DNV

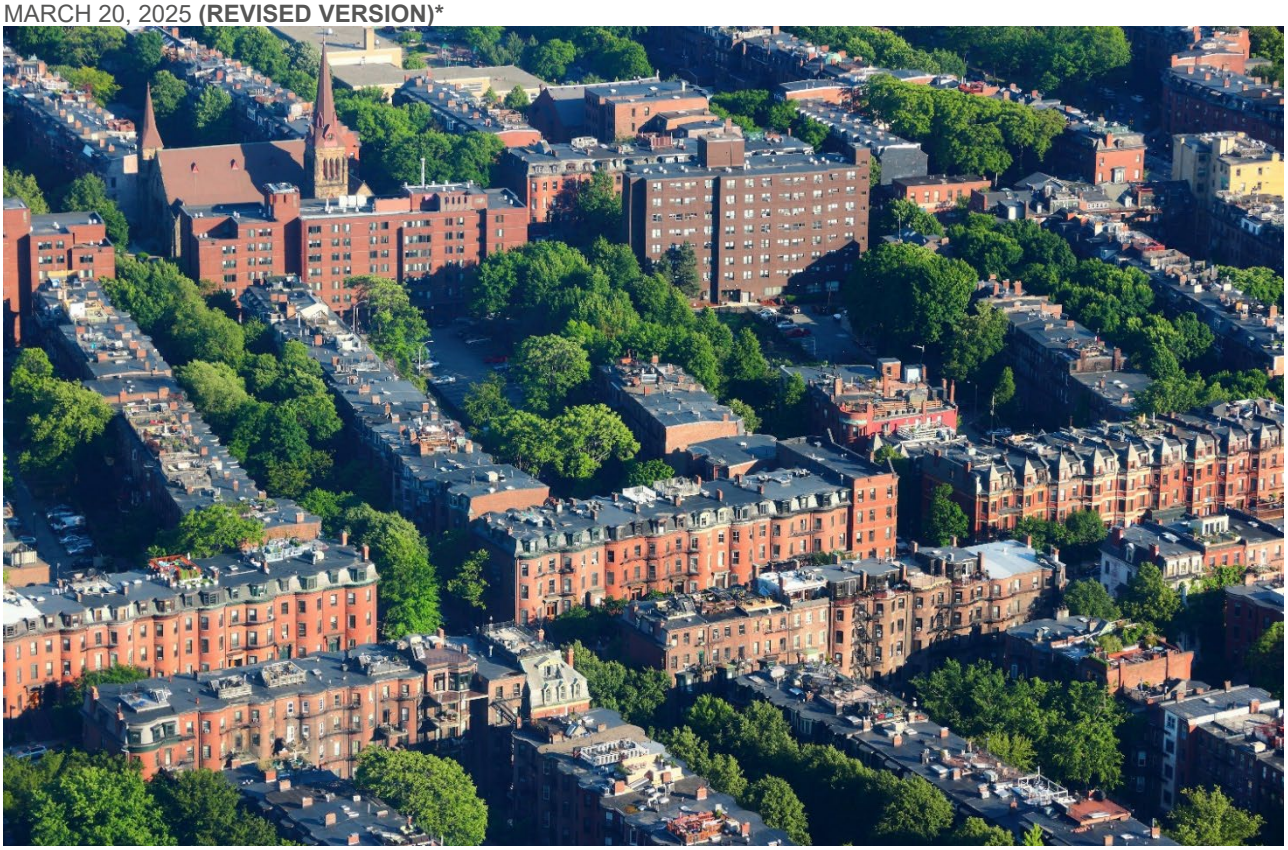
FINAL REPORT

2013-2022 Residential Nonparticipant Study

MA24X24-B-RNPS

Massachusetts Program Administrators

MARCH 20, 2025 **(REVISED VERSION)***



*Originally published on October 16, 2024. This revised edition includes data corrections. Appendix D of this report provides a summary of the revisions, which resulted in no substantive changes to the findings in the October publication.

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1 EXECUTIVE SUMMARY

1.1 Background

This 2013-2022 Residential Nonparticipant Study is one of a series of recent efforts to track and measure the Massachusetts Program Administrators' (PAs') energy efficiency program engagement. It provides an update to the previous 2013-2017 Nonparticipant Study,[1] which explored relationships between participation and various customer characteristics. The Massachusetts Department of Public Utilities (DPU) used the results of that study to determine the criteria for qualifying as a Hard-to-Reach (HTR) community, which in turn influenced PA program delivery for the 2022-2024 triennium. In 2023, DNV published the Massachusetts Residential Customer Profile Equity Study,[2] which examined demographics and historic program engagement in selected subpopulations targeted for equity investment. DNV integrated the metrics produced in these reports into the latest annual Customer Profile Study[3] and the MA Customer Profile Dashboard.

This 2022 Nonparticipant Study's primary objective is to respond to the January 2022 DPU order,[4] which states:

> "*In order to evaluate the success of the targeted efforts to increase participation and deliver programs in an equitable manner, the Department directs the Program Administrators to track participation in all service territories by municipality and to conduct an updated residential non-participant customer profile study…[that presents] an analysis of whether actual increases occurred*."

1.2 Methodology overview

DNV collaborated with the PAs and Energy Efficiency Advisory Council (EEAC) Consultants to ensure the study's approach was responsive to the DPU's order. This involved reviewing the analyses in the previous nonparticipant study and determining what should be done in the current study.

The current study repeats key analyses found in the previous nonparticipant study including presenting participation in every Massachusetts municipality (APPENDIX C) and analyzing the participation of renter-occupied, moderate-income, limited English-speaking, low-income, and multifamily households (MF 5+) at the block group level.[5] This report also includes significant additional analysis not conducted for the previous nonparticipant study. Notably, the PAs commissioned DNV to integrate delivered fuel savings from 2019-2022 into the current study, making this the first study to incorporate savings from all fuels.

The current study also builds on the previous study by including participation inside and outside HTR communities as defined by the DPU,[6] municipalities engaged in the Community First Partnership, and customers in Income Eligible and Market Rate programs.

This study examined data spanning the decade from 2013-2022 to compare the 5-year period of the previous nonparticipant study (2013-2017) to the 5-year period since then (2018-2022). The decade encompasses three full 3-year terms (2013-2015, 2016-2018, 2019-2021), during which there was significant development in the PAs' equity-focused initiatives, substantial increases in incentives,[7] and a programmatic shift to electrification despite the concurrent challenges of the

1 https://ma-eeac.org/wp-content/uploads/MA19X06-B-RESNONPART_Report_FINAL_v20200228.pdf
2 https://ma-eeac.org/wp-content/uploads/MA22X05-B-RCPSERB-Final-2020-Equity-Results-Brief.pdf
3 https://ma-eeac.org/wp-content/uploads/MA23X19-B-RCPSDURB-2022-RCPS-Results-Brief.pdf
4 https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/14461268
5 The counterparts to these customer groups (single family, owner, market rate) are represented in the "low-concentration" block groups. For example, the activity of block groups with a "high concentration" (above the median) of owner-occupied households is represented in low-concentration renter block groups.
6 The DPU defines HTR communities as having historically low participation during the 2013-2017 time period and containing at least one Environmental Justice block group. See the DPU Order on the PAs' 2022-2024 Three-Year Plans (D.P.U. 21-120 through D.P.U. 21-129)
7 Incentives increased by 47% from the first 5-year period to the second.

COVID-19 pandemic. It also includes 2022, which as the first year of the 2022-2024 cycle does not fully reflect changes implemented through the 2022-2024 plan.[8]

1.3 Key findings

This study's key findings about "whether actual increases occurred" address two types of participation changes: 1) changes over time from the first five-year period to the second, and 2) changes in the participation gap between customer groups of interest and their counterparts. The two key findings are presented below.

1 Participation changes over time

From the first 5-year period to the second, electric and gas participation rates increased statewide and across the board for all customer groups observed in this study, including HTR communities and block groups with high concentrations of low- and moderate-income households, renters, multifamily households, and limited English-speaking households. Participation rates also increased in 93% of municipalities.

2 Changes in the participation gap

In both the first and second periods, the customer groups of interest had lower participation rates than their counterparts. Notably, the participation gap decreased for HTR communities and block groups with high concentrations of low- and moderate-income households, and increased for block groups with high concentrations of renter-occupied, multifamily, and limited English-speaking households.

The three subsections below summarize the participation findings statewide and in HTR communities, municipalities, and customer groups,[9] followed by recommendations for future data collection and considerations for future research.

1.3.1 Statewide and HTR communities

Figure 1-1 shows the electric[10] and gas location participation rates for HTR[11] and non-HTR communities, along with the statewide average, in the two 5-year periods. As seen in the figure, the location participation rate in HTR communities increased from 28% to 34% for electric programs and 19% to 26% for gas programs from the first 5-year period to the second. The participation gap that existed between HTR and non-HTR communities in the first 5-year period persisted in the second, although it decreased from 8.4% to 6.7% for electric and 10.3% to 7.6% for gas. Because participation increased in non-HTR communities, closing the gap would have required an even greater increase in the HTR participation rate.

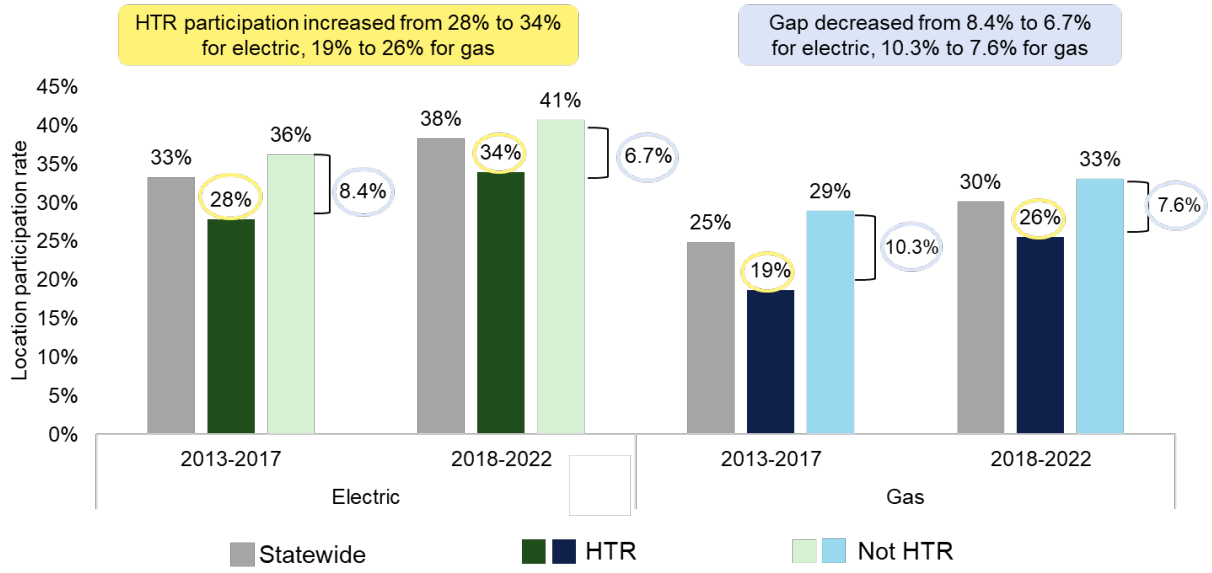
8 For example, the Low-Income Energy Affordability Network (LEAN) reported heat pumps achieved an approximately 2-fold increase in heat pump installations from 2022 to 2023, and nearly met the 2023 year-end total by Q2 2024. https://ma-eeac.org/wp-content/uploads/Final-LEAN-Presentation-to-EEAC-09.18.2024.pdf

9 For brevity's sake, the executive summary focuses on participation rates only; the main body of the report also considers savings and incentives. In this study and the previous nonparticipant study, participation rates and the other metrics have very similar patterns of findings.

10 Electric program location participation rates include measures that achieve delivered fuel savings.

11 Households in HTR communities make up 36% of the total.

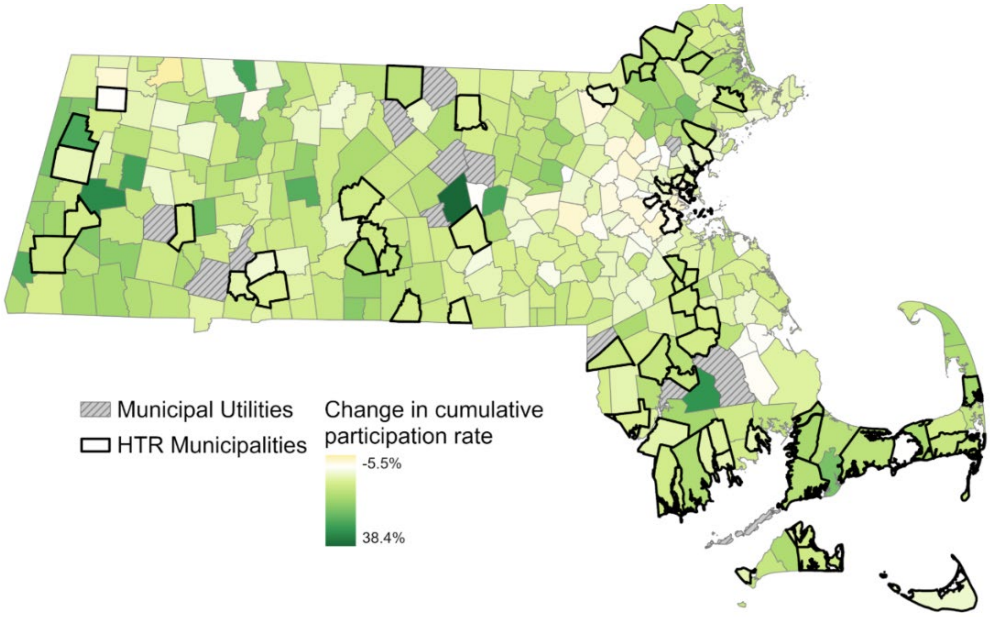
Figure 1-1. Location participation rate for HTR and non-HTR in the two 5-year periods, electric and gas programs



1.3.2 Municipalities

DNV measured the participation rates of all municipalities across the Commonwealth, another key component of the DPU order. The map in Figure 1-2 shows the percentage of change in participation rates between the first five-year period and the second in HTR and non-HTR communities for electric and gas combined. Notably, location participation rates increased for 95% of HTR municipalities (every green-colored municipality had a participation increase). For HTR communities, 56% stayed below the statewide average and 8% stayed above it. For the categories that changed status, 30% went from below to above average, and 7% went from above to below average. Detailed results for each municipality can be found in APPENDIX C.

Figure 1-2. Change in location participation rate for each municipality in Massachusetts, electric and gas combined*



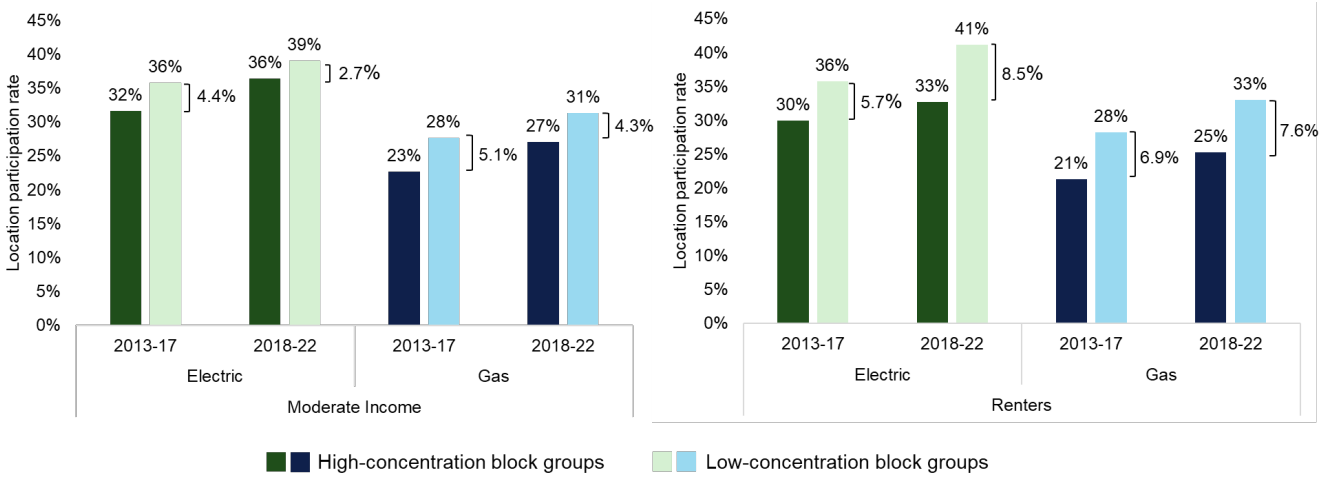
* This map shows percentage points changes in the cumulative location participation rate from the first 5-year period to the second. Going from a 10% to a 20% participation rate would result in a 10% percentage point change.

1.3.3 Customer groups

This section focuses on participation changes for moderate-income and renter-occupied households from the first five-year period to the second. DNV analyzed these groups by looking at their concentration at the block group level, categorized as either below the median ("low concentration") or above the median ("high concentration").[12]

Figure 1-3 shows participation rates from the first five-year period to the second in block groups with high and low concentrations of moderate-income households and renters. For moderate-income block groups, participation rates increased from 32% to 36% for electric and 23% to 27% for gas. For renter-occupied block groups, participation rates increased from 30% to 33% for electric and 21% to 25% for gas. The participation gap between moderate-income block groups and their counterparts decreased from 4.4% to 2.7% for electric and 5.1% to 4.3% for gas. For renter-occupied block groups, the participation gap increased from 5.7% to 8.5% for electric and 6.9% to 7.6% for gas. Section 4 includes an analysis of low-income households, which show similar trends to moderate-income households, and multifamily households, which show similar trends to renters.[13]

Figure 1-3. Location participation rate based on concentration of moderate-income and renter-occupied households



A deeper analysis of customer groups yielded the following additional insights:

- Increasing participation in the Income Eligible program could help further close the participation gaps discussed above. Currently, to participate in this program, customers must meet income requirements (as determined by income and household size from US Census data) *and* be on the low-income rate code. Analysis shows that there are nearly three times more households who qualify for the Income Eligible program than residential electric accounts on the low-income rate code. Thus, there may be an opportunity to get more households onto the low-income rate and subsequently into the Income Eligible program.
- An analysis of savings achieved showed that block groups with a "high concentration" (above the median) of renter-owned and multifamily households had 57% and 48% lower delivered fuel savings, respectively, in 2019-2022 than their counterparts. During this time, heat pumps made up 88% of delivered fuel savings, suggesting that the gap in delivered fuel savings is driven by a gap in heat pump installations.

[12] For reference, 76% of moderate-income households and 83% of renter-occupied households are in high-concentration block groups.

[13] The report also looks at limited English-speaking households, which show similar trends to renters and multifamily. Note that the median for this group is very low (2%) and therefore we set the level for "high concentration" at the 90th percentile, or 19%.

1.4 Recommendations for future data collection

Household-level indicators (flags) enhance stakeholder decision-making by enabling direct reporting on customer groups. Below are two recommended indicators for renters and multifamily households that if developed, could help us better understand the participation gap between these groups and their counterparts. These indicators can also add validation to the concentration-based analyses above.

- A multifamily flag based on the e911 database, which provides the number of individual units per primary address
- A renter flag based on algorithmic analysis and PA data

1.5 Considerations for future research

- Conduct case studies on specific municipalities to gain insight into the observed performance variations. For example, case studies on municipalities that increased participation from the first to the second 5-year period could reveal successful approaches for increasing participation.
- As discussed above, there appears to be an opportunity to enroll additional customers on the low-income rate and subsequently in the Income Eligible program.[14] However, many low-income households (as defined by the US Census) may be in housing that precludes being on the low-income rate, such as college campus housing or public housing. Research examining the demographics and participation of these groups would help describe and quantify this opportunity.

[14] This analysis was conducted before the introduction of the Lead Vendor Implementation, which has helped customers who were previously not on low-income rates enroll in the Income Eligible program.

2 INTRODUCTION

This 2013-2022 Residential Nonparticipant Study is one of a series of efforts in recent years to track and measure the Massachusetts Program Administrators' (PAs') energy efficiency program engagement. It provides an update to the previous 2013-2017 Nonparticipant Study, which explored relationships between participation and various customer characteristics. This study examines data spanning the 10 years from 2013-2022 to compare the 5-year period of the previous nonparticipant study (2013-2017) to the 5-year period since then (2018-2022).

This report revisits key analyses from the previous nonparticipant study, including participation rates in each Massachusetts municipality and block group analysis of renter, moderate-income, limited English-speaking, low-income, and multifamily households (MF 5+). Additionally, it features significant new analyses that were not present in the earlier version. Notably, the PAs commissioned DNV to integrate delivered fuel savings from 2019-2022, making this the first report to include savings from all fuels, which is crucial for understanding participation during the transition from lighting to electrification. The report also expands on the previous study by examining participation within and outside HTR communities as defined by the Massachusetts Department of Public Utilities (DPU), in the municipalities involved in the Community First Partnership, and in the Income Eligible and Market Rate programs.

Since that study, notable developments have affected these relationships, including the evolution of the PAs' equity-focused efforts, incentive increases, and a programmatic shift in incentivized measures away from lighting and towards electrification in connection with the Commonwealth's decarbonization goals. The remainder of this section explores these programmatic developments to provide context for the results in Section 4. In addition to these two developments, note that program activity was impacted by the effects of the COVID-19 pandemic from 2020-2022.

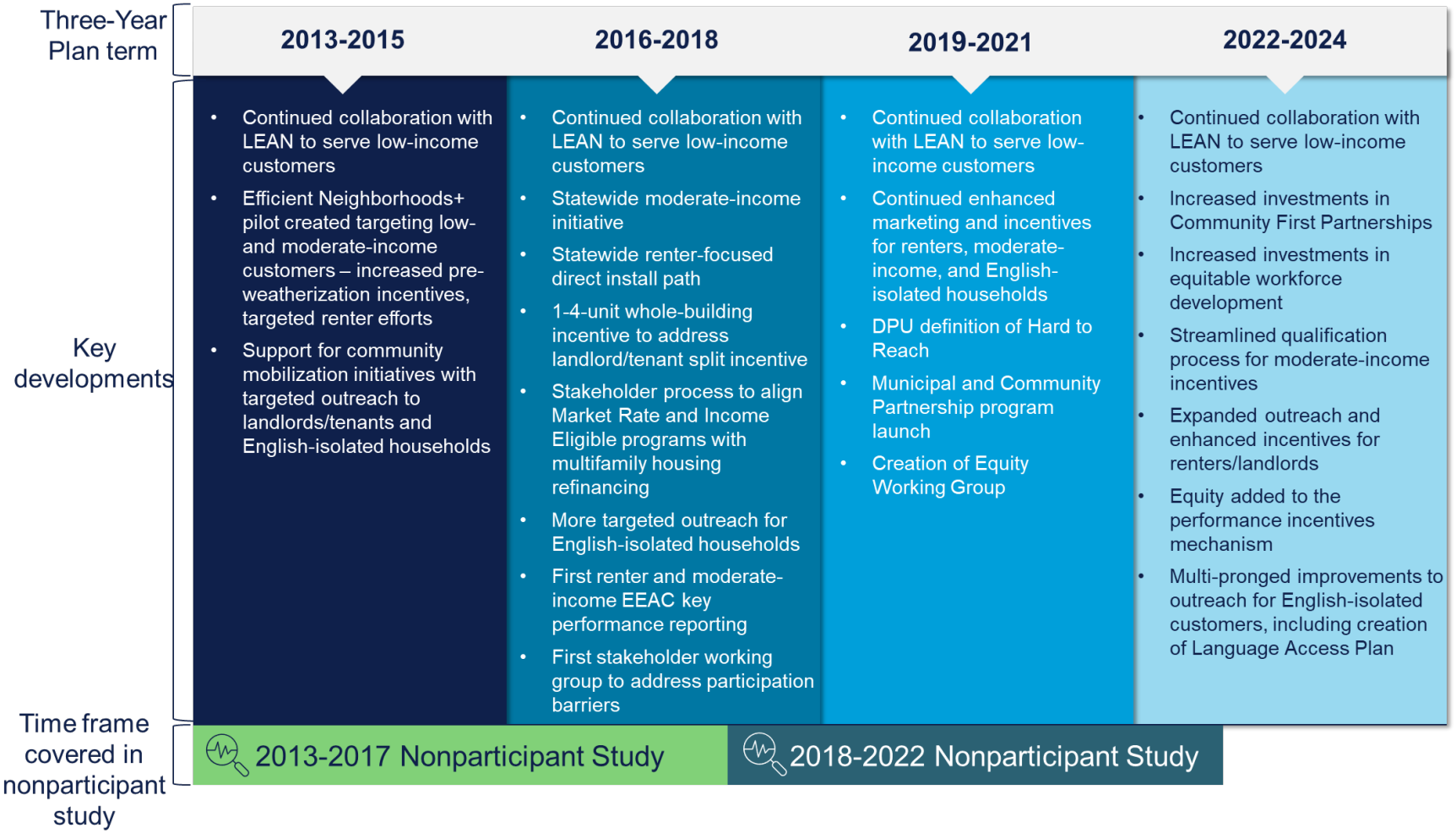
The remainder of this report is organized as follows:

- Section 3 – Methodology, in which we explain the data we used, the variables we analyzed, and the analysis we conducted
- Section 4 – Results for HTR communities, key customer groups, municipalities, and Income Eligible customers
- APPENDIX A - Vacancy rates by municipality
- APPENDIX B – Correlation analysis
- APPENDIX C – Participation data by municipality

2.1 Equity-focused efforts

Over the time frame of this study (2013-2022), there has been a steady increase in the number and variety of equity-focused efforts in the PAs' three-year plans as well as increased incentives for these equity-focused initiatives. Figure 2-1 below provides an overview of key developments in the equity space from 2013-2024.

