WHEN TRUST MATTERS

New Hampshire 2022-2024 Customer Profile Study

Agenda

- Study goals
- Key findings
- Recommendations for data collection and analysis

Study overview

Goals

* Provide a baseline level of performance that can inform program planning for the 2027-2029 NHSaves term, as well as program targeting and outreach efforts

* Identify improvements to data collection and analysis that could help the utilities better understand New Hampshire's customer population and remaining savings opportunities.

Data

* 2022-2024 program tracking data (earliest year with readily available complete, consistent data required for this study)

* Census data (ACS) – normalize program activity to relative population size of respective groups

* Parcel data – indicates building type

Metrics

* Energy savings, customer incentives, and participation.

* Sitewide and key comparisons including by program, measure, fuel, income, renter status, building type, housing authorities, and seasonal housing

* Unless otherwise noted, these metrics are cumulative across all fuels and include the four residential programs mentioned above, with energy savings presented in gross lifetime MMBtu.

Key findings

Smallest budget, highest savings per dollar spent

- Compared to Massachusetts and Connecticut, New Hampshire residential programs provide lower per-capita incentives and lower savings as a percentage of total consumption, but achieve the highest savings per incentive dollar.
- At New Hampshire's current rate of energy savings and participation, fully serving the population will require sustained efforts over time.

Table 4-1. 2023 Residential statewide participation summary, all fuels – NH, MA, CT*

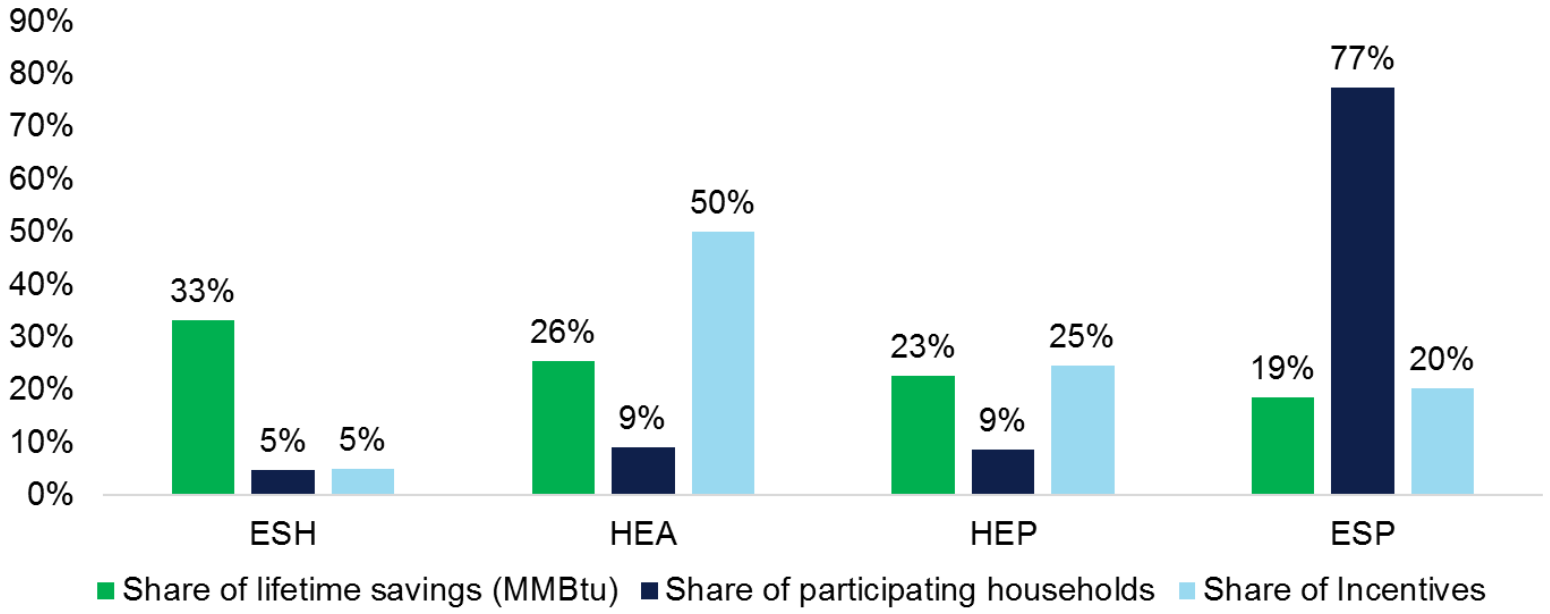
	NH	MA	CT
Population	1.4M	7.1M	3.6M
Per-capita incentives	$16	$83	$24
Total incentives	$22.9M	$587M	$84.8M
Savings as a percentage of total consumption	0.40%	1.3%	0.46%
Lifetime MMBtu saved per incentive dollar	0.16	0.10	0.12
Participation rate	2.8% (all four programs) 0.5% (HEP and HEA)	10.4% (all programs)	2.5% (HES/IE MF/IE)

