6.1.2 Unital Electric and Gas HERs

Launched in October 2018, the Unital Electric and Gas HER programs are run concurrently with Unital's Massachusetts territory to take advantage of economies of scale. The Unital Electric and Gas HERs are sent to approximately 25,800 electric customers and 11,000 natural gas customers. Unital Gas HER program participants receive e-mail HERs year round (12 per year) and four paper HERs are distributed during the heating months (November-March). Unital Electric HER participants receive year-round e-mail HERs and six print HERs a year with higher frequency during the summer months.

For the 2021-2023 Term, the Unital Electric and Gas HER programs are projected to save 25 percent and 9 percent of the residential sector annual savings, respectively. Unital Electric and Gas will continue to offer the HER program through at least the end of its current contract with its vendor for both its natural gas and electric customers and will assess appropriate next steps for behavioral-based strategies for 2022-2023 and beyond.

6.2 Customer Engagement Initiative (Eversource)

For the 2021-2023 term, Eversource will undertake behavioral-based marketing strategies to engage its electric customers in understanding how they consume energy in their homes and move them toward adoption of energy efficiency measures through the Residential program offerings. Additional description of the marketing approach can be found in Section 8.4.

The Customer Engagement Initiative marketing approach will not generate behavior-based energy savings. However, Eversource will continue to investigate additional opportunities for behavior-based

savings. Such communication efforts will involve statewide evaluation contractors early in the design process to ensure that the methodologies used meet requirements for future savings evaluations. If Eversource develops an offering for behavior savings it will be proposed through a Midterm Modification.

6.3 Aerial Infrared Mapping Program (Liberty Gas)

6.3.1 Objective

For the 2021-2023 term, Liberty Gas will implement an innovative behavior-based initiative called the Aerial Infrared Mapping (“AIM”) program. The objective of the AIM program is to efficiently capture detailed building weatherization information about Liberty’s residential natural gas customer base at scale in order to:

- Drive customer behavior change savings through promoting literacy on the specific opportunities for improved building efficiency;
- Engage and motivate customers to participate in the HEA and HPwES programs by providing a more detailed, visual profile of their heat loss; and
- Better identify, rank and prioritize, and qualify weatherization projects without having the need to go onsite.

6.3.2 Market Challenge

Heat loss arguably suffers from an invisibility problem, in that it is inconspicuous in everyday activities. Further, few customers have easy access to view, let alone understand, the weatherization conditioning of their home or how it compares to others. From a psychology perspective, having the opportunity to see something that is typically invisible can attract attention and create more of an emotional connection, as well as make things easier to understand. In fact, consumer research shows

that homeowners are five times more likely to implement energy efficiency measures after seeing a thermal image of their home.⁵⁸

6.3.3 How It Works

Liberty will deliver the AIM program in partnership with MyHEAT Inc., a technology company that generates aerial thermal images to produce unique and proprietary building HEAT Maps.⁵⁹ The MyHEAT Maps provide customers a resource to help identify and target building weatherization improvement areas. MyHEAT also provides customers personalized and proprietary HEAT Ratings that enable customers to compare a home's heat loss to others in their town or city.

MyHEAT is able to collect aerial Thermal Infrared ("TIR") imagery of buildings via a super high-resolution TIR camera with a plane flying over a geographical area at night, under strict environmental conditions at approximately 4,000 feet. MyHEAT's process uses Geographic Object-Based Image Analysis and machine learning to detect, map, and create powerful visualizations of the heat waste escaping from buildings. The TIR sensors do not detect temperature, rather they detect emitted long-wave thermal radiation (i.e., relative temperature), which when 'corrected' to kinetic temperature is used to present heat loss data.

MyHEAT's process has the ability to automatically correct for local changes in temperature, microclimate, and elevation, meaning all buildings can be compared as if they were collected at a single instance in time. Data for each building is extracted and standardized so that different buildings can be compared and rated using a scale of 1 (least heat loss measured) to 10 (most heat loss measured). The information collected can determine the inefficiency of poorly insulated attics and walls, energy loss from windows, and air leaks around mechanical vents.

MyHEAT's solution has been deployed across numerous cities and utility territories in the United States and Canada and is based on six years of award-winning, peer reviewed research in Urban Thermal

⁵⁸ Goodhew, J. et al. (2014). Making Heat Visible: Promoting Energy Conservation Behaviors Through Thermal Imaging. Sage Journals, 1059–1088. Retrieved from: <https://doi.org/10.1177%2F0013916514546218>.

⁵⁹ MyHEAT Inc. website: <http://myheat.ca>.

Remote Sensing from the University of Calgary. MyHEAT’s information is typically presented to end-users via a private online platform and utilized in a variety of marketing communications such as direct mail and email.

6.3.4 Thermal and Ancillary Data Collection

At a high-level, several data elements are required and will be captured in order to deploy the AIM program:

- **MyHEAT Data.** Aerial thermal capture data, building polygons generated from thermal data, proprietary HEAT Ratings and HEAT Maps; and
- **Third-Party Data.** Open data, such as land parcel details, and purchased data such as market demographics.

MyHEAT will perform two flyovers of Liberty’s territory, in the Spring of 2021 and Spring of 2023. The flyovers will cover the specified geography as shown in Image 6-7 to collect the aerial thermal data in order to generate HEAT Maps and HEAT Ratings.

Image 6-7: Depiction of AIM Program Fly-Over Geography



Additional geospatial datasets, such as building shapes and customer address details, will also be generated and/or compiled at this time. MyHEAT estimates that it will take approximately three nights to capture the majority of Liberty’s natural gas service territory for each flyover cycle. After capturing the relevant data from Liberty, third-party data sources, and with the collected aerial thermal data,

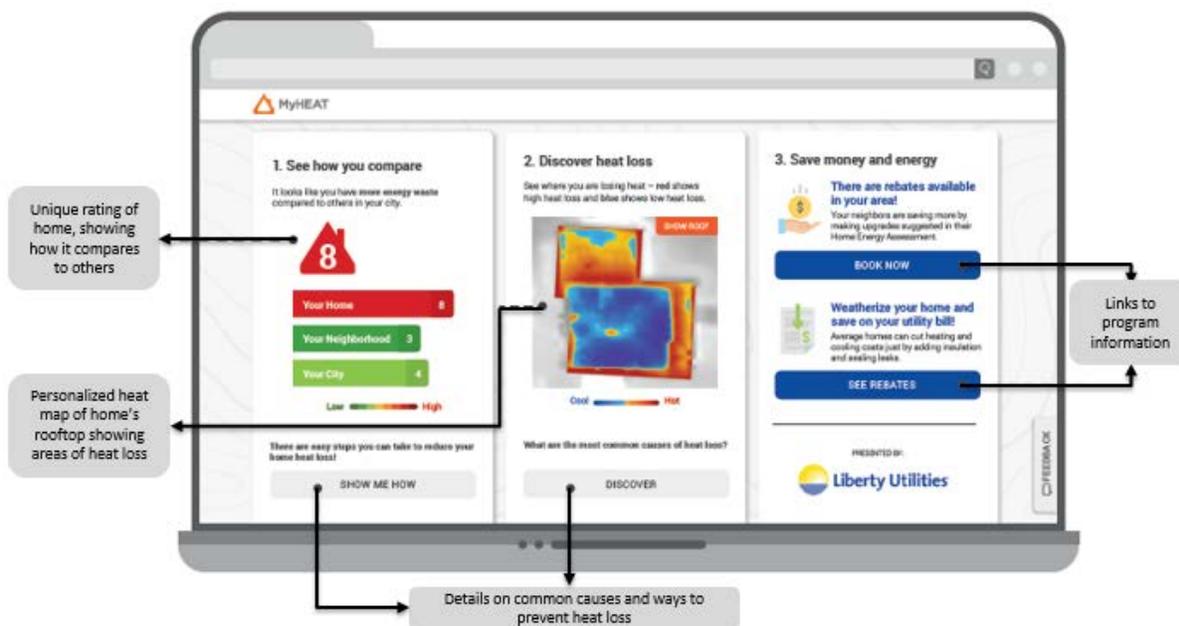
MyHEAT will process the combined data to generate personalized customer HEAT Maps and HEAT Ratings. Simultaneously, a unique customer-facing platform will be designed.

6.3.5 Customer Experience

As part of the AIM program, Liberty will provide residential customers a visual HEAT Map depiction and HEAT Rating of their home via a private access code protected web-based platform, where customers can view the heat loss details for only their own home. The HEAT Map and HEAT rating information will be provided alongside calls-to-action that direct customers toward ways they can save energy, including participating in NHSaves Programs.

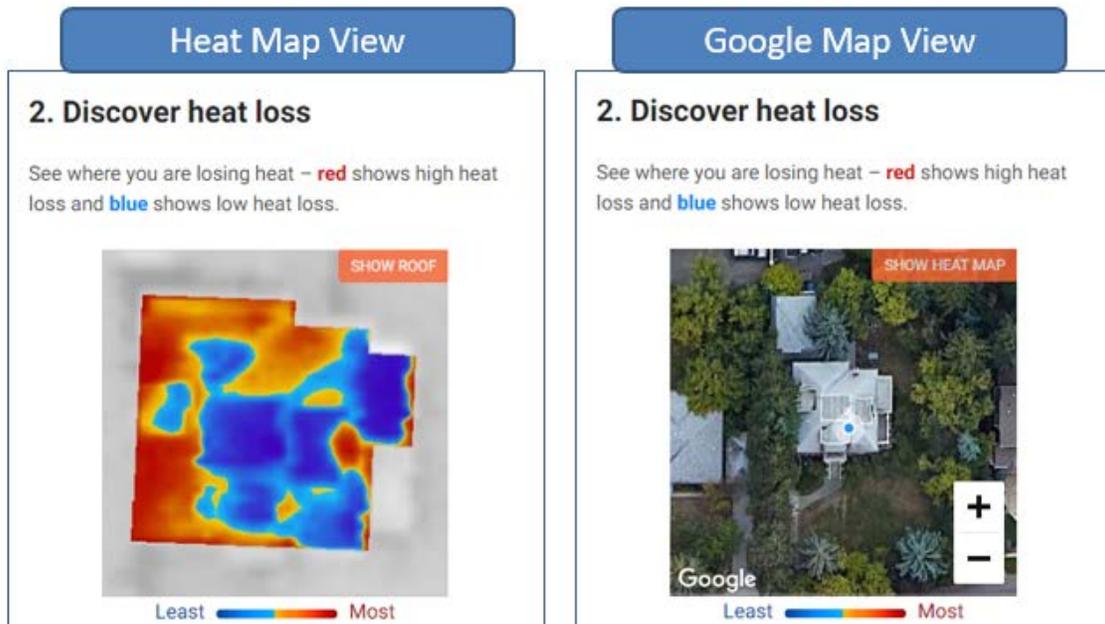
Image 6-8 provides a visual example of the information that a customer would see when viewing the online platform:

Image 6-8: AIM Program Customer Home Profile



The online platform will also allow customers to compare their home's HEAT Map visual depiction to what is publicly available via Google Maps, as shown in Image 6-9.

Image 6-9: Comparison of Heat Map View to Google Maps View



Liberty and MyHEAT consider user privacy to be of utmost importance and we recognize the growing societal concerns about privacy in general. The MyHEAT thermal images are very benign; nothing about the HEAT Maps, as depicted in the image above, suggests or show anything with regards to occupants. In fact, there is more that someone could glean about occupants from the publicly available Google Maps images of a home. That said, similar to the protocol that has been implemented for the HER program, any customers who prefer to opt-out of the program will have the ability to do so.

6.3.6 Eligibility and Enrollment

Liberty will offer the AIM program to customers free of charge, via an opt-out basis, meaning customers will not have the ability to opt-in if they so choose in order to maintain the proper participant control group for evaluation and measurement purposes. Rather, customers will have the ability to opt-out if they do not want their home mapped and rated.

6.3.7 Marketing and Promotion

The AIM program will be promoted via personalized direct mail and e-mail, which will encourage customers to visit the customized Liberty/MyHEAT private online platform, where customers can view their unique, personalized profile. Communications will be distributed periodically, with an anticipated

four direct mailings per year, and eight e-mail distributions per year, primarily during the heating season months. The first customer communications of the AIM program will be in September of 2021, following the initial data capture, analysis and final configuration of implementation details.

6.3.8 Target Market & Evaluation

The AIM program will be implemented under a randomized control trial (“RCT”) to measure the impact on energy consumption and program participation from customers. The AIM program will also be deployed alongside Liberty Gas’ HER program, where both programs will be in the market at the same time, but each will be distributed to separate treatment groups. For reference, the current Liberty Gas HER program includes:

Table 6-1: Liberty Gas HER Program

Group	No. of Homes
Treatment Group	33,000 homes ¹
Control Group	14,000 homes ¹
Remaining Customers	37,000 homes ¹
¹ Approximate quantities. Exact counts can vary slightly from month-to-month based on report deliverability and periodic opt-outs.	

The AIM program will use the existing Liberty Gas HER program control group and will have a separate treatment group of approximately 33,000 customers. The AIM program treatment group will be sourced from both the available balance of customers who would not be part of the treatment group of the HER program. As the creation of balanced treatment groups depends on the inclusion of MyHEAT’s HEAT Loss dataset, the exact details around the overlap between the AIM Initiative and the HER program won’t be confirmed until the thermal data is collected by MyHEAT and the HEAT Ratings are created. Also, this approach factors in that an adequate group of customers that are statistically similar to those in the existing control group can be identified. Liberty Gas will work with its HER vendor to ensure that no conflicts exist between the two programs for the purposes of evaluation and implementation integrity.

MyHEAT will assess annual natural gas energy consumption reduction based on a statistical analysis of the targeted homes change in billing consumption data. The evaluation will consider pre-and-post treatment consumption details, measuring the impact versus the control group. Additionally, Liberty Gas’ other program participation details will be incorporated to measure uplift attributed from the treatment group efforts.

6.3.9 Expected Results

The expected results for the AIM program are extrapolated from another recent MyHEAT pilot project, which found that customers achieved greater energy savings as their HEAT Ratings and potential dollar savings increased. For every \$100 in potential annual savings, customers in the MyHEAT treatment reduced their natural gas consumption by 2.9 percent. At the mean savings of \$150 per year,

participants reduced natural gas consumption by 4.4 percent. Based on previous implementations by MyHEAT, the AIM program is also expected to lead to nearly a 30 percent increase in applications submitted to relevant incentive programs. For the 2021-2023 program term, Liberty is projecting the potential impact range of the AIM program to be an average 2.2 percent reduction in natural gas for targeted homes.

6.3.10 Initial Customer Feedback

Liberty Gas performed an online survey of its residential customers to gauge their initial reaction and feedback on the AIM program concept to inform its consideration and planning of the program. The survey was fielded between March 30 and April 13, 2020 and 1,133 unique customer responses were captured with a margin of error of plus or minus three percentage points. In summary, the survey results found:

- The AIM program would be popular with customers:
 - Three out of four customers think the AIM program would be useful to them and 79 percent say they would access the information if they received a link to the site where they could see their HEAT Map and HEAT Rating.
 - Curiosity and desire to save money are the top reasons for customer interest. Many of those who don't think the program would be useful to them are renters and/or customer living in multifamily dwellings.
 - Very few (only 1 percent of the entire sample) say they would not be likely to access the information via a private platform due to privacy concerns.
- Customers have a clear preference for a private platform:
 - By a 2-to-1 margin, customers prefer that the AIM program is offered via a private platform.
 - Concerns about privacy are the dominant reason customers prefer the private platform. Among those who gave specifics, there are worries that they could be vulnerable to sales and marketing based on their rating, as well as potential shaming from neighbors; some are even worried that their HEAT Rating could negatively affect their home's value if the information were publicly available.