Figure 2-1. Timeline of key developments under three-year plan terms

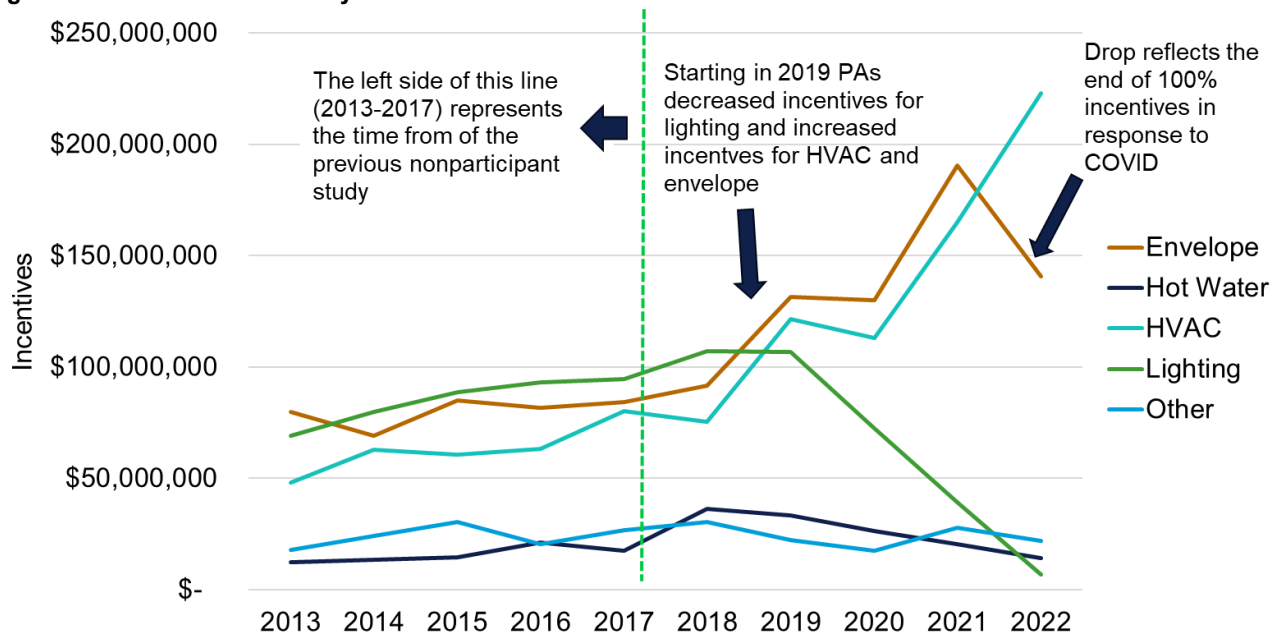


2.2 Programmatic shift in measures

Since the last nonparticipant study, the PAs' programs have experienced a shift in incentivized measures, decreasing incentives for residential lighting beginning in 2019, and increasing incentives for HVAC (including fuel switching) and envelope. When comparing the five years of the previous nonparticipant study (2013-2017) to the next five years (2018-2022), any changes must be considered in the context of the measure mix as well as delivered fuels.

Figure 2-2 shows the annual incentives by end use from 2013-2022. Starting in 2019, the figure illustrates a sharp drop in lighting and an increase in HVAC and envelope. This figure also shows that incentives increased overall by 47% from the first 5-year period to the second.

Figure 2-2. Annual incentives by end use from 2013-2022



This measure shift happened simultaneously with increased incentives for fuel switching, primarily from delivered fuels to electricity. While the previous nonparticipant study provided participation data related to electric and gas savings only, this report includes delivered fuel savings.

Figure 2-3 and Figure 2-4 show the annual and lifetime savings from 2019-2022 by fuel for electric and gas programs. These figures illustrate the decline in electric savings and the increase in delivered fuel savings. The remaining figures in this section cover only 2019-2022 so that they can incorporate delivered fuels. Section 3.1.1 provides further discussion of integrating delivered fuels into this study.

Figure 2-3. Annual savings by fuel, 2019-2022

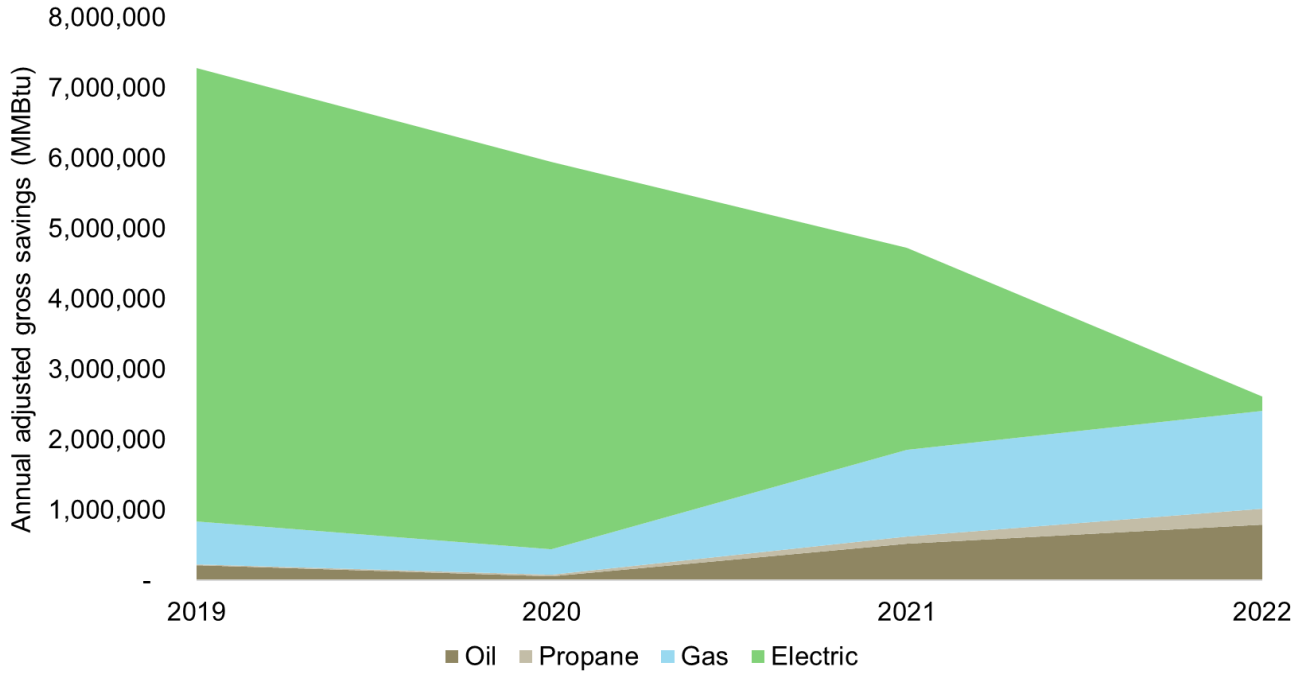
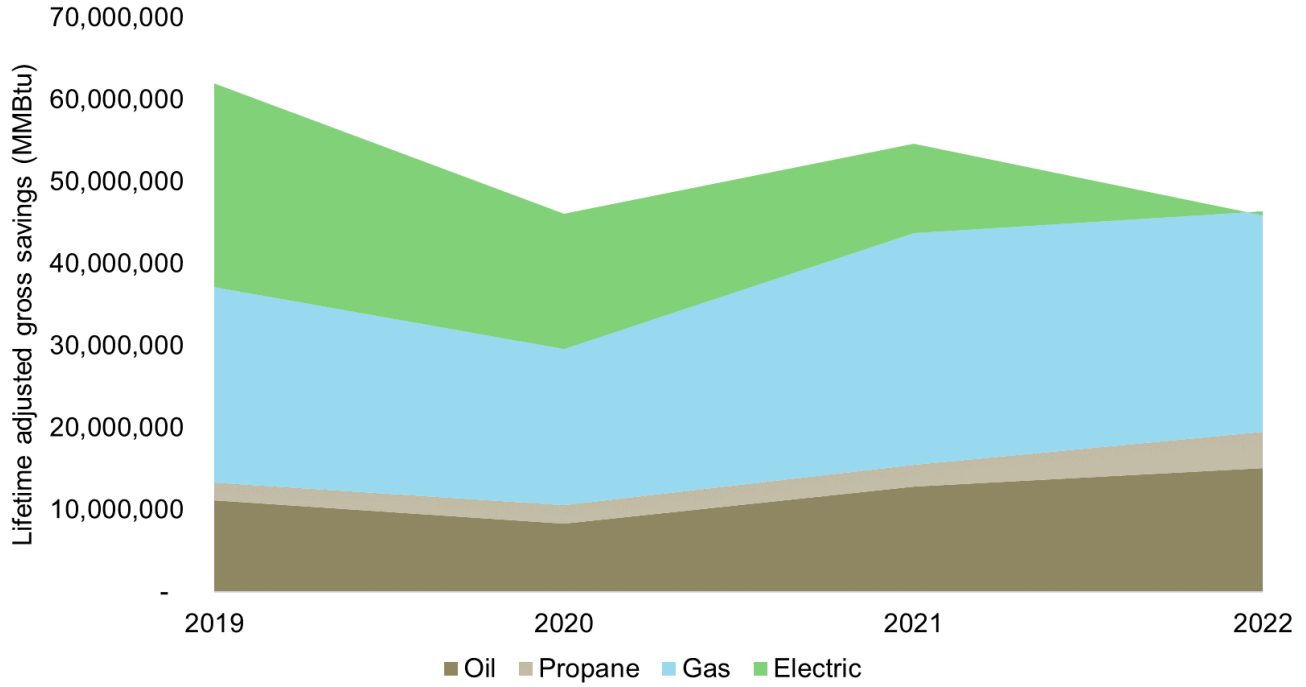


Figure 2-4. Lifetime savings by fuel, 2019-2022



As programs transition away from lighting, an inexpensive measure with high annual savings and a short measure life, to HVAC and envelope, expensive measures with long lives, it is helpful to take a closer look at annual and lifetime savings by end use. Below, Figure 2-5 depicts annual savings by end use from 2019-2022. Notably, this figure shows lighting savings sharply declining from 2019 to 2022 after the programmatic shift away from lighting measures. Figure 2-6 depicts lifetime savings by end use for the same time frame. In Figure 2-6, we see a much more muted effect of the programmatic shift away from lighting measures and a more substantial savings contribution from HVAC and envelope.

Figure 2-5. Annual savings by end use, 2019-2022

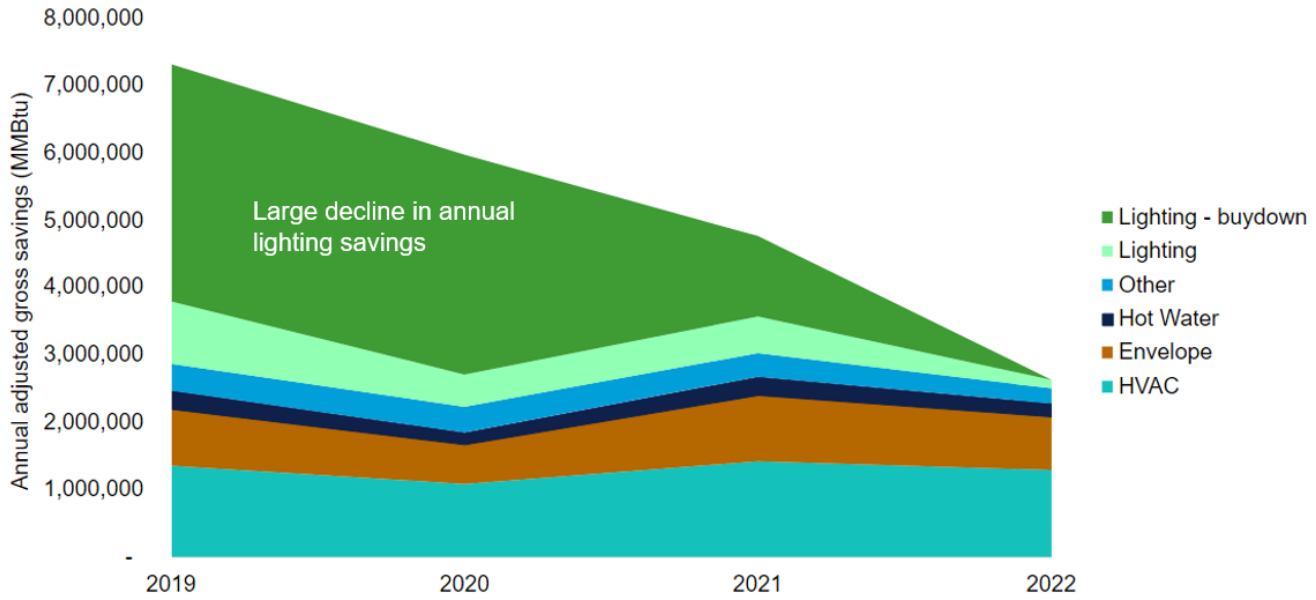
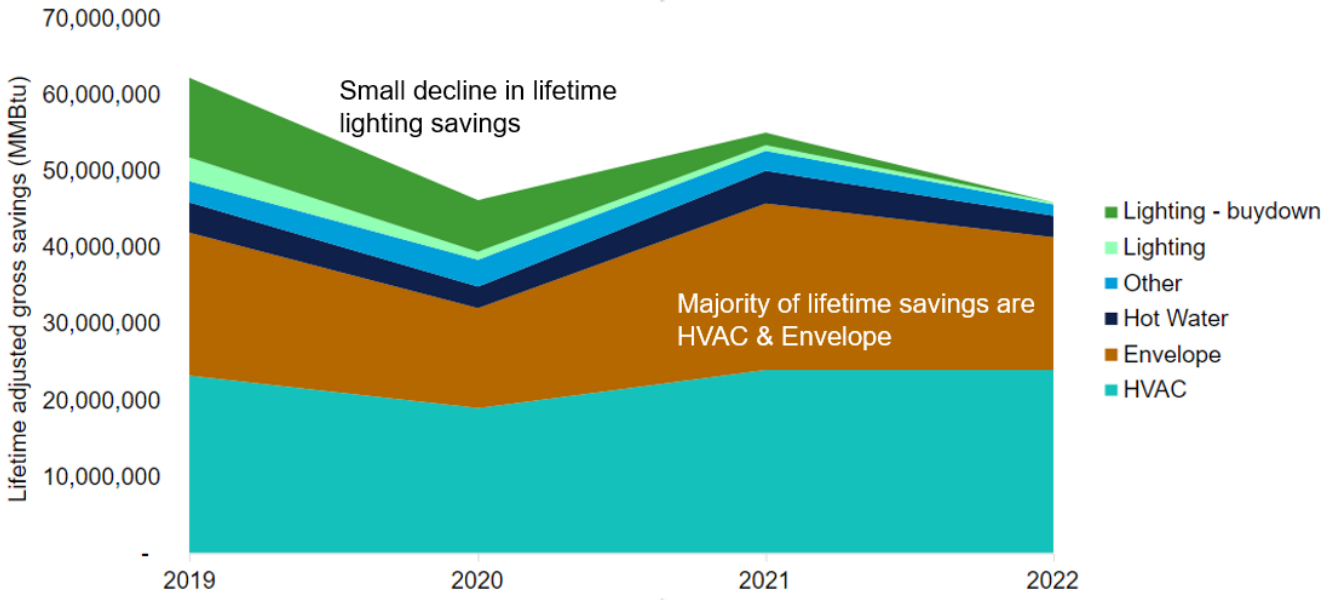


Figure 2-6. Lifetime savings by end use, 2019-2022



3 METHODOLOGY

This section outlines the methodology used in this study. Table 3-1 summarizes the study's scope and changes from the previous 2013-2017 nonparticipant study.

Table 3-1. Scope summary and changes since 2013-2017 nonparticipant study

Analysis	2013-2017 report	2013-2022 report
Municipality participation	Appendix of participation by municipality	Appendix of participation by municipality and summary of how municipalities changed overall.
Correlation analysis	Renter, moderate income, English Isolated, Multifamily 5+, urban/rural, construction year, low income	Renter, moderate income, English Isolated, low income, MF 5+
Median splits	Not included in 2013-2017 report published on EEAC website, but used in testimony that referenced the study	Renter, moderate income, English Isolated, low income, MF 5+
Participation rate	Location participation rate, consumption weighted location participation rate	Location participation rate
Savings per capita	Savings/consumption	Savings/consumption, savings per residential population square feet
Incentives per capita	Not included	Incentives per residential population square feet
Income Eligible program	Not included	Participation of Income Eligible program
Delivered fuel savings	Not included	Included from 2019-2022
End use analysis	Not included	Incentives by end use over time
Vacancy analysis	Not included	Vacancy rate by block group and type
HTR participation	Not applicable; HTR definition did not exist yet	Included

3.1 Data sources

The data from this report includes the PAs' customer billing and energy efficiency program tracking data and demographic data from third-party sources such as US Census data. Readers can delve more deeply into Massachusetts energy data by exploring the MA Customer Profile Dashboard, which allows users to view data by category (end use, building type, etc.), filter data on selected variables (program year, city, etc.), view data at increasingly granular levels, and download the data to an Excel file. While the dashboard is continuously updated, this report reflects the numbers available at the time of publication. Data is available approximately one year after the end of the program year; therefore, this report includes data through 2022.

3.1.1 New data from this project

As the PAs' programs and reporting "evolve to meet the Commonwealth's greenhouse gas (GHG) emission-reduction requirements," as stated in the 2025-2027 EM&V Principles and Policy,[15] additional data is needed to provide a more complete picture of the PAs' energy savings achievements beyond kWh and therms.

To meet this need, in 2024, DNV integrated the additional data fields of GHG reduction, standardized reporting in MMBtu, delivered fuel savings, and adjusted gross and net savings. We used the PAs' tracking systems and benefit-cost (BCR) models to include 124 new data fields, which are now accessible on the dashboard and available to all study teams for 2019-2022.

[15] https://ma-eeac.org/wp-content/uploads/2025-2027-Three-Year-Plan-EMV-Policy-Memo-FINAL.docx

3.2 Calculating participation

3.2.1 Participation rate

One of the key ways to measure participation rates is at the location level. Location participation rate is calculated as the ratio of unique participating locations (primary address) to total unique locations in the population. Participation rates are split by the electric and gas programs and include fuel-switching measures.

3.2.2 Savings

All savings values in Section 4 are gross to allow the analysis period to reach back to 2013, since adjusted gross values are readily available only for 2019-2022 (discussed in section 3.1.1). As Section 2 summarizes program changes since 2019, those values are presented in adjusted gross.

This report uses annual savings, rather than lifetime, since annual savings are readily available at the measure level back to 2013.

3.2.3 Upstream and behavioral measures

Upstream savings are not included in this report. These savings result from store sales in which the rebate goes back to the manufacturer, and the specific location of these savings (where measures were ultimately installed) remains unknown.

Behavioral program savings are also excluded from all metrics and figures.

3.2.4 Incentives

Incentives paid by the program are represented in nominal dollars, which are dollars measured in terms of absolute money amounts and not adjusted for inflation.

3.2.5 Population savings rate

To understand the depth of savings and incentives across the population, this study calculated savings as a percentage of consumption and as a percentage of population square feet (sq. ft.). This metric, also shown in the previous nonparticipant study, is annual savings (kWh and therms separately) normalized to annual consumption.

3.2.6 Savings and incentives per population square footage

The recent programmatic shift towards electrification makes it more important to include delivered fuel savings and incentives paid in the key metrics included in this report. Because delivered fuel consumption is not available, to create a metric that calculates delivered fuel savings as a percentage of delivered fuel consumption, residential square footage (the total floor area in buildings that is residential and heated as listed in property tax assessor data) was used a proxy to normalize the savings achieved and incentives paid at a location across all fuels.

Since incentives inherently include all fuels, square footage is also used in the denominator to calculate this metric.

3.2.7 Incentives per household

Incentives per household represents the average incentives paid across all households in the population. This study uses the number of 2022 households from the 5-year 2022 American Community Survey (ACS) in the denominator for all years due to limited year-to-year variations in the number of households. Total households includes both occupied and vacant households to represent all customers who could potentially be served.