This table presents results from 2023 (the latest year with publicly available data for all comparison states). From 2022 to 2024, the annual average savings as a percentage of consumption is 0.4% and the household participation rate is 3.1%. Although NHSaves was created in 2001, this study begins with program year 2022, the earliest year with readily available complete, consistent data required for this study.

HEP and HEA account for about half of residential savings and the majority of incentive costs

- HEA and HEP programs account for 75% of incentives and 49% of energy savings.
- ESH delivers the highest share of savings (33%) while using the lowest share of incentives (5%), reflecting the program's design, which pays for a home energy rating regarding the efficiency of the construction, rather than directly incentivizing the equipment

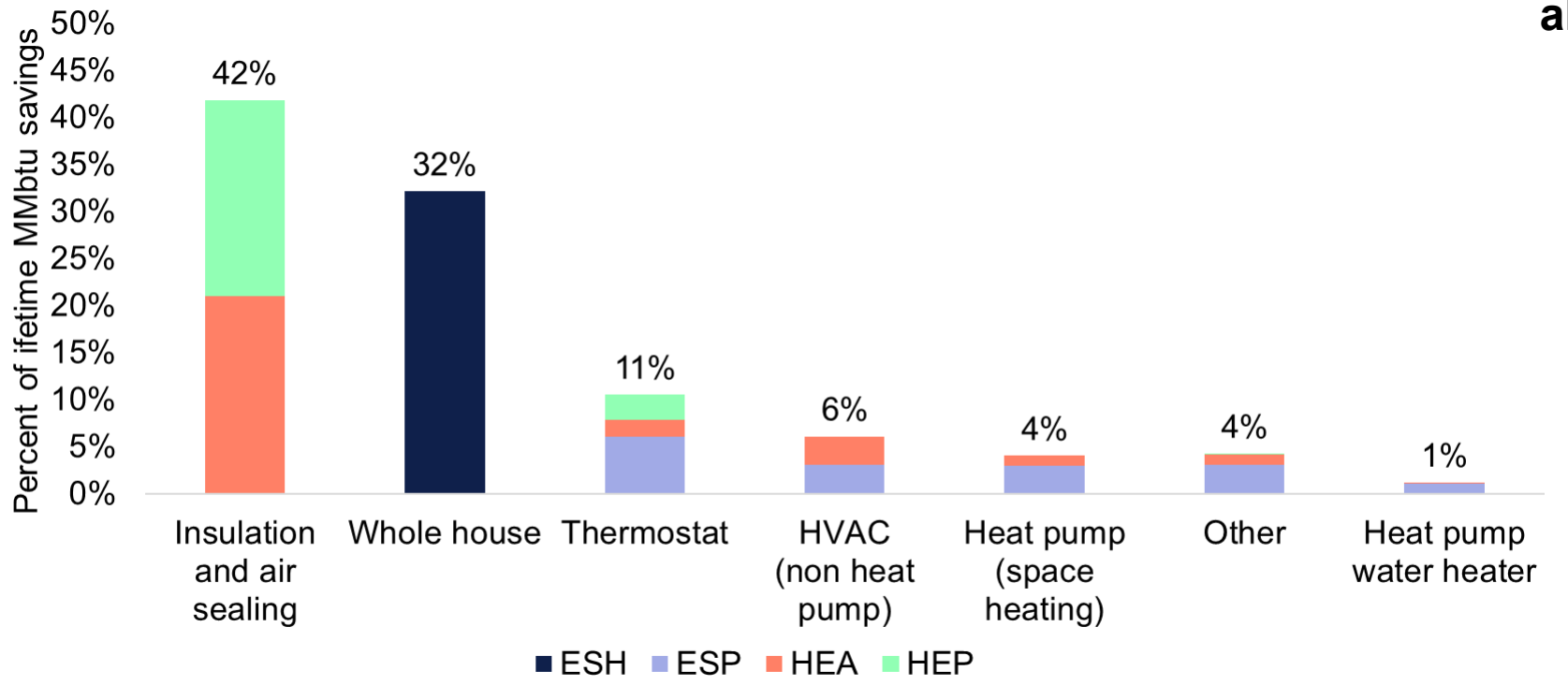
Figure 4-1. Share of savings, participants, and incentives by program – cumulative 2022-2024, all fuels