- Most who prefer the public platform think it would help facilitate comparisons, or better legitimize, their home’s rating with other homes.

Image 6-10: Residential Customer Survey—Likelihood to Access AIM Data⁶⁰

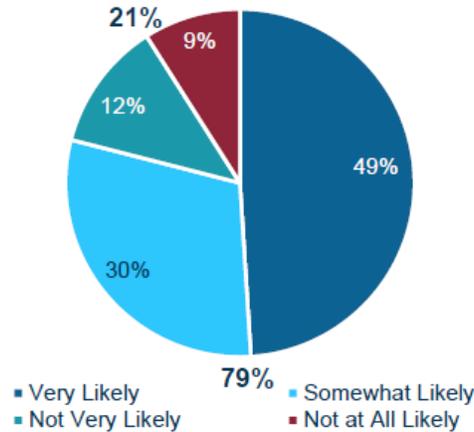
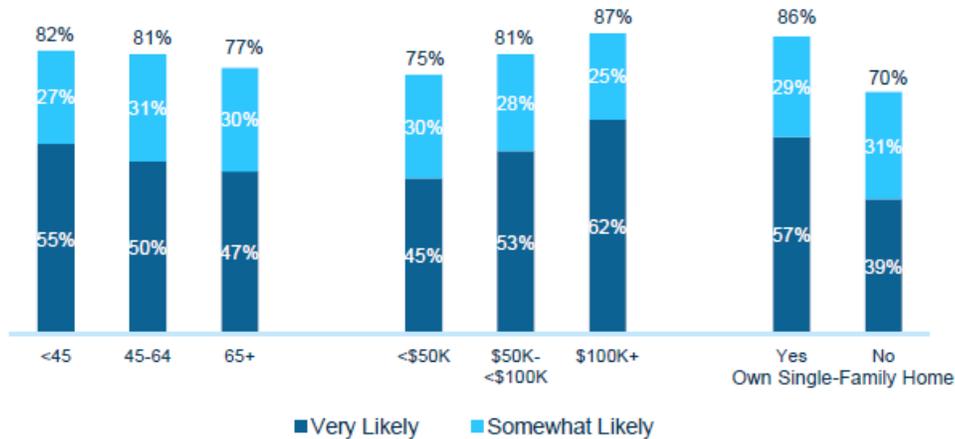


Image 6-11: Residential Customer Survey—Likelihood to Access AIM by Demographics⁶⁰



⁶⁰ Survey Question: “If you received a link to the site where you could see the HEAT Map and HEAT Rating for your home, how likely would you be to access the information?” Base: Total (n=1,133), <45 years old (n=192), 45-64 years old (n=449), 65+ years old (n=492), <\$50,000 household income (n=260), \$50,000-<\$100,000 household income (n=352), \$100,000+ household income (n=227), Own single-family dwelling (n=639), Do not own single-family dwelling (n=494.)

Image 6-12: Residential Customer Survey—Why Likely to Access AIM?⁶¹

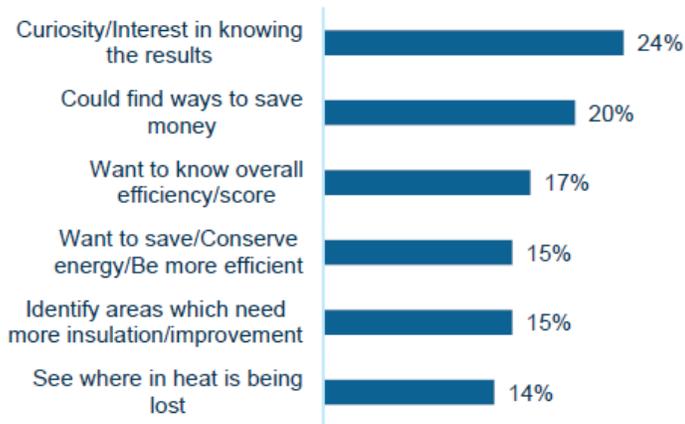


Image 6-13: Residential Customer Survey—Why Likely to Access AIM? Customer Quotes⁶¹



⁶¹ Survey Question: Q:“Why would you be likely to access the HEAT Map and HEAT Rating for your home?” Base: Likely to access HEAT Map and HEAT Rating for home (n=893).

Image 6-14: Residential Customer Survey—Why Prefer Private Platform?⁶²

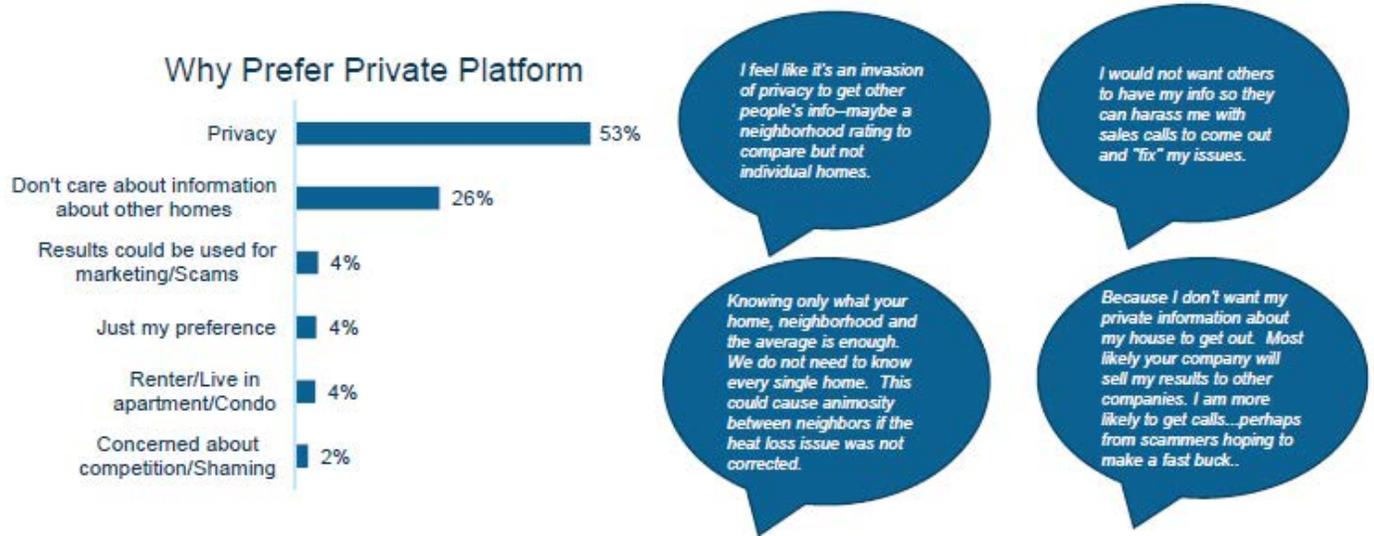
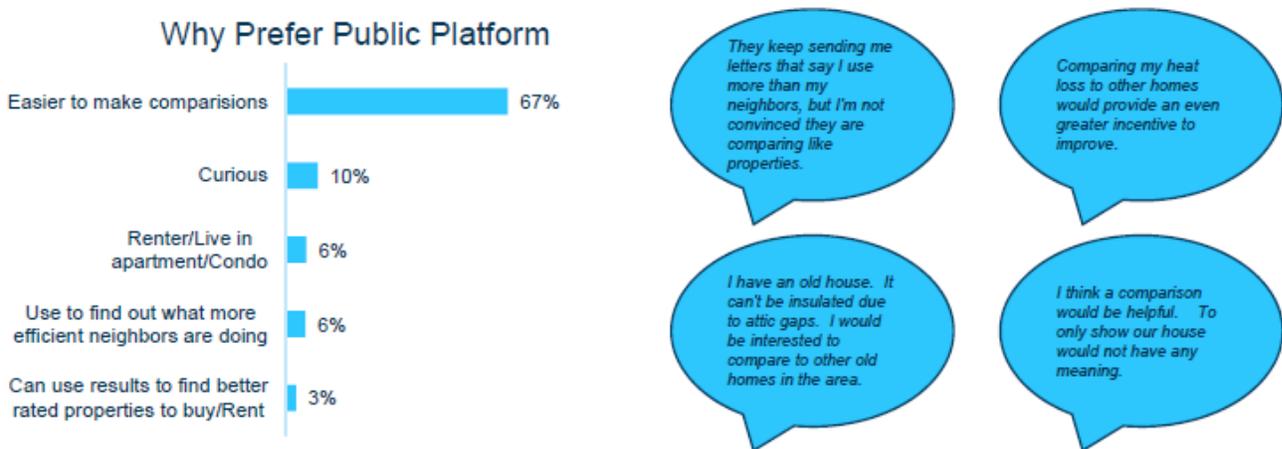


Image 6-15: Residential Customer Survey—Why Prefer Public Platform?⁶³



⁶² Survey Question: “Why would you prefer a private platform, where you could only view heat loss details for your home using unique access information.” Base: Prefer private platform (n=603).

⁶³ Survey Question: “Why would you prefer a public platform, where you could view heat loss details for any residence across your city to help you compare your home’s heat loss to others?” Base: Prefer public platform (n=268).

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Chapter Seven: Energy Optimization

Energy Optimization (“EO”) is an energy resource framework that seeks to minimize customers’ total energy usage across all energy sources while maximizing customers’ benefits. In particular, EO often focuses on conversions from delivered fossil-fuel heating systems to higher efficiency electric systems. EO strategies account for both equipment efficiency, as well as the mix of fuels used, which distinguishes it from fuel switching and beneficial electrification, which focus primarily on fuel type but do not necessarily prioritize overall energy efficiency.

For the 2021-2023 term, the NH Utilities are proposing an EO pilot based on the NHEC Social Responsibility Heat Pump program as well as offerings in other New England states. The NHSaves EO pilot will focus on displacing residential delivered fossil fuel through the adoption of cold climate air source heat pumps (“ASHPs”), including central and mini-split systems. The pilot will provide the NH Utilities with a more comprehensive understanding and experience of the benefits of heat pumps to the electric system, as well as the impact on emissions from GHGs and nitrogen and sulfur oxides. The NH Utilities will also investigate customer experience and optimal program delivery standards related to this offering.

Prior to implementation of the energy optimization pilot, the NH Utilities shall solicit feedback from relevant stakeholders through the Council, and shall make an informational filing with the Commission describing the pilot in greater detail. The evaluation of the pilot shall be developed collaboratively, with oversight from the EM&V working group.

To be eligible for the EO pilot, customers must be willing and able to displace their existing heat source for at least one heating zone(s) of their home for a substantial portion of the heating season (see requirements below regarding switchover set points). For the EO pilot, the NH Utilities will recommend, but not require, that the home be weatherized in advance of participation to ensure optimal sizing of the ASHP. The NH Utilities will also recommend that customers maintain a backup

automatic feed heating system. In these cases, customers must allow for the installation of integrated controls that will automatically assign the most efficient heating system to operate during the heating season, based on the outdoor temperature. Homes in which a backup heating system is deemed unnecessary will not be required to have integrated controls. Since the vast majority of the installations in the pilot are projected to have a backup system, the narrative focuses on these installations.

7.1 Existing Heat Pump Program

For more than a decade, the NH Utilities have provided incentives for the installation of high-efficiency ASHPs and have adopted best practices when cold climate heat pumps became commercially available. To date, heat pump units have typically been treated as a “lost opportunity” in which it was assumed that the customer was making a choice between the program-incented high-efficiency unit and a less expensive, standard-efficiency unit. The kWh and kW savings were therefore calculated based on a comparison between the high-efficiency and standard-efficiency unit and assumed both heating and cooling savings.



7.2 Purpose

The EO pilot is designed to gather information on both program design elements and key regulatory questions, including how the NH Utilities should account for fossil fuel and electricity savings (positive and negative). The EO pilot will be accompanied by an impact and process evaluation to guide future program design should the NH Utilities elect to expand the pilot to a full-scale program. The evaluation will also assess issues raised by the Commission in Order No. 26,322, as described in Section 7.6.

7.3 Target Population

The pilot has a goal of 100 participants per year over the 2021-2023 term. The pilot will target homes with existing HVAC configurations that are well-suited for ASHP conversions, but where the homeowners are not already planning to install ASHPs for heating (which are already incented by the

existing ES Products program). The pilot will target customers heating with oil and propane furnaces and boilers. The target population will include:

- Customers who are not actively considering heat pumps but who have central A/C systems, that are failing or old;
- Customers who are not actively considering heat pumps but who use window A/C units;
- Customers who are actively considering the installation of a central A/C system and who currently have window A/C units or no cooling system; and
- Customers who are currently interested in heat pumps only for cooling, but not heating.

While not part of the target population, those heating with auto-fed wood pellet stoves and boilers will also be eligible on a limited basis provided they meet other pilot requirements for integrated controls and provision of fuel data.

7.4 Customer and Contractor Outreach

The EO pilot will leverage existing pathways for incentivizing high-efficiency heat pump technologies, as well as design new outreach efforts for the target population and technologies. The NH Electric Utilities will engage customers through online and in-person education, targeted incentives, marketing, and financing solutions (e.g., on-bill financing and third-party loan programs). Customer education will focus on how to optimize their heating system's efficiency and proper maintenance and upkeep.

A cornerstone of the NH Utilities' EO pilot will be a broad promotional outreach effort, including training for HVAC and energy efficiency contractors on the benefits of ASHP technologies, and the need for integrated HVAC controls to optimally operate the ASHP with the building's existing heating system. Customers' existing heating systems will generally be expected to provide backup heating during the heating season's coldest temperatures while the ASHP will meet customers' full heating needs for the rest of the season.

The NH Utilities will market the program to the following customers through personal outreach, direct marketing, collaboration with interested stakeholders, and other methods:

- HPwES program customers (past, present, and future);
- Existing customers of HVAC contractors;
- NH Electric Utility net metering Solar PV customers; and
- Customers who have installed battery storage

7.5 Customer Eligibility

Customers may participate in the EO pilot if they meet the following eligibility guidelines:

- Are willing to allow for the installation of integrated controls (not required if a customer removes the existing heat source for a whole zone(s) within the home);
- Are willing to provide data on their delivered fuel consumption, including data from no less than one year prior to the installation of the heat pump. This data will enable evaluation of fossil fuel and electricity usage, both before and after the installation of the heat pump technology. The customer can provide the fossil fuel records directly, or sign a release form that allows evaluators to obtain the data directly from the customer's fuel company;
- Agree to meet a maximum outdoor temperature set point (determined by the Utilities) for the switch over from the backup heating system to ASHPs; and
- Agree to implement a full heating zone(s) displacement. Partial heating zone installations are not eligible.
- Backup heating systems must be automatic feed systems. These include boilers, certain types of stoves, and furnaces.

7.6 Incentive Structure

Incentives for EO are designed to move a customer away from their current primary fossil fuel heat source to use high-efficiency ASHPs as their primary heat source instead. This proposition differs from a standard ASHP program offering, which incentivizes a customer who is already purchasing an ASHP to buy a more efficient unit, rather than a typical unit. In the EO framework, the customer cost barrier is higher and the overall MMBtu savings are greater than a standard ASHP program offering. The

incentive levels for the EO pilot are designed to help overcome the customer barriers and achieve the displacement of the fossil fuel heating source. The initial incentive level for the EO pilot will be \$1,250/ton, which aligns with a similar offering in Massachusetts. This level may be adjusted as the NH Utilities gain experience and customer feedback during the pilot.