3.3 Customer groups

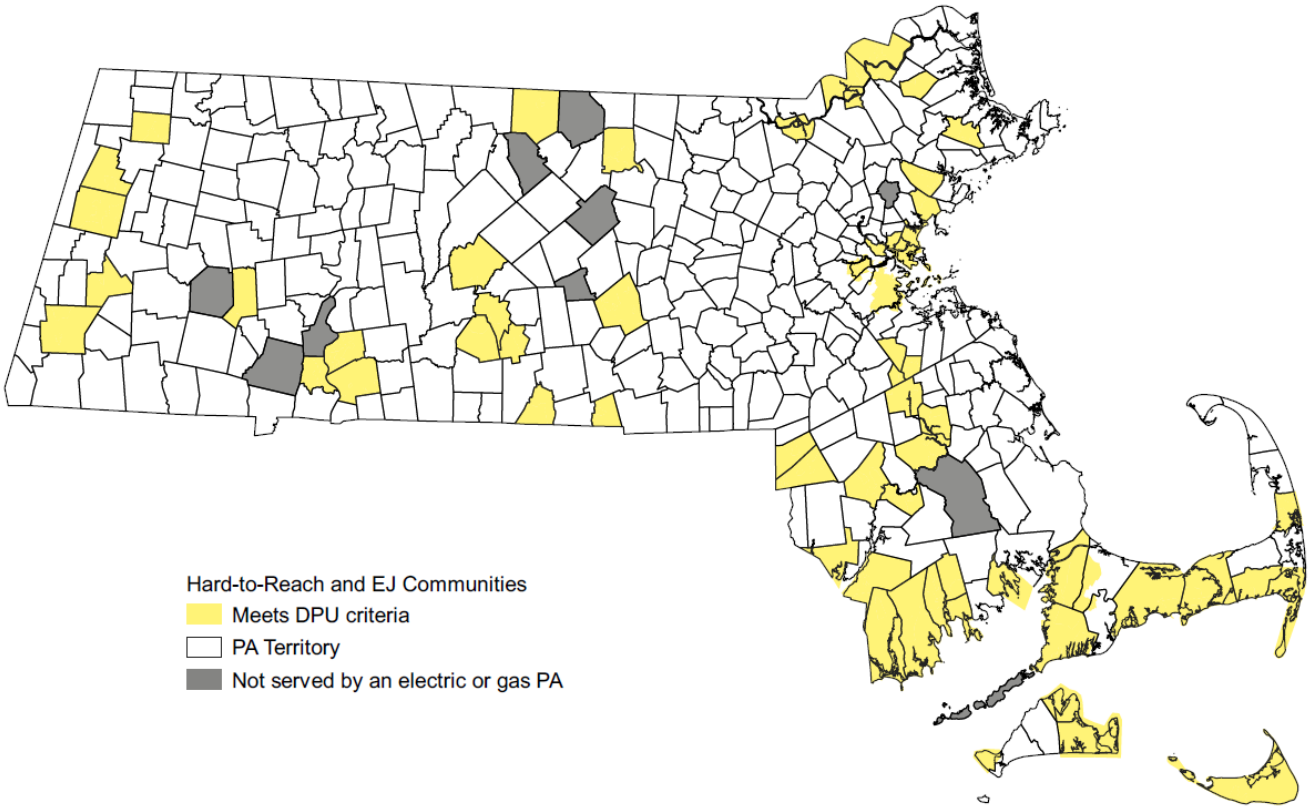
3.3.1 HTR communities

The MA DPU established a set of criteria for defining Targeted HTR[16] Communities.[17] Beginning in 2022, the DPU ordered the PAs to use these criteria to determine which municipalities are eligible for targeted equity investment and outreach. HTR communities are municipalities[18] that:

1. Have historically low participation, defined in the DPU Order as 27% or lower
2. Contain at least one Environmental Justice block group[19]

Figure 3-1 shows where the HTR areas are located across the state.

Figure 3-1. DPU HTR communities in Massachusetts



[16] DNV uses "Hard-to-Reach" (HTR) as it is the official term set by the DPU. However, it should be noted that there has been some objection to this term in that it "implies blame on the communities themselves, rather than questioning why the organisation isn't easily accessible." https://uprising.org.uk/news/i-am-not-hard-reach

[17] See p. 97-98 in the DPU Order on the PAs' 2022-2024 Three-Year Plans (D.P.U. 21-120 through D.P.U. 21-129).

[18] As a whole municipality, the City of Boston would not meet the criteria for a DPU HTR Community. However, because it contains nearly a tenth of Massachusetts's population, the DPU Order states that HTR Communities will include "the Boston neighborhoods of Allston, Brighton, Dorchester, East Boston, Fenway, Mattapan, Mission Hill, and Roxbury."

[19] https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts

3.3.2 Block group analysis

This report explores the relationship of participation to the concentration of renter-occupied, multifamily 5+, moderate-income, low-income, and limited English-speaking households (from US Census data) from 2013-2022, at the Census block group level.

For this analysis, we define low-income households as those with income <$50k and moderate-income households as those with income between $50k and $75k, as reported in the 2022 5-year ACS data. Customer profile studies in Massachusetts have used ACS thresholds for several years because they are the closest approximations using readily available data. They do not completely align with the precise eligibility requirements for the Income Eligible and Enhanced Incentives programs as program eligibility is based on household income and number of household members, and ACS only reports these two variables together at the statewide level.

There is a small number of participants whose location can be assigned to a municipality but not a specific block group. These locations can thus be designated HTR but we cannot assign ACS data at the block group level. This results in small differences between the HTR and block group analyses. Furthermore, while the results provide insight into whether these groups are participating, it is important to note that block-group-level participation does not directly indicate the participation of key customer groups. For example, if the block group participation rate increases with a higher concentration of owner-occupied households, this does not necessarily mean that more owner-occupied households are participating.

3.3.2.1 Median splits

This report looks at the participation rate, savings rate, and incentives rate from 2013-2022 for all block groups based on how each block group compares to median levels of the different key customer groups (renters, multifamily 5+, low income, moderate income, and limited English). For each customer group, the analysis splits block groups into two categories: below the median ("low concentration") or above or equal to the median ("high concentration"). The counterparts to these customer groups (single family, owner, market rate) are represented in the "low concentration" block groups. For example, the activity of block groups with a "high concentration" (above the median) of owner-occupied households is represented in low-concentration renter block groups.

Table 3-2 shows the block group median levels for each customer group as well as the number (and percentage) of customer group households in the high-concentration group. As the table shows, the high-concentration block groups represent most of the households in each customer group.

Table 3-2. Block group median levels for key customer groups

Customer group	Median split between low- and high-concentration block groups	Households in high-concentration block groups
Renters	30%	81% of 1,029,654 households
Multifamily 5+ units	11%	84% of 652,692 households
Low income	25%	70% of 750,889 households
Moderate income	13%	67% of 348,029 households
Limited English*	Median (2%), 90th percentile (16%)	51% of 164,684 households

*For limited English, the median is very low (2%) and so a "higher concentration" of this group is defined as a block group in the 90th percentile, or having greater than 16% limited-English households.

As shown in the table, the median number of renters per block group is 30%. In comparing performance across key customer groups, the analysis looks at the participation rate of block groups with a low concentration of renters (<30%, or lower than the median) and block groups with a high concentration of renters (>=30%, or higher than the median). The table further shows that the majority of households with the characteristic are located in the high-concentration block groups, except for limited English.

3.3.2.2 Correlations

APPENDIX B shows the correlations of location participation rate and the key customer groups from 2013-2022. Correlations showed results similar to median spits, and median splits are easier to interpret as they directly show changes in participation rate, incentives, and savings; the current report has thus shifted to using median splits (Section 4). However, for the sake of continuity, we include the correlation in APPENDIX B as it is the method used in the previous nonparticipant study.

Similar to the median splits, results from the key customer groups (renters, MF 5+, low income) provide insight into their counterparts (owners, SF 1-4, market rate). For example, if the participation rate decreases as the concentration of renters increases (negative correlation), the participation rate also increases as the concentration of owners increases (positive correlation).

3.3.3 Municipalities

This report provides results by municipality, a key component of the DPU order. Section 4.3 explores how municipalities' participation rates increased or decreased from the first 5-year period to the second. It also shows how municipalities' participation rates compare to the statewide average in each 5-year period. APPENDIX C provides all municipalities' average participation in each of three full 3-year terms (2013-2015, 2016-2018, and 2019-2021). It also shows participation rates for 2022. As 2022 was the first year of the 2022-2024 cycle, this year of data does not fully reflect changes implemented through the 2022-2024 plan.

3.3.4 Income Eligible

Reporting in the HTR, customer group, and municipality sections is for Income Eligible and Market Rate combined. Section 4.4 provides location participation rates for Income Eligible and Market Rate programs separately at the statewide level. The Income Eligible location participation rate is calculated using two different methodologies, neither of which is perfect but which together offer a range for location participation rates. The two methods both use the number of Income Eligible locations in the numerator but use different denominators.

The first method calculates the denominator of locations with at least one electric or gas account on a low-income rate code. Because the qualification criteria require participants to be on a low-income rate, this denominator reflects a conservative estimate of the eligible population. This metric can only be calculated from 2019-2022 due to the low prevalence of rate codes provided and loaded to the data warehouse prior to 2019.

The second method uses the denominator of locations that qualify for Income Eligible program based on income and household size using US Census Public Use Microdata Sample (PUMS) data. We convert the number of households to locations by dividing by the average number of units per building. The average number of units was estimated using census data that indicates the number of total households by number of units. This denominator reflects an expansive estimate of the eligible population because households in this group are likely to qualify for low-income rates even if they are not officially on them. This approach overestimates the eligible population because it includes low-income households that may be in housing that precludes them from being on the low-income rate, such as college campus or public housing.

4 RESULTS

This section presents results including participation rates, savings achieved, and incentives received by participants. It is divided into four subsections:

1. Inside and outside HTR communities
2. Key customer groups
3. Municipalities and those engaged in the Community First Partnership
4. Income Eligible and Market Rate sectors

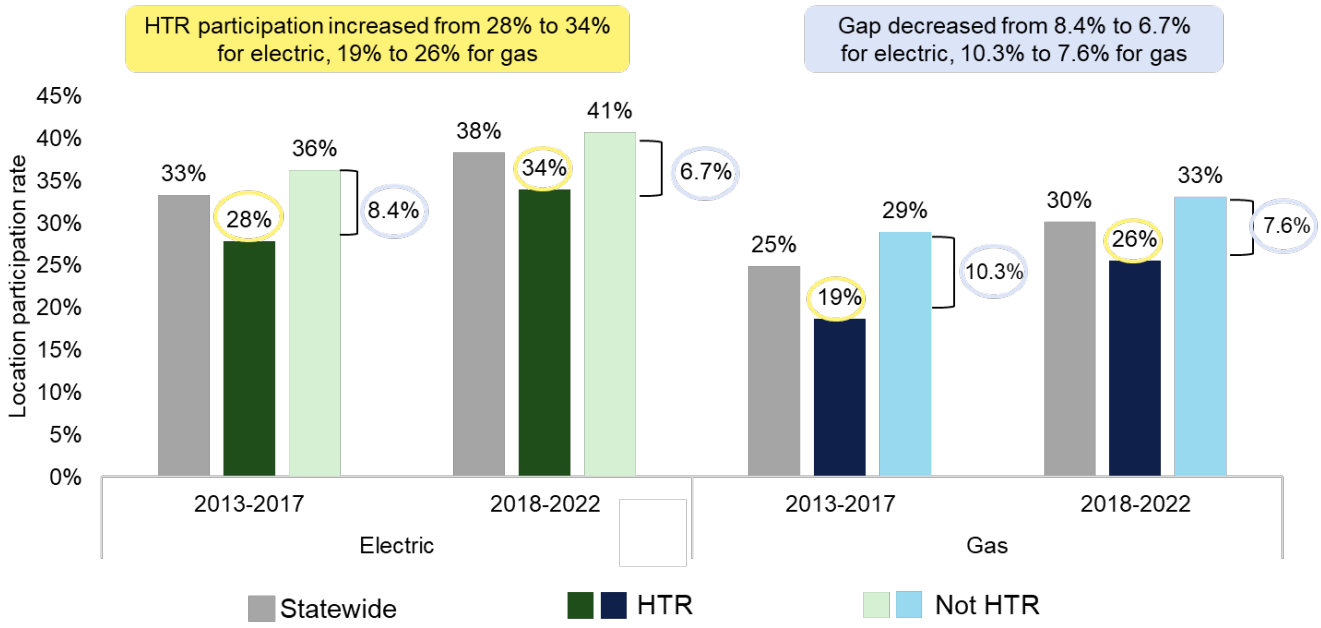
4.1 HTR communities

The 2022 DPU order requires the PAs to provide data showing if and how much participation in HTR areas has changed since the last nonparticipant study. That study identified areas of lower participation across Massachusetts from 2013-2017, which helped the DPU establish the criteria for qualifying as a HTR community. The DPU subsequently identified 60 municipalities and 8 Boston neighborhoods as HTR communities.

This section looks at participation changes in these HTR communities since the last nonparticipant study. It includes data from 2013 to 2022 and includes combined both Income Eligible and Market Rate.

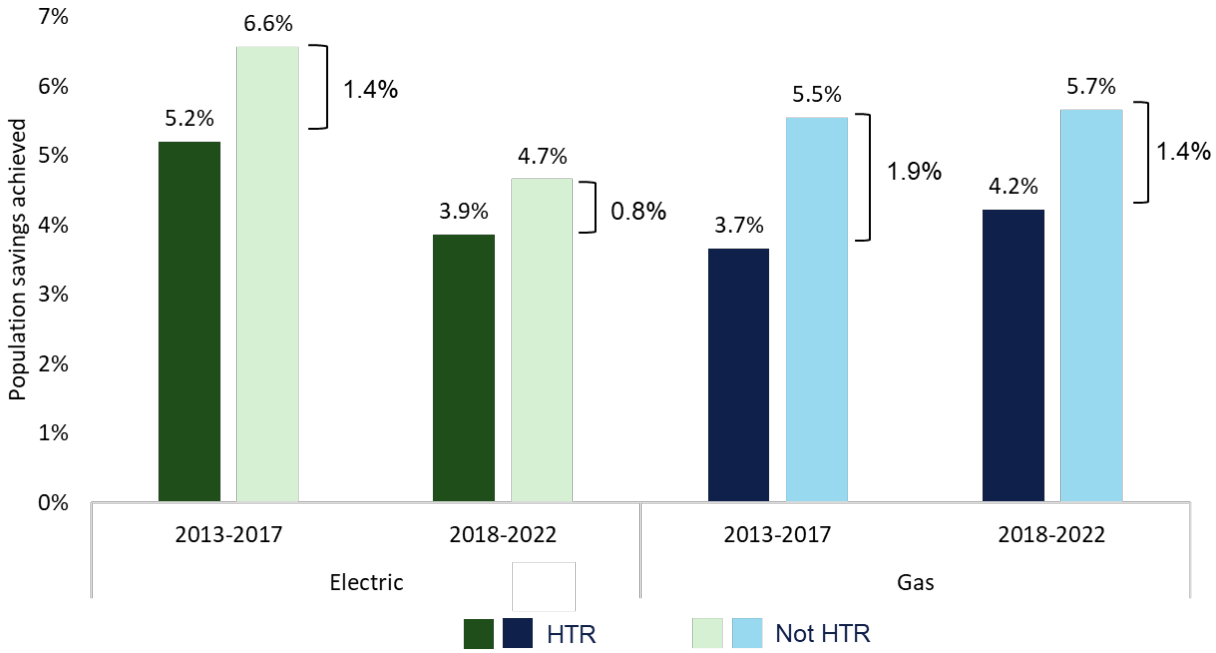
Figure 4-1 illustrates the participation rates statewide and in HTR and non-HTR communities for electric and gas programs. This figure shows that participation increased in both HTR and not HTR communities. We also see HTR areas consistently exhibit lower participation than non-HTR areas. Low participation in 2013-2107 is part of the HTR definition, and therefore the gap during this period is expected. In the second five-year period, we see that the gap in participation decreases.

Figure 4-1. Location participation rate for HTR and non-HTR in the two 5-year periods, electric and gas programs



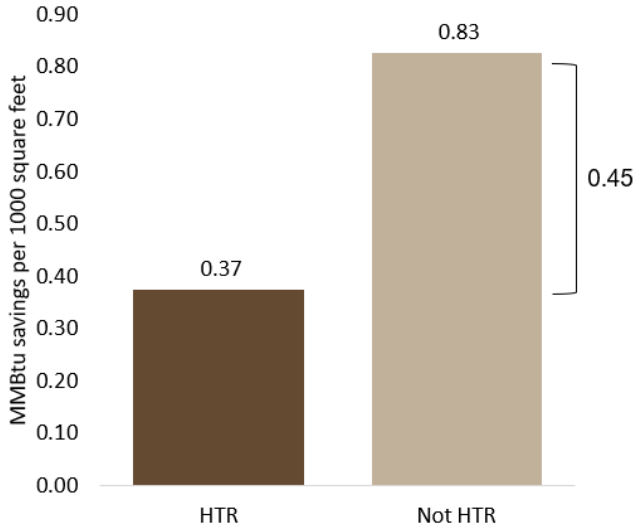
To gauge the depth of savings across the population, Figure 4-2 shows annual electric and gas savings, respectively, as a percentage of population savings. From the first 5-year period to the second, electric savings dropped substantially. This is expected due to programs' transition away from lighting and the increased focus on fuel switching from delivered fuels to electric. Gas savings increased slightly. The gap that existed between HTR and non-HTR communities in the first 5-year period persisted in the second, although it decreased for both electric and gas.

Figure 4-2. Population savings over consumption for HTR and non-HTR in the two 5-year periods, electric and gas programs



With the transition to fuel switching, it is important to incorporate the new delivered fuel savings data. The PAs do not track delivered fuel consumption, so savings as a percentage of consumption excludes a substantial amount of consumption from the denominator in many electrification situations. To overcome this limitation, square feet serve as a proxy for total energy consumption, including delivered fuels. Figure 4-3 shows the total delivered fuel savings per 1,000 square feet from 2019-2022[20] In this figure, we can see that delivered fuel savings were considerably lower for HTR areas. During this time, heat pumps made up 88% of delivered fuel savings, suggesting that this gap is driven by a gap in heat pump installations.

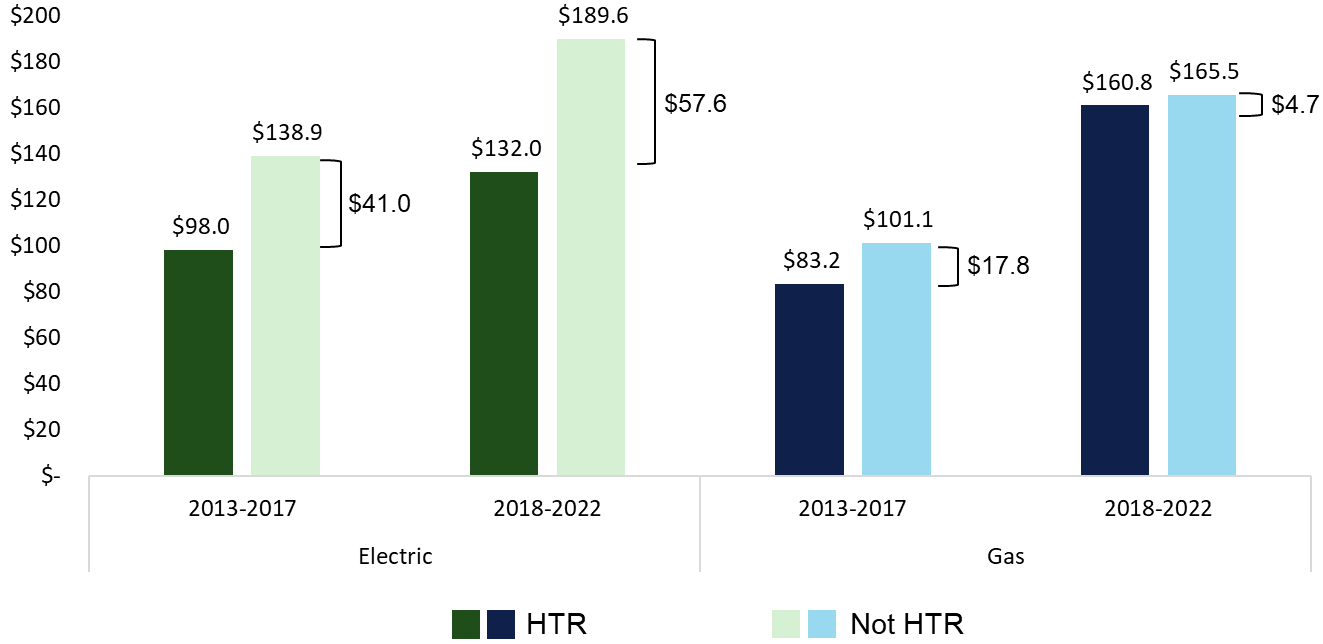
Figure 4-3. Delivered fuel savings per 1,000 sq. ft. for HTR and non-HTR, 2019-2022



[20] As discussed in the methodology section, data with delivered fuels was only incorporated from 2019 onward.

Figure 4-4 displays incentives per residential square footage from 2013 to 2022. The gap that existed between HTR and non-HTR communities persisted, yet increased for electric and decreased for gas.

Figure 4-4. Incentives per 1,000 sq. ft. for HTR and non-HTR in the two 5-year periods, electric and gas programs



4.2 Key customer groups

This section looks at differences in participation for specific customer groups including renter-occupied, multifamily, low-income, moderate-income, and limited-English households. DNV analyzed these groups by looking at their concentration at the block group level, categorized as either below the median ("low concentration") or above the median ("high concentration"). [21]

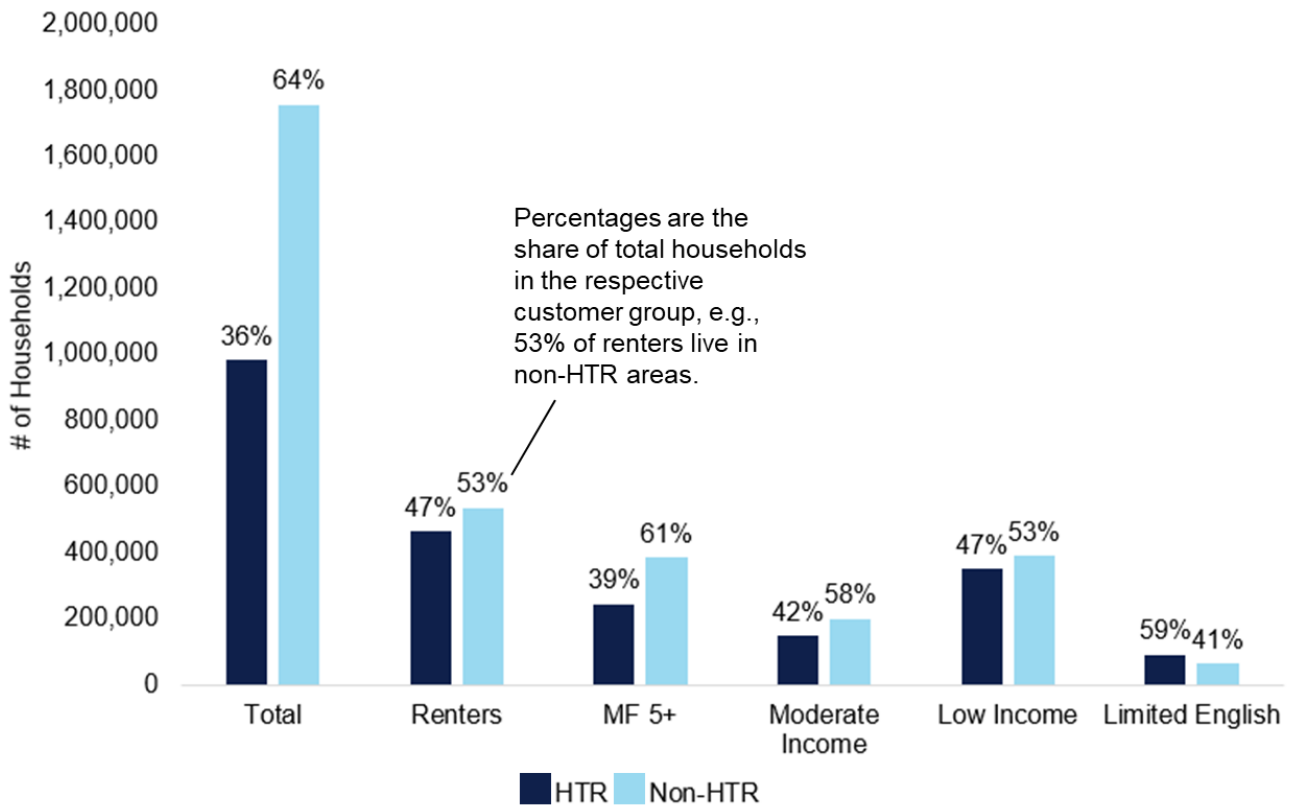
Focusing on customer groups can help serve customers who are missed by community-based initiatives. While community-based initiatives can increase equity by focusing on areas with a higher concentration of specific customer groups, they have two important limitations:

1. Focusing on areas with a higher concentration of specific customer groups does not guarantee that customers with the characteristics of interest are the ones being served.
2. There are many customers with the characteristics of interest outside the targeted communities.

Figure 4-5 illustrates how customers with characteristics of interest may be located within and outside of HTR areas. Although it shows that a greater concentration of these customers in HTR areas than in non-HTR areas, it also shows that customers on the low-income rate are almost as likely to be located outside HTR areas as inside HTR areas.