Building envelope measures drive savings

- Envelope accounts for 42% of total savings, followed by ESH whole house (32%), thermostat (11%), and space heating (10%).
- The ESH program accounts for 32% of savings, but the specific measures installed are not tracked, because the program uses a whole-house Home Energy Rating System (HERS) approach to calculating savings.

Figure 4-2. Percent of savings by measure and program – cumulative 2022-2024, all fuels



Heat pump growth

- ESP heat pump savings and participating households grew from 2022 to 2024.
- Full savings including fuel switching is unknown due to the assumed baseline of standard-efficiency heat pump

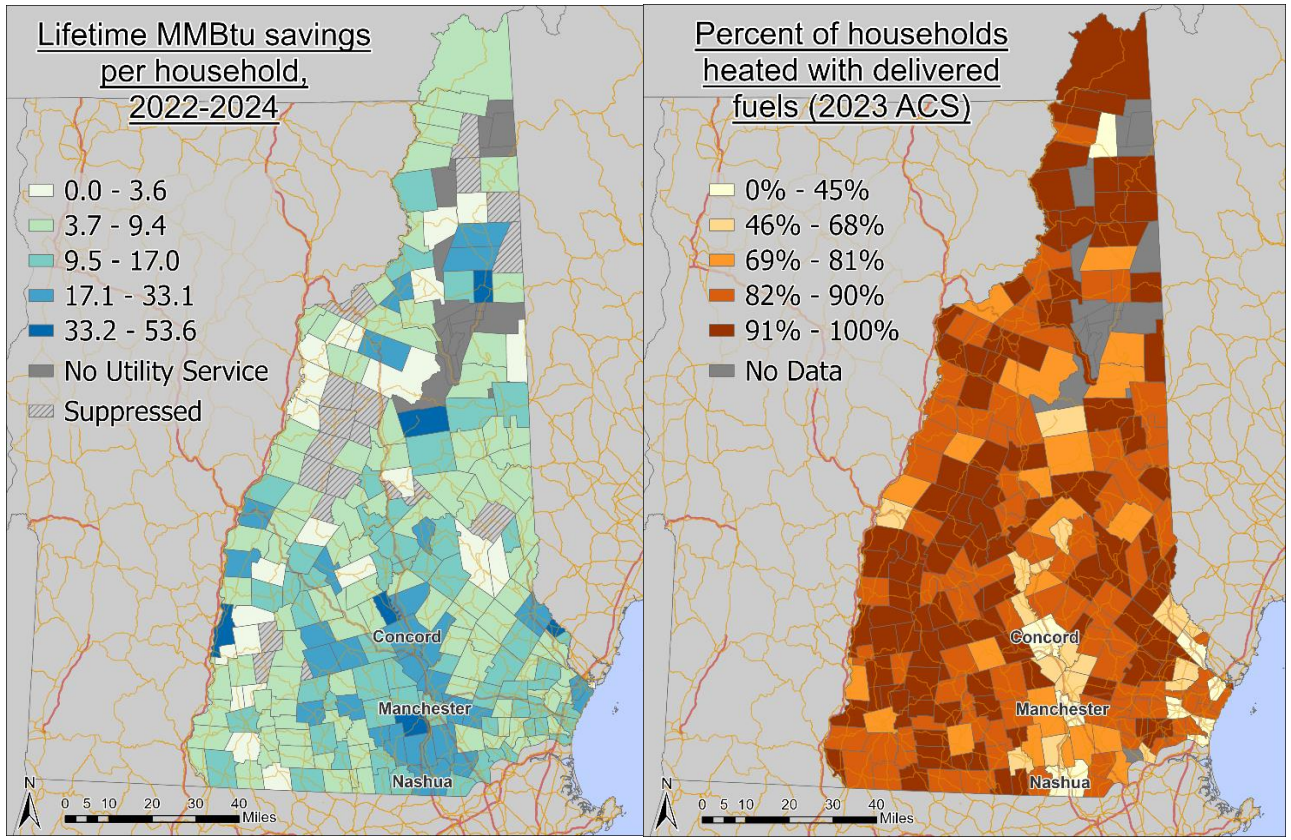
Table 4-2. ESP heat pump participants and savings - 2022-2024, all fuels