7.7 Post Inspections and Survey

Post-installation inspections will be conducted for all EO pilot participants. An EM&V survey will be provided during each inspection. The inspectors will collect the following information:

- If the number of installed HP tons (1 ton = 12,000 Btuh) meets the customer's heating needs;
- If the existing heating system and heat pump set points are within the pilot parameters;
- If there are working integrated controls (if required as listed above); and
- If the heat pump technologies installed were designed to provide heat to a whole heating zone(s).

7.8 Evaluation Plan

The NH Utilities' pilot will be accompanied by an evaluation to measure the impacts on total energy consumption (for both heating and cooling, and across all fuels) and to assess program processes, customer behavior, and workforce capacity. Results of the evaluation will guide future decisions on expanding the pilot to a full-scale program. Design of the evaluation can leverage experience gained through similar evaluations happening in other states, such as the EO Impact and Process evaluation currently underway in Massachusetts. The NH EO evaluation will include both impact and process components:

- **Pilot Impacts.** The evaluation will measure impacts and refine methods for accounting for unregulated fuel savings and electric load increases for fuel-to-electric measures, to support modelling net MMBtu savings that could be claimed under a holistic accounting framework. The evaluation may include analysis of heat pump usage data from integrated control systems, delivered fuels billing data, where available, and whole home electric usage data from the NH Utilities. Requirements for integrated controls and customer releases to obtain delivered fuel

records will support these efforts. This analysis will also help determine the extent to which EO could, at scale, lead to load factor improvements by increasing load during times when the transmission and distribution systems are not operating at peak capacity. As noted by the Commission in Order No. 26,322, such load factor improvements may present an opportunity for ratepayers, as non-participants may stand to benefit from increased electricity sales that do not significantly increase transmission and distribution system costs.

- **Pilot Processes.** The evaluation will assess the pilot design and offerings for tailored ASHP measure bundles, including weatherization and integrated controls, to understand customer behavior and satisfaction, contractor technical capacity and training needs, and equipment configurations and baselines. Post-inspections will be utilized to confirm installation configurations and setpoints, and to survey customers on their plans for using the heat pumps and modifying set points, alternative equipment baselines they considered, and their satisfaction with contractors, the installation processes, and the rebate fulfillment process. The evaluation is also expected to include surveys or interviews with contractors to obtain feedback on issues such as training or capacity needs.

Although the pilot is not subject to cost-effectiveness requirements and the NH Utilities have not modelled planned savings, average project savings are expected to be in line with those from the EO study done under the oversight of the NH Benefit Cost Working Group.⁶⁴ This study and its associated planning model were based on a Massachusetts EO model and adapted to include New Hampshire specific inputs such as fuel cost data, weather data, saturation of various air conditioning technologies, and the regional electric generation mix. Table 7-1 provides estimated fossil fuel and electric impacts for the four scenarios expected to comprise the majority of pilot projects: oil and propane furnaces displaced by a central ASHP and oil and propane boilers displaced by ductless heat pumps.

⁶⁴ Navigant, Energy Optimization. Sep. 12, 2019. See https://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2019-10-31_STAFF_NH_ENERGY_OPTIMIZATION_STUDY.PDF and <https://puc.nh.gov/Electric/Reports/20190805-PUC-Electric-NH-Energy-Optimization-Model.xlsx>.

Table 7-1: EO Estimated Energy Impacts

Baseline Equipment	Replacement Equipment	Annual Energy Savings on MMBtu Basis (MMBtu/yr)	Propane Annual Savings (MMBtu/yr)	Oil Annual Savings (MMBtu/yr)	Electric Annual Savings (kWh/yr)	Electric Heating Savings (kWh/yr)	Electric Cooling Savings (kWh/yr)	Electric Heating Peak Demand Savings (kW)	Electric Cooling Peak Demand Savings (kW)
Oil Furnace + Baseline A/C Blend	Central HP + Oil Furnace	37.81	0.00	49.02	-3285	-3963	678	-1.630	0.610
Propane Furnace + Baseline A/C Blend	Central HP + Propane Furnace	51.67	68.83	0.00	-5027	-5705	678	-1.630	0.610
Oil Boiler + Room A/C/No A/C Blend	Ductless HP + Oil Boiler	46.11	0.00	57.82	-3433	-4231	799	-1.090	0.970
Propane Boiler + Room A/C/No A/C Blend	Ductless HP + Propane Boiler	63.53	81.19	0.00	-5176	-5975	799	-1.095	0.970

Note: Negative savings values reflect increased consumption. Cooling baselines are based on a statewide blend of A/C penetration for central and room A/C systems.

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Chapter Eight: Marketing and Education

Marketing and education strategies are administered to increase awareness of the benefits of energy efficiency. They are also used to drive increased participation in NHSaves Programs. The NH Utilities will promote and implement marketing strategies that motivate residential, municipal, and C&I customers to participate in program offerings made available by NHSaves.

During the implementation of the 2021-2023 Plan, the NH Utilities will continue to increase customer awareness and participation in energy efficiency programs and to encourage behavior changes that save energy and reduce GHG emissions. Successful marketing and education strategies move customers through a long-term transitional process beginning with awareness that develops attitudinal changes and action. Over the past three years, the NH Utilities have focused marketing communications efforts toward making customers aware of the benefits of energy efficiency, as well as working through a strategic brand redesign of NHSaves and realigning marketing messages specific to target audiences. The primary objective during the 2021-2023 term is to take customers' heightened awareness of energy efficiency and turn it into tangible results by engaging customers' participation in NHSaves Programs in order to save energy, save money and realize non-energy benefits.

8.1 Background

8.1.1 2018-2020 Market Assessment

During the 2018-2020 Term, the NH Utilities launched a significant redesign of the NHSaves approach to marketing in order support the increased program budgets and goals under the EERS. Prior to the EERS framework implementation, NHSaves Programs budgets and goals had remained relatively flat since beginning in 2002 and NHSaves brand marketing was primarily focused on the mass market ES Products program at retail store locations and for jointly branding commercial forms.

In 2018, the NH Utilities established a statewide marketing team and issued an RFP to engage a marketing partner to develop and execute NHSaves marketing and outreach campaigns. Once selected,

the marketing partner collaborated with the NH Utilities to establish three broad objectives for a strategic 2018-2020 Marketing Plan:

- **One:** Build awareness and demonstrate the value of energy efficiency;
- **Two:** Drive deeper customer participation in the programs; and
- **Three:** Increase trade and channel participation in the programs.

In 2018, the NH Utilities initiated a soft launch of an umbrella marketing campaign with a refresh of the NHSaves logo and brand, a brand descriptor, digital platform activation, and enhancements to the NHSaves.com website. Included in this scope of work was a deep dive into the brand essence and definition of NHSaves to balance key messages of practical savings while inspiring energy conservation and efficiency.

The NH Utilities' statewide marketing team worked with the EM&V Working Group during 2018 to undertake a New Hampshire Energy Efficiency Market Assessment ("Market Assessment") to determine the general awareness of energy efficiency across the state, establish a benchmark awareness level of the NHSaves brand, and to identify effective marketing channels to communicate with customers and market segments.⁶⁵ This research deepened the understanding of the drivers and barriers related to energy efficiency participation, and helped identify general attitudes, perceptions, and behaviors concerning energy efficiency, and more specifically the NHSaves Programs, in New Hampshire.

The Market Assessment gathered primary data through population surveys of residential and small and mid-size business customers, residential customer focus groups, and non-residential customer interviews.⁶⁶ Completed in 2019, the Market Assessment found that one-third of residential customers

⁶⁵ Navigant Consulting. *New Hampshire Energy Efficiency Market Assessment*. Apr. 19, 2019 Presentation. Available at: <https://www.puc.nh.gov/EESE%20Board/Meetings/2019/0419Mtg/20190419-EESE-Board-NHSaves-Market-Assessment-Presentation.pdf>.

⁶⁶ *New Hampshire Energy Efficiency Market Assessment*. The Study received feedback from 1,072 residential customers (response rate of 11%) and 304 C&I customers (response rate of 4%). Two residential customer focus groups and 30 large C&I customer interviews were held.

and one-half of non-residential customers had seen or heard the term “NHSaves”. Additionally, of those aware of the brand, 60 percent and 30 percent of residential and non-residential customers, respectively, were aware that NHSaves was associated with their electric or natural gas utility. Among those who were aware of NHSaves, program participation levels were only around 30 percent for both residential and non-residential customers.

8.1.2 2018-2020 Marketing Activities

In 2019, the NH Utilities launched phase one of a fully-integrated marketing campaign guided by insights from the Market Assessment’s findings and recommendations. The theme of the marketing campaign that resulted was: “Live Free, Live Smart.” The NH Utilities focused on several key strategies to increase awareness of the NHSaves brand and the benefits of participating in the programs, including:

- Expanded use of social media to build and engage a larger audience with targeted messaging across all the NH Utilities service areas. A variety of social platforms were added to the existing mix, including Facebook, Instagram, Twitter, and LinkedIn;
- Enhanced User Experience Design (“UX”) on NHSaves.com with application of UX best practices including: ongoing support and maintenance, beta testing, Search Engine Optimization (“SEO”), navigational improvements, refreshed content and feature updates, and streamlined calls-to-action and consumer access points;
- Deployed consistent customer communication materials (e.g., collateral, display materials, etc.) and resources across the NH Utilities leveraging the NHSaves brand;
- Expanded use of paid media for the purpose of building brand awareness and driving traffic to the NHSaves website for program participation. The NH Utilities developed and implemented a full media plan including: digital, social media, and traditional marketing platforms.
- Expanded, increased, and improved the library of customer case studies and testimonials that can be promoted via social media platforms and on the website to educate customers on the benefits of energy efficiency;

- Created specific brand guidelines to ensure appropriate use and placement of the NHSaves logo by contractor trade allies; and
- Continued leverage of national and regional energy efficiency partnership campaigns, such as ENERGY STAR, to promote programs and services.

Throughout 2019 and 2020, the NH Utilities received monthly data reports with detailed information on website traffic and conversions. These reports, along with data that will be collected during the next Market Assessment will help the NH Utilities to gauge the effectiveness of the marketing efforts to date and guide new strategies for increasing awareness and participation in the NHSaves Programs over the coming term.

8.2 Customer Attributes and Market Research

8.2.1 Understanding What Influences Customers in their Energy Decisions

The overarching marketing strategy for the NH Utilities is to leverage what we know about how our customers use energy and how they make decisions about purchasing energy using equipment to design simple “on ramps” for them to engage with the NHSaves Programs. Understanding what motivates a customer to engage or not engage in energy efficiency programs helps the NH Utilities craft the appropriate messages, determine the right marketing tactics, and design effective communications that focus on solving a customer’s needs or problems. As referenced throughout the 2021-2023 Plan, the NHSaves Programs have many benefits; however, the key to successful marketing is to understand what influences or drives a customer’s energy decisions the most. Cost savings may be the most important thing for one customer to participate in an energy efficiency program, while improving the comfort of the home may be another person’s primary motivator.

Customer Segmentation

To reach target audiences more effectively, the NH Utilities have utilized the Market Assessment research and subsequent data to categorize residential and C&I customers into groups or market segments. For the 2021-2023 term, the NH Utilities will build on this work and leverage a number of psychographic and behavioral segmentation strategies to refine the marketing tactics used to engage

customers. This segmentation combined with demographic-based data (e.g., customer characteristics, housing type and age, business type, number of employees, etc.) provides the NH Utilities with insight into customers' decision making process, world views, what motivates them to purchase high efficiency products or engage in efficient practices, and what they perceive as barriers.

The Market Assessment categorized customers into market segments using target metrics, such as awareness of NHSaves Programs and attitudes toward energy and the environment. The following four key factors were used to segment the marketplace: (1) concern for the environment, (2) environmentalism, (3) responsibility, and (4) behaviors. These factors helped to sort customers into the following four categories.

- **Engaged Greens.** This market segment (24 percent) has high levels of familiarity with energy efficiency programs and have participated in NHSaves Programs. Engaged greens have the highest level of concern with environmental issues, perceive a high-level of responsibility to take energy-saving actions, and frequently engage in energy conservation behaviors.
- **Aspiring Greens.** This market segment (27 percent) has moderate levels of awareness of NHSaves Programs, energy-efficient technologies, and has participated in energy efficiency programs. Aspiring Greens have a high level of concern for environmental issues, frequently engage in energy efficiency, and perceive a higher level of personal responsibility to take action.
- **Peripherally Aware.** Customers in this market segment (25 percent) are less likely to be concerned about environmental issues and to take responsibility to act and then in engage in energy-efficiency behaviors. Peripherally Awarers are generally aware of NHSaves Programs; however, they do not understand their program options and have never participated in an energy efficiency program.
- **Disconnected.** This market segment (24 percent) shows the lowest levels of awareness of energy efficiency and participation in NHSaves Programs. Disconnected customers have a lower level of concern with environmental issues, perceive a lower level of responsibility to take energy-efficient actions, and do not frequently engage in energy-saving behaviors.

Recommendations

The Market Assessment identified two key customer segments that presented immediate opportunity for the NHsaves brand and program engagement—the Engaged Greens and Aspiring Greens. These customer segments were identified as already having moderate levels of awareness of the NHsaves brand and more likely to have already participated in NHsaves Programs.

These customers are more likely to respond positively to the NH Utilities' communications, given that they are already interested in taking action to save energy and perceive it as their responsibility to do so. A key recommendation from the study was to increase utility-generated communications, including but not limited to: bill inserts, e-mails, or a separate postcard mailing to these customers.

C&I Customers

The NH Utilities utilize market segmentation to effectively target C&I customers and engage them in the NHsaves Programs as well. Understanding what motivates a business customer to adopt energy efficiency equipment and practices gives the NH Utilities insight into what communications strategies are most effective to increase C&I customer participation in the NHsaves Programs.

The Market Assessment determined that the largest energy consuming C&I customers have a higher level of concern for environmental issues than small to mid-size businesses. This is due to the need for many large businesses to meet and uphold environmental sustainability commitments in order to satisfy customer and shareholder priorities. This extrinsic motivation provides the NH Utilities an opportunity to effectively target large C&I customers for high efficiency equipment and behaviors, and to encourage their participation in the NHsaves program offerings. The Market Assessment also shed light on the decision-making constraints of four large C&I market segments and identified viable solutions the NH Utilities should implement. These market segments and strategies were discussed in Section 3.4 of this document.

8.3 2021-2023 Marketing Strategies

While looking toward the 2021-2023 Plan's implementation, the NH Utilities recognize that this is a great opportunity to build on the lessons learned and Market Assessment recommendations

implemented in the 2018-2020 term. The primary focus of the NH Utilities' marketing efforts is to take customers' heightened awareness of energy efficiency and turn it into participation in the NHSaves Programs. Increased participation and energy savings will be achieved through increased and targeted customer engagement and by implementing comprehensive, multi-measure projects that save energy and money. Marketing strategies harness the strong association between the NH Utilities and the NHSaves brand, which builds credibility given that the NH Utilities are already viewed as trusted energy advisors for customers across the state.

8.3.1 Marketing Communication Efforts

The NH Utilities will focus on motivating customers to engage in energy efficiency through a diverse mix of push-and-pull tactics that connect them back to relevant conversion points. A "conversion point" is the point at which the recipient of a marketing message performs a desired action. "Pull tactics" are designed to effectively draw customers into the programs and will include television and print and brand advertising, as well as utility communications (e.g., bill inserts, direct mail and e-mail, etc.) to leverage customers' trust with their utility.

The NH Utilities will also continue to place an emphasis on engagement through public relations and social media. These channels will help to expand the "brand story" in authentic, relatable ways. This will include balancing brand, program and product offerings, lifestyle, and education-based content on social media advertising to attract customers' attention indirectly, and then work to motivate customers to find out more about the NHSaves Programs and how they can make their home or business more energy efficient. Positive stories about how local businesses, municipalities, and customers are saving energy and money will serve as a conversion point to engage a customer, turning a potential actor into one who actually engages with the programs and energy efficiency behaviors.