[21] The counterparts to these customer groups (single family, owner, market rate) are represented in the "low-concentration" block groups. For example, the activity of block groups with a "high concentration" (above the median) of owner-occupied households is represented in low-concentration renter block groups.

Figure 4-5. Number of households for key customer groups in HTR and non-HTR areas, 2022



4.2.1 Location participation rate

Figure 4-6 and Figure 4-7 show location participation rates in block groups with high and low concentrations of key customer characteristics in the two 5-year periods for electric and gas programs. In these figures, we see that from the first 5-year period to the second, electric and gas location participation rates increased for all groups.

We also see the gap that existed in the first 5-year period between these groups and their counterparts persisted in the second 5-year period, although it decreased for low-income and moderate-income households and increased for renters, multifamily households, and limited-English-speaking households. These same gap trends appear in all the following figures. The exceptions are for MF 5+ and limited English gas location participation rates, which showed a decrease in gap from the first five-year period to the second.

Figure 4-6. Electric location participation rate by customer group, cumulative 2013-2017 and 2018-2022

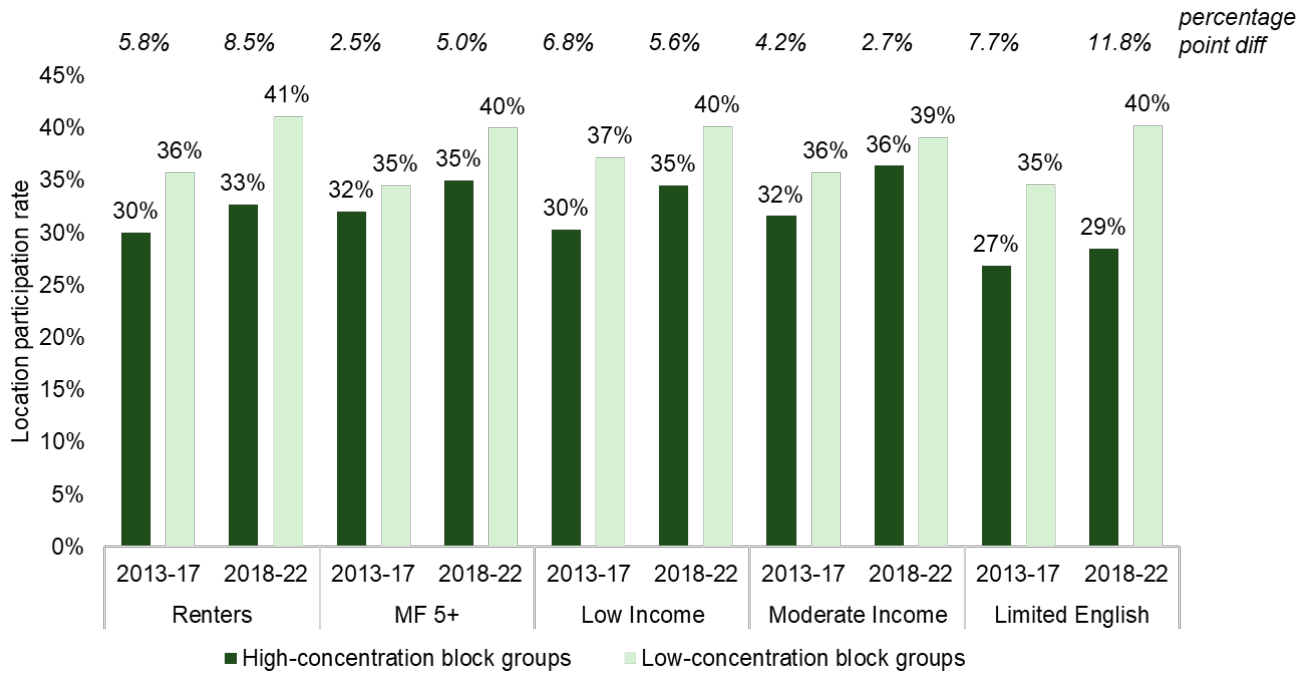
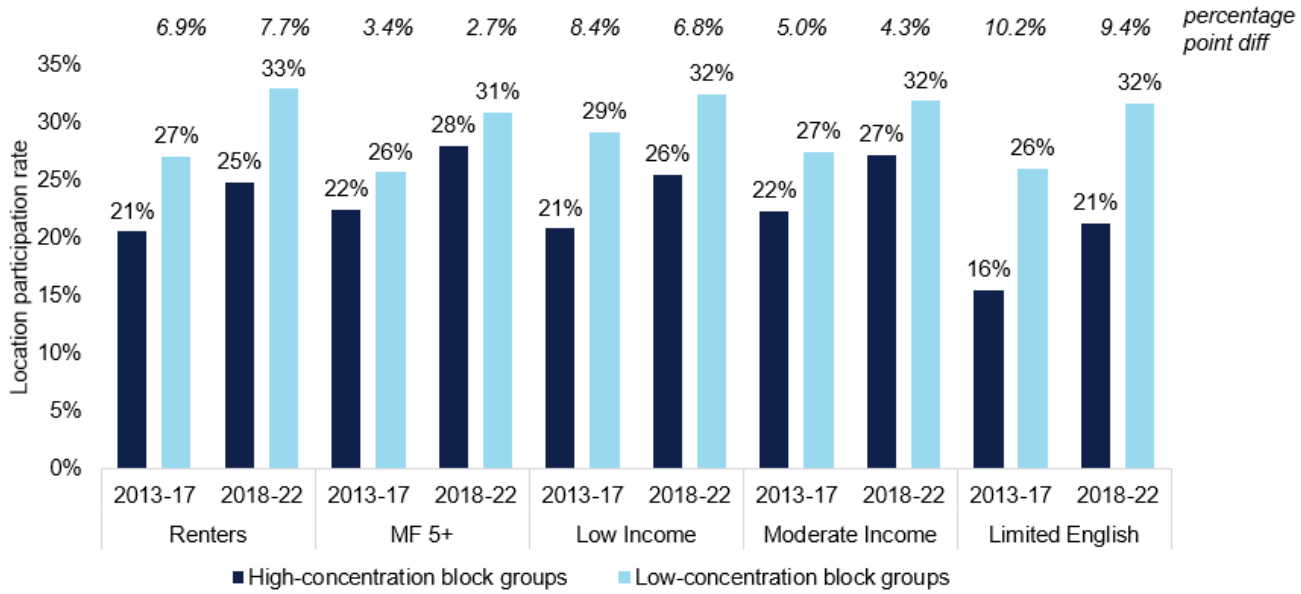


Figure 4-7. Gas location participation rate by customer group, cumulative 2013-2017 and 2018-2022



4.2.2 Savings

Figure 4-8 and Figure 4-9 show the electric and gas savings per consumption for block group concentrations of key customer groups in the two 5-year periods for electric and gas programs, respectively. From the first 5-year period to the second, electric savings dropped substantially, as expected due to decreased incentives for residential lighting beginning in 2019. Gas savings either increased or stayed relatively the same.

Similar to the location participation rate, the gap that existed between key customer groups and their counterparts persisted in the second 5-year period, although it decreased for low-income and moderate-income households and increased for renters, multifamily households, and limited-English-speaking households

Figure 4-8. Electric savings per consumption by customer group, cumulative 2013-2017 and 2018-2022

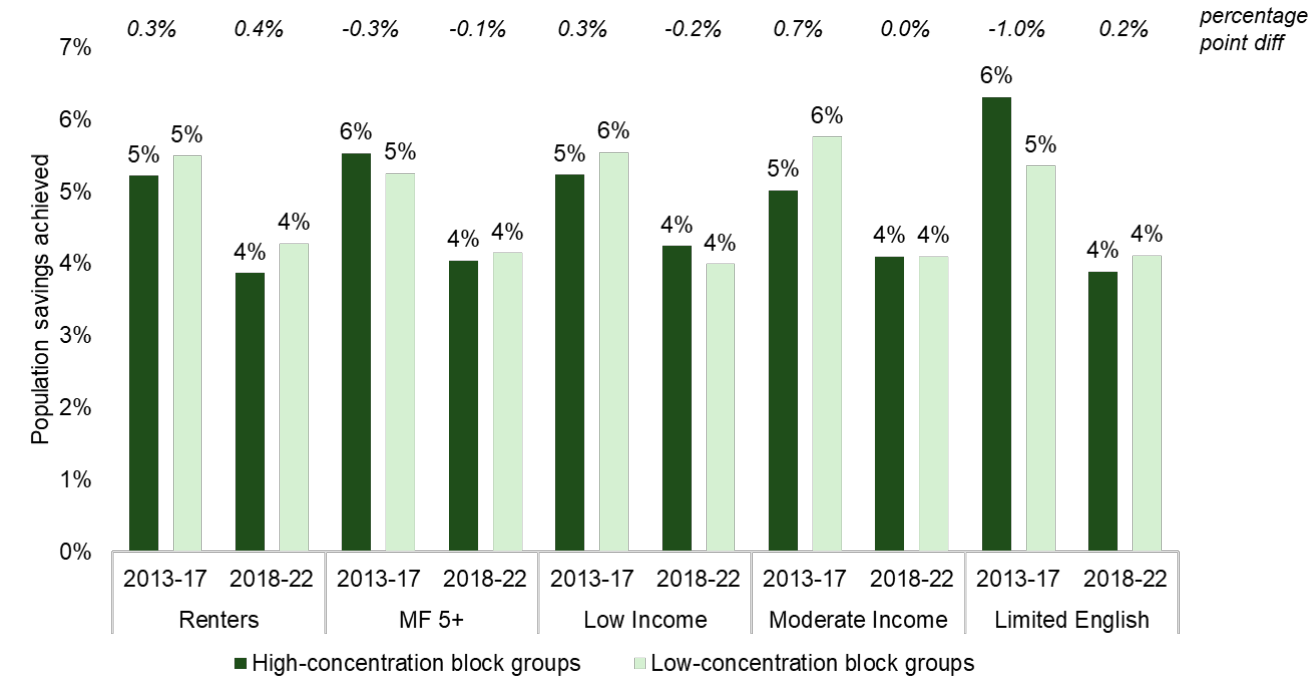


Figure 4-9. Gas savings per consumption by customer group, cumulative 2013-2017 and 2018-2022

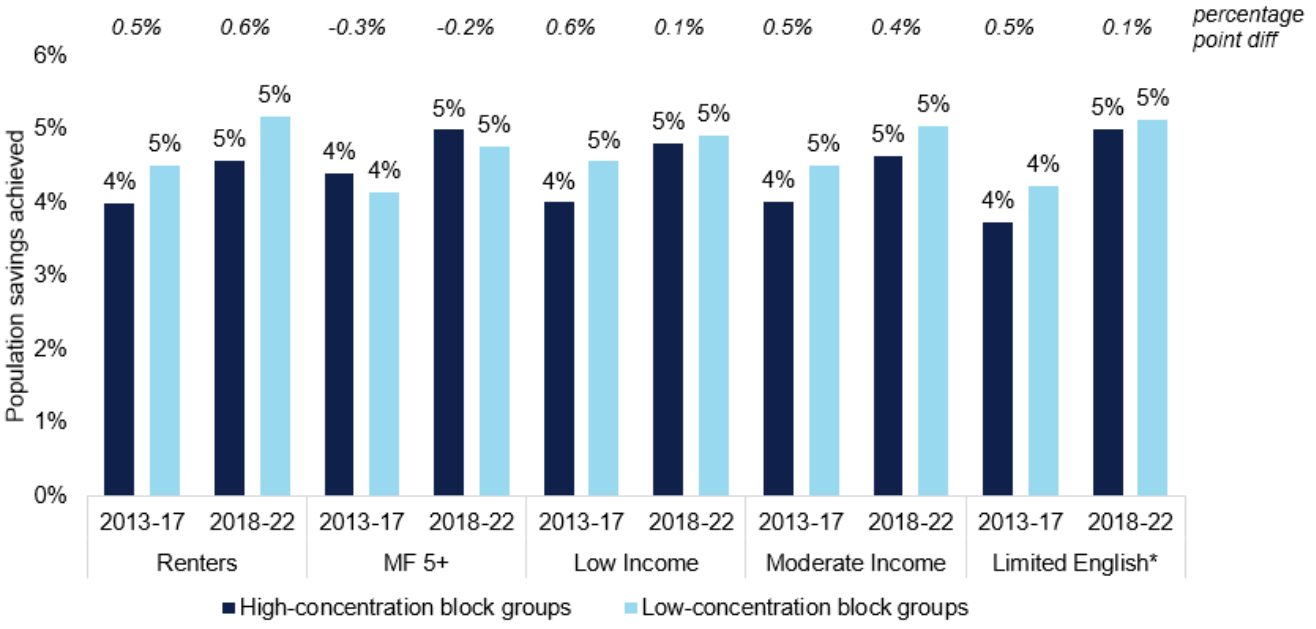
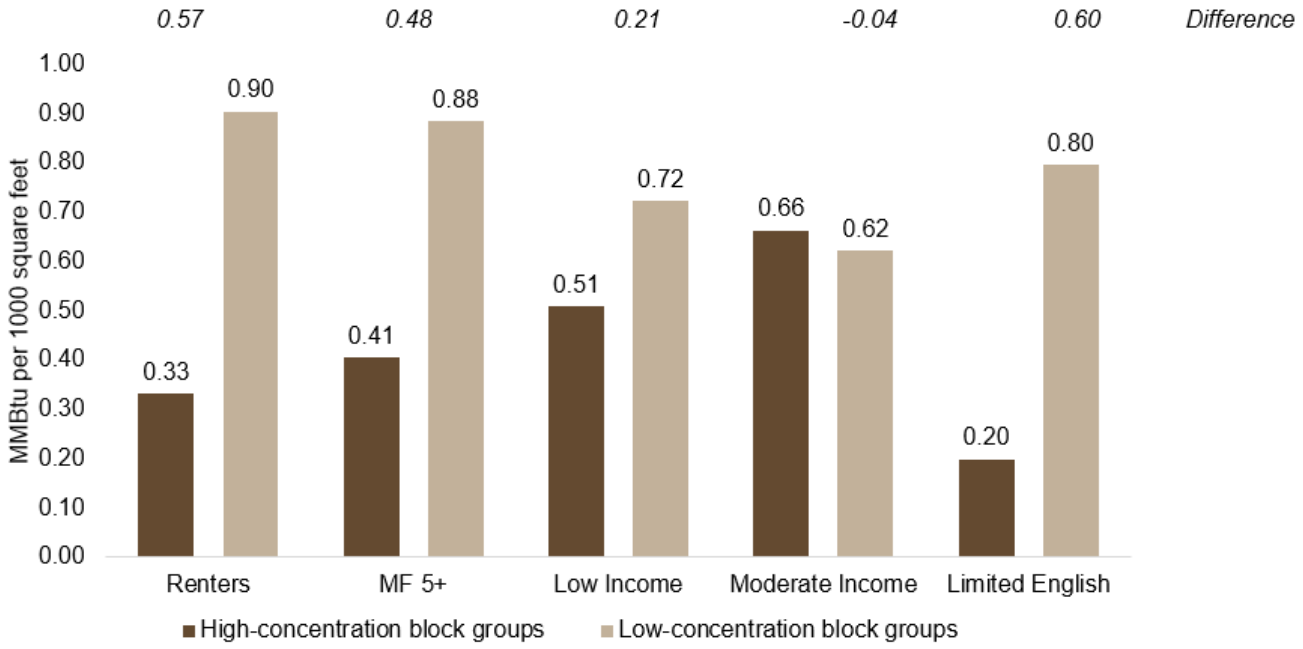


Figure 4-10 shows delivered fuel savings per 1,000 square feet from 2019-2022. While we cannot compare this period to the previous 5 years, we can see a significant gap between delivered fuel savings in areas with high concentration of renter multifamily, low income, and limited English households. In this period, heat pumps make up 88% of delivered fuel savings, which suggests that this gap is driven by a gap in heat pump installations. Areas with high concentrations of moderate-income households show similar delivered fuel savings compared to block group counterparts.

Figure 4-10. Annual gross delivered fuel MMBtu savings per 1,000 sq. ft., 2019-2022



4.2.3 Incentives

Figure 4-11 and Figure 4-12 show incentives per 1,000 sq. ft. for block group concentrations of key customer groups in the two 5-year periods for electric and gas programs, respectively. From the first 5-year period to the second, incentives increased substantially for both electric and gas programs.

For electric programs, the gap that existed between renters/multifamily households and non-renters/non-multifamily households in the first 5-year period increased dramatically in the second. Coupled with lower delivered fuel savings (Figure 4-10), this gap increase suggests these customers may be installing fewer heat pumps than their counterparts.

In the second 5-year period, low- and moderate-income customers received higher incentives than their counterparts, except for moderate income gas. Given that low- and moderate-income customers had a lower participation rate than their counterparts, this means that low- and moderate-income customers received higher incentives per participant and took advantage of the increased incentives offered to these customer groups.

Figure 4-11. Electric incentives per 1,000 sq. ft., cumulative 2013-2017 and 2018-2022

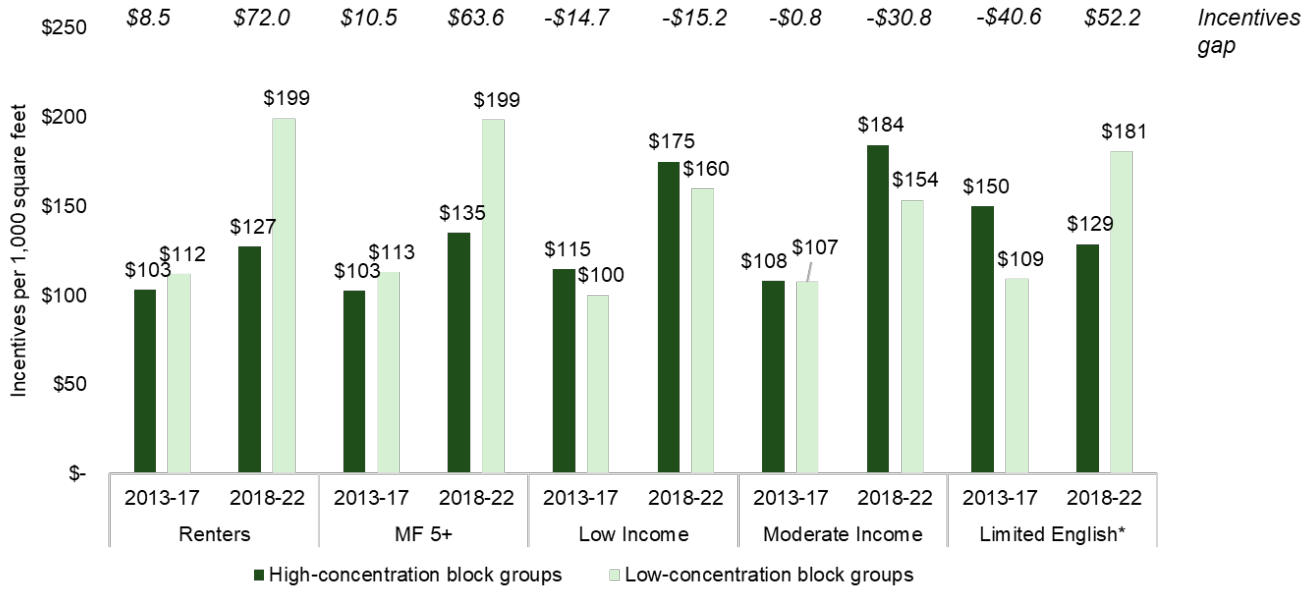
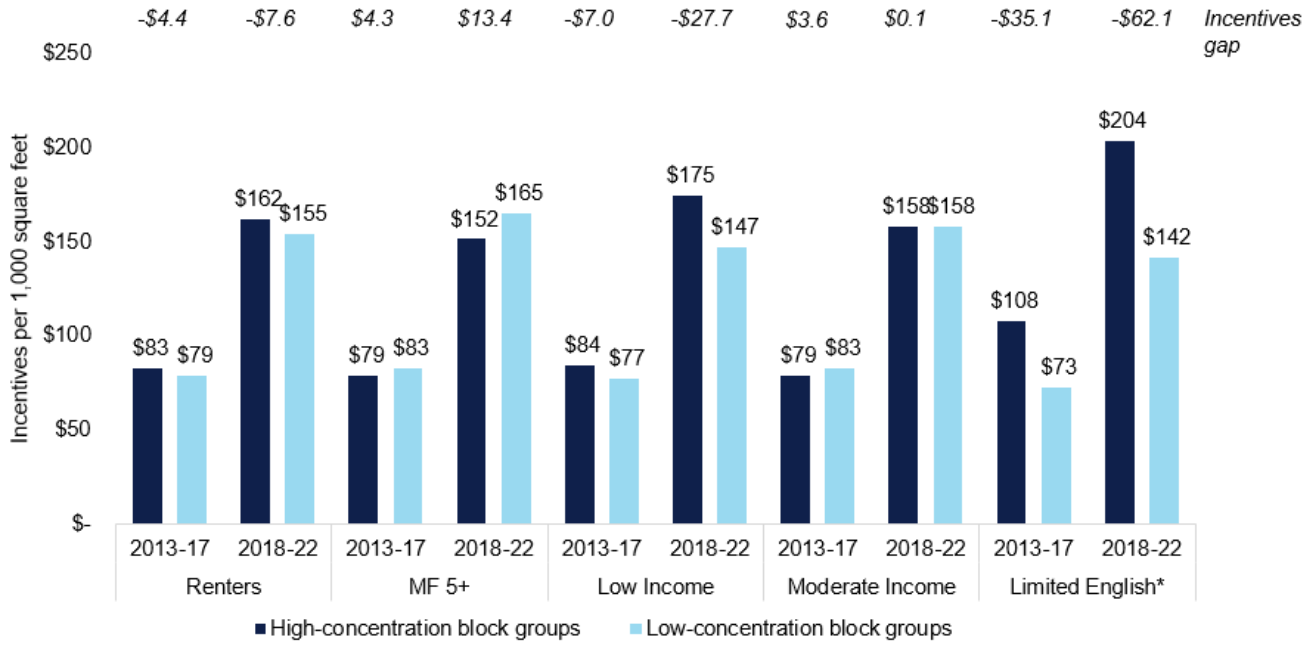


Figure 4-12. Gas incentives per 1,000 sq. ft., cumulative 2013-2017 and 2018-2022



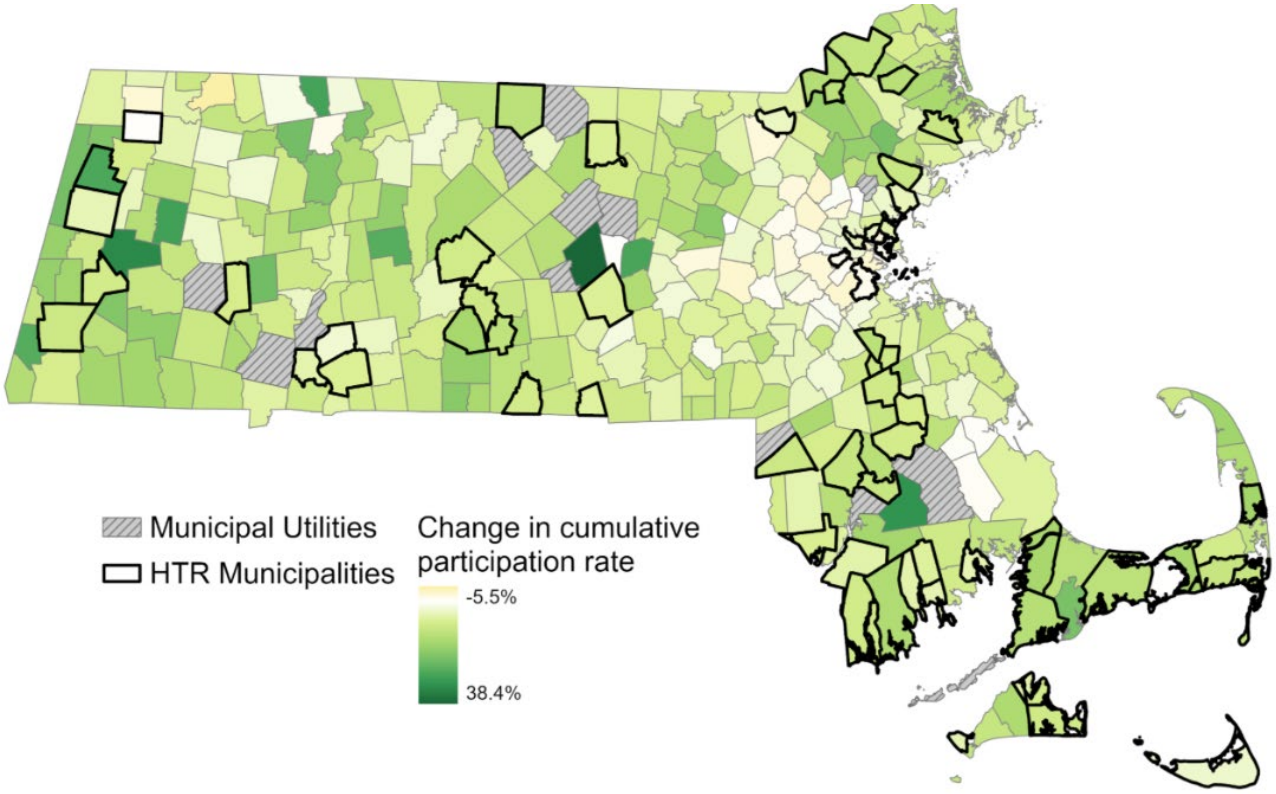
4.3 Municipalities

This section examines how participation has changed since the last nonparticipant study for each municipality, a key component of the DPU order. The results for each individual municipality in Massachusetts can be found in APPENDIX C.