End use	Metric	2022	2023	2024	Total
Heat pump (space heating)	Participating households	2,284	2,483	3,714	8,481
	Sum of Gross Lifetime Total Savings (MMBtu)	88,459	94,775	112,020	295,254
Heat pump (water heating)	Participating households	424	467	457	1,348
	Sum of Gross Lifetime Total Savings (MMBtu)	32,978	34,078	38,044	105,100

Natural gas access drives higher per-household savings in urban areas

- Programs are administered by gas and electric utilities, but delivered fuels are the most common heating fuel, represent the highest share of savings, and are disproportionately located outside urban areas.
- There are policy limits on the share of delivered fuel savings that can come from electric ratepayer-funded programs, which reduce achievable savings and impact equitable program delivery across the state.

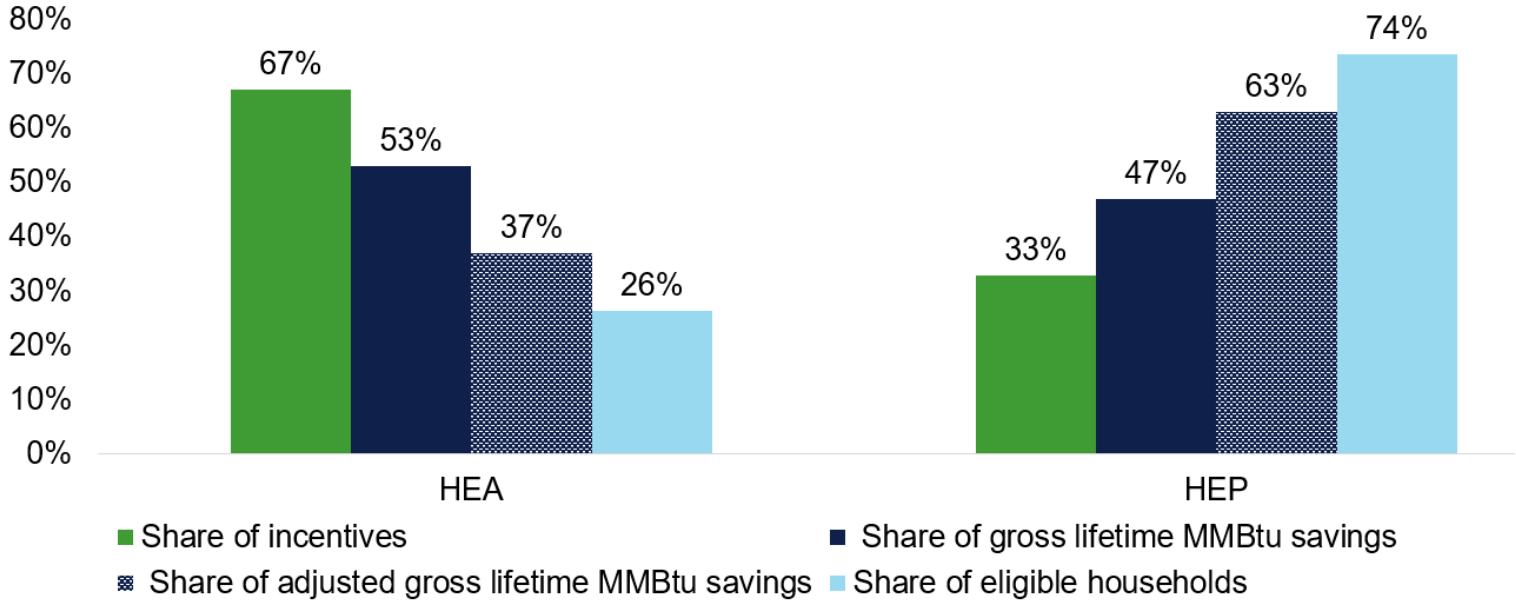
Figure 4-6. Savings per household and share of delivered fuels by municipality – cumulative 2022-2024, all fuels