Brand Awareness

Presentation of both the NHSaves logo and the NH Utility logos in marketing and promotional materials is a key approach in the effort to increase both awareness and uptake of energy efficiency offerings. Co-branding allows customers to recognize the statewide nature of energy efficiency offerings, provides assurance that the offerings are connected to trusted, regulated entities that they

already have a relationship with, and makes the connection between interest in energy efficiency and contacting their NH Utility to take action.

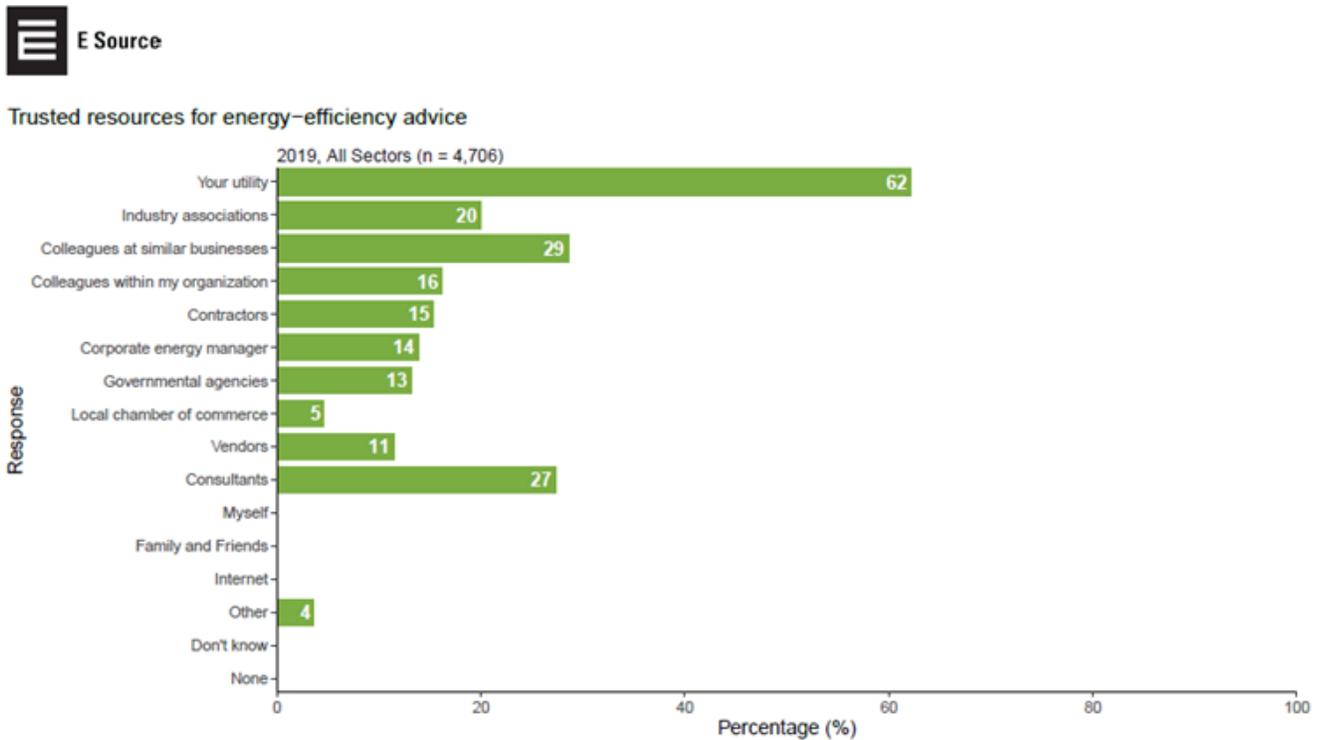
The NH Utilities began utilizing “NHSaves” in 2002, starting with program brochures and the website, and expanded over time as joint utility coordination on NHSaves Program offerings solidified and became the primary approach to energy efficiency in New Hampshire. As an umbrella brand, NHSaves became a way to connect the energy efficiency programs offered by each individual NH Utility to the joint planning and approval process. With NHSaves, customers can recognize that energy efficiency is available to all NH Utility customers across the state.

While the NHSaves logo and brand helps to reinforce the statewide nature of efficiency program offerings, NH Utility brands are featured in conjunction with the NHSaves logo in order to leverage the awareness and trust that customers have in the NH Utilities. Consumers today take in a constant flow of marketing and messaging across every aspect of their lives and activities. Consumers consistently have to analyze those messages to determine whether they are valid and from a trusted source. The initial impression of an advertisement or offer as something legitimate and trustworthy helps to determine whether the customer is willing to engage further in the information that the message contains.

Studies have shown that customers overwhelmingly view their utility as the trusted resource for energy efficiency advice. In fact, a recent study by E-Source surveyed respondents on trusted resources for energy efficiency advice and found that out of 4,706 respondents in all sectors in 2019, 62 percent of respondents selected “Your Utility” as the most trusted resource. See Figure 8-1 for the results from the E-Source study.⁶⁷

⁶⁷ E Source (2020). E Source Small and Midsize Gap and Priority Study & Large Business Gap & Priority Study (Business Customer Insights Center).

Image 8-1: Trusted Resources for Energy Efficiency Advice (E-Source)⁶⁸



Additionally, a survey of New Hampshire customers by Eversource found that 62 percent of residential customer respondents preferred a residential advertisement with both the utility and NHSaves logos, noting the advertisement emphasizes collaboration and comes from a business they trust. 21 percent preferred the advertisement with just the utility logo, and 17 percent preferred just the NHSaves logo. Similarly, 68 percent of commercial customer respondents preferred a commercial advertisement with both the utility and NHSaves logos, 24 percent preferred the advertisement with just the utility logo, and 8 percent preferred just the NHSaves logo. Based on research, and the overall desire to leverage customers’ existing awareness of the NH Utilities as legitimate regulated entities and trusted energy advisors, co-branding strategies are a critical element of supporting and enhancing the NHSaves brand.

⁶⁸ E Source (2020). E Source Small and Midsize Gap and Priority Study & Large Business Gap & Priority Study (Business Customer Insights Center).

In addition to trust and awareness of energy efficiency programs, co-branded marketing serves to encourage the customer to take action toward implementing energy efficiency by providing a direct link to the service provider. In order to move from awareness to action the customer must have a clear understanding of what steps they can take and who they can contact. The utility is integrally connected to implementing energy efficiency projects, so it is vital that customers understand the linkage in order to move forward with energy efficiency. Call centers, energy efficiency employees, and business account executives all provide critical pathways for customers to gather information, begin a project, or resolve questions. Understanding the connection between statewide energy efficiency offerings and a customer's utility provides the full circle of information that the customer needs in order to take action and implement energy efficiency improvements. Additionally, linking the utility logo with NHSaves enables customers to see that programs are administered by the NH Utilities, thereby ensuring transparency of funding by ratepayers.

The NH Utilities recognize the benefits of the statewide NHSaves brand in promoting energy efficiency programs to customers. In order to protect the brand and ensure that it represents high standards of delivery and customer service, the NH Utilities will monitor and control the word and logo service marks in order to maintain their value and to prevent inferior services from diminishing them. The NH Utilities have stepped up these efforts, including initiating the federal service mark registration and monitoring efforts, in order to identify unauthorized uses of the service mark and protect the integrity of NHSaves.

In addition to utility-led marketing efforts, the NH utilities are also working to provide enhanced opportunities for contractors to market and support the programs through a trade ally logo. During the third quarter of 2020, this logo will be created specifically to incorporate the NHSaves logo, while differentiating it in order to signify the trade ally relationship. Contractors will be able to receive the benefit of NHSaves brand awareness and visually demonstrate that they have met the requirements to participate in the NHSaves Programs. The use of a trade ally logo will increase the visibility of NHSaves across the state and leverage marketing campaigns funded by contractors to reach more customers. The trade ally logo will be licensed to qualified contractors through an agreement that provides for

review of materials by the NH Utilities and detailed brand guidelines in order to ensure proper use of the mark and protect its integrity.

Throughout the 2021-2023 Plan, the NH Utilities will continue to use branding strategies designed to leverage customer trust and awareness and promote energy efficiency in New Hampshire.

Residential Customers

Residential marketing communications will target residents of single-family and multifamily homes, especially limited-income customers, as well as home builders and buyers, contractors, distributors, property managers, realtors, and retailers to inform these stakeholders about NHSaves' high-efficiency products and technologies. The NH Utilities will also increase outreach to rural and hard-to-serve customers to engage them in energy efficiency through Button Up Workshops, community forums and partnerships.

During the 2021-2023 term, the NH Utilities will include more midstream and point-of-purchase rebate offerings for the NHSaves Residential Programs, as well as include additional tiers and bonus incentives for the residential new construction marketplace. These new offerings are designed to both expand and simplify the opportunities for participation in NHSaves programs by residential customers. Through program-specific marketing communications efforts, the NH Utilities will make more customers aware of these easy-to-access on-ramps to energy efficiency.

Throughout the 2021-2023 term, the NH Utilities will market the NHSaves Residential Programs through a variety of channels, including the website (NHSaves.com), bill inserts, program materials, direct mail and e-mail, active social media campaigns, paid digital advertising, billboards, radio/TV/music streaming advertisements, trade shows, public relations efforts (statewide and utility-driven), hosting or providing speakers for trainings and events, and providing content for partners' blogs, newsletters, and websites.

C&I and Municipal Customers

For non-residential customers, the NH Utilities will focus marketing efforts on a variety of industry segments and facility types and will leverage utility account representatives' and customer service

personnel's relationships with these customers. The Market Assessment found that C&I customers, especially large C&I customers, attributed their engagement with energy efficiency to their strong relationships with their utility representatives. The NH Utilities will continue to foster these relationships to encourage long-term, multi-measure efficiency projects with their C&I customers. In addition, the NH Utilities will work closely with various trade ally and channel partners, including but not limited to: architects, builders, contractors, developers, electricians, engineers, equipment manufacturers and suppliers, facility managers, and trade associations. For municipalities, the NH Utilities will continue to work closely with town, school, and local community officials and leverage the NH Utilities' internal resources to market the NHSaves Programs.

For the 2021-2023 term, the NH Utilities will focus on making it easier for customers to participate in NHSaves C&I Programs. The NH Utilities will create standard offer marketing pieces, such as sell sheets and presentations, specifically developed for target C&I market segments and end-use equipment. These tailored marketing collateral packages will make it easier for customers to understand the potential incentives and estimated energy savings associated with installing the types of energy-efficient equipment common to businesses like theirs. Through case studies and customer testimonials, the NH Utilities will enhance efforts to use the success stories of other local businesses to recruit newcomers to the NHSaves Programs.

The NH Utilities will work to spread the energy efficiency message further to local communities, municipalities, and small businesses through outreach efforts, such as the main street initiative described in the C&I Programs section of this document (see Chapter 3).

8.3.2 Marketing Strategy Components

The primary focus of the NH Utilities marketing efforts over the coming three-year term is to convert customers' heightened awareness of energy efficiency resulting from NHSaves marketing efforts over the 2018-2020 term and motivate them to take action. For the 2021-2023 term, the NH Utilities have designed programs to allow for multiple, easy-access program pathways to serve as on ramps to engage customers in energy efficiency. The NH Utilities' marketing strategies also focus on delivering communications through multiple and diverse marketing channels to increase customer touch points

and to increase conversion rates. The NH Utilities will focus on three broad marketing objectives for the 2021-2023 NHSaves Programs:

1. Continue to build awareness and demonstrate the value of energy efficiency;
2. Convince customers to take action and participate in NHSaves energy efficiency offerings;
and
3. Increase education and outreach efforts to both customers and trade allies.

These marketing strategies, along with a comprehensive set of program solutions, are designed to overcome specific barriers to energy efficiency program participation.

Continue to Build Awareness and Demonstrate the Value of Energy Efficiency

The brand awareness research and marketing efforts conducted during the 2018-2020 Plan have helped the NH Utilities to better understand New Hampshire customer behaviors and to assess the overall knowledge of energy efficiency, NHSaves Programs, and the motivators and barriers to participation. During the 2021-2023 term, the NH Utilities will continue to leverage this knowledge to inform marketing campaign strategies and to focus on program-specific marketing campaigns.

The NH Utilities will continue to keep the NHSaves website up to date and engaging throughout the 2021-2023 term to increase awareness of programs, and to provide an online platform for customers to engage with energy efficiency. The website is currently an information source for customers and energy service providers wanting to learn about energy efficiency programs and technologies. The next step is for the NH Utilities to expand the website into a digital marketing platform that directly engages customers with energy efficiency offerings. This will include the creation of multiple digital conversion points where customers may redeem appliance vouchers, sign up for a program, learn about energy-efficient equipment and building design through a digital video library, or even purchase an energy-efficient product through a digital rebate redemption platform.

Convince Customers to Take Action and Participate in NHSaves Programs

The NH Utilities will continue to use established social media platforms to build a larger audience and to target messaging to select customer groups, using a social media content calendar of planned

campaigns and promotions to be implemented through the 2021-2023 term. The NH Utilities will continue to track social media metrics to measure change over time and gauge progress toward meeting key performance indicators.

Increase Contractor and Public Education Efforts

For the 2021-2023 term, the NH Utilities will increase the number of contractor and customer education trainings and events across the state. These activities are described in more detail in the NHSaves Residential Programs section (Chapter Four) and the NHSaves C&I Programs section (Chapter Three). Contractor and customer education is an important component of the NH Utilities' marketing efforts to inform the public about the benefits of energy efficiency and the NHSaves Programs.

The NH Utilities recognize that educating K-12 students on energy efficiency has the double benefit of empowering students to help their schools set and achieve energy efficiency goals, while also arming them with information to improve efficiency and performance where they live. During the 2021-2023 term, the NH Utilities will continue to partner with schools to instill an energy-efficient ethic in school-aged children across the state. All K-12 schools in the NH Utilities' service areas are eligible to participate in New Hampshire Energy Education Project ("NHEEP") presentations and workshops to learn about energy efficiency. The NH Utilities have worked with NHEEP to support additional flexible options for teachers and students who may be participating in virtual education. Recognizing the challenges schools are facing related to COVID-19 and health risks, offerings include virtual workshops with hands-on components, home learning lessons and additional custom curriculum support, as well as virtual professional development workshops. The student education and professional development workshop curriculum is aligned with Next Generation Science Standards ("NGSS").

8.3.3 Key Performance Indicators

Throughout the 2021-2023 term, the NH Utilities will build upon the successful 2018-2020 marketing research and strategies developed to increase awareness of and participation in NHSaves Programs. To track the success of these efforts, the NH Utilities have developed several key performance indicators for the 2021-2023 term, including:

- **Awareness.** In 2021, the NH Utilities anticipate having the results of a new Market Assessment, which will show the change over time in NHSaves brand awareness. The new Market Assessment will also provide better understanding of which customer segments have been reached through marketing efforts over the last three years.
- **Interest.** The NH Utilities will track the engagement of visitors to the NHSaves.com website, including the time spent on-site, pages viewed, and bounce rates. In addition, the NH Utilities will track social media account metrics, including social follows, reactions, and general engagement.
- **Intent.** This metric will track the intent of customers to engage in NHSaves Programs, including gathering the following information: visits to key NHSaves.com pages, sponsor and contractor click-throughs, and event engagement (e.g., Button Up Workshops and contractor trainings).
- **Conversion.** This key metric will measure if customers are taking action and participating in NHSaves Programs. The NH Utilities will track the following conversion metrics: rebate submissions, HHI Tool submissions, online store purchases, and e-news sign-ups. Throughout the 2021-2023 term, the NH Utilities will look to add new conversion tools to track the success of all marketing communications efforts.
- **Word-of-Mouth.** Another key metric for marketing communications efforts is advocacy for the NHSaves Programs. Word-of-mouth recommendations and customer-driven testimonials are positive marketing tools to promote the NHSaves Programs. The NH Utilities will track the customer referrals, social shares, and positive reviews of the NHSaves Programs to determine if they can attribute increased program engagement and awareness with advocacy.