4.3.1 Statewide participation map

The map in Figure 4-13 shows percentage point changes in participation rates between the first five-year period and the second for HTR and non-HTR communities. Notably, location participation rates increased statewide and for 95% of HTR municipalities (every green-colored municipality had a participation increase).

Figure 4-13. Change in location participation rate for each municipality in Massachusetts, electric and gas combined*



* This map shows percentage point changes in the cumulative location participation rate from the first 5-year period to the second. Going from a 10% to a 20% participation rate would result in a 10% percentage point change.

4.3.2 Municipality bubble chart

Figure 4-14 and Table 4-1 show how municipalities' participation rate increased or decreased from the first 5-year period to the second. They also show how municipalities' participation rates compare to the statewide average in each 5-year period.

4.3.2.1 Understanding the municipality bubble chart

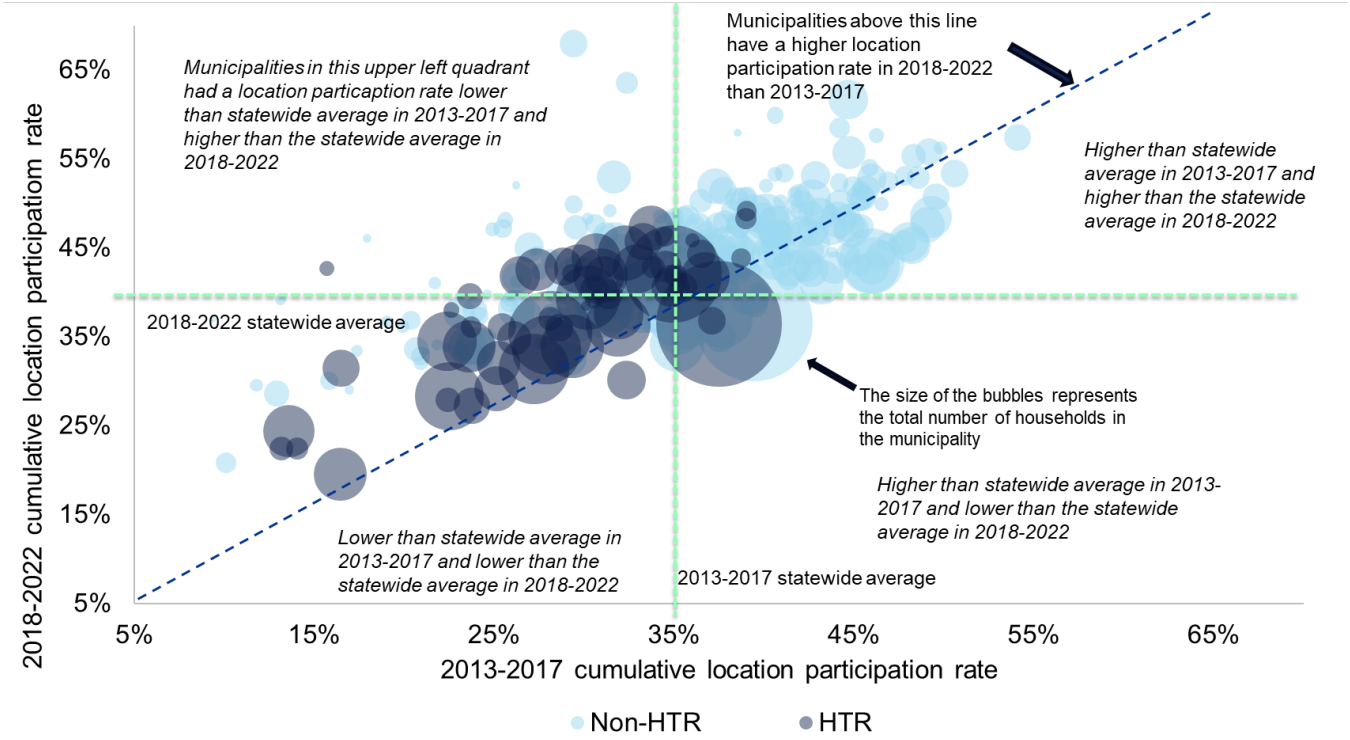
In Figure 4-14 below:

- Each bubble represents a municipality.
- The size of the bubble represents the municipality's population size.
- The color of the bubble denotes whether the municipality is an HTR (dark blue) or non-HTR (light blue) community.
- The x-axis represents the location participation rate from 2013-2017.
- The y-axis represents the location participation rate from 2018-2022.

To help readers interpret this figure, we have added three lines:

1. **A vertical line intersecting the x-axis at the average value**. This vertical line represents the average location participation rate from 2013-2017. Any bubble to the left of this line had below-average participation rates from 2013-2017; any bubble to the right of the line had above-average location participation rates in that period.
2. **A horizontal line intersecting the y-axis at the average value**. This horizontal line represents the average location participation rate from 2018-2022. Any bubble below this line had below-average participation rates from 2018-2022; any bubble above it had above-average participation rates in that period.
3. **A diagonal line at y=x**. This represents the same location participation rate in 2013-2017 and 2018-2022. Bubbles above this line increased their participation rates from the first 5-year period to the second. Bubbles below the line decreased their participation rates from the first 5-year period to the second.

Figure 4-14. Change in location participation rate by municipality (HTR and non-HTR)



4.3.2.2 Interpreting the municipality bubble chart

In Figure 4-14, most bubbles cluster above the diagonal line, which means that these municipalities increased participation from the first 5-year period to the second. As Table 4-1 confirms, 93% of municipalities increased participation from the first 5-year period to the second.

Further, in Figure 4-14, HTR municipalities (dark blue bubbles) tend to cluster left of the vertical line. This indicates that they had below-average participation rates in the first 5-year period. This is expected, as the definition of HTR was partially based on 2013-2017 location participation rates (weighted by consumption). As Table 4-1 shows, 86% of HTR municipalities (30% + 56%) were below the statewide average in the first 5-year period.

In Figure 4-14, HTR municipalities also tend to cluster below the horizontal line, which means their below-average participation rates in the first 5-year period persisted in the second. Table 4-1 shows that 63% (56% + 7%) of HTR municipalities were below the statewide average in the second 5-year period.

The upper left quadrant of Figure 4-14 is of particular interest, as municipalities in that quadrant went from below-average in the first 5-year period to above-average in the second 5-year period. Table 4-1 shows that 30% of HTR municipalities went from below statewide average participation in the first 5-year period to above in the second 5-year period. Conducting case studies about the PAs' activities in these municipalities could yield valuable insights into successful approaches for increasing participation rates.

Table 4-1. Change in cumulative location participation rate from 2013-2017 to 2018-2022 (HTR and non-HTR)

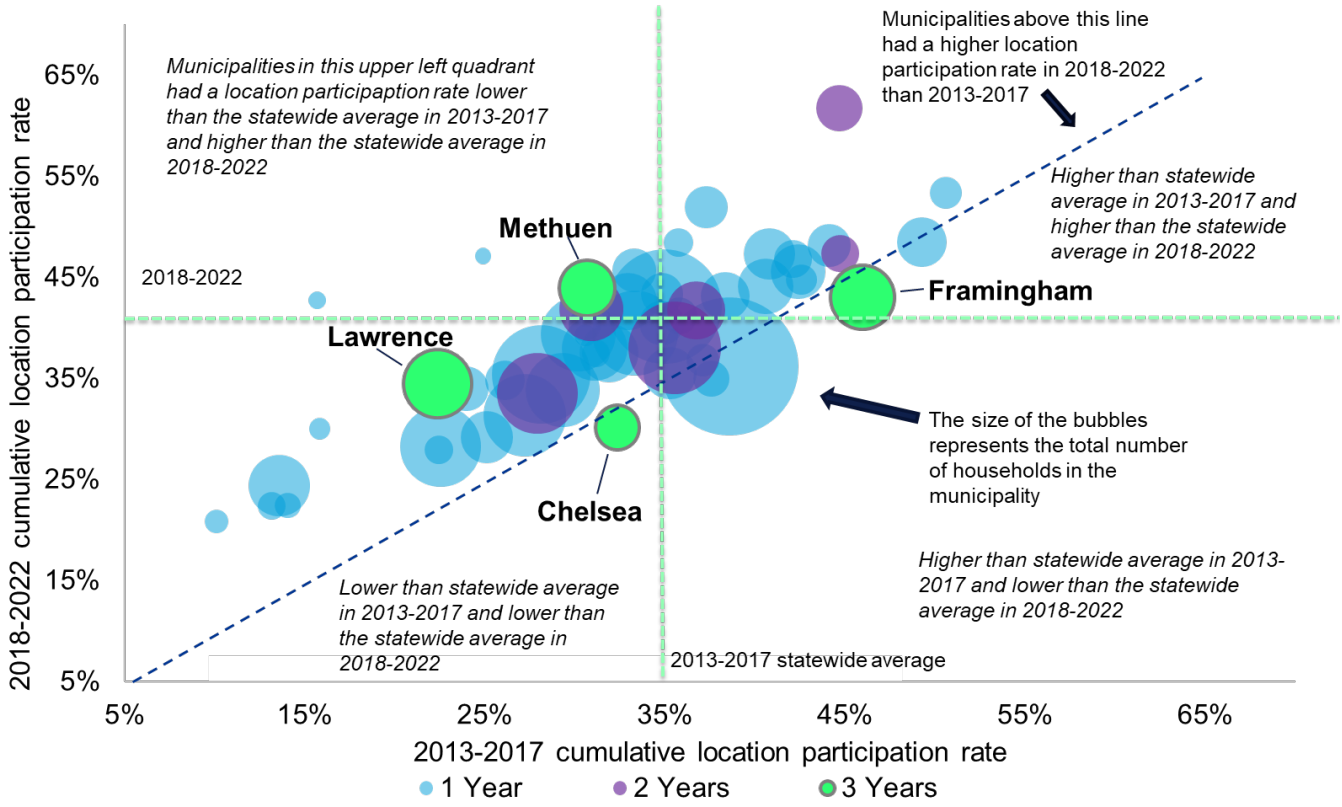
Change in cumulative location participation rate from first 5-year period to second 5-year period	% of municipalities within each area	
	HTR	Non-HTR
Decreased	5%	8%
Increased by 0 to 10 percentage points	59%	55%
Increased by 10 to 20 percentage points	34%	31%
Increased by 20 or more percentage points	2%	7%
Below to above the statewide average	30%	14%
Stayed below the statewide average	56%	29%
Above to below the statewide average	7%	9%
Stayed above the statewide average	8%	48%

Note: Boston has both HTR and non-HTR areas. In this table, Boston HTR areas and Boston non-HTR areas are each treated as a separate municipality.

4.3.2.3 Community First Partnerships

Figure 4-15 shows a bubble chart similar to Figure 4-14, but it only includes municipalities that were in the Community First Partnership from 2020-2022. The bubbles are color-coded according to how many years the municipality engaged in the Community First Partnership (1, 2, or 3 years). The municipalities called out in lime green participated in all three years. We added the same three lines to this chart as Figure 4-14 (see above).

Figure 4-15. Change in location participation rate by number of years in Community First Partnership



Most of the bubbles in Figure 4-15 fall above the diagonal line, meaning their participation rates increased from the first 5-year period to the second. However, the bubbles also tend to cluster in the lower left and upper right quadrants. This means that few of these municipalities changed status from the first 5-year period to the second; if they had below-average participation rates in the first 5-year period, they also had below-average participation rates in the second. If they had above-average participation rates in the first 5-year period, they had above-average participation rates in the second.

Similar to Figure 4-14, the municipalities in the upper left quadrant might be especially interesting candidates for case studies to explore successful approaches for increasing participation rates.

4.4 Income Eligible

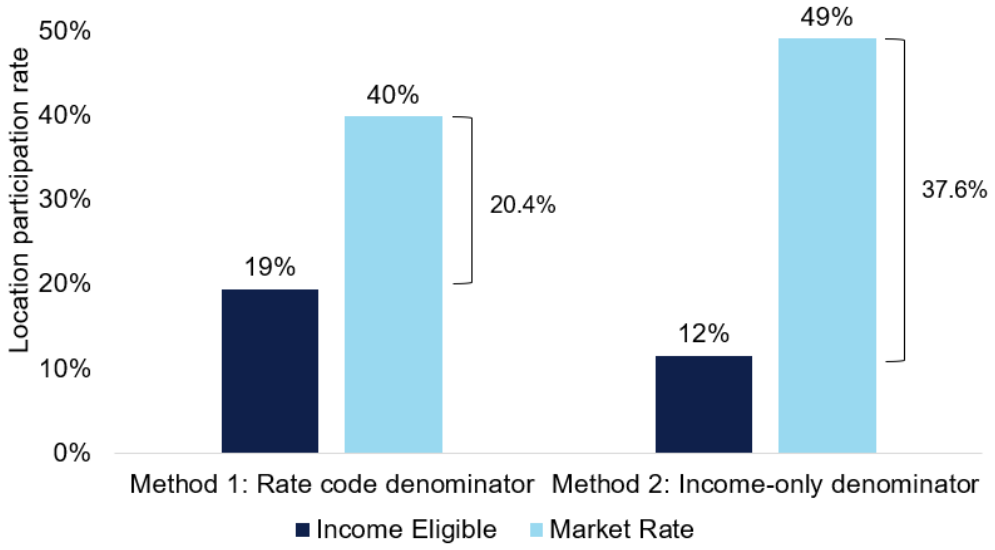
Since the 2013-2017 nonparticipant study, there has been increased stakeholder interest in measuring distributive equity by looking at how participation differs between Income Eligible and Market Rate programs. Section 4.2 explores the participation of block groups with high and low concentrations of low-income households, and this section builds on that analysis by exploring participation in Income Eligible and Market Rate programs.

To participate in the Income Eligible program, customers must both meet income requirements[22] and be on the low-income rate code. To explore how low-income customers are participating in this program, this study calculated Income Eligible participation using two different approaches. The first approach calculates the Income Eligible participation rate as the number of locations participating in the Income Eligible program divided by the number of locations with at least one household on the low-income rate code. The second approach calculates Income Eligible participation as the number of locations participating in the Income Eligible program divided by the number of locations that are low-income according to ACS Census data. These two approaches yield a range of participation rates for the Income Eligible program while demonstrating the impact of the program's income and rate code requirements.

The years of 2019-2022 were used for this analysis because as discussed in Section 3, rate codes can only be analyzed for the 2019-2022 period due to the low prevalence of rate codes provided and loaded to the data warehouse before 2019. Gas is often master-metered at the building level; therefore, electric and gas data was combined to identify locations with customers on an electric or gas low-income rate code.

Figure 4-16 shows the Income Eligible vs Market rate participation for electric and gas combined for 2019-2022. We see in both cases that Income Eligible participation is lower than Market Rate participation, although the gap is smaller for those who are on the low-income rate code.

Figure 4-16. Cumulative location participation rate for Income Eligible vs Market Rate program, electric and gas combined, 2019-2022

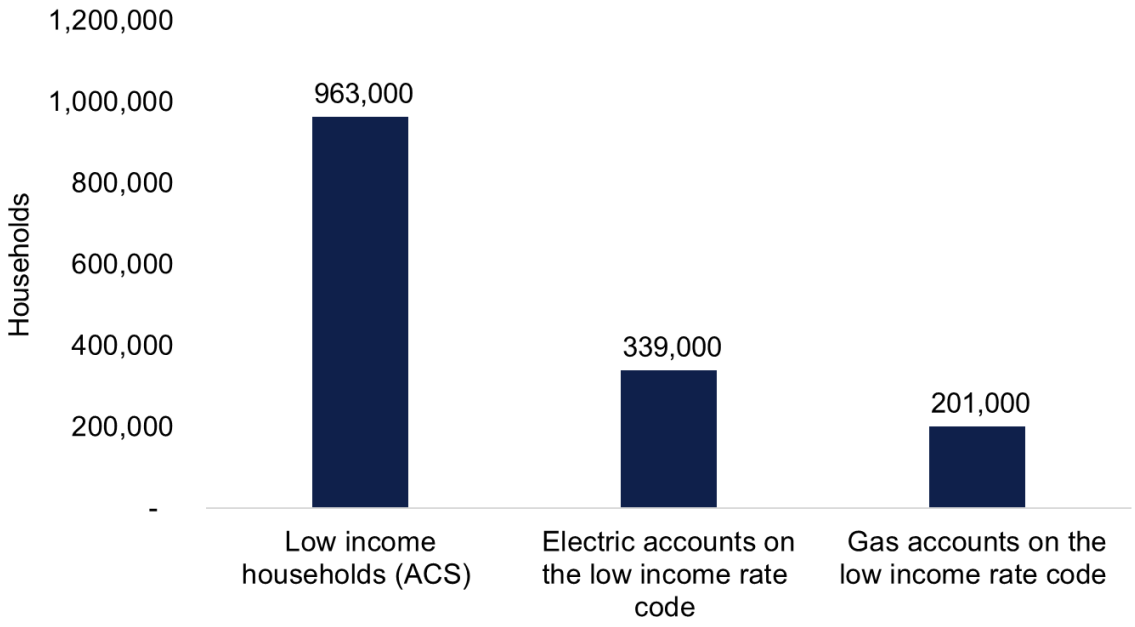


* Note that this location participation rate excludes participants who could not be matched in billing data (our source of rate codes); it also excludes buildings that are on commercial rates, such as many of the housing authorities. However, DNV estimates that savings in identifiable housing authorities on commercial rates represent less than 5% of total Income Eligible program savings.

[22] Income requirements are defined as 0-60% of the state median income for the respective number of household members.

Figure 4-17 compares the number of households that qualify for the Income Eligible program based on income and household size (according to ACS data) and the number of electric and gas accounts on a low-income rate code (based on utility billing data). As shown in the figure, many customers who meet the income requirements based on Census data are not on the low-income rate code.[23] Similar to the way that community-based programs can miss customers with characteristics of interest outside targeted communities, the Income Eligible program misses low-income customers who are not on the low-income rate code. Note that many households are on a low-income rate code for both electric and gas.

Figure 4-17. Households who qualify for the Income Eligible program based on income and household size (ACS) vs electric and gas accounts on a low-income rate code (utility data), 2022

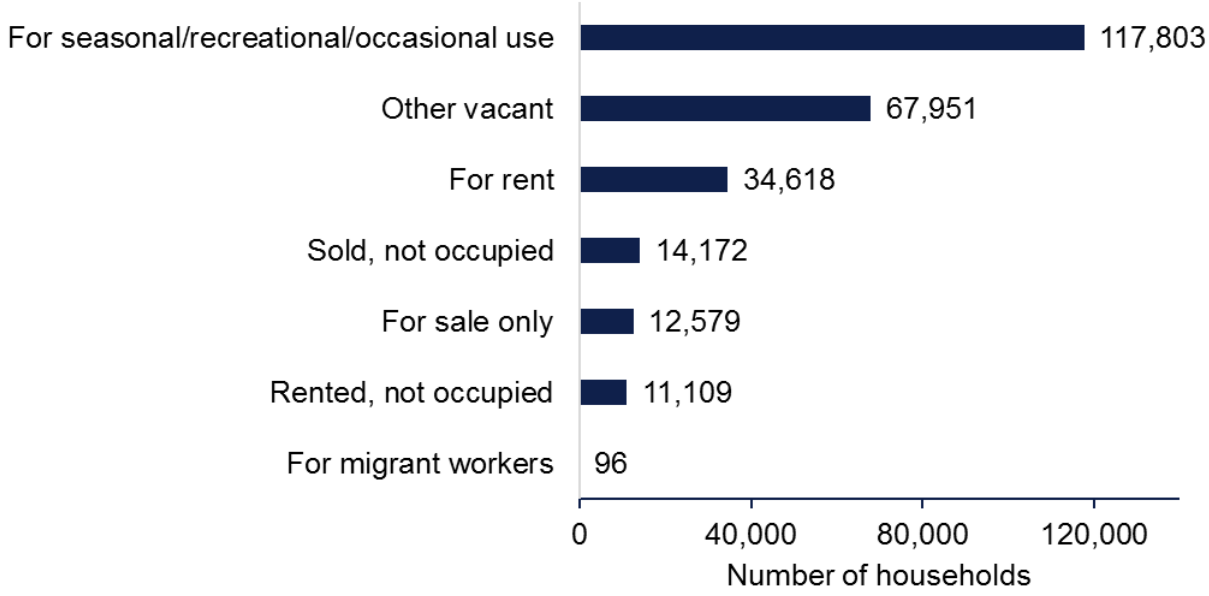


[23] U.S. census data overestimates the number of households eligible for the low-income rate code by including those that are ineligible, such as public housing residents.

APPENDIX A. VACANCY

This section presents information about vacant homes across the state, showing the geographic areas with high concentrations of vacant homes and whether the vacancies are due to seasonal usage. This data, pulled from the 2022 ACS 5-year Census, can help contextualize participation rates in the areas with high vacancy rates and yield insight into which areas might benefit from recruitment strategies that account for seasonality. The data shows that of the 3 million households in Massachusetts, 278,000 (9.3%) are vacant. The figure below indicates the number of vacant households by vacancy type. Note that 46% of vacancies are either seasonal, recreational, or occasional.

Figure 4-18. Number of vacant households by vacancy type



The maps below show the concentration of vacant homes across the state by block group. The map in Figure 4-19 shows the seasonal, recreational, and occasional vacancies by block group; this map indicates a significant concentration of seasonal homes on Cape Cod, along the east coast, and in the far western part of the state. The map in Figure 4-20 displays the remaining vacancies on the same scale, which indicates that almost all block groups across the state have less than 20% non-seasonal vacant homes. This indicates that geographic vacancy variations are driven by seasonal homes.