Low-income households have higher relative savings

- Low-income households in aggregate have higher savings relative to the population than non-low-income households
- Driven by higher HEA participation rate (3.9%) compared to HEP participation rate (1.3%)

Figure 4-10. Share of incentives, savings, and households by income – cumulative 2022-2024, all fuels, HEA and HEP



- Due to the low HEA realization rates in the 2022-2023 evaluation, we applied the program-wide fuel realization rates to all years to calculate an adjusted gross savings. Although this share of HEA adjusted gross savings (37%) is lower than the share of gross savings (53%), the finding still remains that the proportion of HEA savings is greater than the proportion of low-income households in New Hampshire (26%).
- Gross savings per participating household are similar (within 5%) between HEP and HEA programs, but after realization rates are applied, the HEP savings per participating household are 80% higher than HEA.
- This higher total energy savings across the low-income population reflects, in part, the higher mandated spending requirement that no less than 20% of the portion of the funds collected for energy efficiency shall be expended on low-income energy efficiency programs.

Renters generally have lower relative savings

- The share of program savings in renter-occupied homes is generally lower than the share of homes that are renter-occupied (i.e., HEA 2-4 unit buildings)
  - Conversely, HEP single-family renters have a higher share of savings than the state's share of single-family rental homes
- 68% of HEA renter savings comes from the state's 13 participating housing authorities, suggesting other low-income renters may be relatively underserved.
- Strong overlap with building type: 83% of renters live in multifamily buildings

Figure 4-13. HEA share of households and savings by renter status and building type—cumulative 2022-2024, all fuels, Eversource and Unitil only

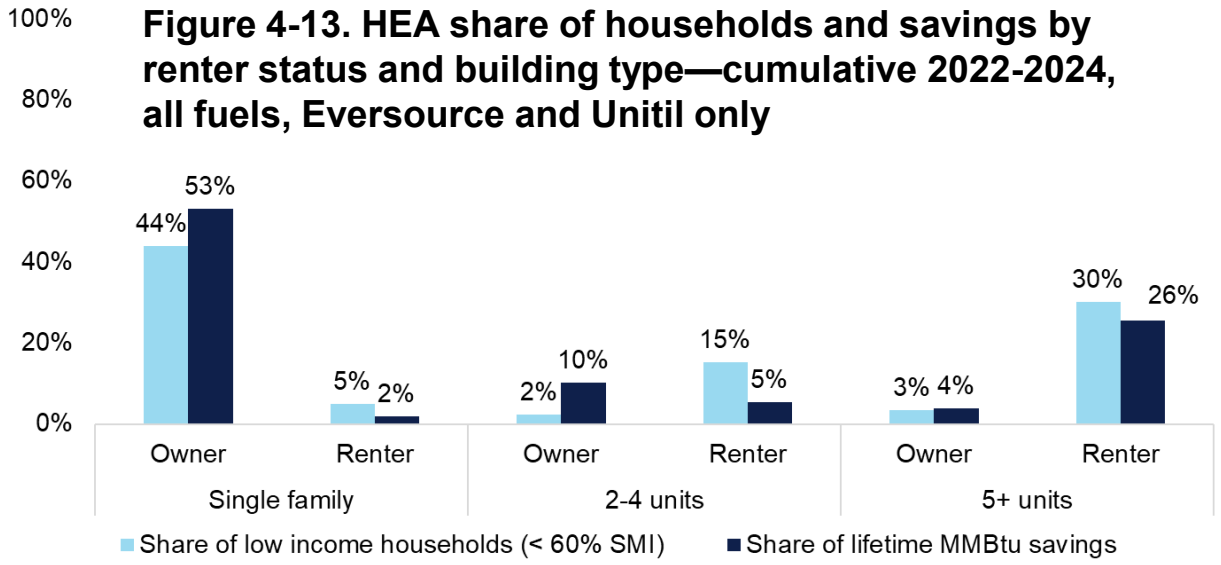
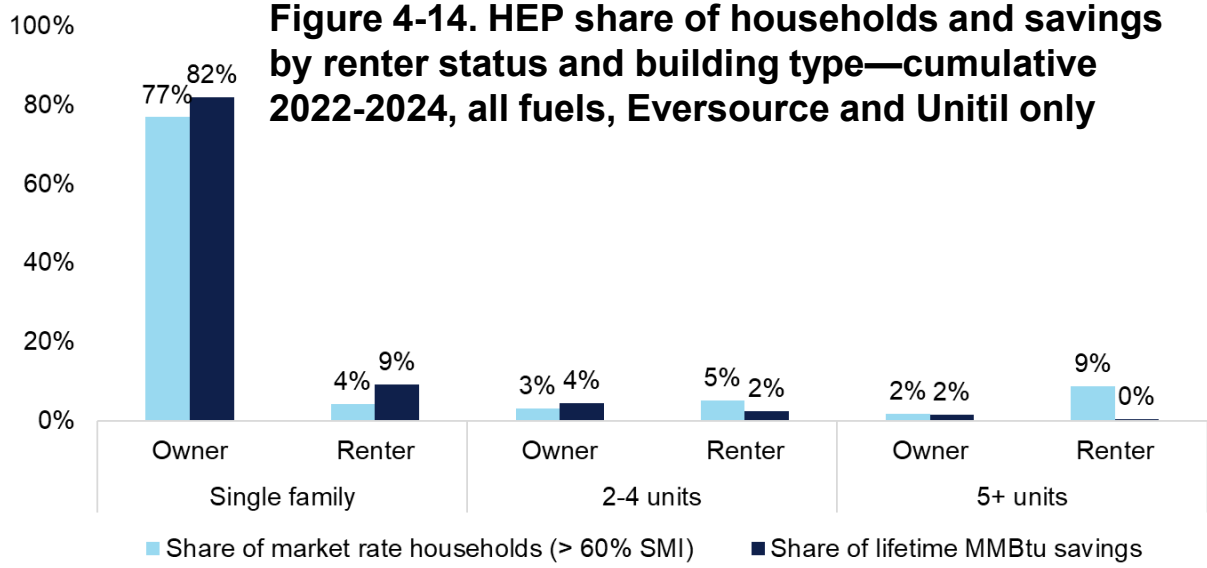