8.4 Customer Engagement Initiative (Eversource)

For the 2021-2023 term, Eversource will undertake behavioral-based marketing strategies to engage its electric customers in understanding how they consume energy in their homes and subsequently move them toward adoption of energy efficiency measures through the Residential program offerings

8.4.1 CEI Marketing Objective

Eversource’s customer engagement initiative (“CEI”) is a streamlined approach to providing customers with data-driven insights and targeted recommendations to motivate behavior change and participation in energy efficiency programs. The initiative will leverage expertise gained through previous experience with traditional behavioral programs and digital customer engagement in the areas of data analytics, informational design, behavioral science, and communication delivery.

In July 2020, Eversource released an RFP to determine what types of customer engagement services and solutions are offered in the marketplace for consideration across its three-state service territory (Connecticut, Massachusetts, and New Hampshire). The tools selected will enable Eversource to integrate customized usage insights and recommendations for applicable NHSaves Programs more seamlessly into the overall customer experience and marketing efforts. Once finalized, the chosen tools will replace the previous Customer Engagement Platform.

8.4.2 CEI Marketing Design

The CEI will drive energy efficiency awareness and customer action by meeting customers where they are with the right message at the right time. Eversource’s approach involves identifying good candidates for a specific offer (such as a particular product or measure) based on what Eversource knows about them, their homes, and how they use energy, then designing a series of personalized communications and interactions over time to move customers along the desired path to energy efficiency.

The communications will include customized usage insights and recommendations delivered through traditional one-on-one outbound marketing channels (e-mail and possibly direct mail) that allow for personalization at scale. To maximize impact and reinforce the message, Eversource will integrate this information with natural touchpoints that customers have with their utility (for example, the process of viewing and paying a bill online) and trigger the presentation of information at times when its most relevant (e.g., seasonal changes in temperature or after a customer receives a high bill).

In 2021, Eversource's CEI will focus primarily on residential customers with learnings from that work applied to relevant C&I subsegments in the following years.

In the 2021-2023 term, Eversource has designed the CEI as a marketing approach to drive adoption of program measures and does not expect to generate behavioral-based energy savings. The focus of the CEI in the near term is develop customized communication journeys that utilize behavior-based principles.

To fund the marketing approach, Eversource has moved \$600,000 from the former Customer Engagement Platform line of the budget into Marketing and utilized the remainder of the funds previously anticipated for the Platform in the ES Products program, anticipating that the CEI communications will drive customers to participation in that program.

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Chapter Nine: Workforce Development

The NH Utilities recognize that increasing the adoption of energy efficiency improvements in homes, businesses, and municipal facilities across New Hampshire requires a skilled and qualified workforce. The state has a pool of dedicated trade allies who already provide quality services for the NHSaves Programs. However, as savings and participation goals increase over the 2021-2023 term, the NH Utilities must ensure this labor pool can expand to meet the demand for highly-skilled energy efficiency and demand reduction workers across the state.

Beginning in 2020 and continuing during the implementation of the 2021-2023 Plan, the NH Utilities will focus on recruiting and retaining a demographically and geographically diverse workforce to expand the existing local energy efficiency industry with personnel who are highly-skilled and equipped to meet the NHSaves Programs' current and future needs. Energy efficiency is a growing field in New Hampshire, and many firms and organizations working within it have noted difficulties in finding new recruits to help fulfill the demand for services.

In addition to workforce needs related to increasing NHSaves Program activity and demand for services, energy efficiency contractors and vendors are significantly impacted by the recent onset of the COVID-19 pandemic. Many energy service firms had to furlough, or lay-off workers, as on-premises activities were suspended and demand for energy efficiency services slowed. Workforce recovery from this unexpected turn of events remains uncertain and may require new avenues for recruiting and replacing workforce capacity.

Potential entrants into the industry would benefit from a comprehensive source of information and resources including career paths within the energy efficiency field, what education and certifications are required to acquire a job and advance within the industry, whether tuition assistance is available, and where to find career opportunities. The NH Utilities believe that improving access to and awareness of available workforce development resources will help develop the pool of well-trained

contractors who will offer high-quality services to customers. In addition, these contractors will be trained regarding building science and emerging energy-efficient technologies, which will inform them of solutions, incentives, and services available to customers through the suite of NHSaves Programs; thus, resulting in comprehensive energy-saving projects and higher levels of participation within the programs.

The NH Utilities currently support various workforce development efforts throughout New Hampshire and will continue to do so during the 2021-2023 term. These efforts are implemented through the NHSaves Programs, with resources and training offered to contractors, distributors, builders, building owners and customers who support or are interested in energy efficiency programs or initiatives. At the same time, the NH Utilities will pursue a cohesive statewide strategy for understanding workforce development needs, and training vendors, community action agencies, building operators, distribution and contractor partners, and others to meet the goals for the 2021-2023 Plan.

9.1 New Hampshire Workforce Development Strategy

In 2020, the NH Utilities will issue a competitive RFP for a Workforce Development lead vendor responsible for designing and implementing a Workforce Development Strategy that supports the NH Utilities' workforce development goals:

- 1. Identification of Workforce Development Needs.** The NH Utilities and lead vendor will work to develop a three-year Workforce Development Strategy, including timelines and budget allocations, to address current and future workforce development needs, as informed by existing studies and supplemented by additional benchmarking and research. The lead vendor will propose pathways and opportunities to allow contractors and trade allies to further develop their staff in three ways: technical capacity, sales acumen, and other extraneous benefits like managerial proficiency. In addition, the NH Utilities will ask the lead vendor to identify pathways for job seekers in communities with high unemployment to join the energy efficiency workforce.
- 2. Coordinate Implementation of New and Existing Training and Workforce Development Activities.** The Workforce Development lead vendor will be responsible for identifying and

coordinating the implementation of new and existing training and workforce development activities needed to fulfill the Workforce Development Strategy. Trainings will focus on the skills required to sell and install high-efficiency technologies across all fuel types (i.e., electricity, natural gas, oil, and propane), as well as the building sciences and other skills identified during the development of the strategy by the NH Utilities and lead vendor.

- 3. Coordinate Activities to Retain Existing Energy Efficiency Workers.** The Workforce Development lead vendor will identify and recommend strategies for retaining trained and qualified energy efficiency workers. The NH Utilities and lead vendor will coordinate with contractors, vendors, engineering firms and other businesses implementing energy efficiency projects to understand issues related to retaining trained workers and develop strategies to keep them working in New Hampshire.
- 4. Coordinate Activities to Recruit Entrants to the Energy Efficiency Workforce.** The Workforce Development lead vendor will help identify, develop, and implement activities to engage potential workers who are new to the workforce, or considering career changes, to seek careers within the energy efficiency field in New Hampshire. The NH Utilities and lead vendor will collaborate with existing career and educational organizations, as well as engage with other key stakeholders to define recruitment paths for job seekers. This will also include engagement with high schools and technical schools regarding energy efficiency as a career path.

9.2 2021-2023 Workforce Development Efforts

During the development of the Workforce Development Strategy, the NH Utilities will continue to develop and implement trainings and workforce development activities for the current energy efficiency workforce. As the strategy is developed, the NH Utilities will introduce and/or modify contractor trainings to align with research and best practices design.

The NH Utilities will continue to monitor and support existing trainings and training pathways in order to contribute to building and maintaining a qualified workforce that will meet the demand for energy efficiency. During the 2021-2023 term, the NH Utilities will continue to train the state's current

workforce, including contractors, distributors, manufacturers, CAAs, home builders, municipal facility managers, and retailers on high-efficiency equipment and design. To support many of the 2021-2023 Plan's priorities and programs, key workforce trainings will include but are not limited to these topics: high-efficiency HVAC technologies and controls, refrigeration equipment and controls, advanced LED lighting and controls, whole-building design (C&I sector), code-plus initiatives, ADR strategies, and emerging technologies.

Residential Programs

For the 2021-2023 term, the NH Utilities will look to expand existing trainings and include additional content on: building code compliance, emerging technologies, and energy-efficient building techniques. Residential workforce development will include in-field home builder trainings, lunch and learns, hands-on equipment training, and interactive online training videos. In order to scale up energy savings and program participation, the NH Utilities will increase workforce capacity through more contractor training, particularly regarding HVAC equipment and systems.



The NH Utilities also plan to continue to collaborate with HVAC contractors and to increase training opportunities regarding HVAC system design, operations, and performance. In addition, the NH Utilities will expand the refrigeration contractor trade ally network during the 2021-2023 term. This effort will help increase the number of refrigeration contractors who understand high-efficiency technologies and controls and the comprehensiveness of large C&I projects.

C&I Programs

During the 2021-2023 term, the NH Utilities plan to increase the C&I contractor network statewide: enabling the program to serve more customers in remote, hard-to-reach areas where access to energy efficiency contractors and solutions is sometimes limited. The NH Utilities will continue to offer C&I trainings on advanced technologies and controls to municipal representatives, including building operators and facility managers. The NH Utilities will conduct workforce trainings regarding energy-

efficient technologies, building codes and standards, and building above code (code plus). The number of specialized contractor trainings will be increased to promote the C&I Programs' push for more comprehensive energy projects and to increase the adoption of new and emerging energy-efficient technologies. Workforce trainings will include but are not limited to: advanced lighting design and controls, HVAC systems and controls, and refrigeration tuning and controls.

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Chapter Ten: Planning Elements

10.1 Benefit-Cost Testing

Since the inception of energy efficiency programs in New Hampshire, and in accordance with Commission Order No. 23,850, in DE 01-057, dated November 29, 2001, the NH Utilities have used the Total Resource Cost (“TRC”) test, which compares the value of the avoided cost of energy and other resources over the life of installed measures against the cost of those measures to both the NH Utilities and the participating customers. Over the years, amendments to the TRC test have been made, which include adding the costs and benefits of avoided fossil fuels as the residential weatherization programs became fully fuel-blind (saving oil, propane, and other fossil fuels), and also include a non-energy impact adder to the benefits as a proxy for the participant benefits the programs delivered beyond those deriving from reduced energy use. The NH Utilities use a common set of avoided costs to ensure that program benefits are calculated consistently across utilities, which are based on values from the periodically updated, regional AESC Study (see additional details below).

As part of the settlement to the 2018-2020 Plan, stakeholders agreed to revisit the energy efficiency program’s long-standing benefit cost test and assess whether adjustments should be made based on the evolution of policy priorities in New Hampshire. To undertake this assessment, the EM&V Working Group, in conjunction with the Benefit-Cost Working Group, issued a competitive bid and selected Synapse Energy Economics to facilitate the stakeholder effort. Following the guidance of the National Standards Practice Manual, the NH Utilities and energy efficiency stakeholders over many months undertook a comprehensive review of state energy policy and Commission precedent. The resulting Cost Effectiveness Review Final Report was completed in October 2019.⁶⁹ On October 31, 2019, the Benefit-Cost Working Group filed a report and a set of recommendations to the Commission regarding

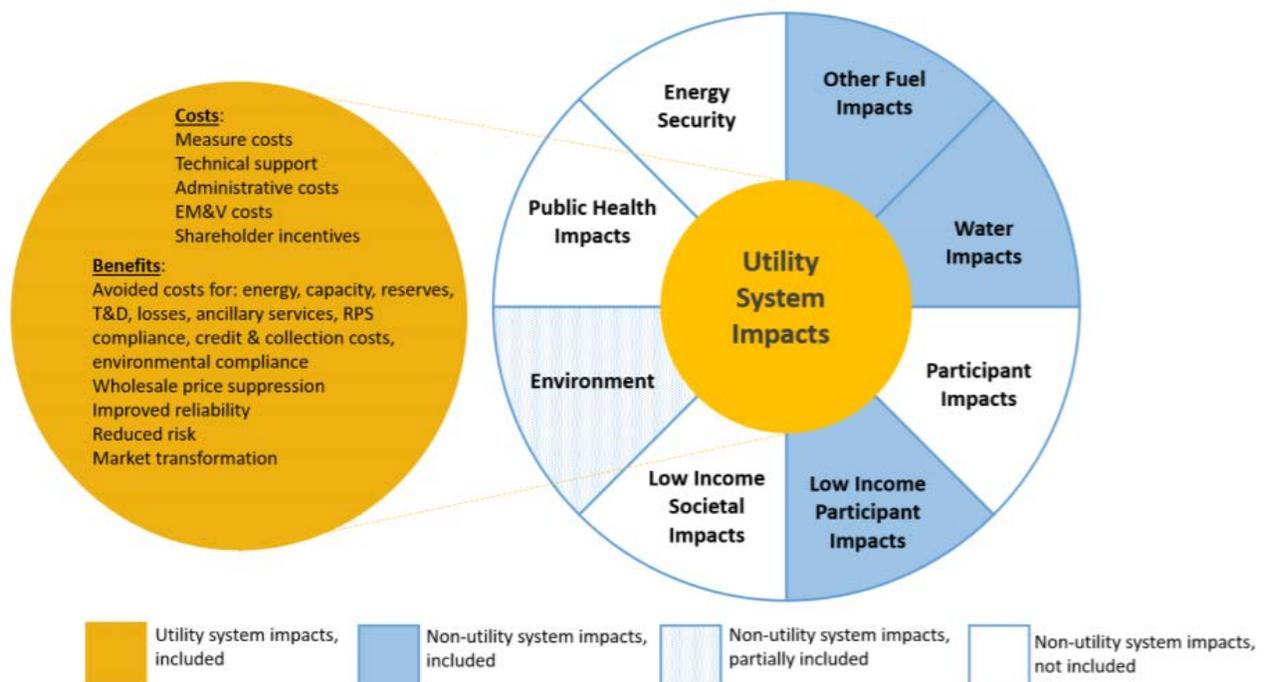
⁶⁹ Synapse Energy Economics, Inc. *New Hampshire Cost-Effectiveness Review*. Oct. 4, 2019. Available at: https://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2019-10-31_STAFF_NH_COST_EFFECTIVENESS_REVIEW.PDF.

the adoption of the proposed primary cost-effectiveness test (the Granite State Test), and two secondary tests to be applied to the 2021-2023 Plan.⁷⁰ On December 30, 2019, the Commission issued Order 26,322, approving the Benefit-Cost Working Group’s recommendations to take effect for the 2021-2023 term.

10.1.1 Granite State Test

The Granite State Test, the primary cost-effectiveness test, measures the utility costs of delivering energy efficiency programs against the benefits that accrue to the utility system, as well as those benefits associated with improving outcomes for limited-income participants, reducing participants’ use of unregulated fuels and water, and a RGGI/carbon emissions proxy.