Figure 4-19. Percentage of households with seasonal vacancy by block group

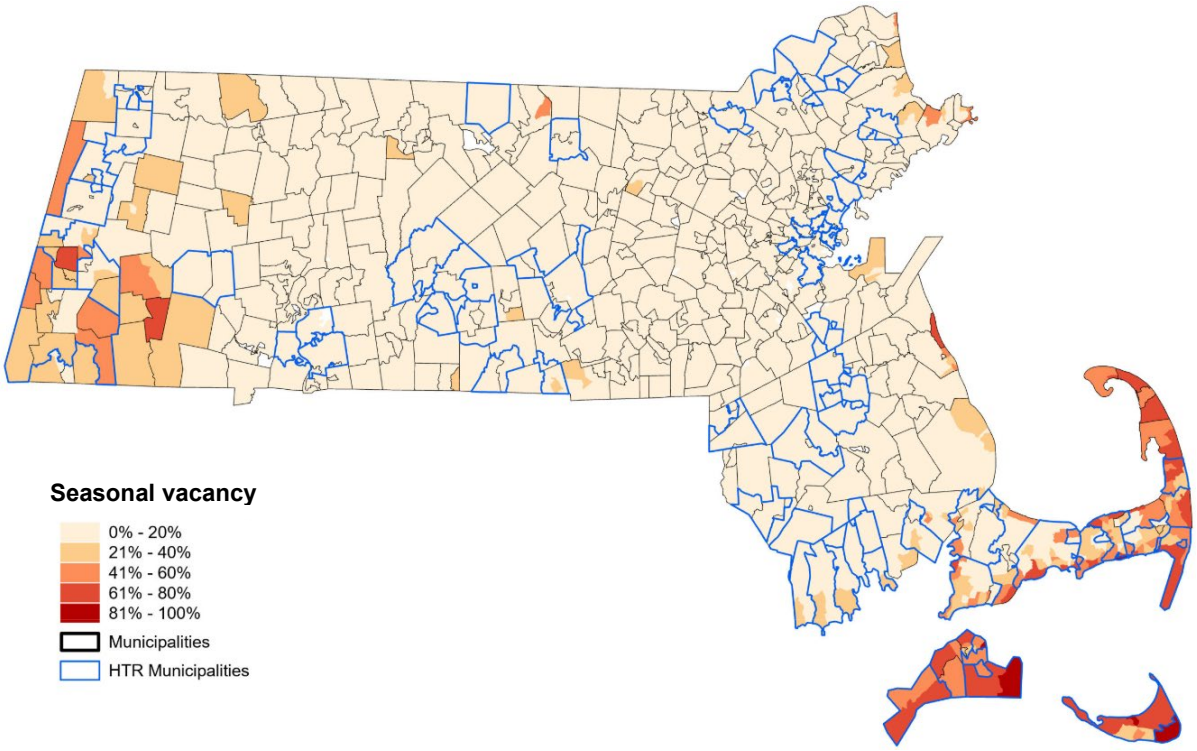
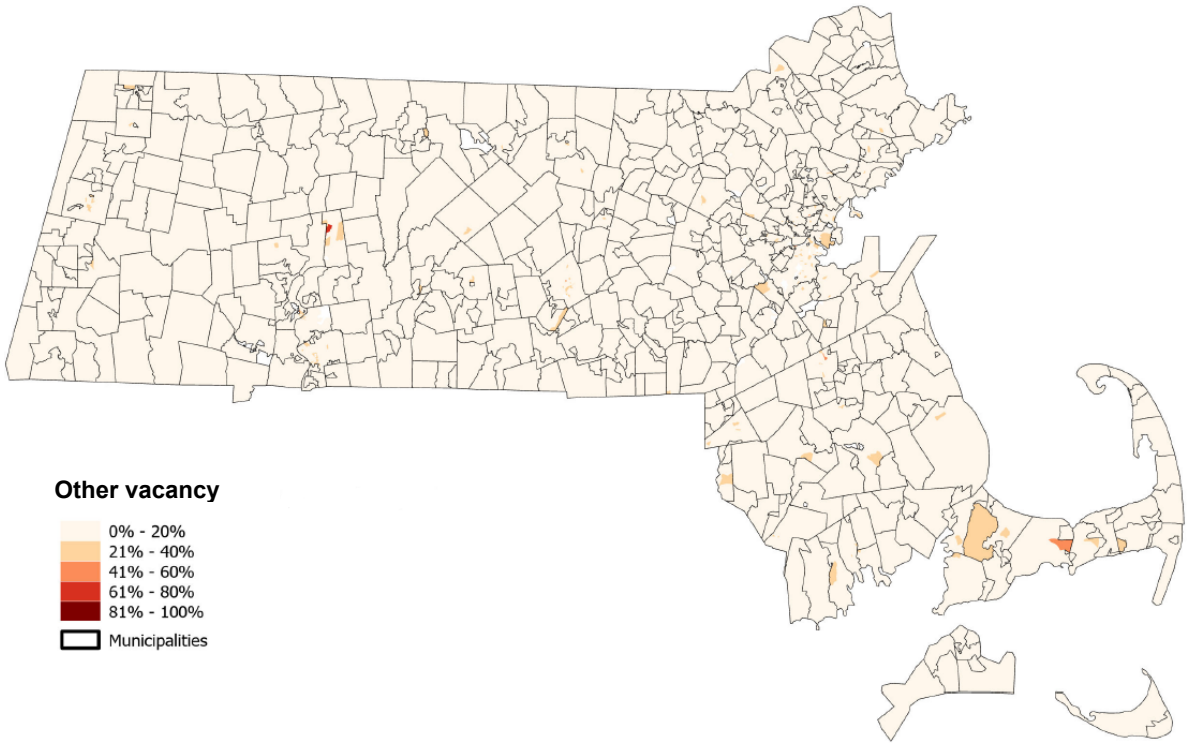


Figure 4-20. Percentage of households with non-seasonal vacancy by block group



APPENDIX B. CORRELATION ANALYSIS

This appendix provides a correlation analysis of location participation rate with the block group-level concentration of specific customer groups including renters, multifamily 5+, low income, and moderate income. Correlations are included in this appendix to provide continuity with the previous nonparticipant study.

Figure 4-21 illustrates the correlation between block group electric location participation rates and the percentage of households in the respective customer groups. All correlation coefficients are negative, indicating that as the concentration of the respective characteristic increases, participation decreases. This suggests that these customer groups may have lower participation rates than the statewide average. This finding aligns with the median splits, which show that high-concentration block groups have lower participation rates than low-concentration groups. Figure 4-21 reveals that the correlation coefficient became more negative for renters and multifamily (MF) 5+ households, and less negative for low-income and moderate-income households. This aligns with the median splits, which show that the gap between high- and low-concentration households increased for renters and MF 5+ households, and decreased for low-income and moderate-income households.

The correlation coefficient of counterparts to these customer groups (i.e., owners, SF 1-4, market rate) have the opposite sign and similar magnitude. All the correlation coefficients shown in Figure 4-21 are negative, so the counterpart characteristics have positive correlations. This indicates that as the concentration of a characteristic increases, so does participation. For example, Figure 4-21 shows the correlation coefficient for 2018-2022 electric location participation rate for renters is -0.44, while the correlation for owners is 0.44.

Figure 4-21. Correlation of block group location participation rate by customer group, cumulative 2013-2017 vs 2018-2022, electric programs

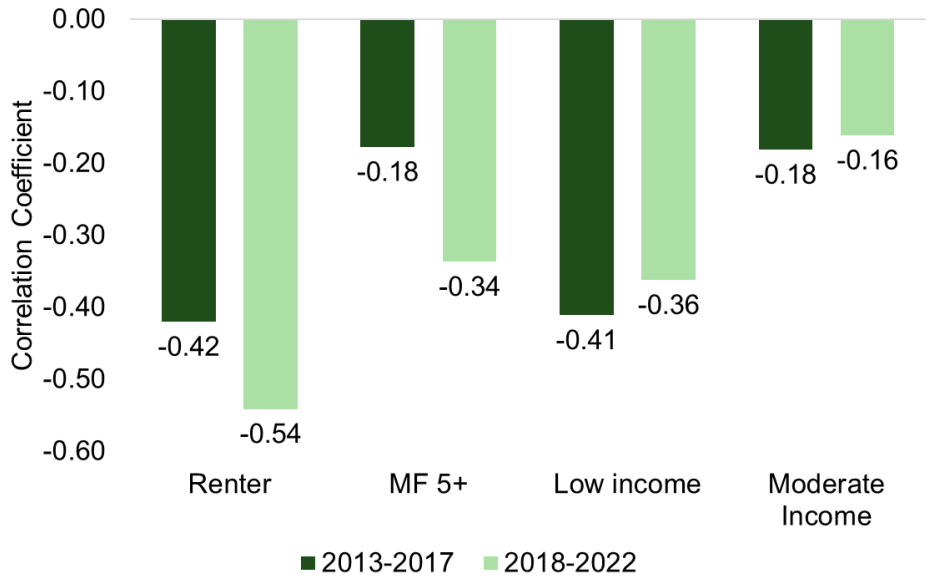
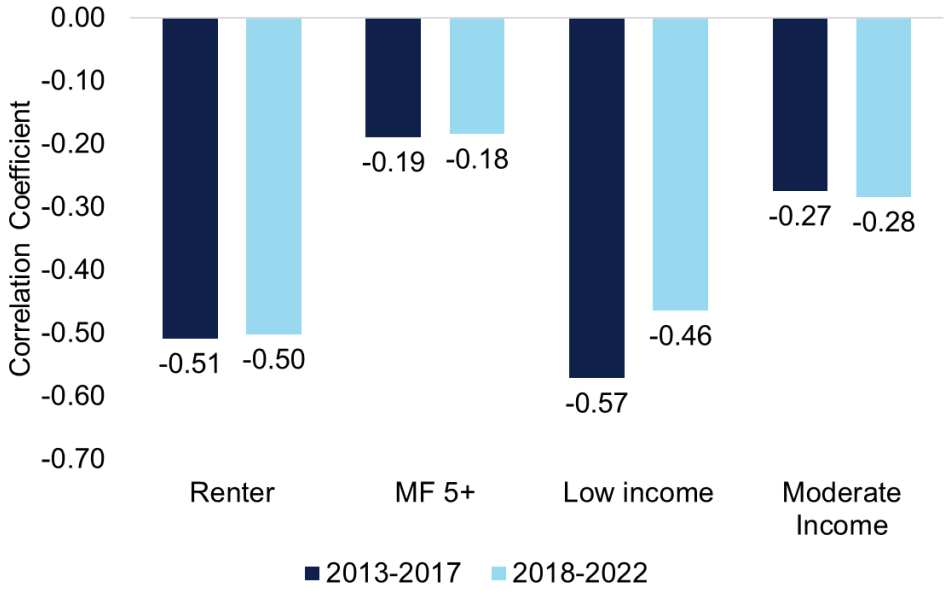


Figure 4-22 replicates the analysis for gas, also revealing negative correlation coefficients. This indicates that these customer groups may have lower participation rates than the statewide average. The figure shows that the correlation coefficients became less negative for all groups. This aligns with the median splits for multifamily (MF) 5+, low-income, and moderate-income households, where the gap between high and low concentrations decreased. However, the median split indicates that the gap for renters slightly increased.

The counterpart characteristics have the opposite signs and similar magnitude. Thus, they are all positive, which indicates that as the concentration of the counterpart characteristics increases, so does participation.

Figure 4-22. Correlation of block group location participation rate by customer group, cumulative 2013-2017 vs 2018-2022, gas programs



APPENDIX C. MUNICIPALITY PARTICIPATION DATA

This table presents participation in each municipality as required by the DPU order. This tables includes average participation for three full 3-year terms (2013-2015, 2016-2018, and 2019-2021). It also includes 2022, although as this year was the first of the 2022-2024 cycle, it does not fully reflect changes implemented through the 2022-2024 plan. The data is presented for electric and gas combined.

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Abington	No	N/A	E, G	5,310	10%	12%	12%	18%	38%	51%	7,074	$ 69	$ 85	$ 119	$ 110	$ 373	$556
Acton	No	N/A	E, G	7,423	14%	17%	15%	17%	45%	56%	10,184	$ 146	$ 121	$ 154	$ 183	$ 704	$742
Acushnet	Yes	N/A	E, G	3,835	9%	11%	11%	12%	35%	42%	4,824	$ 63	$ 76	$ 111	$ 178	$ 343	$585
Adams	Yes	2022	E, G	3,277	11%	9%	10%	10%	37%	37%	6,793	$ 65	$ 40	$ 52	$ 66	$ 269	$269
Agawam	No	N/A	E, G	10,956	7%	10%	10%	10%	30%	39%	12,042	$ 65	$ 101	$ 106	$ 144	$ 386	$575
Alford	No	N/A	E	*	*	*	*	*	*	34%	2,077	*	*	*	*	*	$88
Amesbury	No	N/A	E, G	5,357	9%	10%	12%	11%	33%	41%	7,807	$ 91	$ 77	$ 161	$ 114	$ 411	$686
Amherst	No	N/A	E, G	6,124	8%	12%	13%	13%	32%	45%	9,550	$ 83	$ 64	$ 114	$ 173	$ 365	$589
Andover	No	2021, 2022	E, G	10,100	12%	16%	20%	13%	45%	62%	14,542	$ 99	$ 144	$ 289	$ 128	$ 572	$1,151
Aquinnah	Yes	2022	E	*	*	*	*	*	*	*	2,844	*	*	*	*	*	*
Arlington	No	2022	E, G	15,111	13%	13%	13%	13%	42%	46%	20,381	$ 86	$ 78	$ 126	$ 190	$ 410	$649
Ashburnham	No	N/A	Neither	*	*	*	*	*	*	*	2,745	*	*	*	*	*	*
Ashby	No	N/A	E, G	1,203	7%	7%	10%	8%	28%	34%	1,303	$ 99	$ 58	$ 91	$ 114	$ 408	$452
Ashfield	No	N/A	E	791	11%	12%	12%	*	40%	42%	1,000	$ 73	$ 45	$ 124	$ 154	$ 309	$573
Ashland	No	N/A	E, G	6,588	15%	16%	15%	11%	46%	53%	8,161	$ 92	$ 132	$ 163	$ 209	$ 499	$870
Athol	No	N/A	E	4,211	9%	10%	10%	11%	35%	40%	5,887	$ 65	$ 64	$ 110	$ 193	$ 323	$588
Attleboro	Yes	2022	E, G	13,798	9%	10%	12%	11%	33%	43%	22,281	$ 60	$ 63	$ 121	$ 111	$ 285	$557

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Auburn	No	N/A	E, G	5,845	13%	13%	15%	13%	44%	50%	7,639	$ 91	$ 98	$ 156	$ 185	$ 469	$753
Avon	Yes	N/A	E, G	1,498	9%	11%	12%	10%	36%	46%	1,826	$ 48	$ 99	$ 134	$ 158	$ 321	$680
Ayer	No	N/A	E, G	2,489	11%	12%	14%	14%	37%	47%	3,863	$ 91	$ 79	$ 133	$ 127	$ 435	$602
Barnstable	Yes	N/A	E, G	24,758	9%	11%	13%	12%	32%	44%	28,225	$ 82	$ 144	$ 192	$ 189	$ 516	$926
Barre	No	N/A	E	1,945	9%	9%	11%	11%	33%	42%	2,141	$ 60	$ 64	$ 179	$ 208	$ 296	$818
Becket	No	N/A	E	1,701	6%	7%	9%	9%	23%	34%	1,867	$ 50	$ 44	$ 103	$ 118	$ 216	$493
Bedford	No	N/A	E, G	5,186	16%	15%	14%	11%	48%	46%	5,858	$ 180	$ 143	$ 188	$ 149	$ 829	$851
Belchertown	No	N/A	E	5,259	12%	14%	16%	14%	43%	53%	7,898	$ 113	$ 98	$ 148	$ 196	$ 536	$737
Bellingham	No	N/A	E, G	5,987	9%	12%	13%	12%	36%	47%	7,677	$ 58	$ 112	$ 133	$ 191	$ 417	$683
Belmont	No	N/A	G	7,465	9%	8%	9%	7%	29%	33%	10,851	$ 45	$ 55	$ 91	$ 93	$ 230	$437
Berkley	No	N/A	G	*	*	*	*	*	*	*	2,335	*	*	*	*	*	*
Berlin	No	N/A	E, G	1,113	11%	12%	12%	14%	40%	45%	1,497	$ 88	$ 83	$ 137	$ 152	$ 444	$629
Bernardston	No	N/A	E	856	12%	13%	12%	13%	41%	43%	1,252	$ 73	$ 82	$ 125	$ 327	$ 343	$825
Beverly	No	2022	E, G	11,136	12%	12%	13%	16%	41%	47%	17,656	$ 74	$ 105	$ 188	$ 165	$ 436	$830
Billerica	No	N/A	E, G	12,480	10%	12%	12%	12%	39%	44%	18,199	$ 78	$ 93	$ 117	$ 127	$ 412	$579
Blackstone	No	N/A	E, G	2,994	8%	9%	13%	10%	30%	41%	4,030	$ 46	$ 58	$ 154	$ 123	$ 251	$650
Blandford	No	N/A	E	*	*	8%	9%	*	23%	33%	2,181	*	$ 10	$ 28	*	$ 44	$132
Bolton	No	N/A	E, G	1,837	13%	16%	17%	14%	44%	58%	3,918	$ 53	$ 83	$ 115	$ 142	$ 306	$590
Boston	Yes	2022	E, G	60,229	11%	11%	11%	10%	38%	36%	162,008	$ 74	$ 80	$ 104	$ 101	$ 386	$488
Boston	No	2022	E, G	61,716	12%	11%	12%	11%	39%	37%	143,557	$ 78	$ 58	$ 80	$ 96	$ 357	$387
Bourne	Yes	N/A	E, G	10,185	8%	8%	12%	11%	26%	42%	14,778	$ 46	$ 73	$ 126	$ 133	$ 276	$593

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Boxborough	No	N/A	G	458	12%	13%	15%	*	41%	53%	2,196	$ 24	$ 38	$ 35	*	$ 156	$198
Boxford	No	N/A	E, G	2,828	13%	15%	15%	14%	45%	51%	3,456	$ 93	$ 145	$ 166	$ 211	$ 554	$869
Boylston	No	N/A	G	*	*	27%	*	*	44%	72%	1,896	*	$ 44	*	*	$ 62	$116
Braintree	No	N/A	G	6,213	9%	9%	11%	8%	32%	38%	15,094	$ 65	$ 40	$ 72	$ 45	$ 263	$314
Brewster	No	N/A	E, G	8,001	9%	10%	12%	10%	33%	41%	10,384	$ 65	$ 86	$ 137	$ 158	$ 359	$663
Bridgewater	Yes	N/A	E, G	7,784	9%	12%	12%	10%	35%	43%	9,567	$ 60	$ 84	$ 110	$ 110	$ 327	$547
Brimfield	No	N/A	E	1,542	9%	10%	14%	13%	31%	49%	1,652	$ 67	$ 63	$ 124	$ 178	$ 306	$635
Brockton	Yes	2022	E, G	23,616	7%	9%	10%	10%	30%	39%	38,203	$ 49	$ 81	$ 108	$ 129	$ 294	$548
Brookfield	Yes	N/A	E, G	1,332	9%	10%	13%	13%	34%	46%	3,677	$ 28	$ 29	$ 74	$ 85	$ 136	$339
Brookline	No	N/A	E, G	10,718	11%	11%	11%	11%	38%	37%	30,474	$ 33	$ 31	$ 69	$ 89	$ 155	$334
Buckland	No	N/A	E	809	6%	11%	11%	*	25%	40%	967	$ 69	$ 69	$ 122	*	$ 348	$630
Burlington	No	N/A	E, G	7,946	13%	15%	13%	12%	46%	43%	10,581	$ 171	$ 97	$ 134	$ 149	$ 718	$637
Cambridge	No	2021, 2022	E, G	18,042	10%	11%	12%	10%	36%	38%	57,901	$ 52	$ 44	$ 60	$ 65	$ 258	$276
Canton	No	N/A	E, G	7,411	12%	15%	13%	14%	44%	47%	9,941	$ 82	$ 99	$ 145	$ 169	$ 419	$726
Carlisle	No	N/A	E, G	1,864	15%	14%	14%	14%	47%	50%	1,875	$ 124	$ 110	$ 228	$ 285	$ 572	$1,099
Carver	No	N/A	E, G	4,483	10%	12%	11%	10%	39%	39%	6,120	$ 56	$ 71	$ 89	$ 145	$ 331	$462
Charlemont	No	N/A	E	580	6%	7%	8%	*	21%	32%	1,956	$ 16	$ 17	$ 34	*	$ 74	$191
Charlton	No	N/A	E	4,445	11%	11%	15%	15%	39%	50%	6,835	$ 61	$ 55	$ 131	$ 179	$ 290	$628
Chatham	Yes	N/A	E, G	7,224	7%	7%	10%	11%	25%	36%	7,529	$ 58	$ 99	$ 160	$ 170	$ 350	$768
Chelmsford	No	N/A	E, G	11,241	15%	13%	14%	12%	48%	46%	14,665	$ 112	$ 134	$ 145	$ 134	$ 618	$689

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Chelsea	Yes	2020 - 2022	E, G	6,334	9%	10%	9%	10%	32%	30%	14,121	$ 86	$ 51	$ 131	$ 128	$ 346	$587
Cheshire	No	N/A	E, G	1,521	8%	8%	10%	10%	30%	38%	1,698	$ 65	$ 61	$ 95	$ 86	$ 305	$442
Chester	No	N/A	Neither	*	*	*	*	*	*	*	689	*	*	*	*	*	*
Chesterfield	No	N/A	E	603	9%	10%	10%	*	32%	38%	504	$ 99	$ 68	$ 112	$ 263	$ 451	$650
Chicopee	Yes	N/A	G	10,789	4%	4%	5%	4%	16%	20%	26,360	$ 18	$ 27	$ 38	$ 30	$ 108	$172
Chilmark	No	2022	E	1,338	3%	4%	5%	*	10%	21%	3,834	$ 6	$ 16	$ 28	*	$ 50	$151
Clarksburg	No	N/A	E, G	702	9%	11%	10%	*	34%	39%	1,643	$ 36	$ 43	$ 41	*	$ 165	$239
Clinton	No	N/A	E, G	4,299	11%	10%	13%	13%	37%	47%	7,101	$ 93	$ 57	$ 107	$ 240	$ 390	$621
Cohasset	No	N/A	E, G	3,038	12%	12%	12%	10%	42%	43%	3,731	$ 93	$ 117	$ 128	$ 127	$ 548	$595
Colrain	No	N/A	E	752	10%	11%	11%	*	37%	39%	1,445	$ 53	$ 48	$ 83	*	$ 253	$405
Concord	No	N/A	G	3,514	10%	12%	11%	10%	37%	43%	7,749	$ 51	$ 65	$ 66	$ 100	$ 280	$367
Conway	No	N/A	E	776	10%	13%	13%	*	37%	46%	845	$ 92	$ 65	$ 119	*	$ 398	$574
Cummington	No	N/A	E	*	*	8%	9%	*	28%	34%	514	*	$ 37	$ 92	*	$ 235	$409
Dalton	No	N/A	E, G	2,522	11%	10%	12%	12%	39%	43%	3,513	$ 86	$ 61	$ 147	$ 86	$ 370	$597
Danvers	No	N/A	G	4,095	7%	8%	10%	9%	26%	38%	13,051	$ 18	$ 30	$ 48	$ 64	$ 106	$245
Dartmouth	Yes	N/A	E, G	11,821	8%	9%	12%	12%	29%	43%	13,302	$ 67	$ 59	$ 163	$ 186	$ 300	$753
Dedham	No	N/A	E, G	8,827	12%	12%	13%	12%	42%	43%	11,605	$ 90	$ 96	$ 148	$ 135	$ 502	$634
Deerfield	No	N/A	E, G	1,973	7%	11%	14%	15%	29%	50%	3,135	$ 72	$ 40	$ 107	$ 147	$ 290	$518
Dennis	Yes	N/A	E, G	14,073	8%	9%	13%	11%	27%	43%	17,344	$ 65	$ 113	$ 194	$ 179	$ 398	$896
Dighton	No	N/A	E, G	2,590	7%	9%	11%	9%	26%	39%	3,001	$ 50	$ 100	$ 110	$ 127	$ 357	$551
Douglas	No	N/A	E	3,184	10%	12%	14%	12%	38%	48%	4,270	$ 57	$ 69	$ 130	$ 157	$ 292	$634