Figure 4-14. HEP share of households and savings by renter status and building type—cumulative 2022-2024, all fuels, Eversource and Unitil only



Recommendations for data collection and analysis

Recommendations for data collection

- **Improve tracking of renter status and building type for participating households.**
  - Would enable more representative analyses that focus on these customer groups
  - Renter status is currently tracked only by Unitil and Eversource in the HEA and HEP programs. Expanding this to the other utilities would provide a more complete picture of customer characteristics.
  - Building type data is also limited, as it is associated with only 37% of savings, with gaps across all utilities and programs
  - Collecting this information is most feasible for the HEP and HEA programs due to their higher level of customer engagement. However, there may also be opportunities to expand data collection for the ESP and ESH programs.

- **Collect data on ESP heat pump participants to get a full account of savings by fuel.**
  - The assumed heat pump baseline is a standard-efficiency heat pump, resulting in claimed electric savings from the increased efficiency of the program-rebated heat pump
  - Collecting participant data regarding the other pre-existing and counterfactual heating fuels will provide a more accurate account of both total savings and savings by fuel

Recommendations for analysis

- **Analyze adjusted gross savings**
  - Utilities typically adjust their savings algorithms based on evaluation findings, reducing the impact of using gross rather than adjusted gross savings on overall results. As agreed with the EM&V Working Group when designing this study, realization rates were not incorporated due to the complexity of linking BC models with measure-level data and ensuring consistency, completeness, and accuracy across utilities. During implementation of this study, it was found that the 2022-2023 HEA impact evaluation resulted in low realization rates, which were therefore incorporated into the low-income section to present adjusted gross savings. Given the low realization rates for the HEA program, incorporating this data would ensure that the results of future customer profiling studies reflect the real-world performance of program-rebated measures based on the most recent evaluations.
- **Convert energy savings to source MMBtu when looking across multiple fuels**
  - With nearly half of savings coming from delivered fuels (47% of lifetime MMBtu savings), and growing savings from potential fuel-switching measures such as heat pumps, comparing savings across fuels becomes increasingly important. Converting energy savings to source MMBtu enables an apples-to-apples comparison across fuels by accounting for upstream energy losses from the production and transportation of energy to end-use customers.
- **Further examine household bill impacts, energy burden, and other affordability metrics**
  - This analysis would provide insight into the key issue of affordability by calculating the energy burden—that is, energy bill costs as a share of household income—as well as the bill impacts resulting from participating in NHSaves programs.