Figure 10-1: Granite State Test



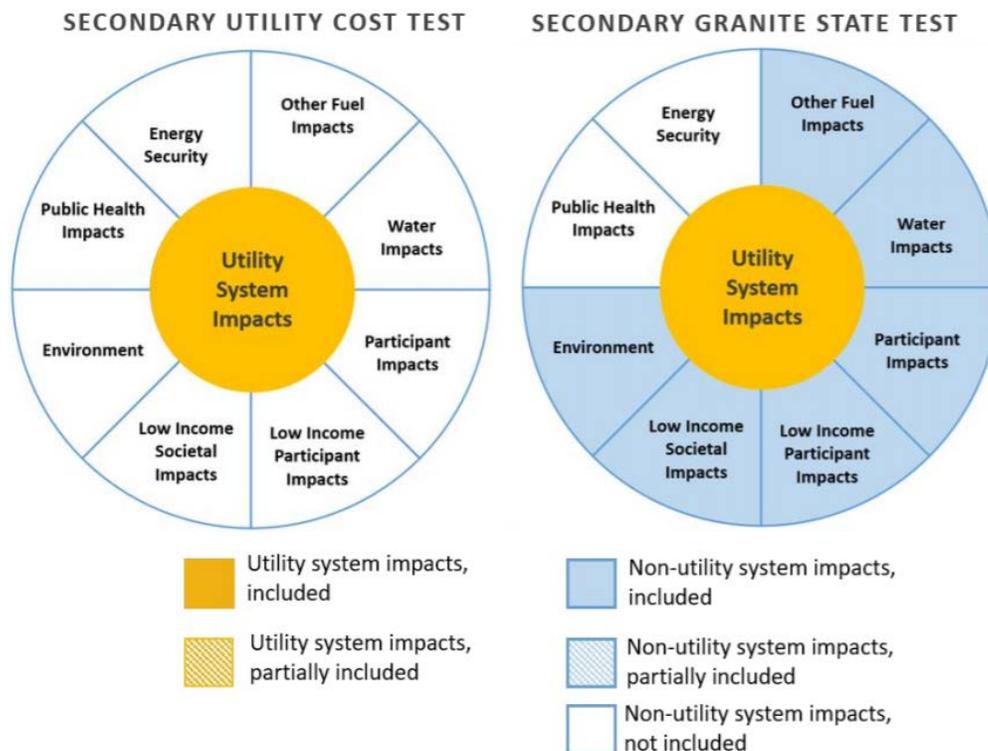
⁷⁰ DE 17-136, *Electric and Gas Utilities 2018-20 New Hampshire Statewide Energy Efficiency Plan Benefit-Cost Working Group Recommendations Regarding New Hampshire Cost-Effectiveness Review and Energy Optimization through Fuel Switching Study*. Oct. 31, 2019. Available at: https://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2019-10-31_STAFF_FILING_WORKING_GROUP_REC.PDF.

10.1.2 Secondary Tests

In addition to the Granite State Test, the Commission approved two secondary cost-effectiveness tests recommended by the Benefit-Cost Working Group: the Utility Cost Test (“UCT”) and Secondary Granite State Cost Test (“GST-2”). These two tests measure the two extremes of the cost-effectiveness spectrum: one test includes impacts to the utility system only, the other test includes a much larger list of impacts that the Benefit-Cost Working Group considered relevant to New Hampshire.

- The UCT takes into account the utility’s costs of delivering energy efficiency programs against the direct benefits to the utility system (i.e., ignoring the significant non-system benefits realized by participants).
- The GST-2 considers the utility and participant costs of delivering energy efficiency programs against both the direct and indirect benefits to the utility system, participants, and the environment.

Figure 10-2: UCT and GST-2



The Granite State Test is applied to each proposed energy-saving program in the portfolio at the time of filing. If the Net Present Value (“NPV”) of benefits realized by the energy efficiency programs (benefits) is greater than the NPV of costs to deliver those programs (costs), it is assumed the investment is sound and can proceed. Certain exceptions to cost-effectiveness requirements can be made for offerings including education, approved pilots, programs in early stages, and the low-income HEA program.

The Granite State Test will also be applied by each NH Utility to each approved program at the time of annual and term reporting. If, under that test, a NH Utility’s portfolio of programs delivered during the term is cost-effective (with a benefit-cost ratio greater than 1.0), the NH Utility will be eligible to earn a performance incentive.

Because the Granite State Test requires that the NH Utilities plan for each program to be cost effective, measures and projects that make up the program must also be cost effective. Not every individual measure or project has to be cost effective, but on average, they must have a benefit-cost ratio greater than 1.0 to ensure their benefits exceed the costs of both rebates and services provided to customers, as well as all program-related marketing, evaluation, administration, and other costs not invested directly in energy-saving measures. In accordance with recommendations from the benefit-cost working group, the NH Utilities will not apply values for reliability benefits as quantified in the 2018 AESC Study but will work toward developing more rigorous values under the 2021 AESC Study that will be applied during the 2022-2023 term.

The secondary tests (UCT and GST-2) will also be applied by each NH Utility to each of the NHSaves Programs at the time of filing and reporting. These tests will help inform resource allocation decisions, as well as treatment of marginally cost-effective programs, but will not be used to judge the viability of a program that has been determined cost-effective under the Granite State Test and will not have an impact on the NH Utilities’ PI.

10.1.3 Savings Assumptions

Net-to-Gross Figures

Net-to-gross factors for lighting are described in section 10.5. The EM&V working group shall identify any additional measures to which net-to-gross factors should be applied. For this plan, the incorporation of additional net-to-gross factors will be accompanied by a corresponding change in the term goals, with updated BC models reflecting the changes to be shared with the Council and provided to the Commission in an informational filing.

Realization Rates

To account for the difference between predicted and actual energy savings, during the 2021-2023 triennium the NH Utilities shall apply a realization rate of 90 percent for C&I, custom large business, small business and municipal program electric non-lighting measures and 87 percent for C&I custom large business and small business program gas measures. A New Hampshire-specific impact evaluation of the Large Business Energy Solutions program shall be completed by the end of the first quarter of 2022. Realization rates for custom measures resulting from that study shall be applied to all custom measure savings results for all three years of the term, as recommended by the evaluation contractor and agreed to by the EM&V working group.

In addition, the NH Utilities shall conduct at least one C&I custom impact evaluation during each triennium beginning in the 2021-2023 period, adopting any adjustments to gross savings identified in the evaluations, including new realization rates, retroactively for the entire period of the applicable plan, however no evaluation changes will be made to claimed savings after the term report has been duly filed with the Commission.

If data quality checks identify typographical or mathematical errors or misapplication of a TRM value in reported savings, the NH Utilities shall correct the errors as soon as they are identified, including after a program year is complete, and the NH Utilities shall seek to ensure that any similar errors are corrected everywhere they are relevant. If errors are discovered as part of an evaluation based on a sample of projects, they shall be accounted for in realization rates that shall be applied prospectively.

Industry Standard Practice Baselines

The EM&V working group is in the process of contracting for a comprehensive study of New Hampshire baselines, including an investigation of Industry Standard Practice (“ISP”) baselines. The NH Utilities shall follow the normal practice of implementing recommendations resulting from the study once it has been reviewed by the EM&V working group and is complete.

10.1.4 Benefits

Benefits are derived from the AESC Study undertaken every three years for the entire New England region. The AESC Study is overseen by and receives input from the AESC Study Group, comprised of regulators, utility staff, and energy efficiency consultants throughout New England, and serves as the source of most avoided costs for calculation of benefits for New England states.

The most recent study, *Avoided Energy Supply Components in New England: 2018 Report* (“2018 AESC”) was completed in March 2018 and amended in June 2018. The results of the 2018 AESC Study have been used to calculate the benefits associated with programs to be delivered as a result of the 2021-2023 Plan. Updated benefits from the 2021 AESC Study will be provided to the Commission as outlined in Chapter Two.

The AESC Study generates state-specific models of the value of avoided energy and capacity (kWh in each of four seasonal periods, kW at summer and winter peak, and natural gas, oil, propane, kerosene, cord wood, and wood pellets), as well as Demand Reduction Induced Price Effect (“DRIPE”) and avoided costs of certain transmission infrastructure. These avoided energy values are projected out over a 25-year time horizon. Individual state policy specifies the time period that should be used in determining the inflation and discount rates to be applied to the NH Utilities’ benefit-cost model to arrive at a calculation of NPV benefits. The NPV benefits of a given project depend on various project-specific factors, including measure life, load-shape, the coincidence of its use with summer electric system peak, and the fuel(s) whose use is avoided. As a result, the value (or benefit) of an avoided annual kWh varies by measure and by project.

In accordance with the Final Energy Efficiency Group Report, dated July 6, 1999 in DR 96-150, the nominal discount rate from June of the prior year is applied to the benefit-cost analysis, while the inflation rate is based on the seasonally adjusted rate of inflation between January of the preceding year and January of the current year, as determined by the US Bureau of Economic Analysis. For the 2021-2023 Plan, the NH Utilities have applied a nominal discount rate of 3.25 percent (June 2020 value) and an inflation rate of 1.81 percent (rate of inflation between January 2019 and January 2020), resulting in a real discount rate of 1.41 percent used for NPV cost and benefit calculations.

10.1.54 Non-Energy Impacts

As discussed with the NH Benefit-Cost Working Group, and per Commission Order,⁷¹ the NH Utilities are applying non-energy impacts (“NEIs”) in cost-effectiveness screenings as follows:

- The **Primary Granite State Test** reflects low-income participant NEIs, based on New Hampshire-specific primary research on the HEA program. Specifically, based on the HEA evaluation, a per-project value 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, as reflected in the TRM.⁷²
- 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 comprehensive, secondary research survey and analysis of NEIs by an independent third party, ~~adjusted for New Hampshire-specific economic and other factors and matched to New Hampshire’s programs and measures.~~⁷³ the NH Utilities shall apply a consistent percentage adder by sector based on research into Non-Energy Impacts (“NEI”) factors undertaken over the past two years. For the 2021-2023 term the natural gas utilities shall use a 15 percent adder for both residential

⁷¹ Docket No. DE 17-136, Order Approving Benefit Cost Working Group Recommendations, No. 26,322, Dec. 30, 2019; Order Approving 2020 Update Plan, No. 26,323, Dec. 31, 2019.

⁷² Opinion Dynamics. Home Energy Assistance Program Evaluation Report 2016-2017, Final, Jul. 29, 2020. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/20200729-NHSaves-HEA-Evaluation-Report-FINAL.pdf>.

⁷³ DNV-GL. New Hampshire Non-Energy Impacts Database Methodology Memo, Apr. 9, 2020. <https://puc.nh.gov/Electric/Monitoring%20and%20Evaluation%20Reports/Final-NH-NEI-Methodology-Memo-20200409.pdf>.

(excluding the income-eligible program) and C&I sectors. The electric utilities, for the 2021-2023 term, shall use a 25 percent adder for the residential sector (excluding the income-eligible program) and a 10 percent adder for the C&I sector. If new information related to NEI's and benefits for the secondary test arises, the NH Utilities shall discuss any potential changes with the EM&V working group. Per the BC Working Group's final report, the test also reflects environmental externalities, including the \$100/ton global reduction marginal abatement scenario from the AESC Study.

Both the Primary and Secondary Granite State Tests reflect other resource impacts for water and delivered fuels.

10.2 Performance Incentive

As part of the DE 17-136 Performance Incentive Working Group, which commenced in January 2018 and concluded with a final report in July 2019, changes to the PI structure were proposed and implemented for Plan Year 2020. For the 2021-2023 Plan, the NH Utilities will continue to utilize the revised PI framework, with minor changes to the weightings proposed below. The PI framework categorizes and weights six separate performance indicators: (1) Lifetime kWh Savings, (2) Annual kWh Savings, (3) Summer Peak Demand Savings, (4) Winter Peak Demand Savings, (5) Value, and new this term, (6) Active Demand Savings (components) at the portfolio level for each NH Electric Utility, each involving minimum savings thresholds (as well as other minimum thresholds summarized below) that must be met in order for any PI to be earned for that component.

The PI Working Group report recommended changing minimum thresholds for savings and benefits components from the prior 65 percent to 75 percent. Due the significant economic and societal impacts of COVID-19, the 2021-2023 Plan moves those thresholds back to 65 percent. This shift reflects the dichotomy between the high energy savings goals in the 2021-2023 Plan and the significant uncertainty that exists in the marketplace due to current and future impacts of the global pandemic and its ripple effects.

In 2021-2023, the ADR offerings will transition from demonstration projects to full-fledged programs; those NH Utilities that offer an ADR program will include a distinct PI component for achievement of ADR goals, as was anticipated by the PI Working Group. This element will be based on the actual spending for the ADR programs, as well as actual kW reduced. The target PI for the ADR portion will match the rest of the PI at 5.5 percent of actual expenditures, with a threshold of 65 percent and a cap of 125 percent. Compared to 2020, the demand components continue to represent a combined 20 percent of the incentive weight, however the percentages for Summer Peak and Winter Peak Demand Savings components have been lowered slightly to allow for a weight of 5 percent for the Active Demand component.

Eversource, Liberty Electric, and Unitil Electric have added an Active Demand component to the PI calculations for 2021-2023, which follows the same framework as the other components, as shown in Table 10-1.

Table 10-1: Performance Incentive Components (Electric)

PI No.	Component Title	Description	Incentive Weight	Minimum Threshold	Maximum PI Level	Verification
1	Lifetime kWh Savings	Actual/Planned Lifetime kWh Savings	35%	65%	125%	Term PI Filing w/Commission
2	Annual kWh Savings	Actual/Planned Annual kWh Savings	10%	65%	125%	Term PI Filing w/Commission
3	Summer Peak Demand Savings	Actual/Planned ISO-NE System-wide Summer Peak Passive kW Savings	9%	65%	125%	Term PI Filing w/Commission
4	Winter Peak Demand Savings	Actual/Planned ISO-NE System-wide Summer Peak Passive kW Savings	6%	65%	125%	Term PI Filing w/Commission
5	Active Demand Savings	Actual/Planned Active kW Savings	5%	65%	125%	Term PI Filing w/Commission
6	Value	Actual/Planned Net Benefits	35%	65%	125%	Term PI Filing w/Commission
Total			100%			

For the NH Natural Gas Utilities, the kW components are omitted from the framework.

Table 10-2: Performance Incentive Components (Natural Gas)

PI No.	Component Title	Description	Incentive Weight	Minimum Threshold	Maximum PI Level	Verification
1	Lifetime MMBtu Savings	Actual/Planned Lifetime MMBtu Savings	45%	65%	125%	Term PI Filing w/Commission
2	Annual MMBtu Savings	Actual/Planned Annual MMBtu Savings	20%	65%	125%	Term PI Filing w/Commission
3	Value	Actual/Planned Net Benefits ²	35%	65%	125%	Term PI Filing w/Commission
Total			100%			

- **PI Calculation.** $PI = [(1.925\% \times ACTUAL) \times (kWhL-ACT/kWhL-PLN)] + [(0.55\% \times ACTUAL) \times (kWhA-ACT/kWhA-PLN)] + [(0.495\% \times ACTUAL) \times (kWSUM-ACT/kWSUM-PLN)] + [(0.33\% \times ACTUAL) \times (kWWIN-ACT/kWWIN-PLN)] + [(0.275\% \times ACTUAL) \times (kWADR-ACT/kWADR-PLN)] + [(1.925\% \times ACTUAL) \times (NET-BENACT/NET-BENPLN)]$

- Where:
 - **PI** = Performance Incentive in dollars;
 - **ACTUAL** = Total dollars spent (less PI);
 - **kWhL-ACT** = Actual lifetime kWh;
 - **kWhL-PLN** = Planned lifetime kWh;
 - **kWhA-ACT** = Actual annual kWh;
 - **kWhA-PLN** = Planned annual kWh;
 - **kWSUM-ACT** = Actual passive summer peak kW;
 - **kWSUM-PLN** = Planned passive summer peak kW;
 - **kWWIN-ACT** = Actual passive winter peak kW;
 - **kWWIN-PLN** = Planned passive winter peak kW;

- **kWADR-ACT** = Actual active demand summer peak kW;
- **kWADR-PLN** = Planned active demand summer peak kW;
- **NET-BENACT** = Actual net benefits (in NPV dollars) (i.e., total benefits less utility costs and NEI's)⁷⁴; and
- **NET-BENPLN** = Planned net benefits (in NPV dollars).