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Dover	No	N/A	E, G	1,993	12%	15%	14%	13%	44%	49%	1,955	$ 108	$ 102	$ 229	$ 295	$ 520	$1,090
Dracut	No	N/A	E, G	9,230	10%	11%	12%	10%	35%	41%	12,825	$ 89	$ 117	$ 160	$ 101	$ 464	$733
Dudley	No	N/A	E, G	3,681	10%	10%	14%	13%	36%	46%	4,366	$ 81	$ 77	$ 158	$ 201	$ 381	$770
Dunstable	No	N/A	E, G	1,170	12%	12%	14%	12%	40%	47%	1,150	$ 102	$ 102	$ 182	$ 277	$ 499	$937
Duxbury	No	N/A	E, G	5,735	11%	14%	13%	12%	40%	47%	7,232	$ 72	$ 108	$ 135	$ 184	$ 417	$715
East Bridgewater	Yes	N/A	E, G	4,637	10%	11%	12%	11%	37%	44%	6,766	$ 53	$ 72	$ 100	$ 111	$ 282	$504
East Brookfield	No	N/A	E, G	900	10%	9%	13%	13%	34%	49%	1,410	$ 49	$ 43	$ 90	$ 137	$ 240	$443
East Longmeadow	No	N/A	E, G	5,893	11%	13%	14%	12%	40%	49%	7,909	$ 82	$ 97	$ 144	$ 113	$ 423	$661
Eastham	Yes	N/A	E, G	6,132	6%	9%	11%	12%	24%	40%	6,393	$ 68	$ 108	$ 172	$ 239	$ 401	$880
Easthampton	No	N/A	E, G	5,819	10%	14%	13%	12%	41%	45%	9,524	$ 70	$ 80	$ 109	$ 138	$ 375	$540
Easton	No	N/A	E, G	7,066	11%	13%	14%	11%	41%	46%	9,360	$ 92	$ 121	$ 133	$ 118	$ 520	$635
Edgartown	Yes	2022	E	4,527	3%	5%	6%	7%	13%	22%	5,176	$ 24	$ 65	$ 109	$ 200	$ 209	$583
Egremont	No	N/A	E	893	4%	6%	11%	*	13%	39%	1,102	$ 42	$ 54	$ 118	*	$ 231	$583
Erving	No	N/A	E	632	9%	11%	12%	*	35%	42%	1,181	$ 43	$ 46	$ 74	*	$ 224	$339
Essex	No	N/A	E, G	1,342	9%	13%	13%	10%	37%	45%	1,578	$ 82	$ 179	$ 164	$ 179	$ 696	$759
Everett	Yes	2022	E, G	9,600	7%	7%	8%	8%	25%	29%	18,500	$ 36	$ 49	$ 70	$ 77	$ 208	$334
Fairhaven	Yes	N/A	E, G	6,268	10%	11%	11%	11%	36%	41%	7,718	$ 59	$ 74	$ 110	$ 149	$ 320	$559
Fall River	Yes	2022	E, G	19,974	6%	7%	7%	7%	23%	28%	43,951	$ 36	$ 38	$ 47	$ 62	$ 173	$251
Falmouth	Yes	N/A	E, G	21,652	8%	9%	13%	12%	30%	43%	22,138	$ 79	$ 117	$ 186	$ 231	$ 461	$914
Fitchburg	Yes	N/A	E, G	11,414	6%	7%	9%	8%	25%	32%	17,861	$ 70	$ 70	$ 99	$ 98	$ 338	$477
Florida	No	N/A	E	*	*	*	*	*	*	32%	2,116	*	*	*	*	*	$72

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Foxborough	No	N/A	E, G	5,241	11%	14%	14%	11%	43%	47%	8,494	$ 77	$ 100	$ 113	$ 89	$ 420	$540
Framingham	No	2020 - 2022	E, G	18,626	14%	14%	13%	12%	46%	43%	29,266	$ 105	$ 89	$ 127	$ 160	$ 519	$604
Franklin	No	N/A	E, G	10,291	11%	14%	15%	13%	43%	51%	12,580	$ 76	$ 120	$ 169	$ 155	$ 461	$791
Freetown	No	N/A	E, G	3,306	7%	10%	12%	12%	28%	44%	3,424	$ 70	$ 58	$ 135	$ 189	$ 301	$677
Gardner	No	N/A	E, G	5,788	10%	9%	11%	11%	36%	40%	10,947	$ 57	$ 52	$ 81	$ 160	$ 281	$449
Georgetown	Yes	N/A	G	1,639	8%	9%	12%	9%	29%	42%	3,226	$ 49	$ 52	$ 100	$ 80	$ 237	$445
Gill	No	N/A	E	569	12%	16%	15%	18%	39%	58%	647	$ 96	$ 98	$ 217	$ 403	$ 465	$1,171
Gloucester	No	2022	E, G	10,985	10%	11%	11%	15%	38%	43%	14,900	$ 95	$ 106	$ 111	$ 183	$ 507	$610
Goshen	No	N/A	E	574	8%	7%	9%	*	22%	34%	1,120	$ 40	$ 32	$ 61	$ 96	$ 186	$308
Gosnold	No	N/A	Neither	*	0%	*	*	0%	*	*	*	*	*	*	*	*	*
Grafton	No	N/A	E, G	6,468	12%	13%	16%	13%	42%	50%	8,195	$ 104	$ 104	$ 148	$ 190	$ 544	$714
Granby	No	N/A	E, G	2,214	10%	12%	14%	13%	38%	47%	3,316	$ 62	$ 78	$ 115	$ 133	$ 317	$581
Granville	No	N/A	E	628	6%	7%	10%	*	22%	34%	699	$ 34	$ 27	$ 106	*	$ 142	$462
Great Barrington	Yes	2022	E, G	2,845	8%	9%	11%	11%	31%	40%	6,974	$ 35	$ 35	$ 61	$ 84	$ 167	$310
Greenfield	No	N/A	E, G	6,132	11%	14%	11%	13%	44%	43%	9,698	$ 89	$ 96	$ 139	$ 139	$ 422	$688
Groton	No	N/A	G	863	9%	11%	13%	*	35%	48%	3,801	$ 13	$ 20	$ 43	*	$ 79	$177
Groveland	No	N/A	G	1,607	7%	9%	10%	9%	26%	39%	2,650	$ 40	$ 58	$ 103	$ 229	$ 216	$613
Hadley	No	N/A	E, G	1,980	11%	14%	13%	14%	41%	47%	2,366	$ 92	$ 63	$ 132	$ 308	$ 395	$774
Halifax	No	N/A	E, G	2,945	9%	10%	12%	16%	34%	46%	3,059	$ 89	$ 76	$ 152	$ 139	$ 415	$676
Hamilton	Yes	N/A	E, G	2,601	12%	12%	14%	14%	39%	49%	3,793	$ 96	$ 82	$ 134	$ 161	$ 428	$670

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Hampden	No	N/A	E, G	1,923	11%	12%	14%	12%	39%	47%	2,036	$ 112	$ 113	$ 159	$ 148	$ 525	$774
Hancock	No	N/A	E	*	*	*	8%	*	*	32%	779	*	*	$ 107	*	*	$472
Hanover	No	N/A	E, G	4,607	11%	14%	14%	13%	42%	51%	4,973	$ 79	$ 138	$ 159	$ 149	$ 494	$783
Hanson	No	N/A	E, G	3,594	10%	12%	12%	10%	38%	44%	4,472	$ 76	$ 85	$ 119	$ 119	$ 390	$565
Hardwick	Yes	N/A	E	1,077	8%	8%	10%	9%	28%	37%	5,181	$ 14	$ 13	$ 24	$ 33	$ 66	$119
Harvard	No	N/A	E, G	1,903	13%	16%	17%	17%	46%	58%	2,110	$ 100	$ 126	$ 206	$ 366	$ 539	$1,126
Harwich	Yes	N/A	E, G	9,821	9%	10%	12%	11%	31%	42%	15,497	$ 57	$ 89	$ 129	$ 141	$ 333	$633
Hatfield	No	N/A	E, G	1,257	11%	13%	13%	14%	39%	46%	1,593	$ 114	$ 86	$ 125	$ 154	$ 506	$623
Haverhill	Yes	2021, 2022	E, G	18,949	7%	10%	11%	12%	31%	42%	28,047	$ 73	$ 98	$ 132	$ 138	$ 417	$633
Hawley	No	N/A	E	*	*	*	*	*	*	*	1,575	*	*	*	*	*	*
Heath	No	N/A	E	*	*	*	*	*	*	25%	1,268	*	*	*	*	*	$142
Hingham	No	N/A	G	4,365	7%	8%	10%	8%	27%	38%	9,635	$ 31	$ 38	$ 74	$ 48	$ 158	$318
Hinsdale	No	N/A	E	1,057	8%	10%	12%	14%	30%	43%	1,430	$ 40	$ 44	$ 88	$ 112	$ 196	$432
Holbrook	Yes	N/A	E, G	3,613	8%	12%	11%	11%	34%	43%	4,727	$ 62	$ 90	$ 113	$ 139	$ 355	$578
Holden	No	N/A	G	1,198	7%	13%	18%	10%	29%	68%	7,177	$ 23	$ 22	$ 30	$ 30	$ 116	$141
Holland	No	N/A	E	1,309	7%	8%	11%	11%	26%	41%	1,552	$ 45	$ 62	$ 109	$ 167	$ 239	$574
Holliston	No	N/A	E, G	5,050	15%	16%	17%	16%	48%	55%	5,697	$ 123	$ 155	$ 227	$ 288	$ 652	$1,151
Holyoke	No	N/A	Neither	*	*	*	*	*	*	*	3,361	*	*	*	*	*	*
Hopedale	No	N/A	E, G	2,080	12%	12%	13%	22%	41%	53%	3,472	$ 65	$ 64	$ 108	$ 155	$ 315	$549
Hopkinton	No	N/A	E, G	6,499	15%	18%	18%	16%	49%	56%	7,008	$ 128	$ 192	$ 225	$ 268	$ 756	$1,144
Hubbardston	No	N/A	E	1,643	9%	10%	12%	12%	33%	43%	1,599	$ 66	$ 78	$ 130	$ 215	$ 351	$687

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Hudson	No	N/A	G	4,538	6%	9%	12%	8%	26%	42%	8,560	$ 36	$ 57	$ 83	$ 76	$ 228	$377
Hull	No	N/A	G	3,750	6%	8%	9%	8%	24%	35%	5,831	$ 23	$ 45	$ 93	$ 61	$ 137	$406
Huntington	Yes	N/A	E	887	7%	10%	10%	12%	30%	38%	1,021	$ 43	$ 63	$ 229	$ 158	$ 264	$896
Ipswich	No	N/A	G	1,952	8%	11%	13%	9%	31%	46%	6,153	$ 32	$ 45	$ 57	$ 58	$ 201	$260
Kingston	No	N/A	E, G	4,724	12%	14%	12%	11%	45%	44%	5,614	$ 83	$ 92	$ 111	$ 142	$ 468	$534
Lakeville	No	N/A	E, G	852	7%	13%	18%	11%	32%	64%	4,482	$ 8	$ 15	$ 56	$ 55	$ 53	$236
Lancaster	No	2020	E, G	2,370	10%	12%	14%	13%	36%	48%	5,684	$ 48	$ 47	$ 75	$ 72	$ 238	$342
Lanesborough	Yes	2022	E, G	1,369	3%	8%	11%	13%	16%	43%	2,142	$ 28	$ 55	$ 72	$ 96	$ 192	$368
Lawrence	Yes	2020 - 2022	E, G	14,648	5%	7%	10%	7%	22%	35%	32,669	$ 91	$ 73	$ 105	$ 94	$ 429	$472
Lee	Yes	2022	E, G	2,320	8%	9%	11%	12%	31%	39%	3,420	$ 60	$ 69	$ 98	$ 105	$ 264	$523
Leicester	No	N/A	E, G	3,711	10%	11%	13%	12%	37%	46%	6,648	$ 46	$ 57	$ 91	$ 119	$ 244	$457
Lenox	No	N/A	E, G	2,180	8%	9%	11%	10%	30%	39%	5,013	$ 41	$ 33	$ 50	$ 50	$ 190	$232
Leominster	No	N/A	E, G	11,872	11%	12%	14%	14%	40%	48%	20,083	$ 73	$ 81	$ 126	$ 144	$ 380	$603
Leverett	No	N/A	E	779	11%	13%	15%	15%	39%	50%	813	$ 78	$ 71	$ 190	$ 318	$ 345	$987
Lexington	No	N/A	E, G	11,513	14%	15%	13%	13%	48%	45%	12,727	$ 123	$ 171	$ 170	$ 202	$ 771	$819
Leyden	No	N/A	E	*	*	9%	12%	*	18%	46%	750	*	$ 25	$ 63	*	$ 127	$358
Lincoln	No	N/A	E, G	2,155	14%	15%	12%	13%	47%	46%	3,586	$ 78	$ 80	$ 97	$ 152	$ 402	$515
Littleton	No	N/A	G	1,349	8%	11%	13%	10%	31%	48%	3,754	$ 23	$ 53	$ 101	$ 53	$ 192	$390
Longmeadow	No	N/A	E, G	5,571	12%	16%	15%	14%	46%	52%	6,601	$ 106	$ 141	$ 184	$ 199	$ 604	$888
Lowell	Yes	2022	E, G	22,947	8%	8%	9%	8%	27%	31%	46,161	$ 80	$ 61	$ 80	$ 71	$ 367	$370
Ludlow	No	N/A	E, G	7,738	9%	11%	12%	10%	36%	40%	9,025	$ 61	$ 77	$ 131	$ 121	$ 344	$585

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Lunenburg	No	N/A	E, G	4,261	7%	11%	11%	12%	32%	41%	5,627	$ 66	$ 102	$ 114	$ 173	$ 374	$646
Lynn	Yes	2022	E, G	19,502	8%	8%	10%	8%	29%	34%	37,334	$ 75	$ 87	$ 102	$ 112	$ 424	$480
Lynnfield	No	N/A	G	2,442	9%	10%	12%	8%	29%	42%	5,386	$ 33	$ 55	$ 106	$ 62	$ 193	$453
Malden	No	2022	E, G	13,322	9%	9%	10%	12%	31%	38%	28,842	$ 77	$ 73	$ 75	$ 98	$ 395	$376
Manchester	No	N/A	E, G	1,987	11%	13%	12%	11%	41%	44%	2,191	$ 112	$ 131	$ 125	$ 155	$ 609	$654
Mansfield	No	N/A	G	4,105	5%	9%	10%	6%	23%	38%	9,673	$ 18	$ 50	$ 67	$ 60	$ 143	$324
Marblehead	No	N/A	G	5,690	9%	8%	11%	9%	31%	40%	8,794	$ 44	$ 57	$ 148	$ 204	$ 226	$727
Marion	Yes	N/A	E, G	2,430	10%	13%	11%	11%	39%	44%	3,679	$ 67	$ 47	$ 97	$ 136	$ 286	$484
Marlborough	No	N/A	E, G	11,623	12%	13%	13%	9%	43%	41%	18,382	$ 70	$ 94	$ 93	$ 101	$ 442	$430
Marshfield	No	2021	E, G	10,607	8%	12%	12%	10%	35%	43%	12,088	$ 54	$ 88	$ 149	$ 137	$ 320	$690
Mashpee	No	N/A	E, G	10,158	8%	10%	15%	20%	32%	53%	10,694	$ 78	$ 111	$ 229	$ 215	$ 447	$1,020
Mattapoisett	No	N/A	E, G	3,251	10%	10%	12%	13%	35%	43%	3,607	$ 65	$ 70	$ 130	$ 230	$ 343	$679
Maynard	No	N/A	E, G	3,864	12%	13%	12%	12%	41%	41%	4,959	$ 76	$ 114	$ 163	$ 138	$ 494	$704
Medfield	No	N/A	E, G	4,101	14%	17%	15%	14%	49%	53%	4,870	$ 117	$ 131	$ 233	$ 235	$ 596	$1,083
Medford	No	N/A	E, G	16,206	11%	10%	12%	11%	36%	40%	28,262	$ 67	$ 95	$ 96	$ 187	$ 406	$555
Medway	No	N/A	E, G	4,263	13%	15%	15%	14%	45%	50%	4,598	$ 121	$ 106	$ 193	$ 210	$ 568	$902
Melrose	No	2022	E, G	8,268	13%	15%	14%	15%	44%	48%	12,372	$ 77	$ 169	$ 145	$ 208	$ 620	$760
Mendon	No	N/A	E, G	2,106	12%	15%	15%	13%	44%	52%	3,182	$ 63	$ 116	$ 145	$ 157	$ 429	$701
Merrimac	No	N/A	G	1,607	6%	8%	10%	8%	24%	37%	3,105	$ 28	$ 54	$ 89	$ 57	$ 183	$387
Methuen	Yes	2020 - 2022	E, G	14,846	8%	10%	12%	11%	31%	44%	20,425	$ 63	$ 97	$ 150	$ 132	$ 365	$695

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Middleborough	No	N/A	Neither	*	*	*	82%	*	*	*	6,099	*	*	*	*	*	*
Middlefield	No	N/A	E	*	*	*	*	*	*	*	827	*	*	*	*	*	*
Middleton	No	N/A	G	1,122	7%	9%	10%	17%	25%	47%	3,351	$ 21	$ 35	$ 51	$ 85	$ 126	$279
Milford	No	N/A	E, G	8,967	12%	12%	13%	10%	41%	43%	13,006	$ 77	$ 76	$ 130	$ 110	$ 379	$579
Millbury	No	N/A	E, G	4,885	14%	13%	14%	12%	45%	47%	5,548	$ 121	$ 129	$ 165	$ 196	$ 635	$806
Millis	No	N/A	E, G	3,199	10%	13%	16%	13%	39%	51%	3,357	$ 75	$ 93	$ 262	$ 287	$ 410	$1,168
Millville	No	N/A	E, G	947	10%	11%	13%	15%	36%	48%	1,315	$ 62	$ 73	$ 107	$ 152	$ 329	$547
Milton	No	N/A	E, G	8,681	13%	14%	14%	13%	45%	47%	11,425	$ 81	$ 99	$ 155	$ 162	$ 441	$724
Monroe	No	N/A	E	*	*	*	*	*	*	*	688	*	*	*	*	*	*
Monson	No	N/A	E, G	2,940	10%	12%	14%	13%	38%	48%	3,665	$ 113	$ 84	$ 110	$ 151	$ 494	$575
Montague	No	N/A	E, G	3,030	8%	10%	11%	13%	30%	43%	4,705	$ 78	$ 63	$ 112	$ 128	$ 352	$534
Monterey	No	N/A	E	826	5%	4%	8%	*	17%	29%	923	$ 30	$ 37	$ 103	*	$ 161	$421
Montgomery	No	N/A	E	*	*	*	*	*	23%	35%	404	*	*	*	*	$ 234	$623
Mount Washington	No	N/A	E	*	*	*	*	*	*	*	1,102	*	*	*	*	*	*
Nahant	No	N/A	E, G	1,350	10%	11%	11%	9%	37%	41%	1,825	$ 54	$ 70	$ 117	$ 153	$ 284	$590
Nantucket	Yes	N/A	E	8,964	4%	9%	5%	8%	24%	27%	12,287	$ 36	$ 59	$ 44	$ 65	$ 226	$255
Natick	No	2022	E, G	11,166	15%	15%	15%	14%	49%	48%	16,573	$ 106	$ 89	$ 132	$ 169	$ 500	$648
Needham	No	N/A	E, G	9,678	14%	15%	14%	13%	49%	48%	11,710	$ 115	$ 156	$ 146	$ 172	$ 591	$833
New Ashford	No	N/A	E	*	*	*	*	*	*	*	130	*	*	*	*	*	*
New Bedford	Yes	2020, 2022	E, G	24,098	7%	8%	9%	11%	28%	34%	44,392	$ 58	$ 58	$ 98	$ 157	$ 303	$494

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
New Braintree	No	N/A	E	384	10%	*	12%	*	36%	43%	427	$ 66	*	$ 110	*	$ 295	$572
New Marlborough	No	N/A	E	*	*	4%	7%	*	13%	29%	3,713	$ 5	*	$ 22	$ 31	*	$110
New Salem	No	N/A	E	447	10%	14%	13%	*	41%	50%	528	$ 57	$ 112	$ 125	*	$ 379	$853
Newbury	No	N/A	E, G	2,793	9%	11%	12%	12%	34%	44%	2,961	$ 80	$ 94	$ 145	$ 207	$ 386	$780
Newburyport	No	N/A	E, G	6,438	12%	12%	13%	14%	41%	48%	9,317	$ 93	$ 74	$ 128	$ 172	$ 421	$639
Newton	No	N/A	E, G	26,451	13%	14%	13%	13%	46%	43%	40,555	$ 74	$ 82	$ 113	$ 133	$ 391	$548
Norfolk	No	N/A	E, G	3,604	14%	16%	15%	15%	48%	53%	3,412	$ 133	$ 155	$ 223	$ 301	$ 735	$1,098
North Adams	No	2022	E, G	4,744	10%	9%	9%	8%	38%	35%	8,364	$ 86	$ 46	$ 55	$ 63	$ 342	$283
North Andover	No	2022	E, G	8,940	9%	13%	17%	11%	37%	52%	12,267	$ 85	$1,239	$ 290	$ 110	$ 488	$4,464
North Attleboro	Yes	N/A	G	2,785	4%	6%	8%	6%	16%	31%	12,891	$ 8	$ 11	$ 22	$ 21	$ 42	$102
North Brookfield	No	N/A	E, G	1,675	10%	10%	14%	10%	36%	46%	2,074	$ 72	$ 65	$ 131	$ 134	$ 335	$603
North Reading	No	N/A	G	2,277	7%	10%	12%	10%	30%	47%	5,916	$ 24	$ 42	$ 76	$ 67	$ 139	$354
Northampton	No	N/A	E, G	8,952	11%	13%	14%	13%	39%	49%	13,527	$ 78	$ 111	$ 127	$ 161	$ 428	$679
Northborough	No	N/A	E, G	5,326	13%	15%	15%	12%	45%	48%	5,934	$ 101	$ 145	$ 191	$ 203	$ 639	$875
Northbridge	No	N/A	E, G	5,726	9%	10%	12%	10%	33%	42%	9,517	$ 52	$ 73	$ 104	$ 132	$ 308	$510
Northfield	No	N/A	E	1,226	8%	12%	13%	13%	34%	45%	1,348	$ 70	$ 63	$ 164	$ 229	$ 316	$802
Norton	No	N/A	E, G	5,604	10%	12%	12%	11%	37%	45%	6,796	$ 69	$ 100	$ 105	$ 120	$ 395	$544
Norwell	No	N/A	E, G	3,629	12%	15%	15%	13%	45%	52%	3,710	$ 96	$ 150	$ 174	$ 194	$ 586	$866
Norwood	No	2022	G	6,580	7%	8%	9%	8%	24%	34%	13,765	$ 23	$ 45	$ 110	$ 68	$ 139	$460
Oak Bluffs	Yes	2022	E	3,914	4%	4%	6%	7%	14%	22%	4,492	$ 29	$ 51	$ 94	$ 223	$ 194	$550

Municipality	HTR	CFP Cohort Years	PA service	Active locations	Average annual location participation rate				Cumulative location participation rate (2013-2017)	Cumulative location participation rate (2018-2022)	Total house-holds	Average annual incentives per total households				Cumulative incentives per total households (2013-2017)	Cumulative incentives per total households (2018-2022)
					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Oakham	No	N/A	E	761	10%	10%	14%	*	35%	45%	674	$ 69	$ 70	$ 237	*	$ 357	$1,078
Orange	No	N/A	E	2,670	10%	11%	11%	10%	38%	41%	4,429	$ 62	$ 49	$ 97	$ 342	$ 264	$700
Orleans	No	N/A	E, G	4,814	9%	11%	12%	12%	32%	42%	7,930	$ 54	$ 93	$ 123	$ 142	$ 329	$622
Otis	No	N/A	E	1,630	3%	4%	9%	9%	12%	30%	1,657	$ 23	$ 27	$ 100	$ 125	$ 120	$454
Oxford	No	N/A	E, G	4,621	10%	11%	13%	12%	38%	45%	5,200	$ 110	$ 143	$ 134	$ 223	$ 653	$729
Palmer	No	N/A	E, G	5,008	8%	8%	10%	9%	29%	37%	8,534	$ 74	$ 48	$ 73	$ 67	$ 320	$331
Paxton	No	N/A	Neither	*	*	*	*	*	*	*	1,688	$ 0	*	*	*	*	*
Peabody	Yes	N/A	G	8,365	6%	8%	9%	7%	24%	34%	24,652	$ 34	$ 40	$ 76	$ 36	$ 180	$305
Pelham	No	N/A	E	543	7%	11%	16%	*	26%	52%	642	$ 73	$ 55	$ 182	*	$ 320	$960
Pembroke	No	N/A	E, G	6,293	11%	11%	12%	11%	41%	44%	6,809	$ 77	$ 97	$ 147	$ 146	$ 411	$700
Pepperell	No	N/A	E, G	3,588	12%	11%	13%	12%	39%	44%	4,514	$ 97	$ 92	$ 133	$ 181	$ 469	$677
Peru	No	N/A	E	*	*	*	*	*	9%	37%	364	*	*	*	*	$ 233	$661
Petersham	No	N/A	E	541	9%	10%	14%	*	32%	46%	529	$ 64	$ 97	$ 199	*	$ 318	$1,147
Phillipston	No	N/A	E	780	8%	7%	11%	*	28%	38%	4,210	$ 9	$ 10	$ 24	*	$ 40	$132
Pittsfield	Yes	2020, 2022	E, G	16,992	9%	12%	11%	13%	37%	42%	22,763	$ 73	$ 74	$ 89	$ 131	$ 340	$498
Plainfield	No	N/A	E	*	*	*	*	*	30%	36%	329	*	*	*	*	$ 382	$584
Plainville	No	N/A	E, G	2,846	9%	11%	11%	10%	35%	41%	5,392	$ 51	$ 73	$ 71	$ 86	$ 307	$365
Plymouth	No	N/A	E, G	25,071	10%	12%	12%	13%	38%	44%	28,174	$ 69	$ 91	$ 133	$ 217	$ 373	$724
Plympton	No	N/A	E, G	1,013	11%	14%	12%	10%	44%	44%	1,237	$ 66	$ 57	$ 104	$ 136	$ 318	$500
Princeton	No	N/A	Neither	*	*	*	*	*	*	*	1,382	*	*	*	*	*	*
Provincetown	No	N/A	E	2,029	10%	11%	12%	15%	34%	43%	4,905	$ 34	$ 49	$ 152	$ 280	$ 197	$787

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Quincy	No	2022	E, G	23,083	9%	10%	11%	13%	33%	39%	48,911	$ 48	$ 126	$ 80	$ 170	$ 471	$463
Randolph	Yes	2022	E, G	9,982	8%	10%	13%	11%	33%	46%	12,817	$ 54	$ 106	$ 145	$ 160	$ 374	$703
Raynham	No	N/A	G	1,415	5%	8%	8%	*	21%	34%	5,757	$ 7	$ 19	$ 26	*	$ 55	$120
Reading	No	N/A	G	3,630	10%	11%	12%	9%	35%	46%	10,230	$ 39	$ 35	$ 74	$ 59	$ 181	$321
Rehoboth	No	N/A	E, G	4,535	9%	11%	11%	10%	35%	40%	6,380	$ 54	$ 79	$ 88	$ 117	$ 298	$482
Revere	Yes	2022	E, G	11,301	9%	9%	11%	8%	32%	38%	23,311	$ 54	$ 57	$ 132	$ 70	$ 279	$518
Richmond	No	N/A	E	844	8%	10%	13%	*	27%	45%	856	$ 55	$ 56	$ 138	*	$ 259	$651
Rochester	No	N/A	E, G	2,148	11%	13%	12%	14%	39%	48%	2,154	$ 79	$ 93	$ 120	$ 212	$ 423	$665
Rockland	No	N/A	E, G	5,718	10%	11%	12%	9%	37%	42%	7,317	$ 74	$ 86	$ 199	$ 99	$ 406	$771
Rockport	No	N/A	E, G	3,289	10%	10%	11%	12%	36%	41%	5,228	$ 53	$ 56	$ 87	$ 192	$ 261	$520
Rowe	No	N/A	E	*	*	*	*	*	*	*	688	*	*	*	*	*	*
Rowley	No	N/A	G	1,173	7%	9%	11%	*	28%	42%	2,393	$ 48	$ 45	$ 93	*	$ 213	$399
Royalston	No	N/A	E	*	*	*	9%	*	21%	33%	1,261	*	*	$ 69	*	$ 97	$296
Russell	No	N/A	E	*	*	*	*	*	*	41%	647	$ 23	$ 15	$ 56	$ 62	$ 95	$251
Rutland	No	N/A	E	3,035	10%	10%	15%	14%	36%	48%	4,399	$ 56	$ 51	$ 115	$ 238	$ 266	$637
Salem	No	2022	E, G	10,263	12%	11%	13%	14%	41%	44%	21,049	$ 101	$ 113	$ 135	$ 262	$ 566	$743
Salisbury	No	N/A	E, G	3,359	8%	9%	10%	11%	29%	40%	5,082	$ 64	$ 71	$ 97	$ 142	$ 322	$515
Sandisfield	No	N/A	E	663	*	*	9%	*	17%	33%	1,240	*	*	$ 59	*	$ 90	$288
Sandwich	No	N/A	E, G	9,728	10%	11%	14%	14%	35%	47%	10,732	$ 78	$ 127	$ 183	$ 345	$ 468	$1,043
Saugus	No	N/A	E, G	8,871	10%	10%	10%	10%	34%	37%	11,653	$ 91	$ 74	$ 113	$ 154	$ 412	$579
Savoy	No	N/A	E	*	*	*	*	*	31%	36%	376	*	*	*	*	$ 311	$423
Scituate	No	N/A	E, G	7,940	11%	12%	13%	11%	40%	46%	9,182	$ 83	$ 114	$ 160	$ 173	$ 467	$776

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Seekonk	No	N/A	E, G	5,503	10%	12%	12%	11%	36%	44%	6,262	$ 93	$ 115	$ 140	$ 135	$ 468	$713
Sharon	No	2022	E, G	6,213	14%	18%	15%	16%	51%	53%	7,058	$ 95	$ 160	$ 178	$ 220	$ 591	$929
Sheffield	No	N/A	E	1,595	6%	7%	9%	7%	24%	33%	2,851	$ 26	$ 35	$ 93	$ 81	$ 138	$406
Shelburne	No	2022	E	755	4%	11%	12%	15%	25%	47%	1,827	$ 71	$ 34	$ 69	$ 309	$ 270	$562
Sherborn	No	N/A	E, G	1,502	14%	16%	16%	14%	50%	56%	1,632	$ 118	$ 116	$ 262	$ 284	$ 587	$1,185
Shirley	No	N/A	E, G	2,118	10%	11%	13%	12%	35%	44%	2,566	$ 95	$ 100	$ 139	$ 163	$ 455	$712
Shrewsbury	No	N/A	G	6,992	8%	12%	14%	8%	32%	46%	15,201	$ 31	$ 43	$ 89	$ 72	$ 182	$379
Shutesbury	No	N/A	E	817	9%	10%	15%	17%	30%	48%	1,299	$ 41	$ 56	$ 117	$ 215	$ 221	$632
Somerset	No	N/A	E, G	6,722	8%	9%	10%	9%	30%	36%	8,058	$ 72	$ 109	$ 107	$ 128	$ 441	$552
Somerville	Yes	N/A	E, G	17,632	9%	10%	11%	10%	32%	36%	38,792	$ 48	$ 45	$ 104	$ 102	$ 215	$476
South Hadley	No	N/A	G	3,705	5%	8%	8%	7%	24%	33%	7,669	$ 24	$ 48	$ 66	$ 61	$ 167	$307
Southampton	No	N/A	E	2,172	8%	11%	10%	10%	31%	40%	3,893	$ 35	$ 33	$ 83	$ 97	$ 169	$383
Southborough	No	N/A	E, G	3,551	14%	15%	17%	15%	47%	52%	3,649	$ 181	$ 172	$ 233	$ 327	$ 899	$1,183
Southbridge	Yes	N/A	E, G	4,695	8%	9%	11%	10%	31%	40%	8,286	$ 47	$ 49	$ 90	$ 95	$ 231	$422
Southwick	No	N/A	E, G	3,711	9%	10%	10%	10%	32%	38%	3,983	$ 60	$ 54	$ 129	$ 170	$ 293	$607
Spencer	No	N/A	E, G	3,890	11%	12%	14%	13%	39%	48%	5,741	$ 63	$ 177	$ 132	$ 142	$ 638	$620
Springfield	Yes	2022	E, G	45,460	6%	9%	10%	9%	28%	35%	65,089	$ 53	$ 90	$ 148	$ 138	$ 332	$677
Sterling	No	N/A	G	*	*	*	*	*	*	*	3,477	*	*	*	*	*	*
Stockbridge	No	N/A	E, G	1,321	6%	6%	10%	10%	20%	36%	1,619	$ 41	$ 52	$ 110	$ 122	$ 222	$508
Stoneham	No	N/A	E, G	6,283	13%	12%	13%	11%	43%	43%	11,333	$ 85	$ 72	$ 93	$ 100	$ 407	$441
Stoughton	No	N/A	E, G	9,036	10%	10%	13%	10%	36%	45%	12,151	$ 53	$ 83	$ 124	$ 206	$ 324	$663
Stow	No	N/A	G	621	10%	17%	14%	*	41%	60%	2,613	$ 33	$ 28	$ 43	*	$ 156	$192

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Sturbridge	No	N/A	E	3,634	11%	11%	14%	17%	38%	50%	5,404	$ 69	$ 61	$ 163	$ 166	$ 323	$722
Sudbury	No	N/A	E, G	6,114	17%	18%	17%	17%	54%	57%	6,845	$ 161	$ 126	$ 211	$ 239	$ 737	$999
Sunderland	No	N/A	E, G	934	11%	13%	14%	15%	39%	48%	1,932	$ 74	$ 95	$ 114	$ 134	$ 476	$509
Sutton	No	N/A	E, G	3,405	13%	15%	15%	13%	46%	51%	4,360	$ 88	$ 119	$ 142	$ 191	$ 501	$740
Swampscott	No	2022	E, G	4,612	13%	11%	13%	11%	43%	45%	6,453	$ 73	$ 83	$ 341	$ 193	$ 361	$1,324
Swansea	Yes	N/A	E, G	6,576	8%	9%	9%	10%	29%	36%	6,927	$ 76	$ 89	$ 110	$ 157	$ 386	$596
Taunton	Yes	2022	G	9,412	3%	5%	6%	4%	14%	24%	25,267	$ 11	$ 20	$ 39	$ 22	$ 68	$165
Templeton	No	N/A	Neither	*	*	*	*	*	*	*	2,482	*	*	*	*	*	*
Tewksbury	No	N/A	E, G	10,898	10%	10%	11%	11%	33%	40%	12,665	$ 100	$ 107	$ 129	$ 118	$ 522	$604
Tisbury	Yes	2022	E	2,557	6%	6%	7%	8%	22%	28%	5,591	$ 33	$ 34	$ 73	$ 125	$ 161	$385
Tolland	No	N/A	E	*	*	*	7%	*	*	26%	1,798	*	*	$ 26	*	*	$114
Topsfield	No	N/A	E, G	2,219	12%	14%	15%	13%	44%	49%	2,329	$ 115	$ 253	$ 225	$ 214	$ 913	$1,080
Townsend	No	N/A	E, G	3,108	7%	9%	9%	10%	28%	36%	3,528	$ 86	$ 75	$ 101	$ 116	$ 406	$497
Truro	No	N/A	E	2,533	6%	8%	10%	11%	20%	37%	3,449	$ 35	$ 68	$ 128	$ 219	$ 211	$701
Tyngsborough	No	N/A	E, G	4,052	11%	12%	14%	11%	41%	47%	5,020	$ 72	$ 184	$ 133	$ 122	$ 674	$615
Tyringham	No	N/A	E	*	*	*	*	*	*	35%	367	*	*	*	*	*	$313
Upton	No	N/A	E, G	2,754	14%	14%	17%	16%	46%	54%	2,845	$ 101	$ 128	$ 207	$ 287	$ 564	$1,033
Uxbridge	No	N/A	E, G	5,720	10%	12%	12%	12%	38%	44%	6,878	$ 69	$ 99	$ 111	$ 143	$ 398	$582
Wakefield	No	N/A	Neither	*	*	85%	*	*	100%	100%	8,107	*	*	*	*	*	*
Wales	No	N/A	E	830	6%	7%	11%	*	22%	41%	1,486	$ 23	$ 30	$ 70	*	$ 119	$347
Walpole	No	2022	E, G	8,623	11%	14%	13%	13%	42%	47%	9,735	$ 82	$ 91	$ 154	$ 161	$ 419	$722

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Waltham	No	N/A	E, G	16,830	10%	11%	10%	9%	35%	34%	27,954	$ 76	$ 63	$ 104	$ 119	$ 356	$494
Ware	No	N/A	E	3,694	9%	11%	12%	10%	37%	41%	5,697	$ 57	$ 86	$ 91	$ 90	$ 358	$432
Wareham	No	N/A	E, G	11,784	6%	7%	9%	9%	24%	34%	14,039	$ 63	$ 59	$ 98	$ 124	$ 300	$483
Warren	Yes	N/A	E, G	1,732	8%	8%	10%	11%	23%	38%	2,157	$ 55	$ 139	$ 100	$ 152	$ 487	$548
Warwick	No	N/A	E	392	9%	11%	10%	*	36%	42%	515	$ 49	$ 52	$ 91	*	$ 241	$524
Washington	No	N/A	E	*	*	*	*	*	*	42%	2,155	*	*	*	*	*	$96
Watertown	No	2022	E, G	11,520	10%	10%	11%	10%	35%	36%	18,588	$ 51	$ 68	$ 107	$ 127	$ 294	$512
Wayland	No	N/A	E, G	5,114	14%	15%	14%	16%	45%	51%	6,475	$ 108	$ 95	$ 153	$ 210	$ 497	$781
Webster	Yes	N/A	E, G	5,425	10%	9%	12%	10%	35%	41%	9,075	$ 76	$ 51	$ 120	$ 137	$ 308	$570
Wellesley	No	N/A	G	6,606	10%	10%	10%	8%	36%	39%	9,445	$ 74	$ 114	$ 121	$ 110	$ 479	$561
Wellfleet	No	N/A	E	3,617	6%	9%	10%	10%	24%	38%	5,980	$ 29	$ 58	$ 100	$ 180	$ 191	$549
Wendell	No	N/A	E	411	14%	10%	11%	*	43%	47%	429	$ 109	$ 81	$ 133	*	$ 467	$813
Wenham	No	N/A	E, G	1,316	12%	13%	15%	15%	42%	51%	1,400	$ 99	$ 142	$ 213	$ 257	$ 580	$1,041
West Boylston	No	N/A	G	979	11%	10%	11%	*	40%	40%	2,930	$ 73	$ 65	$ 45	*	$ 325	$253
West Bridgewater	No	N/A	E, G	2,632	9%	12%	12%	11%	35%	46%	2,908	$ 55	$ 113	$ 136	$ 205	$ 371	$745
West Brookfield	Yes	N/A	E, G	1,510	11%	10%	14%	12%	39%	48%	4,121	$ 37	$ 33	$ 53	$ 56	$ 179	$248
West Newbury	No	N/A	E, G	1,653	11%	14%	13%	15%	42%	50%	2,205	$ 67	$ 110	$ 113	$ 182	$ 411	$640
West Springfield	Yes	2022	E, G	9,013	9%	10%	12%	9%	35%	40%	13,509	$ 56	$ 63	$ 99	$ 87	$ 285	$458
West Stockbridge	No	N/A	E	827	5%	7%	11%	*	19%	37%	881	$ 41	$ 55	$ 108	*	$ 207	$620
West Tisbury	No	2022	E	1,968	4%	6%	8%	9%	16%	30%	3,084	$ 37	$ 45	$ 78	$ 210	$ 191	$499

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Westborough	No	2021, 2022	E, G	6,165	13%	15%	15%	13%	45%	47%	9,308	$ 81	$ 125	$ 117	$ 168	$ 517	$622
Westfield	No	N/A	Neither	*	*	*	0%	*	*	0%	4,918	*	*	*	*	*	*
Westford	No	N/A	E, G	8,515	14%	14%	14%	13%	43%	49%	9,788	$ 121	$ 122	$ 156	$ 211	$ 588	$819
Westhampton	No	N/A	E	740	5%	11%	13%	14%	26%	48%	2,427	$ 37	$ 26	$ 40	$ 96	$ 160	$245
Westminster	No	N/A	E, G	3,095	11%	11%	15%	13%	36%	50%	4,990	$ 56	$ 49	$ 108	$ 128	$ 255	$513
Weston	No	N/A	E, G	3,796	13%	13%	12%	12%	45%	43%	4,812	$ 94	$ 108	$ 164	$ 165	$ 510	$756
Westport	Yes	2022	E, G	7,302	7%	8%	9%	10%	26%	35%	10,807	$ 42	$ 48	$ 87	$ 111	$ 217	$422
Westwood	No	N/A	E, G	5,008	15%	15%	16%	14%	50%	51%	7,011	$ 105	$ 142	$ 252	$ 264	$ 613	$1,146
Weymouth	No	N/A	E, G	16,132	11%	11%	12%	12%	37%	44%	25,645	$ 79	$ 73	$ 113	$ 116	$ 362	$552
Whately	No	N/A	E, G	682	7%	13%	12%	*	27%	45%	780	$ 75	$ 83	$ 145	*	$ 362	$716
Whitman	No	N/A	E, G	4,387	10%	11%	12%	11%	37%	42%	5,947	$ 83	$ 71	$ 129	$ 145	$ 390	$605
Wilbraham	No	N/A	E, G	5,393	12%	14%	15%	12%	43%	49%	6,323	$ 128	$ 128	$ 165	$ 134	$ 625	$772
Williamsburg	No	N/A	E	1,000	11%	13%	15%	15%	40%	52%	1,858	$ 50	$ 53	$ 110	$ 138	$ 255	$523
Williamstown	No	2022	E, G	2,558	9%	9%	11%	8%	31%	37%	5,007	$ 46	$ 41	$ 65	$ 65	$ 219	$302
Wilmington	No	N/A	G	2,519	7%	9%	12%	8%	27%	45%	8,138	$ 15	$ 29	$ 58	$ 42	$ 102	$247
Winchendon	Yes	N/A	E	3,535	6%	7%	10%	10%	24%	36%	4,058	$ 46	$ 155	$ 133	$ 200	$ 509	$692
Winchester	No	N/A	E, G	7,012	14%	14%	13%	12%	47%	44%	8,201	$ 121	$ 105	$ 178	$ 134	$ 572	$773
Windsor	No	N/A	E	*	*	9%	9%	*	21%	33%	544	*	$ 97	$ 165	*	$ 167	$883
Winthrop	No	2022	E, G	4,655	10%	11%	12%	11%	36%	41%	8,908	$ 130	$ 55	$ 99	$ 91	$ 480	$461
Woburn	No	N/A	E, G	12,202	12%	11%	12%	11%	39%	40%	17,164	$ 126	$ 63	$ 125	$ 205	$ 507	$640

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					2013-2015	2016-2018	2019-2021	2022				2013-2015	2016-2018	2019-2021	2022		
Worcester	Yes	2022	E, G	39,700	10%	10%	12%	11%	35%	42%	87,286	$ 69	$ 63	$ 100	$ 107	$ 330	$472
Worthington	No	N/A	E	584	9%	11%	12%	*	37%	41%	827	$ 45	$ 53	$ 140	*	$ 222	$585
Wrentham	No	N/A	E, G	4,122	11%	12%	15%	12%	38%	49%	5,397	$ 70	$ 97	$ 173	$ 151	$ 397	$775
Yarmouth	Yes	N/A	E, G	16,484	10%	11%	14%	13%	34%	47%	18,540	$ 91	$ 143	$ 192	$ 180	$ 535	$927
Statewide	**N/A**	**N/A**	**E, G**	**1.91 M**	**10%**	**11%**	**12%**	**11%**	**35%**	**42%**	**2.96 M**	**$ 76**	**$ 88**	**$ 122**	**$ 138**	**$ 395**	**$ 601**

APPENDIX D. SUMMARY OF REVISIONS SINCE OCTOBER 16, 2024

This report was originally published on October 16, 2024 (the "October publication"). After publication, some data issues were identified and corrected. These corrections, presented below, resulted in no substantive changes to the findings in the October publication.

This report was revised after discovering a 5% average difference in results between the municipality dashboard page and Appendix C of the October publication. DNV confirmed that the dashboard's calculations are correct and that two items in the report needed updating. These two items involved correcting the double-counting of block groups and updating the number of households, as described below. This revised report also includes statewide results in Appendix C.

Double-counting of block groups

This revised report corrects the double-counting of participating locations and square feet per block group resulting from a Census block group ID changeover in 2020 and an Environmental Justice Community (EJC) definition change.

In the 10-year census, some block group boundaries can change due to growing and shrinking populations. Consequently, a location may have one block group ID before 2020 and a different one post-2020. If such a location participated pre- and post-2020, the analysis in the October publication counted it twice. The updated analysis ensures uniqueness and counts each location only once. This impacts cumulative metrics over the 2018-2020 time frame only.

The dashboard previously updated the EJC status of each block group based on the criteria set by the Massachusetts Office of Environmental Justice & Equity (OEJE)[24] and the census data from that year. This could allow a block group to be categorized as an EJC in one year and not in another. In the October publication, this also resulted in double-counting if a location participated in one year as an EJC block group and in another year as a non-EJC block group. In 2025, with direction from the PAs, DNV updated the dashboard methodology to reflect the static state EJC assignments updated in November 2022, aligning the dashboard with state reporting and preventing any double-counting. The current Nonparticipant Study compared metrics from 2013-2017 and 2018-2022; this update impacts that comparison but has no impact on the prior Residential Nonparticipant Study published in 2020.

Figures related to savings per square foot (sq. ft.) have greater numerical changes; however, the relationships and conclusions drawn from these graphs remain largely the same. The main change is in Figure 4-4, where the gas incentives per sq. ft. are now lower in Hard-to-Reach (HTR) areas than non-HTR areas, which is more consistent with participation and savings patterns elsewhere in the report. There is also a larger gap in electric incentives per sq. ft. between HTR and non-HTR than in the October publication; this larger gap better resembles the gap in delivered fuel incentives shown in Figure 4-3. Double-counting a block group (due to the GEOID or EJC changeover) caused larger changes in sq. ft. numbers because all the square footage in these block groups was overstated.

While these analysis updates impact other block-group-level figures, the changes to the numbers are minimal, with no impact on reported findings.

Updating the number of households

DNV updated ACS households per municipality as part of ongoing improvements to location processing, which included using the latest e911 and Tiger data in October 2024. Additionally, DNV updated total households to include both occupied and vacant households, reflecting a population of all customers who could potentially be served. Because the methodology section lacked an explanation of incentives per total households, this was added to the revised report.

Note that the report uses 2022 households to match the report's timeframe which will result in explainable differences between the municipality dashboard and Appendix C.

[24] https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts

About DNV

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