Additional requirements are as follows:

- The NH Utilities' portfolio of programs must be cost effective over the term before any PI can be earned, meaning the BCR must be at least 1.0 under the Granite State Test;
- If the Electric Program portfolio does not meet a minimum threshold of 55 percent of total energy savings from electricity, the PI coefficient will be reduced to 80 percent of the design value, that is, the total incentive level decreases to a maximum of 4.4 percent (e.g., for lifetime electric savings the PI would change from a target of 1.925 percent to a maximum of 1.54 percent, etc.);
- Lifetime savings must be at least 65 percent of planned lifetime savings in order for any PI to be earned on the Lifetime Savings kWh component;
- Annual savings must be at least 65 percent of planned annual savings in order for any PI to be earned on the Annual Savings kWh component;
- Passive summer peak kW savings must be at least 65 percent of planned passive summer peak kW in order for any PI to be earned on the Summer Peak Demand Savings component;
- Passive winter peak kW savings must be at least 65 percent of planned passive winter peak kW in order for any PI to be earned on the Winter Peak Demand Savings component;
- Active summer peak kW savings must be at least 65 percent of planned active summer peak kW in order for any PI to be earned on the Active Demand component;

⁷⁴ Refer to Appendix D in the Final Performance Incentive Working Group Report in Docket No. DE 17-136.

- The portfolio Net Benefits must be at least 65 percent of the planned Net Benefits in order for any PI to be earned on the net benefits component;
- Earned PI on each component is capped at 125 percent of that component's coefficient, that is, the maximum total PI is 6.875 percent; and
- PI will be calculated on actual portfolio spending up to 110 percent of approved portfolio term budget, excluding PI, without prior Commission authorization. That is, the actual spending may exceed the planned term budgets, including all sources of funding and excluding the PI, by up to 10 percent. A NH Utility may request approval from the Commission to spend in excess of 110 percent of proposed budget over the term, however, the utility will be expected to demonstrate good reasons why it should be exceeded. PI would then be calculated against actual program spending at the portfolio level, up to the revised Commission-approved budget, or as otherwise ordered.

For the EO pilot, costs are included in the PI calculation but neither planned nor will savings or benefits resulting from the pilot be reported or used in PI calculations. This approach ensures that the portfolio is cost effective with all costs, including those for the pilot, while avoiding inaccurate projections of savings and benefits, which the pilot is designed to test.

As discussed in Chapter 2, each NH Utility will complete a preliminary PI calculation in annual reports, based on actual costs, savings, and benefits for the program year. At the end of the third year of the three-year term, each NH Utility will perform a final calculation of earned PI, based on actual achievement over the term compared to the three-year term goals.

10.3 Technical Reference Manual

In advance of every program plan or update filing, the NH Utilities work together to review savings assumptions, incorporate results from New Hampshire evaluations, identify changes in federal equipment standards, reference neighboring states' evaluations, and update relevant savings algorithms, as necessary. Historically, these changes have been made by the NH Utilities and are reflected in the benefit-cost models filed with each plan. Beginning with the 2021-2023 Plan, these

savings assumptions will also be documented in the New Hampshire TRM, which will contain the set of standard methodologies and inputs for calculating the savings impacts and cost effectiveness of the NHSaves Program measures.

The Final TRM was filed with the Commission on December 31, 2020. ~~The revised draft of the TRM is included with this filing. Although the draft is substantially complete, some measure chapters are still under review by members of the EM&V Working Group and the independent evaluation contractor supporting this effort. This ongoing review will help ensure accuracy and allow for incorporation of the most up-to-date results from New Hampshire evaluations, including from the nearly finalized Energy Efficiency Baseline and Potential Study. In developing the TRM, the EM&V Working Group prioritized measures with the greatest impacts on portfolio savings, and remaining adjustments will not have a material impact on portfolio savings of any individual utility or the statewide EERS goals. The NH Utilities, in coordination with the EM&V Working Group, will work expeditiously to finalize and publish the complete TRM as soon as possible after this filing, in accordance with the 2018-2020 settlement agreement which requires the TRM to be published by the end of 2020. Once complete, the TRM will be made publicly accessible on an electronic platform to provide a user-friendly interface. Any compliance filing resulting from settlement discussions and/or a final order on the 2021-2023 Plan will incorporate in the NH Utilities' benefit-cost models all adjustments to the TRM made after the date of this filing.~~

The 2021-2023 Plan TRM will take effect as of January 1, 2021, and an annual update to the TRM will be submitted to the Commission by December 1 of 2021 and 2022. These updates to the TRM will reflect changes in assumptions and will take effect as of the beginning of the subsequent program year. The NH Utilities will update the TRM in coordination with the EM&V Working Group, and annual updates will incorporate all relevant evaluation results that are finalized by November 1. The EM&V Working Group will strive to include consensus-based assumptions for all measures and offerings included in the NHSaves Programs. It shall be the responsibility of the consultant to the EM&V working group to seek consensus among members of the working group. In the event consensus is not reached after reasonable efforts, any member of the working group may seek a Commission determination on

the issue. In such a circumstance, the status quo shall continue to apply until the Commission makes a decision. Should no request for a Commission determination be filed within ten calendar days of notification by the working group member who raised the concern, the recommendation of the consultant shall be adopted. Regarding any disagreement on matters of policy (as distinct from technical disagreements) any member of the working group may notify the Council to give the Council the opportunity to address the issue as appropriate. Should consensus not be reached, members of the EM&V Working Group may petition the Commission for resolution on the matter.

The primary source of methodologies and inputs for the TRM is New Hampshire-specific evaluations, where available. New Hampshire jurisdiction-specific results will be favored 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. When considering whether to apply results from a study originating in another jurisdiction to New Hampshire programs, the EM&V Working Group will make the determination based on (1) the similarity of evaluated program/measures to those offered in New Hampshire; (2) the similarity of relevant markets and customer bases; (3) the recency of the study relative to the recency of any applicable New Hampshire 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 US DOE or EPA, or credible and realistic factors developed using engineering judgment. Savings from energy efficiency measures and projects will be calculated using the TRM that is in effect during the program year in which the application or project savings are approved by the respective NH Utility.

10.4 Bill and Rate Impact Analysis

As part of the settlement agreement filed on December 13, 2018 and approved via Order No. 26,207 on December 31, 2018 in Docket No. DE 17-136, Eversource, Liberty Electric and Gas, and Unitil Electric and Gas (the "Regulated Utilities") agreed to undertake a bill impact analysis, including rate impacts, bill impacts, and participant impacts ("Rate & Bill Impact Analysis").⁷⁵ As agreed to in the settlement,

⁷⁵ 2018 Settlement Agreement, Docket No. DE 17-136, pp. 18-19, Available at: <https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-136.html>.

the Regulated Utilities performed a Rate & Bill Impact Analysis utilizing the model developed by Synapse Energy Economics (“Synapse”), under the guidance of the EM&V Working Group.

For the 2021-2023 Plan, the Regulated Utilities utilized the modeling tool developed by Synapse, using model inputs including rates, sales, and customer data, as well as planned savings for the 2021-2023 NHSaves Programs.⁷⁶ Based on these inputs, the modeling tool estimates the annual and long-term electric and gas rate and bill impacts of the proposed energy efficiency programs, relative to a scenario with no programs. These impacts are estimated for both non-participating customers and for program participants, including an illustrative high savings participant and an illustrative low-savings participant, across each of the four customer segments: residential, low-income, small C&I, and large C&I. In addition, the modeling tool estimates bill impacts for an average customer in each segment, which represents a hypothetical blend between non-participants and participants and is calculated based on the segment’s program savings divided by the segment’s total customers.

The rate and bill impact analysis does not consider two key impacts to customers' energy bills. First, the analysis focuses on electric and natural gas utility rates and bills, while the NH Utilities implement the energy efficiency programs in a fuel-neutral manner, providing additional benefits to customers that consume oil, propane, or other unregulated fuels. Second, the estimates of long-term bill and rate impacts do not reflect the potential costs of compliance with any future federal or state GHG or other environmental requirements, which would increase the cost to ratepayers of energy resources other than energy efficiency.

Based on the NH Utilities’ 2021-2023 Plan, the energy efficiency programs will change the Regulated Utilities’ revenue requirements by -1.3 percent on average, or -\$419.9 million in total, over the life of the measures installed during the term and across all programs. The Regulated Utilities’ natural gas revenue requirements change by -3.2 percent on average, or -\$9 million in total. These changes in revenue requirements are driven by long-term avoided costs and account for SBC and LDAC revenues. The reductions in revenue requirements are distributed across each utility and each rate class

⁷⁶ Draft 2021-2023 Plan, Filed Jul. 1, 2020.

differently, depending on the rate class' structure. Additional details, including graphs showing bill and rate impacts for non-participants, high and low savings participants, and average customers for each customer segment and each Regulated Utility, is included in Attachment [MK](#).

10.5 Lighting Market Trends

The NH Utilities carefully considered and accounted for the significant ongoing changes in lighting markets in the development of the 2021-2023 Plan. There are two primary factors impacting the claimable lighting savings reflected in the 2021-2023 Plan:

1. The quantity of the various lighting measures that the NH Utilities anticipate being able to deliver; and
2. The net savings per lighting measure, given market changes and evaluation paradigms.

For the first factor, the NH Utilities used historical quantities as well as recent study results to determine the remaining potential from lighting. Specifically, the results from the residential baseline survey revealed that the majority (over 50 percent) of sockets in New Hampshire homes are already filled with LEDs.⁷⁷ At the same time, retail lighting sales data evaluation results found that although there are strong signs of LED market transformation in New England, the depth of transformation has varied among states and retail channels, and that the timing of market exit strategies should account for these differences.⁷⁸ For instance, Massachusetts and Rhode Island have the highest LED market shares, while Connecticut and New Hampshire lag slightly behind these states. Given these findings, the NH Utilities planned for residential retail lighting quantities to aggressively promote continued transition to LEDs in 2021, followed by a substantial decline over the remainder of the term.

For C&I customers, based on results from surveys of NH lighting suppliers as well as survey and on-site results from Massachusetts and Rhode Island, the NH Utilities have planned for continued aggressive increased levels of C&I lighting in 2021, focusing primarily on capturing the remaining market potential

⁷⁷ Itron, Inc. *New Hampshire Residential Energy Efficiency Baseline Study*. Jun. 11, 2020.

⁷⁸ NMR, *2019 Regional Lighting Sales Data Analysis (MA20R22-E)*, Draft, Aug. 17, 2020.

for retrofit lighting. Final results from the Energy Efficiency Baseline and Potential Study show continued savings potential from lighting in both the commercial and residential sectors, though with decreasing opportunity as the 2021-2023 term progresses.

Additionally, for midstream offerings, including lighting, the NH Utilities accounted for the fact that some consumers participating in the programs would have purchased LED lighting with or without the NHSaves Program incentives. To adjust for this “free ridership,” the NH Utilities have included a Net to Gross (“NTG”) rate for these measures in benefit cost modeling, effectively reducing the amount of savings attributable to the NHSaves Programs. Utilizing guidance from vendors and efficiency program administrators operating similar programs in other states, and accounting for possible differences in the New Hampshire market, the NH Utilities applied declining NTG rates (i.e., greater free-ridership and less net savings attributable to the efficiency programs) over the term for both residential retail and C&I midstream lighting.

Given the significant market changes taking place in the C&I lighting market, the NH Utilities shall also apply a net-to-gross factor to lighting delivered through downstream delivery mechanisms to C&I customers of 94 percent in 2021, 89 percent in 2022, and 84 percent in 2023.

10.6 Lost Base Revenue

Eversource and Unitil, as the only NH Utilities collecting Lost Base Revenue (“LBR”) in 2021-2023 to account for the revenue impacts of the EERS, shall apply a consistent method for calculating planned and actual LBR. Further, Eversource and Unitil shall (1) employ the terminology set forth in the LBR working group report of August 29, 2018 to ensure that the methods used for actual LBR collections are consistent, (2) continue to file quarterly reports with the Commission, using a consistent format, (3) apply 100 percent of the calculated monthly savings using the paid date, which is on average two months after the install date, to account for the fact that not all installations are made on the first day of each month; (4) cease accruing lost base revenues in the first month following effective date of any decoupling mechanism approved by the Commission, (5) use the average distribution rate in effect at the time of the triennial plan filing, or as updated by Commission order during the term, for planning purposes, while using the actual rate in effect at the time of the reconciliation filing for reconciliation

purposes, and (6) determine carrying costs on LBR over and under recoveries using the Prime Rate, compounded monthly.

10.7 ~~2021-2023 Quarterly Meetings and Stakeholder Engagement~~ Stakeholder Advisory Council and Planning Process

There shall be an ongoing stakeholder advisory process during the 2021-2023 triennium, consisting of a Stakeholder Advisory Council (“Council”) that shall convene as specified below in January of 2021 and which shall hold regular meetings thereafter. The purpose of the Council shall be to serve as the stakeholder forum in connection with the planning process for the 2024-2026 Plan and as a forum for providing feedback opportunities with respect to material changes related to implementation of the 2021-2023 Plan.

The initial members of the Council shall consist of a representative of each of the NH Utilities, Commission Staff, the Office of the Consumer Advocate, and each intervenor in Docket No. DE 20-092, unless any party waives its opportunity to participate. The representative of the OCA shall convene the initial meeting at which, the Council shall determine its leadership and operating rules, including what Plan changes are sufficiently “material” within the meaning of the preceding paragraph so as to warrant Council review, provided that the Council shall make its decisions on leadership and operation by consensus rather than by voting. The Council shall admit additional members upon request, taking into account, particularly, whether the new member represents the interests of one or more stakeholder groups that do not already have existing or significant representation on the Council. Members of the public shall be permitted to attend and provide comments if they are not Council members. At its initial meeting, the Council shall discuss how to coordinate its activities with those of the EM&V Working group so as to allow and encourage the EM&V Working group to bring policy issues to the Council for its consideration as necessary.

The Council shall rely on an outside facilitator, which it shall choose as expeditiously as practicable and supervise. The outside facilitator shall plan and preside at meetings of the Council and shall provide technical assistance to the Council. One or more of the NH Utilities shall contract with the facilitator, but the contract shall provide that the facilitator reports exclusively to the Council so long as the

Council, in turn, abides by the terms of the contract. Expenses of the Council, not to exceed \$150,000 per year, including the cost of the contract with the facilitator, shall be recoverable as an administrative expense of the EERS programs.

Another key responsibility of the Council shall be to maximize consensus among participating stakeholders on the 2024-2026 triennial plan prior to its submission to the Commission. The objective shall be the presentation to the Commission in 2023 of a triennial plan supported by all stakeholders.

To the extent that RSA 374-F:3, IV requires SBC increases to be approved in the first instance by the Commission and then by the General Court, beginning in January of 2022 the Council shall seek consensus on any SBC increases so that they may be presented to the Commission for approval during the second half of 2022 for introduction in the General Court during its 2023 session.

The Council shall be the forum for discussion and consensus-seeking with respect to material changes to the 2021-2023 Plan. The Council shall also provide a forum for discussion of policy issues that arise in connection with Plan implementation, significant changes to program designs, marketing and implementation strategies, and policy items that are referred by the EM&V working group, as discussed in Section D, paragraph 5 of this Agreement, and any other issues germane to the EERS that the Council agrees by consensus to take up. Meetings of the Council shall replace the current quarterly meeting process although the NH Utilities shall continue to file quarterly reports with the Commission.

~~During the course of the 2021-2023 Plan, Quarterly Meetings will be held no more than one month after submission of each quarterly report. Program progress and updates year-to-date savings results, marketing updates, EM&V Working Group report, potential MTMs, pilot updates, financing updates, and other related information will be provided during the quarterly meeting to all parties who participate, including those from the EESE Board. The Quarterly Meeting will serve as a venue for discussion of cross-cutting topics and may lead to scheduling of topic-specific follow-up meetings on an as-needed basis.~~

~~The NH Utilities will continue to engage as active members of the EERE Board during the 2021-2023 Term, participating in the energy efficiency and renewable energy discussions taken up by that Board, including topic specific presentations or program updates as needed.~~

~~10.7 2024-2026 Planning Process~~

~~Establishment of appropriate EERS goals for the next triennial plan covering the 2024-2026 term will take place in a stakeholder process that will be initiated in October of 2022. The stakeholder process will be conducted through scheduled meetings of the EERS Committee of the EERE Board.~~

~~The first task of the EERS Committee will be to establish savings goals for the 2024-2026 triennium. The Committee may review energy efficiency results and lessons learned from the 2021-2023 triennium, including those contained in program evaluations or market studies projecting new trends and opportunities in the energy efficiency market place, as well as energy efficiency program activities from other states, as well as evolving state, regional and federal energy policy, and any other information related to energy efficiency goals.~~

~~The second task of the EERS Committee will be to discuss and provide input to the NH Utilities on program design, the appropriate level of funding, and other aspects of the 2024-2026 Plan that will lead to the achievement of the previously determined goals.~~

~~In 2022, the Commission will solicit and hire a technical consultant to advise Commission Staff, the OCA, and all other non-utility stakeholders. The proposed 2024-2026 Plan will be filed no later than July 1, 2023. A Draft 2024-2026 Plan will be provided to the EERS Committee during the stakeholder process at a date determined by the Committee based on its workplan.~~

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Chapter Eleven: Evaluation, Measurement, and Verification

EM&V has been an integral component of the efficiency programs in New Hampshire since inception. EM&V has many objectives, including verifying portfolio energy savings, estimating future energy savings of specific measures and behaviors, and identifying ways to improve program delivery and results. The 2018-2020 Plan established a formalized NH EM&V Working Group, consisting of Commission Staff members, independent EM&V consultants hired and supervised by the Commission, representatives of the NH Utilities, and a representative of the EESE Board.

The EM&V Working Group has successfully managed a dozen studies during the 2018-2020 term to date and will be launching several additional evaluations in the remainder of 2020. Going forward, particularly during times of quickly-evolving markets and program offerings, as well as broader economic disruptions associated with the COVID-19 pandemic, there will be many research questions to be studied, and competition for limited evaluation resources and staff time.

To date, the NH Utility members of the EM&V Working Group have facilitated meetings and served as the primary point(s) of contact with each of the third-party evaluators under contract. This follows from the necessity of the NH Utilities, rather than the Commission or other public entity, contracting directly with the third-party evaluators given constraints on state agencies. However, the NH Utilities are committed to an efficient and collaborative process within the EM&V Working Group and welcome a larger facilitation role for the Commission's EM&V consultants in the next term.

Although members of the EM&V Working Group have successfully resolved evaluation-related disagreements to date, the NH Utilities propose a process be established for resolving potential disputes going forward. Specifically, this new process would allow for questions on which the EM&V Working Group cannot reach consensus to be adjudicated by an appeal to the Commission. In a dispute that is appealed to the Commission, each party would provide a written position summary for Commission review and resolution.

For purposes of this dispute resolution process, ‘parties’ to the EM&V Working Group would include:

1. The NH Utilities;
2. The Commission Staff and designees; and
3. The EESE Board Representative.

The EM&V Working Group has worked diligently to build upon previous evaluation work and expand the portfolio of New Hampshire evaluation activities to a level commensurate with the size and scope of the NHSaves Programs, and it will continue doing so as the programs continue growing over the 2021-2023 triennium.

- All completed New Hampshire evaluations are posted at: https://puc.nh.gov/Electric/Monitoring_Evaluation_Report_List.htm; and
- EM&V Working Group agendas and other materials are posted at: https://www.puc.nh.gov/EESE%20Board/EERS_Working_Groups.html#em&v.

The NH Utilities, together with the EM&V Working Group, have also sought to make the most effective use of New Hampshire evaluation resources by leveraging the efforts of neighboring jurisdictions—both by collaborating with other states’ program administrators to conduct joint evaluations, and by adopting results from other states’ evaluations where appropriate. For example, Eversource and Unitil joined with counterparts in Massachusetts and Connecticut on a regional evaluation of C&I ADR programs and pilots, which are implemented on a similar basis across multiple states. This approach allowed for more robust results at a lower cost than would be possible through a study limited to NHSaves Program offerings. Similarly, the Energy Efficiency Baseline and Potential Study leveraged analysis of the regional residential and C&I lighting markets being led by Massachusetts program administrators, by augmenting survey and interview efforts with New Hampshire-specific research questions.

11.1 2020 Evaluations

The EM&V Working Group has continued progress on a number of ongoing research efforts that are concluding in 2020. Table 11-1 lists the evaluations completed or planned for completion in 2020.

Table 11-1: 2020 Evaluations

Evaluation	Vendor	Completion Date	Results
Energy Efficiency Baseline and Potential Study	Dunsky Energy Consulting	Draft report, August 2020; final report, September 2020 (est.)	The study provides a key source of planning assumptions and inputs for the 2021-2023 Plan (see below).
NH Lighting Supplier Insights	NMR Group	June 2020	The NH Utilities used findings from in-depth interviews with manufacturers and retailers regarding the residential lighting market in New Hampshire and the region to guide 2021-2023 planning assumptions.
NH Lighting Sales Data Analysis	NMR Group	Draft report, August 2019; final report, September 2020 (est.)	The analysis of retail lighting sales data trends in New Hampshire and the region have informed the NH Utilities’ market exit strategy for different lighting types and channels.
HPwES Impact and Process Evaluation	Opinion Dynamics Corporation	June 2020	Impact results are reflected in the TRM. Process recommendations, including incentive structure changes and software upgrades are being pursued as described in the residential section of the 2021-2023 Plan.
HEA Impact, Process, and Low-Income NEI Evaluation	Opinion Dynamics Corporation	June 2020	Impact results are reflected in the TRM and NEI values are incorporated in the TRM as described in Section 10.1.4 and based on review by the NH Benefit-Cost Working Group. Process recommendations, including incentive structure changes and software upgrades are being pursued as described in the residential section of the 2021-2023 Plan.

Table 11-1: 2020 Evaluations (continued)

Evaluation	Vendor	Completion Date	Results
Crosscutting Non-Energy Impacts Study	DNV-GL	NEI database for 2021-2023 Plan, August 2020; Methodology Memo, April 2020; Sensitivity Analysis Memo, June 2020	As described in Section 10.1.4, NEI values from this study have been used to develop sector-level percentage adders for the Secondary Granite State Test, as discussed with the NH Benefit-Cost Working Group.
Bill and Rate Impact Analysis	Synapse Energy Economics, Inc.	August 2020	The analysis developed estimates of the bill and rate impacts of the 2021-2023 Plan programs based on utility-specific inputs, as described in Section 10.4 and detailed in an attachment to the 2021-2023 Plan.
Cross-State C&I Active Demand Reduction Evaluation (<i>joint with Massachusetts and Connecticut</i>)	Energy & Resource Solutions	April 2020	The study evaluated load reduction values for the 2019 ADR offerings and recommended an approach to estimate planned load reductions for the 2020 program, which the NH Utilities are applying as described in the Supplemental Information filing to the Commission ⁷⁹ and reflected in the TRM.

In addition to the ongoing evaluations listed above, the NH Utilities, in coordination with the EM&V Working Group, are working with ERS, an evaluation firm, to compile New Hampshire’s first comprehensive TRM, which will extensively document savings calculations and assumptions for measures offered by the NHSaves Programs. This work will result in a public-facing, electronic TRM for program year 2021, to be updated annually, as described above in the Planning Elements chapter.

11.2 Strategic Evaluation Plan

In early 2020, the Commission’s EM&V consultants led the EM&V Working Group in updating the NH Strategic Evaluation Plan (“SEP”). The updated SEP provides a prioritized and annotated list of

⁷⁹ DE 17-136, 2020 Demand Reduction Initiatives, Supplemental Information, Feb. 28, 2020.

evaluation activities to guide the EM&V Working Group over the next several years. These activities will include impact and process evaluations—including a Large Business Solutions impact and process evaluation, as well as a Baseline Practice Study, both of which are being competitively procured as of the date of this filing. In late 2020, the NH Utilities expect to initiate another RFP for a follow-up to the initial NHSaves Market Awareness Assessment.

In addition to addressing these near-term evaluation priorities, the EM&V Working Group has identified other evaluation activities that will be needed to ensure the NHSaves Programs continue to produce verified, accurate savings, and achieve the highest levels of performance during the 2021-2023 term. In particular, a subsequent round of evaluation projects will be planned based on insights gained from the results of the Energy Efficiency Baseline and Potential study as well as gaps identified during the development of the TRM. [The Strategic Evaluation Plan shall include impact evaluations for the Home Energy Report programs offered by Unitil and Liberty to natural gas and electric customers as well as Liberty’s proposed Aerial Infrared Mapping program.](#)

11.3 Energy Efficiency Baseline and Potential Study

One of the critical inputs informing the 2021-2023 Plan is the New Hampshire Energy Efficiency Baseline and Potential Study, conducted by Dunsky Energy Consulting and overseen by the EM&V Working Group. Dunsky has conducted similar research for Eversource in Massachusetts, as well as for other utilities throughout North America. This study provides insights into the available energy and demand reduction opportunities in New Hampshire and helped to inform the development of savings forecasts for a wide set of energy efficiency and ADR measures across all fuels and segments. The research, report, and supporting data resulting from this year-long effort will remain a valuable source of information for program evaluation and design for years to come, and serve as a starting point for additional research to be undertaken as part of the SEP framework in the coming term.

The study utilized primary and secondary research to provide detailed data and analysis on residential market baselines, and to estimate saturation and efficiency of energy-using equipment in New Hampshire homes. In addition, the study conducted primary research into high savings lighting and HVAC measure saturation and penetration in non-residential markets, and leveraged building

archetypes from the US DOE as well as Dunsky's own database of building baselines, adjusted for New Hampshire's climate and economy. Dunsky also performed a sensitivity analysis based on the new barriers posed by the COVID-19 pandemic, which has confirmed that the wide scale impacts to the economy and ways people work will be challenging and expensive to overcome. The final report, which is expected to be delivered in mid-September, will examine the impact of customer barriers on achievable energy efficiency savings and model the impact of different incentive levels. As with all evaluations, the study will be posted to the Commission's website upon completion.

The draft results of the study present three levels of potential energy savings: (1) technical potential, which includes all theoretically possible energy savings resulting from measures included in the study, regardless of cost effectiveness, market barriers, or customer economics; (2) economic potential, which is the subset of technical potential that reflects only those measures that pass cost-effectiveness screening; and (3) achievable potential, which is a subset of economic potential that considers market barriers and customer economics.

Based on adoption curves adapted from the US DOE, the study models cost-effectiveness as well as market barriers to arrive at low, medium, and high scenarios of achievable potential. There is a direct relationship between the level of energy efficiency potential that is achievable, the barriers to adoption that must be overcome to achieve that potential, and the level of investment needed to overcome those barriers. Working closely with the EM&V Working Group, the Dunsky team focused on the low and medium achievement scenarios. The scenarios are modelled using the following assumptions:

- **Low:** modelled using incentives and enabling activities (i.e., strategies to overcome customer and market barriers) at levels from the 2018-2020 Plan, to simulate business as usual.
- **Medium:** modelled with incentives increased to a minimum of 75 percent of the incremental cost of efficient equipment and increased enabling activities.
- **Maximum:** eliminates any customer contribution, while maintaining all other assumptions from the medium scenario.

As with the development of the 2021-2023 Plan, two of the key challenges faced by the EM&V Working Group in guiding Dunsky through the development of the potential study were: a) how to treat the rapidly evolving market for lighting, and b) how to incorporate the economic impacts and resulting barriers resulting from COVID-19 into the assumptions.

The draft report of the potential study explains that: “lighting remains an important measure class under both the low and mid scenarios in 2021. The study assumes declining NTG values for lighting in alignment with the utility benefit cost ratio models. This results in fewer savings from lighting with each subsequent study year and decreased total savings over time because of reduced lighting savings under both scenarios. Between the low and mid scenario, the HVAC, appliance, and other non-lighting measure classes show the greatest relative growth.”

The NH Utilities will continue to carefully consider this and related research throughout the region related to lighting, and will adjust the market approach in order to continue to promote market transformation for measures and markets that have additional potential available, while at the same time aggressively pursuing non-lighting savings where the potential for energy efficiency has yet to achieve the same degree of market transformation.

The potential study was well underway when COVID-19 caused on-site research and activity to come to a sudden halt, negatively impacting data collection efforts among medium and large businesses. The EM&V Working Group asked Dunsky to perform a sensitivity analysis relating to the pandemic based on primary data collected by the NH Utilities from customers, as well as by the US Census. This sensitivity analysis considered the impact of the shut down and associated economic impacts on residential customers, as well as different business segments. Draft results indicate that in the low - or business-as-usual scenario, the impact to electric energy efficiency savings in 2021 could be reduced from between 25 percent to 41 percent compared to a world in which the pandemic had not occurred; this is projected to ease to between 21 percent and 30 percent in 2022 and 2023. For natural gas programs, the modeled impact of COVID-19 is even greater, showing a 30 to 48 percent reduction in 2021, which is eased to between 24 and 38 percent in the second and third year of the 2021-2023 Plan.

In the medium scenario, which reflects higher customer incentives and lower costs, the impact of the pandemic is somewhat moderated, impacting between 20 and 37 percent of electricity and natural gas savings in 2021 and between 14 and 25 percent in 2022 and 2023. The aggressive EERS goals the NH Utilities are proposing under this 2021-2023 Plan are roughly equivalent to savings modelled under the medium scenario, after accounting for potential COVID-19 impacts.

The potential significance of these barriers to program achievement is daunting, as is the general uncertainty surrounding the impact of COVID-19 on our economy and our customers. This level of uncertainty poses substantial challenges to the NH Utilities as they propose and work to achieve significantly increased energy savings goals in 2021-2023. A true three-year plan, the ability to file mid-term modifications, and the lowering of the minimum performance threshold are collectively critical to managing these substantial challenges.

11.4 EM&V Budgets

The EM&V budget for the 2021-2023 Plan is proposed to be consistent with past budgeting at approximately 5 percent of the annual program budgets. This includes both internal and external costs of evaluation, measurement and verification activities including but not limited to any studies identified by the EM&V Working Group and the Strategic Evaluation Plan. The EM&V budget also includes costs for several cross-cutting activities such as, the AESC Study, ISO certification of utility demand resources, Commission Staff's third-party evaluation consultants, updating and maintaining the TRM, program research, professional associations, utility tracking system upgrades and maintenance, quarterly and annual reporting, program modeling software, and other program support needs.

Any funds budgeted in the EM&V budget activity category that an NH Utility anticipates will not be spent in a given year can be utilized for other program-related purposes. The total evaluation budget for the 2021-2023 Plan is ~~\$16.4~~ \$15.9 million. Of that figure, approximately one third will be utilized for other EM&V activities.